COMPREHENSIVE
LAND USE PLAN

For Areas Within the Jurisdiction of the
Maine Land Use Regulation Commission

Department of Conservation
Maine Land Use Regulation Commission

Maine has always been proud of its wildlands – the Big Woods, land of Indian and trapper, of white pine tall enough for masts on His Majestys ships, of mountain lion, moose, and eagle. Much of the wildness was still there when Thoreau went in by birchbark canoe, a little over a century ago. And much of it remains. There is spruce and fir, moose and beaver, lake and mountain and whitewater enough to satisfy generations of Americans. More and more, as northeastern U.S. develops, the Maine woods are becoming an almost unparalleled resource, both for tree production and for recreational opportunity. But who is to come forward to say that this resource must not be squandered? Can we guarantee that the next generations will be able to set out in a canoe and know that adventure is just around the bend?

"Report on the Wildlands"
State of Maine
Legislative Research Committee
Publication 104-1A, 1969

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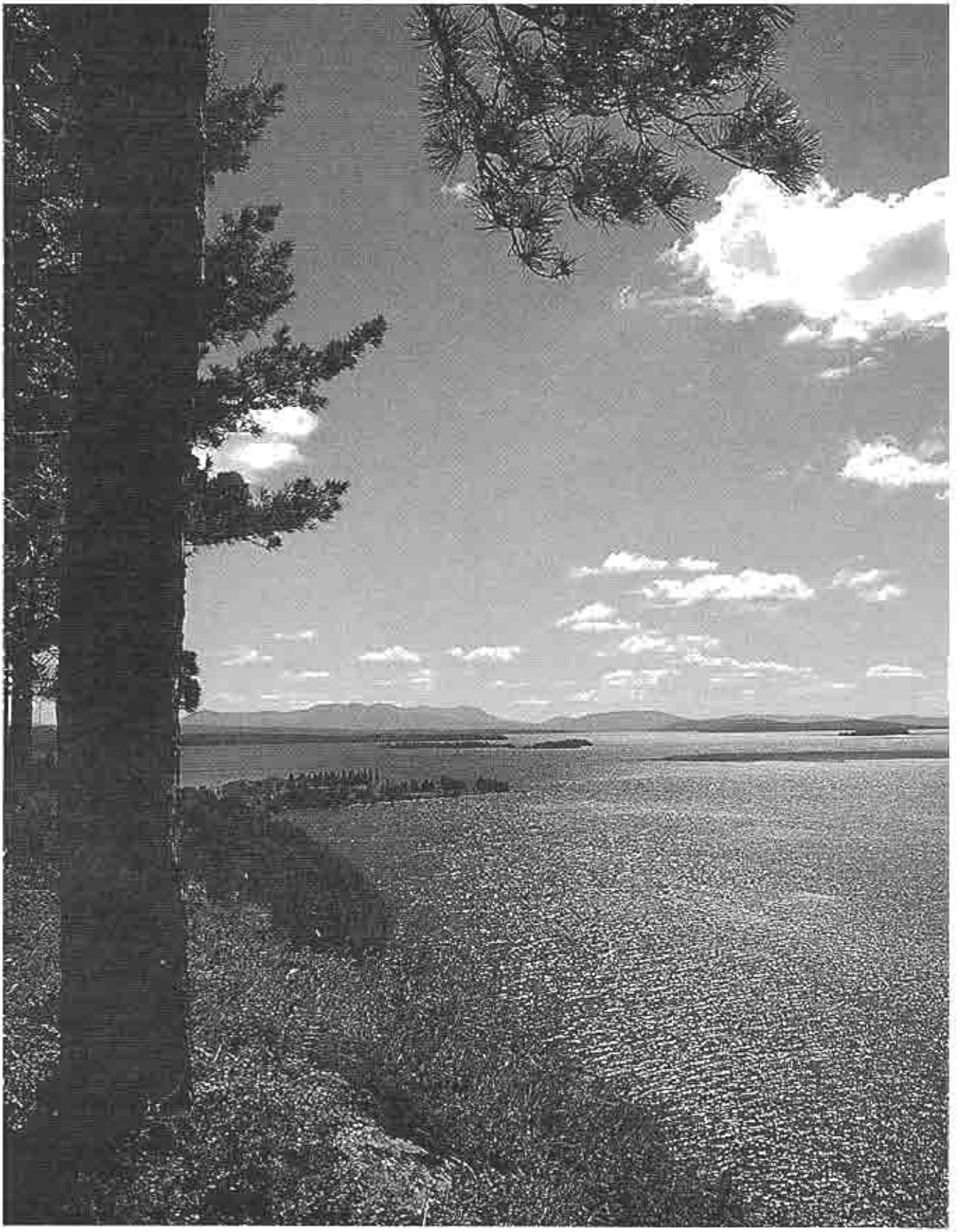
Originally adopted in 1976
Revised in 1983, 1990 and 1997



Moosehead Lake

STATE OF MAINE
OFFICE OF THE GOVERNOR
1 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0001

ANGUS S. KING, JR.
GOVERNOR

March 27, 1997

Land Use Regulation Commission Members
Department of Conservation
22 State House Station
Augusta, Maine 04333-0022

Dear Commission Members:

I am pleased to approve the Land Use Regulation Commission's revised Comprehensive Land Use Plan. Congratulations on a job well done.

I am particularly pleased that the Plan recognizes the need to encourage economic development in appropriate areas as well as to protect the resources in Maine's wildlands. Although it is a difficult task, there is no question in my mind that we need to accomplish both objectives. I firmly believe we have a responsibility to future generations to protect what is special about the wildlands. At the same time, we have a responsibility to provide quality jobs for Maine people. Obviously the timber, energy, and mineral resources of the wildlands will play a key role in our economy in the years ahead.

I am also pleased that the Plan identifies further means for streamlining the permitting process and encourages landowner initiatives and cooperative efforts to accomplish the Commission's objectives.

LURC's record demonstrates that with judicious planning and well reasoned decisions, we can protect special natural values while allowing needed economic growth. I urge you to continue on this responsible course of action in facing the challenges ahead and look forward to working with you to implement this plan.

Sincerely,

Angus S. King, Jr.
Governor

ASK/lsa

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Acknowledgements

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Malachi F. Anderson, Woodland
Mary Beth Dolan, Monhegan Island Plantation
Robert C. Hazelwood, Township 6, ND
Theresa S. Hoffman, Newburgh
Steven O. Mason, Beaver Cove
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Former members of the Land Use Regulation Commission who also provided guidance in the drafting of this revised Plan were:

Charles P. O'Brien, Jackman
Caroline M. Pryor, Mount Desert
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Several public hearings were held around the state during 1996 on previous drafts of this Plan. Several hundred individuals attended these hearings and provided hundreds of pages of written comments. We thank all of those interested citizens.

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TABLE OF CONTENTS

	Page	
Chapter 1: The Maine Land Use Regulation Commission	1	1
Chapter 2: The Jurisdiction and Its Residents	15	2
Chapter 3: Natural and Cultural Resources	21	3
Agricultural Resources	21	
Air Resources	23	
Coastal Resources	26	
Cultural, Archaeological and Historical Resources	34	
Energy Resources	39	
Forest Resources	41	
Geologic and Mountain Resources	52	
Recreational Resources	60	
Special Natural Areas	76	
Water Resources	79	
Wetland Resources	89	
Wildlife and Fisheries Resources	92	
Chapter 4: Development	97	4
Inventory of Land Use and Development	97	
Evaluation of Development Trends and the Commission's Approach to Development	114	
Development Issues and Recommended Refinements	125	
Chapter 5: Goals and Policies for the Future	133	5
Vision for the Jurisdiction	133	
Goals and Policies	134	
Chapter 6: Implementation	145	6
Statutory Matters	145	
Guiding the Location of Development	146	
Rule Changes	148	
Inventory Needs	151	
Education, Enforcement and Public Assistance	152	
Other Actions	154	
Implementation Schedule	155	
Maps		
Jurisdiction Map	2	
Sample Zoning Map	7	
Distribution of Permits for Building Units, 1971-91	103	

Distribution of Permits for Subdivision Units, 1971-91
Example of Land Division Exempt from Subdivision Review
Example of Land Division Exempt from Subdivision Review 117
Distribution of Permits for Large Lot Land Divisions, 1982-91 123

Appendices 1

A. Definitions
B. Rivers With Special Protection Zoning
C. Land Use Regulation Commission's Lake Management Program
D. LURC Permitting Statistics
E. Land Use Regulation Commission's Policies Concerning Deer Yard Issues
F. Plantations and Towns in the Jurisdiction
G. Fastest Growing Communities in LURC Jurisdiction, 1971-91
H. Sources

Natanis and Long Ponds

Chapter 1

The Land Use Regulation Commission

Introduction

The Maine Land Use Regulation Commission (LURC or the Commission) was created by the Maine Legislature in 1971 to serve as the planning and zoning authority for the state's plantations and unorganized areas[1].

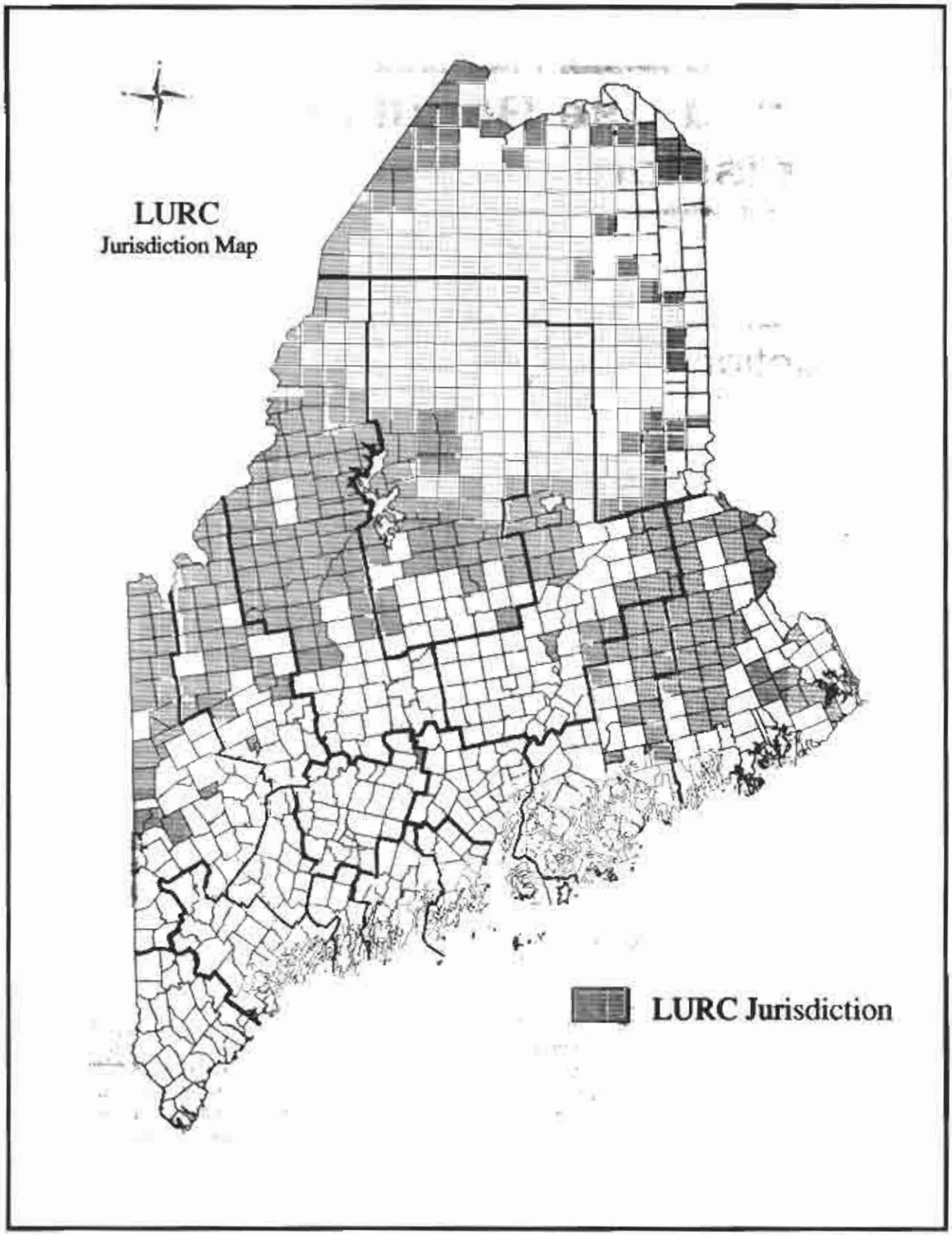
The Commission was established primarily in response to a recreational building and land development boom in these areas during the late 1960's. Its purpose in these areas is to extend the principles of planning and zoning; to preserve public health, safety, and welfare; to encourage the well-planned, multiple use of natural resources; to promote orderly development; and to protect natural and ecological values. The Commission has land use regulatory jurisdiction over these areas because they have no form of local government to administer land use controls or, if they have local government, they choose not to administer land use controls at the local level. The jurisdiction is a diverse area which includes several coastal islands and stretches from the downeast across to the western mountains and up to the Canadian border. This area encompasses more than 10.4 million acres, over half the state.

While the more undeveloped portion of the jurisdiction is often referred to as wilderness by recreationists or those promoting recreation in the jurisdiction, this area is not wilderness by strict definition. To visitors, much of this area may seem like wilderness compared to most of the rest of the Northeast. For those living or working in or near the mainland portion of the jurisdiction, however, logging roads and active timber harvesting clearly identify the region as a managed forest important to the forestry industry and segments of the recreation industry in the state. Historically, much of this area has been referred to as the "wildlands" or the "North Woods" of Maine.

In 1971, and still today, the responsibility of guiding land use in these areas represents a unique challenge. The jurisdiction encompasses the largest, contiguous undeveloped area in the Northeast. The most striking features of the area are the forest – diverse in appearance because it is so actively managed for timber – and the general absence of development. The natural world dominates the region, and the landscape is made intriguing by high mountains, pristine lakes and streams, wetlands, and abundant wildlife. Settled areas, and many of the conveniences of modern life, are generally a long distance away. While the area has an extensive private land management road network, it has few public roads and is sparsely populated. Most development is concentrated along the fringe of the jurisdiction, adjacent to more populous areas where services are more accessible.

The North Woods have always possessed a powerful mystique. Residents and visitors alike place a premium on the natural values they find there. Even those who never visit the area value its uniqueness and consider it part of the state's identity.

[1]The Commission's jurisdiction now includes several towns which have organized and chosen not to assume local land use controls and, thus, remain within the Commission's jurisdiction.


LURC
Jurisdiction Map
LURC Jurisdiction

Commission Meeting

Structure and Function of the Commission

The Commission and Staff

The Commission is a seven-member, independent board appointed by the Governor and confirmed by the Legislature. While administratively, LURC is a bureau within the Department of Conservation, under the law the Commission has independent policy- and decision-making authority. The Commission has ultimate responsibility for rules, adjudications, policies and other agency decisions. These responsibilities include considering and adopting new rules and amendments to the comprehensive plan, acting on zoning petitions and important permit applications, acting as an appellate board to hear appeals of staff decisions on more routine permit applications, ratifying the administrative resolution of enforcement actions, and setting other agency policies. The Commission meets monthly to consider business pending before it, and holds public hearings as needed. Commission members hold staggered, four-year terms. Each of four members of the Commission must be knowledgeable in one of the following fields: forestry, fish and wildlife, commerce and industry, and conservation. At least two Commission members must be residents of the Commission's jurisdiction.

A small staff carries out administrative, operational, and other functions of the Commission. As the primary instrument of the Commission, the staff carries out its responsibilities guided by the Commission's policies. The staff operates under the supervision and oversight of a Director, who is appointed by the Commissioner of the Department of Conservation with the approval of the LURC Commission members. The Director acts on routine permit applications delegated to staff by the Commission, and is responsible for staff recommendations to the Commission on matters that

come before it. While the Director reports and is responsible to the Commission in executing the Commission's policy decisions, the Director also reports and is responsible to the Commissioner of the Department of Conservation in connection with administrative matters affecting the agency. On those matters where these responsibilities may overlap, the Director provides a bridge of communication between the Commission and the Commissioner of the Department, and keeps the Commissioner informed concerning the Commission's work.

The staff of the agency is organized into two operational divisions: Planning and Administration, and Permitting and Compliance. Planning and Administration is staffed by the Division Manager, a resource administrator, several planners, and clerical staff. This division coordinates the development of overall land use policy for the jurisdiction and provides primary administrative support to the Commission and the staff, including scheduling Commission meetings and hearings. Its responsibilities include advising the Commission on zoning approaches, tracking natural resource and other information, researching and analyzing issues, developing policies, revising and updating the Comprehensive Land Use Plan, zoning maps, and land use standards and other rules, and assisting in the review of major projects. The division also directs LURC's educational efforts, including public outreach workshops and publications, updates operational procedures, coordinates legislative activities, and frequently represents the Commission on interagency matters.

Much of the planning staff's work involves identifying and researching emerging issues and developing appropriate responses. Examples of this work include the innovative lake management program adopted in 1990, the deeryard study and associated program changes adopted in 1991, and comprehensive mining regulations adopted in 1992. The planners also oversee the preparation of resource plans which enable specialized management of unique features or resources and provide greater flexibility to landowners.

The Permitting and Compliance Division is staffed by the Division Manager, project analysts, and compliance officers. A primary function of the division is to process and review applications for the various types of development and rezoning activities that require a permit in LURC jurisdiction. The staff also provides on-site assistance, conducts inspections, and enforces LURC regulations through a program of compliance checks of approved projects and regular monitoring of activity in the jurisdiction for potential violations. The Division staff processes over 1,000 applications each year, including applications for building permits, development permits (commercial and industrial development), subdivision permits, rezoning petitions, forestry permits, variance requests, and other specialized permits (e.g. hydropower, utility line, stream alteration). The staff is delegated the authority to approve or disapprove routine permit applications, but all rezoning changes and variance requests must be acted on by the Commission based on information provided by the staff.

The Commission has strengthened its commitment to facilitate its permitting and compliance activities by establishing a staff presence in regional offices to better serve applicants. It now has a total of six regional offices located in Ashland, Greenville, Jonesboro, Millinocket, Rangeley and Moscow. Each office is staffed by a compliance officer, who is joined regularly by a project analyst during the building season. The Permitting and Compliance Division also carries out educational activities, including training contractors, loggers, and others in appropriate land use practices.

Commission Responsibilities and Regulatory Framework

The Land Use Regulation Law, the Commission's enabling statute, directs the Commission to plan, zone, implement land use standards, review permits, and carry out associated responsibilities. In practice, the Commission is similar to a local planning board except that the area of its responsibility is vast in comparison to municipalities. In essence, it plans regionally and implements locally.

In accordance with its enabling statute, the Commission has established zoning districts, many of which are resource-based, to protect important resources and prevent conflicts between incompatible uses. These zoning districts identify what types of activities are appropriate and allowed in each zone.

Zones are grouped into three general categories: Management zones, Protection zones, and Development zones. Management zones are applied to areas which are appropriate for commercial forest product or agricultural uses and for which future development is not anticipated.

Protection zones are applied to areas where land use activities may jeopardize significant natural, recreational, or historical resources. Development zones are applied to areas having patterns of intensive residential, recreational, commercial, or industrial use, including commercial removal of minerals or other natural resources, and areas identified as appropriate for designation as development districts. The Commission has established five Development Subdistricts, three Management

Protection Zones:

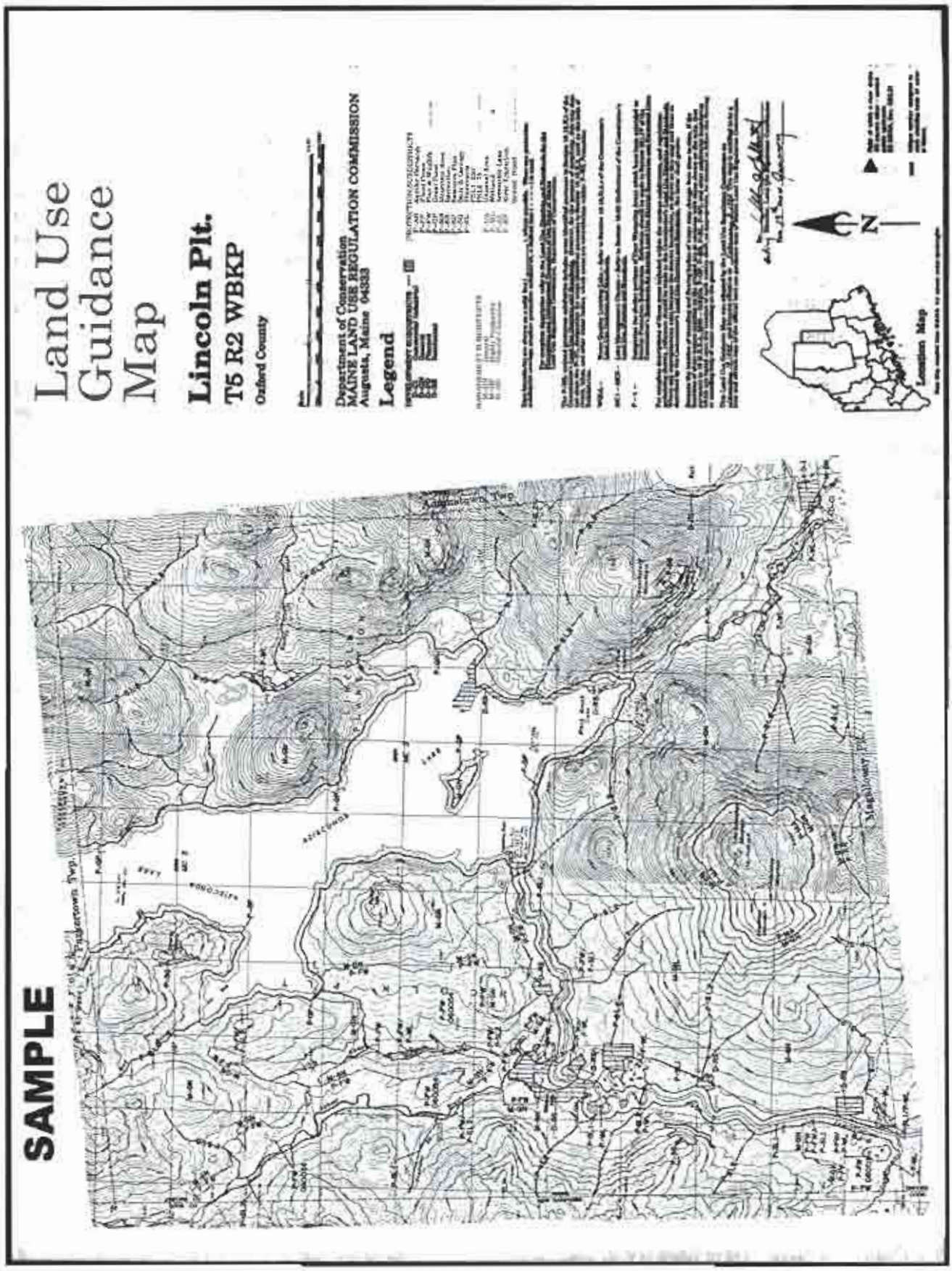
Wetland Zone (P-WL)	**Encompasses all submerged lands and other areas meeting wetland criteria.**
Great Pond Zone (P-GP)	**Applies to a 250 foot wide strip around all lakes and ponds greater than 10 acres in size.**
Wildlife Habitat Zone (P-FW)	**Covers important deer winter shelter areas, coastal seabird nesting sites and other significant fisheries and wildlife habitat.**
High Mountain Area Zone (P-MA)	**Covers all mountainous areas above 2,700 feet elevation.**
Recreation Zone (P-RR)	**Covers areas along existing hiking trails and significant canoeing rivers as well as around unspoiled, remote fishing ponds and other areas of recreational significance.**
Soils and Geology Zone (P-SG)	**Covers areas of steep slopes and unstable soils.**
Flood Prone Zone (P-FP)	**Covers areas within the 100 year frequency flood.**
Aquifer Zone (P-AR)	**Covers important ground water resources.**
Unusual Area Zone (P-UA)	**Applies to unusually significant scenic, historic, scientific, recreational and natural areas not adequately protected by other zoning.**
Resource Plan Zone (P-RP)	**Permits landowners to develop their own resource management plan for an area and, if approved by the Commission, allows land use activities in accordance with such plan.**
Shoreland Zone (P-SL)	**Protects shorelands of rivers and streams, ocean, and small ponds.**
Special River Transition Zone (P-RT)	**Applies to developed shorelines on outstanding river segments in areas of the jurisdiction adjacent to organized towns.**
Accessible Lake Zone (P-AL)	**Protects accessible, undeveloped, high value lakes.**

Development Zones:

Residential Development Zone (D-RS)	**Covers areas around existing patterns of residential development.**
General Development Zone (D-GN)	**Covers areas around existing patterns of mixed, residential and small scale, commercial development.**
Commercial and Industrial Development Zone (D-CI)	**Covers areas around existing patterns of major commercial or industrial development.**
Planned Development Zone (D-PD)	**Provides for special planned developments.**
Maritime Development Zone (D-MT)	**Provides for working waterfronts in coastal communities.**

Management Zones:

General Management (M-GN)	Covers the residual of LURC jurisdiction, where forest and agricultural activities are allowed and encouraged without significant restriction.
Highly Productive Management (M-HP)	Identifies highly productive agricultural or forest lands.
Natural Character Management (M-NC)	Maintains large areas for forestry and primitive recreation with minimal development.


SAMPLE
Land Use Guidance Map
Lincoln Plt.
T5 R2 WBKP
Oxford County
Department of Conservation
MAINE LAND USE REGULATION COMMISSION
Augusta, Maine 04333
Legend
Adamstown Twp.
Location Map
N

Subdistricts, and 13 Protection Subdistricts, listed and described in the preceeding table.

Interim zoning was first established for areas in LURC jurisdiction during the 1970's. Permanent zoning maps were finalized and adopted between the late 1970's and early 1980's. Today, the Commission administers a land use zoning program for 450 townships, plantations, and organized towns and 306 coastal islands. Approximately 18% of the jurisdiction lies in Protection Subdistricts, 2% in Development Subdistricts, and 80% in Management Subdistricts.

The Commission has established standards to ensure that land uses and development will not have an undue adverse effect on resources and existing uses. These standards, first adopted in 1977, address considerations such as minimum lot size, building setbacks from water, timber harvesting practices near waterbodies, and clearing of vegetation in the shoreland zone. LURC's zones and land use standards are contained in Chapter 10 of the Commission's regulations, Land Use Districts and Standards.

The zones and land use standards are administered principally through permit review and notification procedures. Permit review is the process of reviewing a proposed activity to ensure that it meets the Commission's zoning and land use standards. The LURC statute stipulates that all development activities require a permit unless expressly exempted by statute or LURC regulations. The Commission reviews over 1,000 permit applications every year, including permits to build individual camps, create subdivisions, and construct large, commercial developments. Notification procedures apply to certain land management activities, such as timber harvesting, which may be conducted without a permit provided notice is given to the Commission and certain standards are followed. The Commission receives approximately 1,200 notifications each year.

The zones and land use standards are the primary mechanism for implementing the Commission's broad goals and policies. These goals and policies, and much of the information on which they are based, are contained in the Comprehensive Land Use Plan, the Commission's primary policy document.

Zoning, land use standards, and the permit review process are the primary tools provided to the Commission by the legislature for carrying out its statutory mandate. These tools are accepted as a reasonable and appropriate means of protecting the public interest and guiding growth and development.

The Commission recognizes that these regulatory tools can affect land value, both positively and negatively. The Commission is committed to exercise its authority fairly and responsibly, and to consider the interests of the landowner within the framework provided by its legal mandate. There may be disagreements about the reasonableness and fairness of specific regulatory actions, but the Commission is committed to considering all sides of these issues.

The Commission complements its regulatory program with efforts to educate the public about appropriate, well-planned uses of land. Toward this end, the Commission conducts outreach workshops and develops and distributes publications about its programs.

Landowner Initiatives and Cooperative Efforts

Of necessity, in its early years the Commission focused on setting up appropriate regulatory programs in accordance with its statutory mandate. Nevertheless, it has always recognized the value of cooperative approaches to the protection of important resources and values, and has provided opportunities for such cooperation.

Over the years, numerous landowners have utilized the Resource Plan Protection Subdistrict (a landowner-initiated zone) as a more flexible alternative to LURC's traditional zoning framework. During the 1980's, several major landowners cooperated with the Commission on a small streams mapping project to improve the accuracy of LURC zoning maps. In the early 1990's, a number of landowners developed or considered landowner-initiated concept plans that address the long-range development and conservation of a large block of land in a manner that accomplishes both Commission and landowner objectives.

The Commission recognizes that many actions taken by landowners advance its objectives. Examples include the following:

- Great Northern Paper, Inc. has several "remote recreation areas" where recreational vehicular access is limited to maintain traditional uses and remote character. For

example, a large area comprising about 50,000 acres and 30 lakes and ponds in the Debsconeag Lakes region is managed as a remote recreation area.

- Project SHARE, a voluntary association of landowners, businesses, government officials, educators, and conservation organizations, takes actions which conserve or enhance Atlantic Salmon habitat and populations in the Downeast region of Maine.
- Several major landowners have developed long-term management agreements with the Department of Inland Fisheries and Wildlife, establishing protection for deer wintering areas that goes well beyond areas protected by the Commission's zoning.
- A large tract in the Rangeley area was protected from development but retained for timber production and other purposes by selling the development rights under the federal Forest Legacy Program.

Many other examples of cooperative, nonregulatory initiatives exist. The Commission strongly encourages landowners to take advantage of the flexibility and creativity available through nonregulatory measures as well as optional regulatory tools such as concept plans.

The Commission's Constituency

The Commission differs from a local planning board in that its jurisdiction extends over multiple townships, plantations and towns. In organized communities, planning boards are ultimately responsible to the town's legislative body – usually either town meeting or municipal councils. The Commission, on the other hand, is ultimately responsible to the people through their legislators and governor.

The powers and functions given to LURC under state statute are declared to be "in the public interest, and for the public benefit and the good order of the people of this state." The statute charges the Commission with "encouraging appropriate use of these lands by residents of Maine and visitors, in pursuit of outdoor recreational activities..."

In light of this statutory language, the Commission has historically viewed its constituency broadly. In making land use decisions affecting particular communities, the Commission strives to be sensitive to the concerns of local residents. But this is not its sole constituency. Many property owners within the Commission's jurisdiction do not actually reside there. Residents of organized areas

St. John River Resource Plan Advisory Committee, Annual River Trip, 1997

may work in the jurisdiction, or have economic ties to the region and its resources. The recreating public also has a strong interest in the jurisdiction. In public forums concerning planning, zoning and permitting, the Commission strives to balance the concerns of these various constituencies.

LURC's Relationship to State Agencies and Other Governmental Entities

The Maine Land Use Regulation Commission is the primary agency responsible for land use planning and resource protection within its jurisdiction, but several other state agencies administer statutes which deal, directly or indirectly, with land and resource use throughout the state. A number of agencies have limited jurisdiction over specific resources or types of land use in LURC jurisdiction. In most cases, their responsibilities are distinctly different from LURC's responsibilities.

DEPARTMENT OF ENVIRONMENTAL PROTECTION:

The Department of Environmental Protection (DEP) administers a broad range of environmental protection and pollution control regulations governing activities that affect natural resources. DEP's Bureau of Land and Water Quality administers the Site Location of Development Law and the Natural Resources Protection Act which, under some circumstances, apply to activities and lands within the Commission's jurisdiction.

Although DEP is responsible for reviewing specified large projects elsewhere in the state, in LURC jurisdiction, DEP authority under the Site Location Law is limited to metallic mineral mining, for which DEP and LURC jointly administer specialized rules.

The Maine Waterway Development and Conservation Act authorizes a single permit for hydropower projects. LURC or DEP is the permitting agency, including water quality certification, for proposed hydropower projects located wholly within the area of each agency's jurisdiction the permitting agency is determined on a case-by-case basis where a proposed project overlaps both jurisdictions. DEP issues water quality certifications for federal relicensing permits for existing dams in the state, including such permits within the Commission's jurisdiction.

The Natural Resources Protection Act (NRPA) directs DEP to protect significant natural resources such as rivers, lakes, fragile mountain areas, wetlands, significant wildlife habitat, and coastal sand dunes. This responsibility originally extended to all activities, statewide, which had the potential to adversely affect significant natural resources. However, under direction from the Legislature, the Commission must review and revise its standards to make them consistent with NRPA so that activities in the Commission's jurisdiction will be exempted from that Act.

The Department of Environmental Protection is also responsible for setting water levels on dam-controlled lakes and ponds within the Commission's jurisdiction, except those permitted under the Maine Waterway Development and Conservation Act.

DEPARTMENT OF HUMAN SERVICES:

The Department of Human Services oversees the administration of a statewide plumbing code. LURC is not involved in the administration of the plumbing code, most of which is done by locally designated plumbing inspectors, but LURC staff usually check permit applications for consistency with plumbing code requirements. The Department of Human Services is also responsible for licensing all public water supply systems, defined as any system serving 25 or more people.

MAINE FOREST SERVICE:

The Maine Forest Service administers the Forest Practices Act, which regulates certain aspects of timber harvesting practices. Under this program, the Forest Service monitors forest management activity through reporting requirements and administers standards for forest regeneration and clearcutting.

DEPARTMENT OF INLAND FISHERIES AND WILDLIFE:

The Department of Inland Fisheries and Wildlife (IF&W) administers the Maine Endangered Species Act, which affects activities in certain locations in LURC jurisdiction. IF&W has mapped "essential habitat" – areas essential to the conservation of an endangered or threatened species. Any activity proposed in these areas that requires a permit or license from a state agency or municipality also requires a determination by IF&W that

the activity will not significantly alter or unreasonably harm the essential habitat.

Except for activities affecting essential habitat, IF&W generally functions as an advisor to LURC, providing technical assistance to the Commission but having no permitting authority itself. IF&W supplies LURC with information about the location of important wildlife and fisheries habitat, including deer wintering areas, coastal nesting sites, and remote ponds, so that the Commission can consider them for protective zoning. IF&W also reviews permit applications upon request, evaluating whether proposed activities may adversely affect fisheries or wildlife, and submitting comments and recommendations to the Commission.

OTHER AGENCIES:

A number of agencies, including IF&W, serve as "review agencies" for permit applications. These agencies review permit applications for impacts based on their area of expertise. For example, the Maine Historic Preservation Commission evaluates impacts on historical and archaeological sites, DEP assesses the impact of large subdivisions on lake water quality, and the State Soil Scientist evaluates erosion control measures and soil suitability. The comments and recommendations of these agencies are advisory. Ultimately, the Commission considers the information and makes a decision as to the significance of natural and cultural resources and the impact proposed activities will have on them.

County and local governments also review permit applications for projects proposed within their jurisdictions. County Commissioners and town and plantation officials generally evaluate proposals for potential impacts on regional or local facilities and services.

Federal involvement in land use regulation within the jurisdiction is limited mainly to Army Corps of Engineers jurisdiction over wetlands. The state is also participating in an on-going federal effort to control nonpoint source pollution. In Maine, this effort is coordinated by the Department of Environmental Protection and the State Planning Office. The main focus of this effort is development and implementation of best management practices (BMPs) for activities which generate nonpoint source pollution, such as agriculture, forestry, and development. The BMPs are advisory.

The Commission – Past, Present and Future

Since its creation in 1971, the Commission has accomplished a great deal:

Over 500 zoning maps, covering 10.4 million acres, have been created for the 450 townships, towns, and plantations within LURC jurisdiction. New zoning maps are currently being developed from improved base maps.

The Comprehensive Land Use Plan, first adopted in the mid-1970's, establishes policies to guide the Commission's work. This 1997 document represents the third complete review and update of the plan and is designed to ensure that the Commission's policies are appropriate in the context of changing conditions and priorities.

The Land Use Districts and Standards, first adopted in 1977, contain the Commission's zoning and land use standards. This document has been revised periodically to improve the standards and to respond to the changing needs of the jurisdiction. In particular, extensive streamlining changes were made in 1988 with the intent of reducing the regulatory burden to landowners while maintaining a high level of environmental protection.

In the late 1970's, the Commission prepared six *Land Use Handbooks* aimed at educating the Maine public about land use planning and design. These handbooks won the Meritorious Program Award from the American Planning Association.

- In the early 1980's, the Commission developed guidelines for erosion control on forestry operations. These guidelines subsequently became the model for the best management practices for forestry that were developed for the entire state in 1995.
- In 1987, the Commission and DEP adopted joint hydropower regulations to facilitate administration of the Maine Waterway Development and Conservation Act.
- In 1988, LURC established regional offices, adding three more in the mid-1990's. There are now offices in Ashland, Greenville, Jonesboro, Millinocket, Rangeley, and Moscow. These offices dramatically improve

the Commission's ability to provide on-site assistance and ensure compliance with its standards, and create new educational opportunities.

A comprehensive lakes management program was developed following years of inventory and study of 1,500 lakes in LURC jurisdiction. In 1990, this program was implemented through adoption of a lake classification and management program designed to guide development to suitable lake locations and away from inappropriate locations. Legislation was subsequently passed in 1992 establishing the Great Pond Task Force. Among its charges was a directive to develop a great pond classification system for the rest of the state which was to be consistent with the Commission's classification system.

A comprehensive review of the deer wintering area program was completed and changes to the program were adopted in 1991. The fundamental structure and function of the program was unaltered, but the program was improved by defining its scope and improving the basis for decision-making.

In 1991, comprehensive metallic mineral mining rules were adopted jointly with DEP. They included technical rules pertaining to exploration and mining activities and revisions to the Standards which allow the rezoning of areas associated with mining activities.

In 1992, *A Guide to Creative Site Planning in the Unorganized Areas of Maine* was prepared to provide pre-application guidance on site/development design to those persons who intend to subdivide and develop land in the Commission's jurisdiction.

A number of special resource protection plans have been developed jointly with landowners to both meet the resource protection objectives of the Commission and provide a maximum amount of land management flexibility for landowners. These include resource plans for Dix Island (1977), Hewett Island (1978), Penobscot River (1981), St. John River (1982, renewed 1992), White Mountain National Forest (1982, renewed 1992), and Metinic Island (1992,1994).

In 1993, the first concept plan was approved for a 17,000-acre area in Attean Township and Dennistown Plantation. This plan received the planning project of the year award from the Maine Association of Planners. The concept plan is an innovation that fulfills the Commission's goals of encouraging landowner-initiated, long-range, natural resource-based planning as an alternative to incremental development.

- Planning assistance has been provided to 10 plantations or towns that were originally within the Commission's jurisdiction so that they could prepare their own plans and regulations to be administered locally. The Commission also worked with residents of the deorganized towns of Benedicta and Greenfield to prepare zoning maps for these townships when they entered the Commission's jurisdiction. The maps serve as the basis for Commission decision making in those townships.
- Planning assistance was also provided to Monhegan Plantation in 1991 to prepare a land use and natural resource inventory and analysis report to assist the Commission and Plantation officials in carrying out their respective responsibilities for that community. Commission staff also assisted Monhegan in applying for and receiving a grant to improve public facilities on the Island.
- In 1994, the Commission developed conservation easement holder guidelines and a model conservation easement to serve as the basis for easements that may come before the Commission for approval as part of regulatory actions.
- Each year, the Commission has acted upon hundreds of applications for development and other land use activities, approving the vast majority (over 90%). These permits are often approved with special conditions to prevent environmental degradation.

As evidenced by its history of accomplishment, the Commission's focus has shifted over the years in response to changing needs and new challenges. In its first decade, the Commission developed a planning and zoning framework for the unorganized areas, implemented interim zoning over its jurisdiction, and established its major natural resource and development policies. In its second decade, with its regulatory framework in place, the Commission turned to fine-tuning its standards and addressing emerging issues. The major issues of this period were the spruce budworm outbreak, debate over conservation versus

use of rivers, and, in the latter years, significant changes in the amount and nature of development activity occurring in the jurisdiction.

The surge in development activity associated with the land and real estate boom of the late 1980's commanded the Commission's attention in the early 1990's. Even though the real estate boom has subsided, it highlighted changes in the forces affecting land and resource use in the region since the Commission was created in 1971. Demand for residential development is continuing at a steady rate, corporate priorities and forestry operations are changing, and land ownership patterns are shifting.

An unprecedented amount of forestland changed hands during this period. These land transactions were especially of concern because they came at a time when forestland was being viewed, for the first time, as an increasingly valuable commodity for nonforestry uses. Even though much of the acreage remained in forestry use, the growing volume of land transactions and increase in use of land for development rather than forestry purposes shook the traditional vision of the region as one of stable ownership and land use patterns.

The jurisdiction has experienced periods of active land trading and speculation in the past, but these transactions always involved large parcels of land, the future use of which was not limited or predisposed by size. The real estate boom of the late 1980's included many smaller parcels, use of which is more limited, with significant implications for future land use patterns.

The 1980's indicated that there is a high level of interest in land and housing in remote regions of the state. This interest has continued to manifest itself in the form of continued development proposals into the 1990's. The Commission's review of development proposals in the early 1990's has been dominated by questions of appropriateness in terms of location, scale, and relation to existing uses and resources.

Chapter 2

The Jurisdiction and Its Residents

Maine is the largest and least densely populated state in New England, with most of its population concentrated in southern and coastal portions of the state, and in a broad band along Interstate 95. The area under LURC jurisdiction generally encompasses the least populous, least developed portions of Maine, most of which lie in western, eastern and northern parts of the state. This 10.4-million acre area encompasses the largest block of undeveloped forestland in the Northeast – larger than Massachusetts, Connecticut, and Rhode Island combined – and it is largely free of the state routes and populous communities that intersperse the only comparable area, New York State's six-million acre Adirondack Park.

The LURC jurisdiction is a unique natural area with a distinct character. Links to the past remain strong, and the area's natural resources continue to shape its use and value in the future, with forestry and recreation remaining dominant uses. While much of the land is actively managed for timber, many areas are left undisturbed for 10 to 80 years at a time. While clearly not a virgin forest, the region is largely undeveloped and parts of it remain relatively inaccessible due to distance and poor travel conditions. Its clean air and water, diverse natural communities, and abundant wildlife draw thousands of seasonal residents and outdoor enthusiasts each year.

Description of the Jurisdiction

Civil Divisions

Three different types of minor civil divisions exist within the jurisdiction: townships, plantations, and towns. The majority (410) are "unorganized" townships which comprise almost 90% of the area of the jurisdiction. While some townships are situated in fringe areas, most are located in the vast interior areas of the jurisdiction. Townships have no form of local government. Property taxation is administered by the state, and services normally provided by local government are funded by the state and contracted for by the state and county government.

There are currently thirty-two plantations and eight organized towns within the jurisdiction. Most are located near the fringe of the jurisdiction. While towns and plantations have the prerogative to regulate land use locally, these towns and plantations have chosen to remain within LURC jurisdiction and authority.

Plantations are similar to towns in terms of organization and procedures, but their responsibilities and authority are more limited in scope. The eight towns presently within the jurisdiction all organized since LURC was established in 1971. Town government in these communities is no different from that in other Maine towns, except jurisdiction over land use control remains with LURC.

Portions of twelve different counties are located in the LURC jurisdiction. The bulk of the jurisdiction is within eight counties: Aroostook, Penobscot, Somerset, Piscataquis, Washington, Franklin, Oxford and Hancock Counties. Single plantations or townships are located in Lincoln, Knox, Sagadahoc and Kennebec Counties. In the unorganized townships, county governments pro-

vide or coordinate a number of basic services, including road maintenance and public safety.

A list of the towns and plantations in the Commission's jurisdiction is located in Appendix F.

2

Geographic Regions

The jurisdiction is defined by political boundaries that create an irregularly shaped area not easily classified into separate regions. Nevertheless, it is helpful to view the jurisdiction as being comprised of at least four regions: (1) the Northern area, (2) the Western Mountains, (3) the Downeast area and (4) coastal islands.

The Northern area is the largest and generally most remote of these regions. It is comprised of the northern sections of Somerset, Piscataquis and Penobscot Counties, and most of Aroostook County except for populated areas tc the east and north. For the purposes of analyzing demographic trends, this area has been further subdivided into a Central Region – comprised of areas near Moosehead Lake and Millinocket – and Aroostook County. But geographically, this region is an unbroken expanse that is viewed by many as the true "North Woods."

The Western Mountains are located in the southwest portion of the jurisdiction, and include both the Rangeley Lakes and the Carrabassett Valley area. The area is comprised of large portions of Oxford and Franklin Counties, and shares its western border with New Hampshire and Canada.

The Downeast area is a distinct region that is located entirely to the east of Interstate 95. It is comprised of large portions of Washington County, and portions of Hancock County as well. Only two of the townships in this region actually have frontage on the coast.

The 308 coastal islands within the jurisdiction are widely scattered: the southernmost ones are located west of Bristol, the northernmost in the Lubec area. The two islands with year-round populations – Monhegan and Matinicus Plantations – are located in Lincoln and Knox Counties, respectively.

Several townships within the jurisdiction are surrounded by organized areas and are isolated from any of the above-described regions. Examples include Unity Township in Kennebec County, Albany Township in Oxford County and Argyle Township in Penobscot County.

Physiography

The jurisdiction is a quietly spectacular land of high mountains, vast forests, swift streams and major rivers, expansive lakes and jewel-like ponds, and a host of unique natural areas. Despite the signs of human activity evident in settlements, logging roads, harvested areas, and skid trails, the natural world remains the dominant presence here, and its features have long played an important role in the state's cultural and economic heritage.

The area spans several physiographic regions, and encompasses lands of considerable physical diversity, including coastal lowlands and islands, river valleys, rolling hills, mountains, and a broad plateau. The terrain ranges from relatively flat to mountainous, with elevations generally above 600 feet. Mount Katahdin, a major landmark in central Maine, marks the northern extremity of the Appalachian Mountain chain, which stretches northeast across the state from the New Hampshire border. These mountains occupy the western part of the jurisdiction, and are flanked to the north by a region of rolling hills which encompasses the watersheds of the St. John and Allagash rivers. An open, gently rolling landscape dominates northeast and central areas of the jurisdiction, and includes some good farming soils. To the southeast, small mountains parallel the Downeast coast, presenting a marked contrast to coastal lowlands.

Water is abundant in the jurisdiction. Over 11,000 miles of rivers and streams flow through the area, including the headwaters of most of the state's large rivers. Some of the larger rivers – the Penobscot, Kennebec, Androscoggin, and St. John – have important historic and cultural values because of their roles in settlement and the economy. For centuries, these rivers served as the lifelines of interior settlements, provided transport for raw materials, and supplied unlimited power to industry. Today, they continue to provide hydropower, as well as fisheries habitat and recreational opportunities. The extensive river systems in the jurisdiction are generally the most pristine in the state, and provide some of the best remote canoeing experiences in the Northeast.

Past glacial activity has left the region with a profusion of lakes. Over 3,000 lakes and ponds dot the landscape, providing a total of over 680,000 acres of surface water. These waterbodies range from ponds of less than an acre to Moosehead Lake, the state's largest lake spanning over 74,000 acres. The vast majority of these lakes have excel-

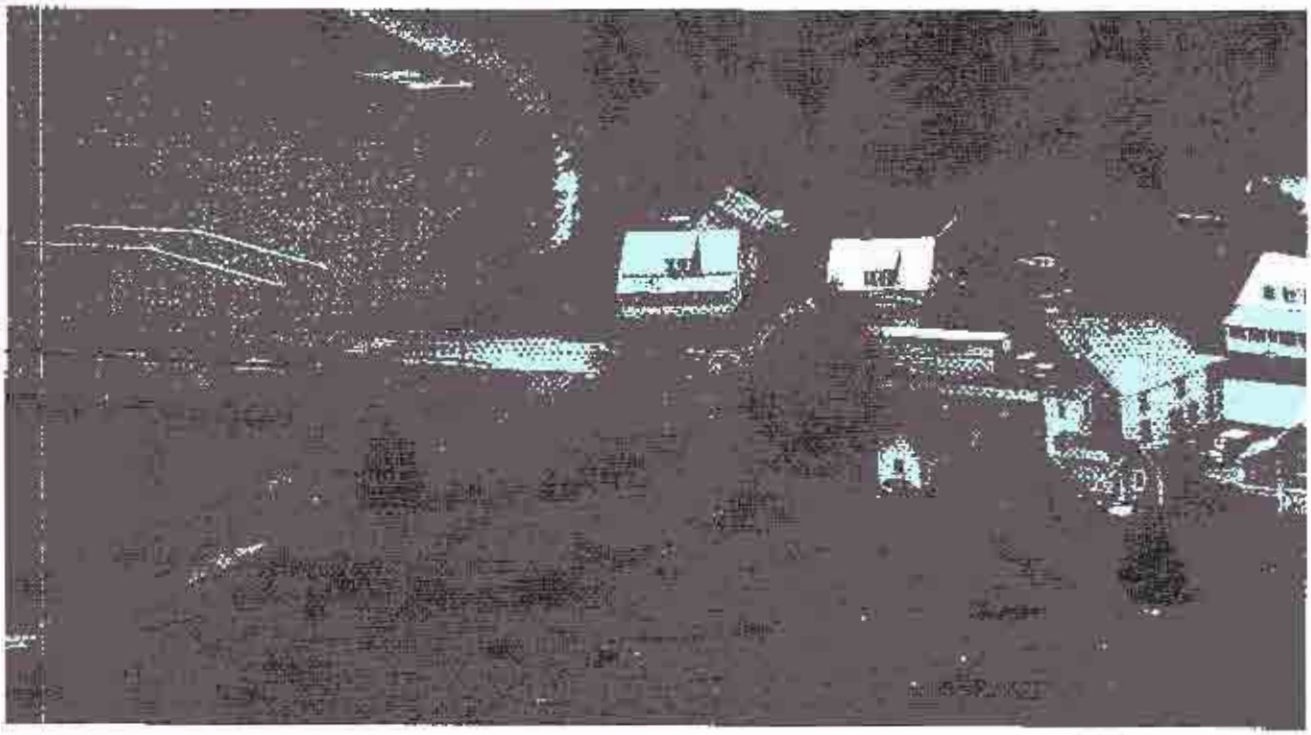
lent water quality and are a significant recreational resource. The jurisdiction contains a diverse array of lakes, but the most highly treasured are its remote ponds – inaccessible, undeveloped lakes which offer a remote recreational experience which is not easily found in the Northeast.

The forest, covering over 95% of the jurisdiction, is central to the region's history, economy, and way of life, and is its defining characteristic. The soils and climate are well-suited to growing trees. Spruce-fir and northern hardwoods are the dominant forest types, both of which are valuable for the manufacture of paper, lumber, and other wood products. The jurisdiction serves as the "wood basket" for the timber industry in the state. The forest is also valued for other reasons, including recreation, wildlife habitat, watershed protection, and biodiversity.

Early Settlement

The region was first inhabited by Native Americans, and many of its features bear the names given to them by these first residents – Passadumkeag, Nesowadnehunk, Caucomgomoc, Mooselookmeguntic, Chesuncook. European explorers came in the 17th century to cut the white pine of coastal areas. Since that time, natural resources have dominated the history of Maine's more remote regions. The first settlements were simply isolated outposts producing fish, fur, and timber for distant markets. It was presumed that, once timber and other resources had been utilized, the northern reaches of the state would eventually be settled for agriculture, but agricultural settlement largely bypassed the jurisdiction for a variety of reasons. Northern Maine's harsh winters and short growing season discouraged many potential settlers, and the discovery of rich soils in the west lured many settlers from the east. Agricultural settlements advanced southward from the St. Lawrence river valley, but, with the exception of the settlements in Aroostook County, were slowed by establishment of the U.S./Canadian border in 1842 by the Webster-Ashburton Treaty.

While these factors discouraged agricultural settlement, the development of the paper-making process using wood cellulose in 1867 precipitated the rise of forest management which, with the existing pattern of large landholdings, solidified the region's attractiveness for natural resource utilization. Since that time, forest management has remained the dominant use of land, as well as the backbone of the Maine economy. Most large landholdings in the north have remained relatively intact since the 1850's. Until the 1980's, changes in ownership were limited, and most land transactions were a product of efforts by large landowners to consolidate landholdings. Today, northern sections



West Forks Plantation

of the state remain dominated by large blocks of industrial forestland intermixed with large blocks of nonindustrial, usually family-owned, forestland. In central parts of the state, closer to the interstate and settled areas, small, nonindustrial ownerships are intermixed with industrial tracts. Only a small portion of the jurisdiction (approximately 550,000 acres or 5%) is publicly-owned.

Settlement patterns in the region are closely linked to resource utilization. The earliest settlements were located along rivers used to transport timber. Later, the paper-producing companies established themselves near the major rivers – convenient sources of power – on the edge of the vast wood supply. Development did not spread much beyond these one-factory towns. Since most land was held in large ownerships and the rivers provided a mode of transport for logs, there was little impetus for developing roads and other infrastructure that might have spurred settlement.

Development

The jurisdiction in 1996 continues to be distinguished by a lack of public roads and infrastructure. A handful of state routes pass through sections of the jurisdiction, but none passes through the heart of it. Nevertheless, the region has become more accessible over the years. The first dramatic change came with the construction of logging roads in the 1960's and 1970's as use of the rivers for log transport was phased out. Thousands of miles of haul roads have been constructed since 1971, many of which are maintained on a permanent basis. These roads opened up areas that were previously accessible only by canoe or by foot.

The publication of maps showing the region's extensive logging road network has further increased accessibility and public use. Some roads are gated or blocked to prevent their use by recreationists, although the majority of roads are open to the public. Thousands of people now use these roads to take advantage of the wide variety of recreational opportunities, including fishing, hunting, hiking, camping, whitewater canoeing and rafting, snowmobiling, and skiing. Water-related recreation and associated shoreline development are increasing, along with other forms of recreation such as downhill skiing and motor home camping.

The most common form of development in the jurisdiction is residential development. Types of residential development include primitive hunting camps, seasonal cottages, second homes and year-round residences.

The overall density of residential development in the jurisdiction is roughly one dwelling per square mile. Year-round housing is concentrated in plantations, towns and townships on the fringe of the jurisdiction near job and population centers. Seasonal housing is concentrated near lakes and other high-value recreational resources.

Few commercial or industrial facilities are located in the jurisdiction, as nearby towns generally provide services and employment. Much of the commercial development in the area is recreation-based: sporting camps, campgrounds, ski areas, rafting operations, and other businesses supporting recreational activities. Some general services such as gas stations and general stores also exist. Most industrial development in the jurisdiction is related to wood production.

Communities

Communities Within the Jurisdiction

Within the jurisdiction, there are a number of communities with significant year-round or seasonal populations and distinct characters. These communities exist mostly within the 40 organized towns and plantations within the jurisdiction, but several are in unorganized townships. Most are located on the fringe of the jurisdiction, close to population centers, and dependent on larger towns or the county to provide services such as waste removal, education, and fire control. These communities are usually either traditional rural communities or recreational communities closely associated with large bodies of water and other natural resources.

Most traditional rural communities, such as Oxbow, originate from settlers' lots. Although heavily dependent on services from nearby organized towns, these communities have a strong sense of community and pride.

The economies of these small towns are based on forest products, agriculture, and related services, and do not generally involve large industries. There is a secondary reliance on provision of services to hunters, anglers, snowmobilers, and other recreationists. Up to about 1950, men worked on logging crews during the winter, on the farm during the summer, and trapped or guided hunters in the fall. Since that time, farms have steadily disappeared, employment has shifted more toward

the forest products industry, and more residents are driving to nearby population centers for jobs.

These rural communities still retain much of the character of farming communities. Houses are spread out along the public roads, they generally have no "downtown," and few services are available beyond convenience store/gas stations, a post office, church, and town hall. The populations of these communities have remained stable or declined in the last 50 years. There are fewer working farms, and more hunting camps, but still relatively few "second homes" because of the absence of water-based recreation and distance from population centers.

Most of the jurisdiction's recreational communities are located near lakes and other waterbodies. Rockwood and Lake View Plantation are two typical examples. Much of the housing in these areas is seasonal and the local economies are geared to providing goods and services to seasonal residents and visitors.

Many of the jurisdiction's recreational communities are long-established summer enclaves. But there are variations. The area in the vicinity of The Forks and West Forks Plantations has an established seasonal community, but, since the 1980's, has become a focal point for the commercial whitewater rafting industry. A number of rafting-related businesses are now located on the main state route running through the area.

Several communities located near downhill skiing areas have housing and businesses geared to winter visitors. And increased interest in other winter recreational activities such as snowmobiling, icefishing and ski touring has resulted in extended seasons in many traditional summer communities.

Communities Near the Jurisdiction

A number of communities adjacent to the jurisdiction exert a strong influence on surrounding plantations and unorganized townships. These communities provide jobs, goods and services to outlying areas, and a number serve as important gateways into the North Woods. While these communities each have their own unique characteristics, most fall into three broad categories: (1) regional population/employment centers, (2) smaller population/employment centers and (3) regional recreational centers.

Millinocket and Lincoln are typical regional population/employment centers. Both have populations over 5,000 people, and offer a full range of local and regional services. Paper mills have historically been the major employer and economic base in these communities, but the trend is toward

Dallas Plantation town office

more economic diversity, including tourism. Surrounding areas within the jurisdiction serve as bedroom communities in some instances, and also provide residents of these towns with recreational opportunities.

Ashland and Patten are examples of smaller population/employment centers adjacent to the jurisdiction. These towns have populations in the 1,000-2,000 range and economies based primarily on forest products. While not large enough to serve as significant regional job centers, these towns function as service hubs to many of the more remote parts of the jurisdiction.

Rangeley and Greenville are typical regional recreational centers. In these communities, recreation is a primary part of the economy. The communities provide lodging, flying services, guide services, supplies, equipment rentals and outfitting services, and other amenities that promote and support recreation. Other industries, such as forest products, also support the economies of these communities.

The year-round populations of these communities are 1,000 to 2,000, but their seasonal populations – and that of surrounding areas within the jurisdiction – can swell dramatically during the summer. While summer is clearly the busiest season, recreational opportunities are available through all four seasons to varying degrees.

The Jurisdiction's Residents: A Profile

Natural resources are the backbone of the economy in both rural and recreational communities. They are also responsible for these areas' attractiveness and appeal, and are frequently the reason many residents choose to live in these areas. This strong desire to live in these often isolated communities necessitates creativity in the means of making a living, and uncertainty of income is a way of life. Both the landscape and the climate have shaped the character of those who live here. Generally speaking, residents have a strong physical, emotional, and spiritual relationship with the outdoors, and the cool temperatures and long winters with lots of snow foster independence, self-reliance, and endurance.

Population

The year-round population of the jurisdiction in 1990, as the jurisdiction was defined at that time, was 11,449. This represents a very low overall population density – less than one person per square mile, but the population is distributed unevenly. Over 70% of this population exists in plantations, towns and townships adjacent to organized towns. The largest population of a minor civil division is 408, but many townships have no permanent residents at all.

Population growth for the jurisdiction overall has been slow; about 10% between 1970 and 1990, or 0.5% per year. By region, this growth varied widely. The jurisdiction's population in the Western region (Oxford and Franklin counties) and the Central region (Penobscot, Piscataquis, and Somerset counties) grew by 47% and 30% respectively, exceeding the 24% growth rate of the state. The jurisdiction's population in the Eastern/Coastal region (including Washington and Hancock counties) grew by 12% while the jurisdiction's population in Aroostook County decreased by 16%.

Age and Income

The median age of jurisdiction residents is nearly 37 years old, compared with about 34 for the state as a whole. The jurisdiction is somewhat more middle-aged to early-retiree in age than the rest of the state. Thirty-five percent of the households had incomes in 1990 of less than $15,000, and the median income was $21,246 compared to the state median of $27,896.

Labor Force and Employment

By occupation, 42% of the jurisdiction's 5,020 employed laborers in 1990 were blue collar workers, 35% were white collar workers, 16% were service workers, and 7% were in farming, fisheries, or forestry occupations. Eighty-three percent of the employed residents of the jurisdiction commute to work outside of the jurisdiction, with one-third commuting more than 30 minutes to work.

Chapter 3

Natural and Cultural Resources

Maine supports a wide variety of natural and cultural resources. There are vast forestlands, lakes, mountains, islands, tidal and inland wetlands, and special cultural resources. Many of the most spectacular of these features are located in LURC jurisdiction. Some features date back to earlier geologic times, while others reflect human intervention. All are part of the ever-changing ecosystems which collectively comprise the state's resource base. Each natural resource has economic, recreational, and environmental values and is, therefore, subject to conflicts over decisions about land use and resource allocation.

This chapter of the Commission's Comprehensive Land Use Plan contains a detailed description of the jurisdiction's natural resources and a discussion of the issues pertaining to them.

Agricultural Resources

A relatively small portion of the area within the Commission's jurisdiction is used for agricultural production. A number of factors contribute to agriculture's limited presence. Many of the soils are poorly suited to agriculture, services and markets are distant, and the pattern of land ownership, in which the bulk of land is held by large landholders for timber production, has limited the availability of land for agriculture.

Despite its limited presence, agriculture is important to the jurisdiction. Agriculture makes a significant contribution to local and regional economies, and is an important part of the culture and heritage of many rural areas. Working farms keep significant lands in open space, and help to maintain the tradition of the jurisdiction as a place where resource-based uses predominate.

While agriculture is not presently widespread in the jurisdiction, the potential for future expansion remains. The predominance of undeveloped land, general absence of incompatible uses, and presence of areas of good soil make some areas suitable for agriculture.

Prime agricultural soils are a limited and irreplaceable resource. Little information is available on the occurrence of prime agricultural soils in the jurisdiction because soil surveys have not been completed for many areas. Because of the importance of maintaining the ability to feed ourselves, these soils are considered a valuable resource worthy of protection wherever they are found.

Potatoes and blueberries are the major cultivated crops in LURC jurisdiction. In 1992, 73,000 acres of potatoes were cultivated in Aroostook County, including acreage in towns not subject to LURC jurisdiction. The acreage of potatoes in cultivation has declined by about 25,000 acres in the past 10 years, of which 5,000 to 10,000 acres is estimated to be in LURC jurisdiction. Nevertheless, some of the acreage that has been taken out of production in recent years will continue to be used for hay or potato seed production, and experimentation with alternative crops continues.

Most blueberry production in the state takes place in Washington County, with a substantial amount occurring in LURC jurisdiction. The market for blueberries has been very strong. As a result, blueberry production has increased in the past 10 years and this trend is likely to continue. Several thousand acres in LURC jurisdiction have been converted to blueberry fields in recent years, many of which were previously abandoned blueberry fields that had reforested. Conversion is likely to

Aroostook County farm land

continue if the market for blueberries remains strong. Growers are also working to increase production per acre with the help of new fertilizers and irrigation. Eighty million pounds of blueberries were produced in the state in 1992, providing a significant boost to the regional economy of eastern Maine.

Cranberries are not presently a significant agricultural product in the state. Cranberry farming is expected to increase over the long-term because of the strong cranberry market. This increase is likely to be focused in Washington and Hancock counties where processing facilities are available.

Smaller amounts of land in the jurisdiction are devoted to other forms of agricultural production, including poultry, apples, broccoli and other vegetables, and dairy and beef cattle. The production of maple syrup has expanded significantly, more than doubling since 1981. Consistent with agricultural trends, sugaring operations are fewer in number than 10 years ago, but larger in size.

Maple syrup generated about $2 million statewide in the early 1990's (about 100,000 gallons per year). Most production in the state takes place in LURC jurisdiction, with the bulk of activity focused in the northwest along the Golden Road and townships bordering Quebec. Most operations are run by Canadian families which lease land from paper companies, process sap in Maine, and sell all of the syrup in the U.S., primarily within the state. Approximately 3,000 acres are leased for sugaring operations.

LURC Regulatory Approach

Most agricultural operations are located in the General Management (M-GN) Subdistrict. The General Management zone is intended to enable forestry and agriculture to occur with minimal interference from unrelated development in areas where the resource protection afforded by Protection Districts is not necessary. Agricultural management activities are statutorily exempt from regulation by the Commission in Management Subdistricts.

The Commission has another management zone, the Highly Productive Management (M-HP) Subdistrict, which is designed to ensure the continued availability of products from high yield or high value forest and/or agricultural lands by reserving areas for these uses. In the past, this

zone has not been applied due to the difficulty of defining qualifying lands. Until this issue is resolved, the Commission reaffirms its commitment to maintaining prime agricultural lands where they have been identified.

Agricultural Resource Issues

The major factors affecting the future of agricultural resources are economic. The removal of land from food production is an issue of global and national importance, yet is extremely difficult to address due to the dynamic and interconnected nature of the marketplace. Diversification and innovation may prove to be key to the future viability of agriculture within the jurisdiction. In light of reductions in potato production over the past decade, the reemergence of blueberry and maple syrup production are encouraging trends.

The issue of greatest concern is development and fragmentation of the jurisdiction's remaining agricultural lands, especially those with prime agricultural soils or other characteristics that make them well-suited to agricultural production. When agricultural land is abandoned, the opportunity still remains to return it to agricultural use in the future in response to changing circumstances and markets. Once land is developed or topsoil removed and sold, however, the option of restoring the land to agricultural use is essentially eliminated. The Commission will discourage fragmentation of prime agricultural land and guide development away from these areas.

In order to remain competitive, most agricultural operations must use the land intensively and take measures to reduce crop and soil loss. While use of fertilizers, pesticides and herbicides, and diversion of water for irrigation boost productivity, these activities need to be conducted with care to ensure that they do not create excessive impacts on natural resources and neighboring land uses. Soil erosion and sedimentation are also common by-products of agricultural operations. The state has developed best management practices for agriculture and other significant land uses. Adherence to these practices can significantly minimize adverse impacts on surrounding resources.

The trend toward larger maple syrup sugaring operations, many of which are in remote locations, has brought with it a need for more extensive accommodations to house workers and equipment. When issuing permits for these facilities, the Commission has generally stipulated that the facilities shall not be used for other purposes, unless it specifically approves the other uses.

Agriculture is not always compatible with residential or commercial uses because of conditions such as noise, dust, and smells. As residential development encroaches on farmland, conflicts sometimes arise between the two land uses. By separating incompatible land uses and encouraging residential development to locate away from working farms, the Commission will help to prevent these conflicts.

Air Resources

Areas within LURC jurisdiction are generally distinguished by clean air and good visibility. Clean air contributes to the maintenance of healthy forests, waterbodies, and wildlife in the region, and smog-free skies are important to residents and recreational visitors.

The forest plays an important role in maintaining good air quality, regionally and globally. It produces oxygen, necessary to human survival, and absorbs carbon dioxide, a greenhouse gas that plays an important role in regulating the earth's climate. The forest also removes air pollutants from the atmosphere and is vulnerable to damage by these compounds.

Local sources of air pollution include sulfate-processing pulp mills adjacent to the jurisdiction, insecticide and herbicide spraying associated with timber management and agriculture, open burning dumps, forest fires, woodburning stoves, vehicle emissions, logging roads (dust) and biomass plants. Open burning dumps are no longer permitted by the Department of Environmental Protection (DEP), but a small number remain in existence. They will probably be phased out within the next few years as part of DEP's solid waste management program. Besides these more obvious pollution sources, a number of other facilities and uses occurring in the jurisdiction have the potential to create localized environmental nuisances, such as

excessive noise, obtrusive lighting and glare, and offensive odors.

Nonlocal sources of air pollution are principally population and industrial centers on the east coast, in the Midwest, and in southern Canada. These areas generate suspended particulate matter, sulfur oxides, carbon monoxide, hydrocarbons, heavy metals, and nitrogen oxides, all of which are transported long distances in the atmosphere.

The Commission has no authority to control sources of air pollution outside its jurisdiction, but it has a vested interest in tracking air quality because of its potential to affect other natural resources

Impacts on Aquatic Systems

Acid rain occurs when air pollutants, particularly sulfur dioxide and nitrogen oxides, combine with water to form acids. Since the phenomenon of acid rain was first identified, there has been considerable concern about its potential impacts on lakes and streams.

Research suggests that lake acidification is not currently a serious problem in Maine, due in part to its geographic position as the state farthest downwind of emission sources in the midwest and east coast. Maine has the lowest percentage of acidic lakes in the Northeast region and the trend, based on available historical data, seems to be toward slightly decreased acidity over the past 10 to 40 years. Recent data suggest that acid precipitation is declining, consistent with implementation of controls instituted by the Clean Air Act. Few, if any, additional lakes are expected to become acidic in the next few decades at levels of deposition evident in the early 1990's.

Acid rain has had little apparent effect on Maine streams although research in this area has been limited. Acidity may limit the distribution of some fish species, but definitive evidence of this is lacking.

The presence of mercury in the environment is a topic of growing concern and study. High levels of mercury have been found in some fish, including fish from pristine inland lakes. Air pollution, and sediments contaminated by past industrial discharges are possible sources of mercury. Researchers suspect that lake conditions of low pH and low alkalinity make mercury available for

Bowater Mill at Millinocket

uptake by organisms. It is not yet known whether this is a widespread problem, and research continues in this area.

Impacts on Terrestrial Systems

Maine forests bear the chemical signature of exposure to air pollutants, but the long-term effects on forest health and productivity are still unknown. Air pollution delivers elevated levels of nitrogen, sulfur, ozone, heavy metals, carbon dioxide, and other compounds to forest ecosystems. These materials are changing the chemical and biological characteristics of forest soils. Accumulated trace metals are evident in forest soils, and although levels in Maine forests are lower than those in states to the south, they are still clearly above pre-industrial conditions.

Tropospheric ozone is a secondary pollutant; it is not emitted directly from a source, but is formed from hydrocarbons, nitrogen oxides, and sunlight at the earth's surface. Hydrocarbons are emitted principally by automobiles and industrial uses utilizing petroleum-based products. Nitrogen oxides are emitted by combustion sources. It is estimated that most ozone in Maine is transported here from urban areas outside the state or generated in the atmosphere en route to Maine, although some is generated from local sources.

Ozone is considered the most damaging air pollutant on a regional basis (excluding impacts near point sources). Widespread regions of the eastern U.S. experience episodes of elevated ozone levels that are thought to be harmful to trees. According to recent studies, some vegetation damage does occur at levels below the federal ozone standard. Eastern white pine is particularly sensitive to ozone. Ozone levels throughout Maine periodically exceed state and federal standards, and researchers suspect that chronic and possibly acute ozone damage does exist in Maine's forest.

Tropospheric ozone should not be confused with stratospheric ozone. Seven miles up in the atmosphere, a natural stratospheric ozone layer shields the earth from cancer-causing ultraviolet rays. Chemical reactions caused by fluorocarbons in aerosol cans and other products reduce this protective ozone layer.

Heavy metals such as lead, zinc, cadmium, copper, chromium, mercury, and vanadium generally originate from fossil fuel combustion, refuse incineration, and industrial processes, as well as natural sources such as volcanic emissions, and can travel long distances in the air to remote Maine forests. Once deposited in the forest, these metals remain in the ecosystem for a very long time. Research indicates that recent mercury deposition exceeds background levels by a factor of three or more.

Forests at high elevations are especially vulnerable to damage by air pollutants. Subject to greater precipitation, cloud frequency, and exposure, these forests receive much higher levels of certain pollutants than lowland areas. It is believed that this pollution has contributed to declines in high elevation spruce and fir forests in the Appalachians of the Eastern United States over the past two decades.

The lack of long-term data and the complexity of forest ecosystems make it difficult to draw conclusions about the impact of air pollutants on the forest; nevertheless, many suspect that trees weakened by exposure to pollutants may be more susceptible to damage by insects and disease. A decline in forest health and productivity could dramatically affect the region, biologically and economically.

Impacts on Human Health

Air pollutants have the potential to adversely affect human health. Most health effects are respiratory in nature. High concentrations of particular pollutants can cause breathing problems for specific population groups such as the elderly, children, and people with respiratory problems. Ground-level ozone periodically exceeds state and federal standards in many areas of the state during the summer and affects many such groups. Long-term exposure to low levels of certain air pollutants is suspected as a possible cause of some diseases. Reductions in stratospheric ozone, which shields the earth from cancer-causing ultraviolet rays, is also of concern.

LURC Regulatory Approach

Most air pollutants are regulated by the Maine Department of Environmental Protection which administers air quality standards. Nevertheless, the Commission does play a role in monitoring and protecting air quality, principally through the permitting process.

The Commission's authority in regulating air quality is broad, deriving from two statutory criteria: (1) that the Commission approve no application, unless "adequate technical and financial provision

has been made for complying with the requirements of the state's air and water pollution control and other environmental laws...", and (2) that "adequate provision has been made... to assure there will be no undue adverse effect on..." natural resources. In reviewing individual projects within its jurisdiction, the Commission considers air quality issues, but relies heavily on DEP review under other air quality laws, especially on larger projects.

Air Resource Issues

Most issues associated with air resources revolve around uses of air (principally emission of air pollutants) and their effects on other valued resources and ecosystems. There are no significant issues regarding air resources that are within the Commission's realm of authority. Nevertheless, the Commission recognizes the importance of understanding and tracking the effects of air pollution on other valued resources, such as lakes and forests.

Coastal Resources

While most of the Commission's jurisdiction is located well inland, a small portion borders the coast. Two mainland townships, Trescott and Edmunds, have considerable ocean frontage between Machias and Eastport. The jurisdiction's most significant coastal resources, however, are 308 islands, located mostly in the mid-coastal part of the state. These resources include two island plantations, 208 named islands and 98 unnamed islands and ledges, and represent about 10% of the total number of coastal islands in Maine.

Although the total land area of these islands is small in relation to the rest of the jurisdiction, they warrant extended discussion and special consideration for several reasons. First, they possess outstanding economic, recreational, cultural, aesthetic and natural resource values, and are a defining feature of Maine's magnificent coastline. Second, their natural and human environments differ significantly from those of mainland areas and present a distinct set of planning and land use issues. Third, as coastal areas, many islands are attractive locations for development, and are likely to experience development pressure during the 1990's.

Most of the islands in LURC's jurisdiction can be cast into four geographic groups. The Muscungus Bay group is located at the mouth of the Medomak River near Bristol. The Muscle Cove group is located east of St. George. The East Penobscot Bay Group is situated west of Deer Isle. The outer island group is composed of islands more than five miles from the mainland.

Physical and Natural Characteristics

Many unique features of islands are a result of their isolation, small size and exposure to the marine environment. Surrounded by ocean, islands have evolved separately from mainland areas, resulting in an environment that is distinctive yet sensitive to natural disturbance. The small size of the islands – the largest within the jurisdiction is only 1,000 acres – and their exposure also make them vulnerable to the constant stresses of winds, waves, tides, salt, ice and animals, and to human activities. Generally, the larger the island, the more diverse its ecosystem, the more varied and numerous its plant and animal life, and the more tolerant it is of disturbance.

The island climate is strongly influenced by the ocean, which acts as a moderating agent. Summers are generally cooler and wetter than on the mainland, with many more foggy days. This cooler climate allows for the growth of some boreal and sub-arctic plant species that are found further to the north on the mainland. Island winters, on the other hand, are warmer and rainier than on the mainland, allowing some plant species to extend their range northward.

Island soils are typically acidic, infertile, and shallow, with a thin organic layer. Larger islands often contain marshes and bogs. Vegetative cover varies, depending on local conditions, soil type and past clearing practices. Most larger islands

are forested, and mature softwood stands predominate on many islands. The Maine islands, in fact, have the greatest concentration of old growth spruce left in the state.

Groundwater is the main source of freshwater on islands, but supplies are generally limited and sensitive to contamination and depletion. Island groundwater is generated entirely by rain and snowfall on the island itself, which percolates into the soil and rock. On islands, recharge of groundwater supplies can be greatly reduced by impervious surfaces that cause stormwater to flow to the ocean rather than infiltrate into the ground.

The interface between groundwater and the salt water that lies around and often under the island is always moving, depending on rainfall, tides, the characteristics of the groundwater supply and, if the island is populated, water usage. In many cases, island groundwater actually floats on top of a more dense layer of saltwater. High groundwater demand or the siting of wells near this interface can cause intrusions of saltwater into the groundwater supply.

Although larger islands may be comprised of a number of ecosystems, each island can be viewed as a distinct ecological unit with limited outside interactions and a unique set of local conditions. This means the ecology of individual islands varies considerably from that of the mainland and of other islands. It also means that the level of biological diversity and equilibrium on islands is more often a result of relative isolation than of continuous interactions with diverse ecological and human forces, as is the case on the mainland. Under these conditions, the introduction of new forces or activities can have a particularly dramatic impact on island ecology.

Island wildlife resources are typically less diverse and more fragile than on mainland areas. Species generally are limited to those that can swim or fly – or have been introduced, intentionally or unintentionally. A number of species fill ecological niches usually occupied by other animals on the mainland, and lack of predators has resulted in large communities of certain species. Many islands have an abundance of white tail deer as well as large populations of small rodents. As mentioned previously, larger islands tend to have more diverse and stable wildlife populations.

Coastal islands are especially valuable for the migratory and resident birds they harbor, some of which are endangered or threatened. Many islands within the jurisdiction provide essential nesting sites for a variety of significant seabirds including eider ducks, puffins, black guillemots, terns, leach's storm petrels, razorbill auks, cormorants and gulls. Shore and wading birds are abundant on islands, and a variety of terrestrial birds are also present. Two large raptor species, ospreys and bald eagles, often nest on islands, as do herons. A number of bald eagle nest sites have been identified on islands in the jurisdiction. The inventory and mapping of important bird nesting sites is still incomplete for many islands; this deficiency makes planning for their protection more difficult.

An initial impetus for use and settlement of islands was their proximity to fishery resources. A variety of fish species inhabit coastal island waters, with lobsters an especially important resource. Marine mammals also frequent nearby waters, and seal haulouts have been identified on a number of islands and ledges.

Land Use Characteristics

Up until the early 1900's, many Maine islands were intensively logged, farmed, grazed and quarried. Year-round island communities were common – in many cases, island settlement preceded that of mainland areas. Fishing was the economic mainstay of most island communities.

Depletion of island resources and declining markets in the late 19th and early 20th century led to abandonment of many islands, and today, the only islands within the jurisdiction with year-round populations are Monhegan and Matinicus Plantations. Most islands reverted to a relatively natural state. On many islands, there has been no significant timber harvesting or clearing since the early 1900's.

New development pressures, however, have the potential to significantly alter the island landscape. Improvements in transportation and growing recreational boat ownership make islands more accessible now than ever. While year-round settlement has declined, second-home development is a trend that is likely to accelerate in the 1990's.

Tourism and recreational use are also a growing trend on Maine islands, especially on larger, populated ones. Monhegan saw an especially dramatic increase in "daytrippers" during the 1980's, and visits to other islands probably grew as well. Boating, hiking, biking and nature study are the most popular island recreational activities.

On islands with mature stands of spruce and fir, timber harvesting is a likely future trend. These

operations can yield economic benefits and remove the fire danger posed by dead and dying trees. Yet harvests on islands have potential to be highly visible – especially on islands with significant changes in topography.

Land use and development activities on particular islands vary tremendously, so for planning purposes it is helpful to make distinctions among islands within the LURC jurisdiction.

Islands With Year-round Populations

Two island plantations, Monhegan and Matinicus, stand apart due to their year-round communities, large seasonal populations, full-range of services and regular ferry service. The communities that have evolved on these islands are unique – the combination of social, cultural and economic factors, vernacular architecture and distinctive physical environments has created a special character that can be considered an important resource in its own right.

Some of the land use and development characteristics of Monhegan and Matinicus parallel those of small mainland coastal towns. The constraints of size and isolation, however, have accentuated certain land use characteristics and resulted in some unique patterns and trends.

The harbor areas of both islands are the focus of most land use and development activities. Distinct villages have evolved on the slopes adjacent to the harbors. On Monhegan, almost all housing and businesses are located within or near the village area; on Matinicus, several additional concentrations of development are located along the island's interior road system.

Economic options on Matinicus and Monhegan are considerably more limited than those on the mainland; most working islanders are involved in fishing or tourism – or both. Fishing has historically been the economic mainstay of both islands, and it remains so, with wintertime lobstering the most profitable pursuit. The large influx of seasonal residents has long provided a boost to the local economies of both islands. On Monhegan, the recent increase in "daytrippers" and short-term visitors has spawned a newer form of tourism.

Development activity on both islands was generally light during the 1980's and early 1990's. The 1990 Census, in fact, showed a significant decrease in the number of year-round homes from the previous decade. Most of these dwellings were converted to seasonal use. Much development has been in the form of enlargement of existing buildings, conversions to commercial and lodging facilities, and occasional construction of new seasonal dwellings.

Other Islands

Approximately 15 islands in LURC jurisdiction have summer communities comprised of 5 or more residences. These are mostly larger islands (50 acres or more) and, with the exception of Metinic, Large Green and Criehaven islands, they are located relatively close to the mainland. Services on these islands are generally limited, with visitors dependent on their own transportation. Many of these islands once had thriving year-round communities, and some retain the character of those earlier times. Criehaven Township, also known as Ragged Island, was the last to have a significant year-round community. An intact harbor village remains, and during the summer months a number of fishermen return to live and work there.

Since 1985, the Commission has issued 15 permits for construction of seasonal homes on these islands. The most building permits have been issued on Metinic (6) and Eagle (4), with the rest scattered among the other islands.

A number of smaller islands in the jurisdiction (10-15) are developed with a few seasonal camps. Many of these islands are owned by a single owner or family. On some islands these seasonal dwellings get little use, leaving the island relatively undisturbed.

The vast majority of the islands are undeveloped; many remain under single ownership. A number are owned by trusts. Some have remained undeveloped due to their small size, environmental constraints, or inaccessibility; others simply due to owner choice. Many of these undeveloped islands are popular picnic or fishing spots; several are regularly used as stopovers by the Hurricane Island Outward Bound School and users of the Maine Island Trail.

LURC Regulatory Approach

The Commission applies the same land use regulations and standards to islands as to the mainland. Island zoning consists of a similar mix of Development, Management and Protection

Districts with one exception: the Maritime Development (D-MT) Subdistrict is available to protect water-dependent uses such as fishing from competing and incompatible uses. Monhegan Island has a D-MT Subdistrict on a segment of its waterfront.

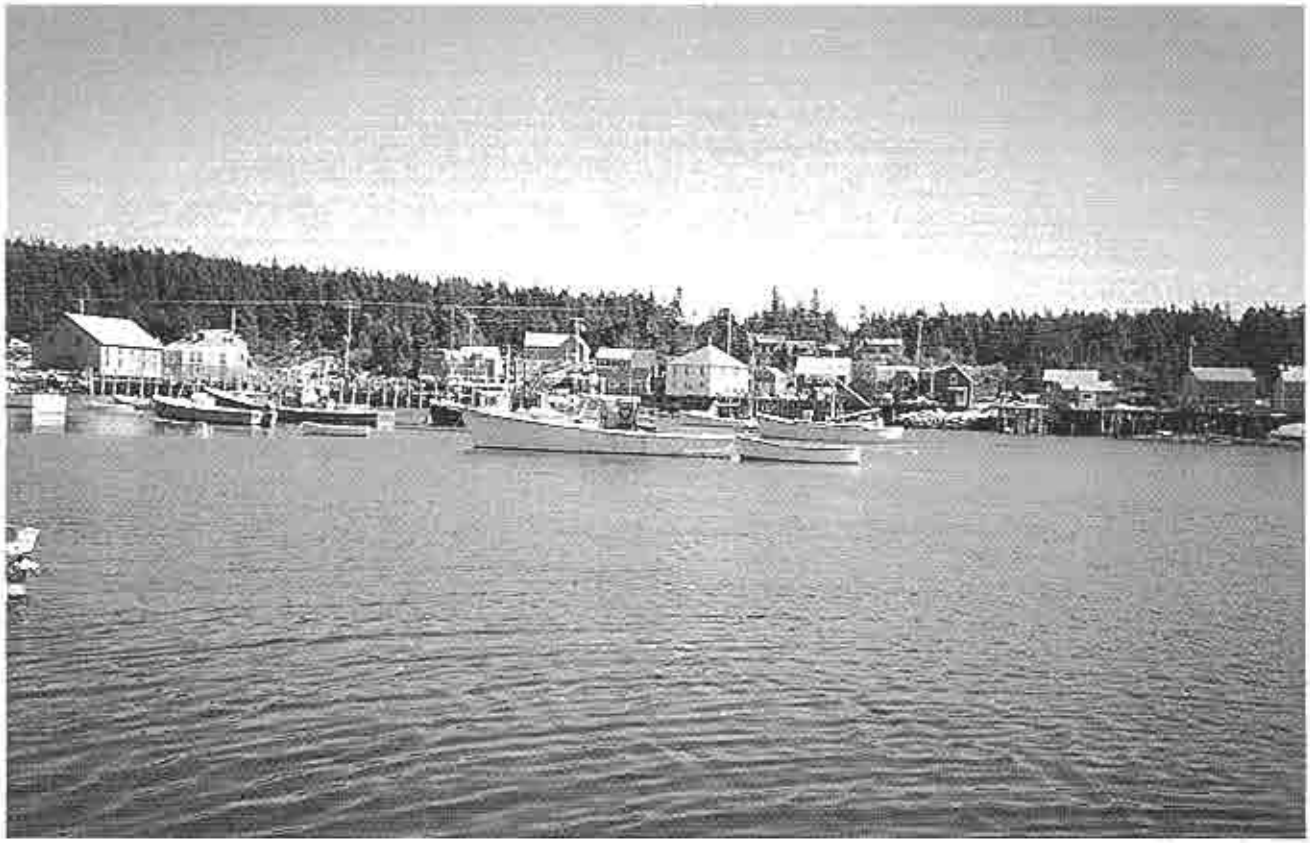
While the zoning pattern for Monhegan and Matinicus is relatively complex, it is quite simple for most undeveloped islands, often consisting of a General Management (M-GN) Subdistrict surrounded by a Shoreland Protection (P-SL) Subdistrict. Other subdistricts commonly found on islands include Residential Development (D-RS) zones, Fish and Wildlife (P-FW) Protection zones for protecting significant seabird nesting areas and Resource Plan (P-RP) zones for islands with special management needs. Due to the presence of diverse resources, a number of islands have overlapping zones; on Monhegan, several zones are overlaid to better protect multiple resources.

Coastal Resource Issues

The innate limits and sensitivity of the island environment become particularly important when considering islands with existing or proposed development. With a natural resource pool that is more circumscribed than mainland areas, the island environment is generally less forgiving of adverse impacts. Once an island resource such as groundwater or bird habitat has been degraded, options for mitigation are often limited and recovery, if possible, is slow.

The ability of land and water resources to support human activities and development is termed "carrying capacity." This concept is particularly relevant to island environments. The limited carrying capacities of most islands will be a major consideration in evaluating land use and development.

In discussing island issues, it is helpful to distinguish between the islands with year-round populations, those limited to seasonal populations and those with no development. A number of the issues facing year-round islands are present or emerging on other islands as well. To avoid repetition, these issues are given fullest treatment under the section on year-round islands.



Matinicus Island

Islands With Year-round Populations

Monhegan and Matinicus Plantations share a complex array of issues concerning both the human and natural environments on the islands. Some of the land use issues are at least partially addressed through the Commission's policies and regulations; other issues go well beyond the scope of LURC's powers and duties. Local information-gathering, education and nonregulatory actions can help to document and address many of these concerns. Monhegan's Inventory and Analysis (1992), developed by LURC with assistance from the Office of Community Development, provides an excellent basis for planning in the plantation, and could serve as a model for Matinicus.

On these island plantations, the concept of carrying capacity is particularly useful for several reasons. First, existing year-round and seasonal development already "consumes" a significant portion of available carrying capacity, making wise use of remaining capacity essential. Second, carrying capacity evaluation can be broadened to include impacts on island infrastructure and services, and on the character of the community as a whole.

While development activity on Monhegan and Matinicus has been relatively light in recent years, the limited carrying capacity of these islands requires that any development be evaluated carefully. Even one poorly sited building or new use can have a marked impact on natural and visual resources.

Increased tourism and recreational use can also deplete island carrying capacity. The rapid increase of daytrippers on Monhegan during the 1980's brought concerns that island trails, services and businesses would be unable to accommodate the influx. The amount of tourism is largely dependent on the availability of ferry service, and thus is not an easy impact to control.

The quantity and quality of drinking water is a primary carrying capacity issue on both these islands. Monhegan is served by a public system and private wells, Matinicus solely by private wells. While the amount of groundwater varies considerably based on local rainfall, increased water use, especially during summer months, has the potential to create shortages. On Monhegan, water shortages due to overuse of the island's meadow aquifer were reported in 1985 and the island has instituted a number of water conservation measures.

High water use can also cause saltwater intrusion problems, with potential for long-term degradation of the water supply. This is especially true of drilled wells located near the ocean, a preferred location for new homes. Water quality problems can also be caused by the septic systems that accompany new development or by malfunctioning existing systems. Unsuitable soils limit the ability of islands to accommodate subsurface waste disposal. Not only is the shallowness of island soils a problem, but the areas most apt to meet plumbing code requirements are coarse, excessively drained soils that provide easy access to groundwater.

State policy prohibits new overboard wastewater discharges, allowing existing overboard discharges to continue only if wastewater flows to the ocean are not increased. While this policy protects marine water quality, it requires discharging more treated wastewater into an island's groundwater as an alternative.

Although the ability of an island to support particular animal or plant species is largely dependent on natural and ecological factors, human activities can have direct detrimental impacts on these resources or indirect impacts by altering island ecology. The small size and isolation of islands accentuate these impacts. On mainland areas, development and human activities often reduce plant or animal communities in a particular area; on islands, these impacts may lead to the elimination of an entire community.

New development often results in the loss of wildlife habitat and disturbance of wildlife by increased human traffic and the introduction of household pets. Impact on nesting birds is the most critical issue. Some species have an extremely low tolerance for disturbance.

Plant communities are also sensitive to human activities and local management practices and decisions. Wildflowers abound, but their numbers and variety can be greatly reduced by hungry deer, picking by humans and foot traffic. At least one rare plant species, the Fringed Gentian, occurs on Monhegan.

Both Monhegan and Matinicus have significant populations of older spruce trees; on Monhegan, Cathedral Woods is an old growth red spruce stand with trees averaging 112 years in age. As trees on these islands continue to age, more aggressive forest management may be need-

ed to reduce fire danger, prevent the spread of disease and promote regeneration.

The issue of solid waste disposal relates to both environmental and community capacity. On the one hand, siting an island landfill is generally not feasible due to space constraints, poor soils, possible adverse groundwater impacts and costs. On the other hand, transporting waste to the mainland is expensive and logistically difficult. Recycling and composting have been embraced by both islands as a way of reducing solid waste generation.

Aesthetic concerns are often heightened on islands due to their small scale, exposed rocky coastline and prevalence of ocean views. This is especially true on Monhegan and Matinicus with their sloping topography and distinctive, historic village areas. While coastal villages can be aesthetically pleasing, newer buildings or additions can easily block existing ocean views or be in conflict with the prevailing architectural character.

To island residents and visitors, the visual and scenic qualities of islands are an important component of what makes them so special. Many other factors also contribute to island community character: close-knit social relationships, a slower pace of life, independence from the automobile, a seeming timelessness and lack of change, and a set of cultural traditions and rituals that have evolved over the years.

As islands are incrementally developed or more heavily visited by tourists, community character may be eroded long before environmental carrying capacity is surpassed. In some instances, these negative impacts can be minimized by proper management and by working to fit new developments into the community. Ultimately, however, a point is reached when even the most sensitively designed project begins to significantly erode community character.

As early centers of trade and settlement, islands are often rich in archaeological resources. A number of historic and prehistoric archaeological sites have been identified on islands within the jurisdiction, but survey work has generally been limited. New development has the potential to alter or obliterate unidentified sites.

Islands With Seasonal Populations

The islands within the jurisdiction with smaller seasonal populations are generally less-intensively developed and used than Monhegan and Matinicus. However, these islands may experience the most development pressure during the 1990's, especially those located close to mainland population centers.

Many of these islands already experience some of the issues faced by islands with year-round communities, and as seasonal use increases, more of these issues will arise. Groundwater use and septic impacts are particularly important considerations, especially on smaller islands. And as summer communities become larger, issues such as solid waste disposal will grow in importance.

Seasonal island development and tourism also have an impact on the mainland communities that serve as points of departure and arrival. Accommodating the parking needs of island visitors and summer residents is usually the most pressing problem. But other issues such as adequate boat mooring space and use of mainland services and facilities may also arise. Some of these issues can be addressed by good communication and coordination between island communities and their mainland neighbors.

Many seasonally populated or undeveloped islands were once more heavily developed and used, and they may be particularly rich in archaeological resources, especially vestiges of the more recent past. Abandoned quarries, cemeteries and foundations of early buildings are especially common. While many of these features may have only local historical importance, new development or neglect can result in the loss of significant sites that are an integral part of an island's heritage.

A number of seasonally developed islands are sites of mapped essential habitat for bald eagles. Others are habitat for colonial nesting birds. Human activities can easily disturb these areas.

Undeveloped Islands

The vast majority of islands in the jurisdiction are undeveloped, and probably most will remain so in the near future due to environmental constraints, inaccessibility and ownership patterns and preferences.

But modern engineering, construction and transportation technologies allow many long-standing constraints to be overcome. And landowner patterns and preferences are subject to change.

Ross Island

Many smaller islands are held in trust or by older individuals who have preferred to keep them undeveloped. But as trusts are dissolved or land passed on to family members, island interests often are subdivided, making the potential for development much greater.

On small islands, even one house and associated uses can have an adverse impact on the island's limited resources. Impacts on bird habitat may be especially devastating. The majority of mapped sites for colonial nesting birds are on undeveloped islands, as are identified seal haulouts.

Another concern is the visual impact of new structures on the previously undeveloped island landscape. A new house located on an exposed bluff can be a highly intrusive addition that is visible not only from the island but also from points far out at sea.

Planning and Zoning Issues

Considering some of the unique characteristics of islands, the Commission's policies and regulations must recognize and protect island resources and address some of their special planning needs. Since island based industries are often water dependent, the Commission recognizes the need to accommodate such water dependent uses in its regulations. The Maritime Development Subdistrict established on Monhegan is an example of how the Commission can accommodate such uses.

On most islands, the first 250 feet from the ocean high water mark is zoned Shoreland Protection (P-SL1). This zoning allows buildings if they are located 75 feet back from the ocean on lots as small as 20,000 square feet with 150 feet of ocean frontage. While these standards may be suitable for some islands with existing development, they may lead to relatively high densities that are inappropriate for smaller or undeveloped islands.

The potential increase in timber harvesting on islands has a number of planning and zoning implications. Changes in island landscapes resulting from harvests often evoke public concern, and the Commission is likely to field complaints regarding future logging operations. Although harvesting is allowed without a permit in General Management (M-GN) zones, the Commission encourages those contemplating harvesting operations to work cooperatively with interested parties.

The Commission has determined that a permit is needed for transporting logs through island shoreland districts. This requirement is appropriate in order to minimize adverse impacts on the island and ocean environment, but should not unnecessarily impede harvesting operations. The Commission recognizes the unique nature of timber harvesting on coastal islands in that, with the shoreland protection district encompassing the island, there may be little management zone left within which the landowner has maximum flexibility for managing timber stands.

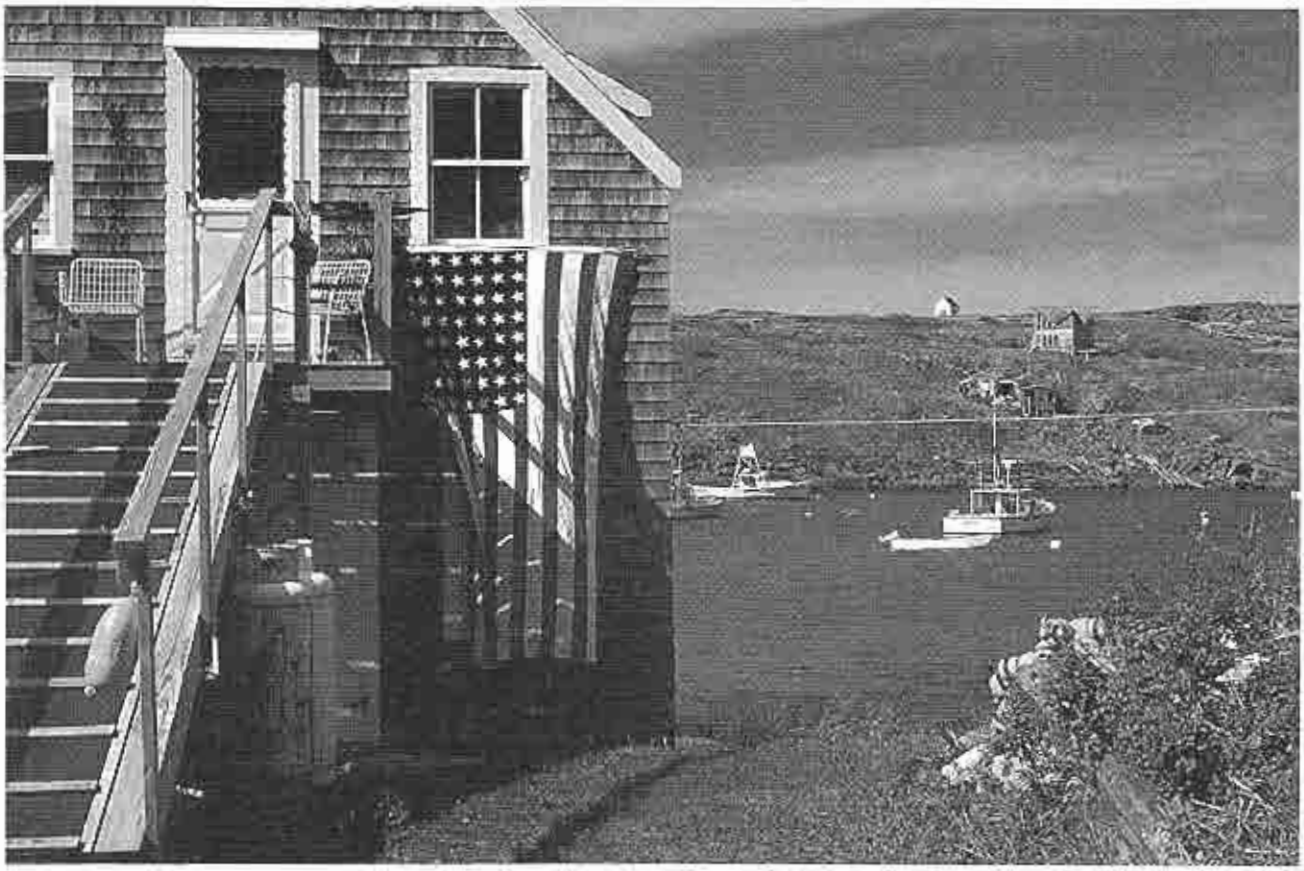
Many island dwellings were constructed prior to 1971, and have lot sizes and shore setbacks considerably less than the Commission's standards. The Commission allows for continuation and, in some instances, modest expansion of these structures, but it strives to ensure that these uses do not have adverse impacts on the island or ocean environment. As the Commission revises its rules on nonconforming uses and structures, it will consider situations typical on islands.

Road setback requirements on islands also deserve reexamination. Many island roads are no more than unimproved byways or footpaths, and

even the more substantial roads see little motorized traffic. Requiring the usual setback in these instances may not be reasonable.

The Commission may also need to reexamine how its adjacency criterion is applied to islands. On mainland areas the distance between two developments might be viewed as small; on islands this same distance may exceed the diameter of the island. To avoid sprawl outside of island village areas, a very small adjacency threshold may be needed.

The goal of compact development itself may not be desirable on some islands, where a more dispersed settlement pattern is needed to avoid groundwater problems. Clustered development, often promoted by the Commission in waterfront areas, may be appropriate in some island settings but not in others.



Monhegan & Manana Islands

Cultural, Archaeological and Historical Resources

Human activity throughout LURC's jurisdiction has resulted, over time, in a variety of cultural resources. These resources possess educational, scientific and social values that help us understand our heritage and contribute to our sense of the state, and its North Woods, as a unique place. Cultural resources include Indian canoe routes, prehistoric archaeological sites, historic archaeological sites, and historical structures, districts, trails and landmarks.

Archaeological resources, both prehistoric and historic, provide us with evidence of human life and culture in past ages. Prehistoric archaeology attempts to reconstruct the lifestyle of the original human inhabitants of Maine from the end of the Ice Age to the arrival of the Europeans and written history. Historic archaeology analyzes the settlements and forts of the period from 1600 on, helping to expand the historical record. Historical resources in the form of structures, sites or landmarks are associated with past events or people of significance in the history of the state, represent an architectural style of a distinct period, or both. Criteria exist at both the federal and state level for evaluating the significance of such resources for placement on the National Register of Historic Places, *Maine's Historic Places, Maine's Archaeological Survey and the Statewide Historic Archaeological Inventory.*

Archaeological Resources

The first people known to inhabit Maine, the Paleoindians, moved in from the south or west about 11,000 years ago as the land area of Maine was recovering from its last glaciation. They tended to camp on very well-drained soils away from river valleys and were probably the only prehistoric people to have lived in such areas in Maine. Trees spread across Maine toward the end of the Paleoindian period, forcing subsequent inhabitants to live and travel along lakes, waterways and coastal areas.

Travel on the ocean, main rivers and major lakes in dugout canoes characterized the Archaic period between 10,000 and 3,000 years ago. Native American settlements concentrated at the inlets and outlets of major and medium-sized lakes, along the main river valleys, and in coastal sites. The development of the birchbark canoe sometime between 4,000 and 3,500 years ago opened up the Maine interior away from major lakes and rivers. Canoes enabled an increasingly dispersed settlement pattern around lakes and smaller streams during the late Archaic and Ceramic periods.

Native Americans in Maine began to construct and use pottery about 3,000 years ago. During the Ceramic period, from around 1000 B.C. to 1500 A.D., Native Americans developed a generalized hunting, fishing and gathering economy based upon the mobility of birchbark canoes. They combined subsistence and settlement strategies to move people to seasonally available resources, or to move food and other resources to population concentrations. Life over most of Maine remained based almost entirely upon harvesting wild resources until well after contact with Europeans.

When the first European explorers arrived in the 1500's, the Early Contact period began, marking the end of the prehistoric archaeological period in Maine. Contact with the explorers initially added European materials to Native material culture, followed later by other impacts upon Native life, including intensified fur trapping and trade, changes in intertribal networks, intermittent warfare, widespread disease, and eventually, significant loss of lands.

For most of prehistory, Maine Native Americans were hunter-gatherers. They were generally mobile in lifestyle and lived in relatively small groups. The largest communities consisted of several hundred individuals in villages which most of the population left at certain seasons.

Four types of archaeological sites are known to exist in Maine: (1) habitation and workshop sites; (2) lithic quarries; (3) cemeteries; and (4) rock art. There are hundreds of known prehistoric archaeological sites in the area under LURC jurisdiction, as well as hundreds more that are undiscovered since archaeological surveys have been done on less than 10% of the land area. Habitation and workshop sites comprise the vast majority (over 95%) of the known archaeological locations in Maine. They

exhibit evidence of a range of activities from food procurement and processing to tool manufacture and maintenance. More than 95% of these sites are located adjacent to canoe-navigable waters, whether coast, lake, river, stream or swamp, or former shorelines of the same. The majority of sites are shallowly buried on till, sand, gravel or silt soils within 1.5 feet of the surface. Some deeply buried sites, up to three meters in depth, occur in alluvial settings along rivers and streams.

The other types of known archaeological locations are far fewer in number than habitation sites. Lithic quarry sites are mines for rock used in making stone tools. They are highly localized sites, occurring at bedrock outcrops or along exposed, stony stream and river bottoms with extensive cobble materials. Cemetery sites always exist in locations with well drained sandy or gravelly-sand soils near a large or small river or lake shore, or within 100 yards of a major habitation site. Rock art sites occur immediately adjacent to canoe-navigable water on particular kinds of bedrock outcrops. They include both petroglyphs and pictographs and probably date within the last 2,000 years.

Examples of significant archaeological sites in LURC's jurisdiction include both prehistoric and historic habitation and workshop sites and prehistoric quarry sites. The Chase Lake-Munsungun Lake Archaeological District incorporates both prehistoric habitation and quarry sites, at least 18 of them, within 0.1 square kilometers centered on the Chase Lake Munsungun Lake thoroughfare. The sites range in elevation from lake level to the summits of adjacent hills, and in age from 11,000 year old Paleoindian occupations to 500-year-old Late Ceramic period campsites. The sites away from the lake are associated either with glacial outwash landforms, or with quarry outcrops of a high-quality chert. This area was investigated in the late 1970's by the University of Maine and listed on the National Register of Historic Places in 1979.

The Vail site in the Magalloway Valley near Lake Aziscohos in western Maine is an example of a large Paleoindian habitation site. It is surrounded by many smaller habitation sites, one with a stone meat cache, as well as two killing grounds. The sites occur on sandy soils and are associated with the valley, stream and a kettle hole. Following identification of Paleoindian tools in the collection of Francis Vail in the early 1980's, subsequent professional excavation of eight or nine locations recovered over 4,000 tools and a survey of most of the Magalloway Valley revealed at least eight more

Archaeological Dig near Aziscohos Lake

Chesuncook Village on Chesuncook Lake

sites. Prior to the identification of the killing grounds and stone cache, neither had been recorded east of the Mississippi River. The Vail site and associated killing ground are listed on the National Register as an individual site.

Historical and Cultural Resources

Shortly after European explorers came to Maine's coast in the 1500's, European settlers followed, stopping on coastal shores and islands for fishing and fur trading, and later turning to farming, shipbuilding, quarrying and timber harvesting. Settlement didn't begin in the interior of the mainland until around 1800, spreading inland from south to north. The earliest settlements depended upon subsistence agriculture and small scale timber harvesting.

Timber harvesting operations advanced eastward and northward from river to river, from the Saco to the Presumpscot, and then on to the Kennebec as far north as Moosehead Lake. The peak of the lumbering activity occurred along the Penobscot River during the 19th century, following the river's East and West Branches deep into the wildlands. Throughout the 18th and 19th centuries, timber was transported by oxen, horses, and water. Elaborate systems of dams, lakes, canals, rivers and booms were devised to control and facilitate log movement. Lumber camps were built to house loggers; farms were carved out of the wilderness to supply forage, bedding, produce, meat and shelter.

The opening of the Maine Woods to logging also opened the interior of Maine to other human activities during the 19th century. In addition to settlers, people came from the industrializing cities of the East Coast to vacation, exploring the forests, waterways, mountains and islands. Some stayed in expensive resorts like Kineo, Harfords Point and Seboomook; others chose simpler sporting camps offering guide services to the choicest hunting and fishing spots; still others came with their own canoes, tents and guidebooks to explore on their own. In any case, the Maine "wilderness" was on the map as a vacation and recreation destination.

The jurisdiction never became heavily populated, and by 1890, the population of the area had already peaked. Although new communities were settled, particularly in the northern part of the jurisdiction, the area as a whole was depopulating by

the turn of the century. That trend continued until 1970, when the population began to grow slowly.

The most well known historical resources in LURC jurisdiction relate to the early days of the timber industry and consist of canals, dams, railways, sluiceways, logging settlements and farms. Other resources include architecturally significant structures and districts, historical commercial sites, such as sporting camps, historical industrial sites, and military fortifications and artifacts.

One example of an historic archaeological period habitation and workshop site is a farm settlement established in northwestern Maine in the 1830's. It features a large farm which produced quantities of hay and grain to support logging operations in the area until about 1930. The site consists of two dwellings and several barns and outbuildings along with several other former farms and a depot along a river. This site is important by virtue of its early date for the region and its symbiotic relationship with the logging industry.

LURC Regulatory Approach

The Commission employs the Unusual Area Protection Subdistrict (P-UA) to protect important historic, scenic, scientific, recreational, aesthetic or water resources which have special land management requirements which cannot be met by another zone. This zone can be applied to historical, archaeological and other cultural sites and resources. The Commission protects a number of historical sites and trails through P-UA designation. These include Chesuncook Village, the Eagle Lake Tramway, Katahdin Iron Works, and the Monhegan Island Lighthouse area. Other protection subdistricts encompass additional resources: Northeast Carry and Penobscot Farm are in a Resource Plan Protection (P-RP) Subdistrict; Telos Canal is in a Recreation Protection (P-RR) Subdistrict.

Cultural, Archaeological and Historical Resource Issues

Significant archaeological sites and historical resources are eligible for listing on the National Register of Historic Places. Legally, significant archaeological sites are those worthy of protection or excavation with public funds. Criteria for eligibility include site age, content and condition. Sites must not be disturbed by human or natural forces, because the eligibility criteria specify that components of one period must be separable from those of another period, and that sites from the more recent archaeological periods must be at least partly intact.

Erosion, development, and vandalism can all destroy the significance of archaeological sites. The primary protection afforded these sites comes from identification so that they can be protected from threats or excavated by professionals.

At this time, erosion poses the greatest threat. Unfortunately, artificially raised water levels on many interior lakes, as well as natural land subsidence along the coast, have resulted in water covering or eroding many sites from the Archaic period to the present. The greatest source of material that survives erosion fairly intact tend to be those sites sealed in the stratified sediments of floodplains along the rivers. Development runs a close second to erosion as a threat to archaeological resources. Since most of the sites are shallowly buried and over 95% of the habitation and workshop sites occur along shorelines, any activity in shoreland areas that disturbs the top two feet of earth has the potential to severely damage a site. And finally, vandalism, caused by nonsystematic digging for artifacts, can destroy both site and artifacts. Vandalism usually takes the form of unauthorized excavations by artifact collectors who loot sites once locations are publicized. This has resulted in the legal restriction of public access to information concerning the location of known or potential archaeological resources.

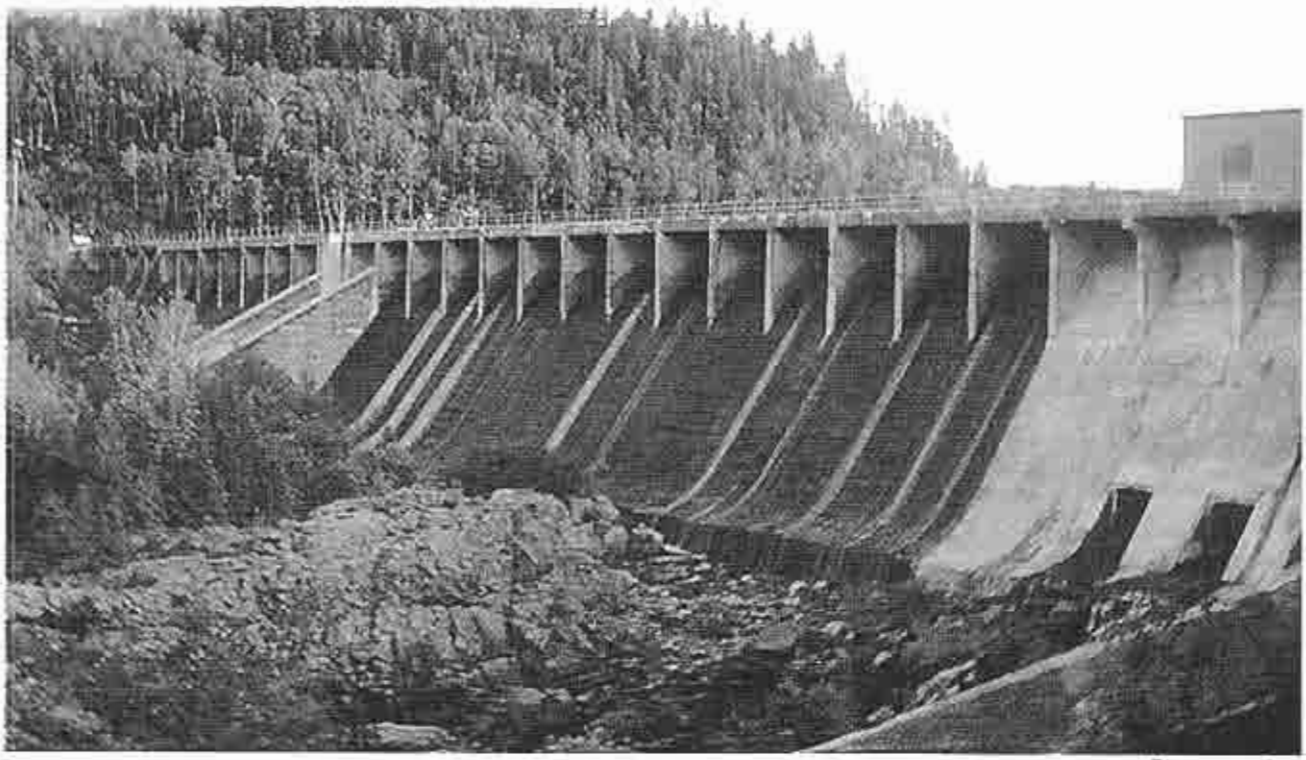
As with archaeological resources, a complete inventory of historical resources in the jurisdiction has not been made. Limited state and federal funds hinder efforts to identify the resources. That lack of information combined with the variety and low density of known sites, structures and trails scattered across the jurisdiction's millions of acres, often in remote locations, make it difficult to develop effective preservation strategies. Other problems involving known historical resources include inappropriate alterations which compromise architectural design and values, abandonment and deterioration of structures, and adjacent development which is incompatible with the historic context of a particular resource.

To date, LURC and the Maine Historic Preservation Commission have worked together to incorporate an assessment of the overall cultural significance of lakes into LURC's lake database. The assessment is based upon information on cultural features that have direct connections to lakes, evaluating those features listed on the National Register of Historic Places, in *Maine's Archaeological Survey,* the *Statewide Historic*

Archaeological Inventory and in *Above the Gravel Bar: Indian Canoe Routes in Maine.*

Currently, when the LURC staff reviews an application for a permit which the lakes database indicates is near a potentially significant archaeological or historical area or feature, the Maine Historic Preservation Commission (MHPC) receives a copy of the permit application and site plan for review and comment. However, of over 1,500 lakes contained in the database, only 10 to 15% have been surveyed to determine their archaeological potential. The significance of most sites has not been assessed at this time, giving the staff no indication whether or not the application may adversely affect significant cultural resources. Since the majority of sites are located within 300 to 400 yards of the shorelines of canoe-navigable waterbodies, protection efforts may be enhanced by considering whether criteria can be developed for determining when to request MHPC review of permit applications on lakes that have not yet been assessed.

Both agencies could strengthen their efforts to protect these cultural resources by further cooperation. The following needs warrant consideration: (1) a method for obtaining more information from MHPC on potential archaeological sites, without compromising confidentiality; (2) a strengthened process for assuring that all applications with potential impacts on significant archaeological or historical resources are being adequately reviewed; (3) criteria for identifying potential archaeological sites not located near shorelines; (4) an estimate of the costs of professional reconnaissance and survey activities, prior to requiring such an evaluation through LURC procedures; (5) an approach to dealing with architectural design issues for both clustered and isolated historical structures and/or sites which occur within the jurisdiction; and (6) joint efforts to obtain funding to further investigate the extensive areas of the jurisdiction not yet surveyed.



Ripogenus Dam

Energy Resources

The Commission's jurisdiction is host to a broad array of energy resources. Historically, Maine has depended heavily upon indigenous hydro and biomass resources for energy production. Today, these renewable resources continue to be valued and new energy resources are being discovered due to new technologies. These indigenous energy resources provide reasonably priced power and reduce the state's reliance on energy imports.

At present, hydropower, biomass, wind, and solar resources have the greatest potential to be significant contributors to Maine's energy mix. Other indigenous resources do not appear to have a significant role in the near-term, although technological and other developments may change this.

Energy Use

Energy use in Maine grew dramatically in the 1980's, driven largely by economic growth. During the 1980's, Maine's use of renewable resources (hydropower and wood) increased by almost 58%. This increase was due largely to a significant increase in the use of wood for generating electricity by cogeneration and independent power plants, resulting from concerns about rising oil costs and changes in federal policies early in the decade.

Energy use in Maine during the 1990's is not expected to grow at the 3.2% annual growth rate of the 1980's due to slower economic growth, higher energy prices, and continued conservation efforts. Slow but steady growth is expected over the long-term.

Hydropower

Hydropower accounts for approximately 30% of the state's utility, industrial and self-generated electricity. The State Planning Office estimates that untapped hydropower sources statewide could provide up to 297 megawatts of additional installed hydropower capacity, including improvements and upgrades of existing facilities, and new projects at sites where hydro development is not prohibited under the Maine Rivers Act.

Hydropower is reliable, renewable, and generally nonpolluting, although it does have potentially adverse environmental impacts such as oxygen depletion, impaired fish migration, and other impacts on the aquatic environment. In many cases, these adverse impacts can be mitigated to varying degrees.

A number of major new dam sites were considered during the 1980's. A proposal for a new dam at Big Ambejackmockamus Falls ("Big A") on the Penobscot River was approved by the Commission but failed to receive water quality certification from the Department of Environmental Protection (DEP) and has since been abandoned. At this time, no new dams or hydro projects are being considered in the jurisdiction. A large dam was approved by DEP at Basin Mills in Orono in 1994.

The focus in hydropower has shifted over the past decade from constructing new dams to relicensing existing dams. As with other indigenous energy resources, the future of hydropower will depend upon factors such as oil prices, utility avoided cost rates, the competitiveness of other energy alternatives, and the ability of specific projects to meet federal and state regulatory requirements.

Biomass

Prior to the 1980's, use of wood for energy in the jurisdiction was limited to a few cogeneration facilities producing electricity and process steam principally for their own use. During the 1980's, a small biomass power industry developed, comprised of 21 co-generation and free-standing plants capable of providing over 500 megawatts of generating capacity. Although none of these facilities is located in the jurisdiction, many are adjacent and utilize wood from the region.

The federal Public Utilities Regulatory Policy Act (PURPA), which took effect in 1980, created the opportunity for many of these new biomass plants. PURPA requires local utilities to purchase all power generated from renewable sources by nonutility power suppliers at a cost equal to their avoided costs. PURPA, combined with the high oil prices of the early 1980's, created a favorable environment for development of biomass plants. The resulting rate structure for biomass-generated energy, however, had the effect of producing artificially high

costs to consumers. Since the 1980's, low avoided costs and the surplus supply of electricity have curtailed interest in developing additional biomass plants.

In the 1990's, several biomass plants are running well below capacity or not at all, because electrical use has not met projected demand. Since biomass energy is one of the most expensive types of power, power companies cut back on this type of generation in times of surplus capacity.

The demand for wood biomass in the early 1990's was met by mill residues and whole tree chips produced from logging residues and stand thinnings. The future of biomass generation depends upon the long-term availability of wood fuel – which depends in part upon competing demands for wood – as well as the factors cited above that affect the viability of alternative energy sources.

Windpower

Windpower is the subject of considerable interest in Maine. Maine's wind resource is considerable, and much of it occurs along high mountain tops and ridges within the jurisdiction. These winds have the potential to power wind energy technologies that appear to compete with more traditional energy sources. To date, the Commission has reviewed one major windpower project located in the Boundary Mountains area.

Peat

The high oil prices of the 1970's and early 1980's and associated desire to decrease the state's dependence on oil led to consideration of peat as an energy resource. However, peat has not become a significant energy resource for a variety of reasons. Lower-than-expected oil prices have discouraged the development of alternative fuels; the logistics of extracting peat in northern climes have proved to be somewhat problematic; and society has moved toward greater protection of wetlands and their values.

The jurisdiction has considerable areas of peatland, although not all peatlands are appropriate for harvesting for fuel. Some support rare plant species and animal habitats or are otherwise ecologically or culturally valuable. Peatlands are discussed in the wetlands section of this plan.

At present, there is one peat burning facility in the jurisdiction. Down East Peat operates a peat mining facility in the organized town of Deblois and Township 16 MD. The facility initially harvested peat for agricultural and other uses, but in 1985, the company constructed a 12-megawatt electrical cogeneration facility in Deblois. The capacity of the cogeneration facility has since been increased to 25 megawatts, but the cogeneration plant has principally used fuels other than peat.

LURC Regulatory Approach

A number of protection zones are applied to resources that can be used for energy production, such as High Mountain Area Protection zones, Shoreland Protection zones, and Wetland Protection zones. In all of these cases, the focus of these zones is the resource, not the energy which can be produced from it.

The Commission addresses energy resources principally through the development review process when it evaluates proposals that involve energy production (eg. dams or wind towers) or the harvesting of fuel (eg. peat harvesting). The Commission is directed by a number of policies designed to guide the balancing act between utilization of the resource and other potentially conflicting public values.

Energy Resource Issues

Windpower

As a renewable form of energy, windpower offers an attractive alternative to the burning of fossil fuels. Large windpower installations, however, have the potential to conflict with other values of the jurisdiction, particularly those associated with mountain areas, the areas where wind power developers have focused their efforts to date. This issue is discussed in more detail in the Geologic Resources section.

Energy Planning

Utilization of energy resources often raises complicated questions about how to balance among potentially competing uses of a resource. Most energy projects have tangible benefits, but they may also impinge upon other uses of a resource or adversely affect a resource. In these cases, the Commission must balance these competing interests based on the needs and values of the jurisdiction as well as the state.

The Commission on Comprehensive Energy Planning, directed by the Legislature to make rec-

ommendations for a state energy policy, completed its work in 1992. This Commission noted that the state's energy policy should address the cost, reliability, environmental impact, and economic impact of energy projects. It stated that the goal of the state's energy policy should be to meet the state's energy needs with reliable energy supplies at the lowest possible cost, while at the same time ensuring that energy production is consistent with Maine's goals for a healthy environment and a vibrant economy. The Land Use Regulation Commission supports this goal and will try to advance it in its review of potential energy projects.

Forest Resources

Proportionately, Maine is the most heavily forested state in the nation, with 89% of its land area in forest. The Commission's jurisdiction is nearly 95% forested, making it even more extensively wooded than the state as a whole. The vastness of this forest resource contributes to the impression of the North Woods as a wild and remote place, one of the area's most distinctive characteristics. The forests offer a variety of opportunities and values, including timber harvesting, recreation, energy production, wildlife habitat, and watershed protection.

Maine's forest resources are vitally important to the state and New England – economically, culturally, and biologically. Economically, forest resources have supplied a continuous stream of raw materials for lumber, pulp, and paper production which have provided a stable economic base throughout the state's history. Today, this primary production remains a bulwark of the state's economy, increasingly supplemented by forest-based recreational industries. Culturally, the seemingly endless expanse of the forest is an integral part of Maine's heritage, a place where residents have earned their livelihoods, hunted and fished for both food and sport, and explored and recreated, alongside visitors "from away." Biologically, the forests provide genetic and ecosystem diversity, natural systems for counteracting air and water pollution, animal and plant habitats, and many other values.

Characteristics

The composition of Maine's forests is heavily influenced by three factors: extensive areas of thin, rocky, and poorly drained soils, intermixed with scattered areas of deeper, better-drained soils; a cool climate and abundant precipitation; and recurrent insect outbreaks. Situated between the eastern boreal forest and the temperate deciduous forest, much of Maine lies in an ecological transitional zone referred to as the Acadian forest. A mixture of hardwoods and softwoods comprise the forest, changing in composition as one moves to higher elevations and north and east. The subboreal Acadian forest occurs more in northern and eastern portions of the state and tends to be dominated by spruce, fir and other softwoods.

Maine is endowed with approximately 17.6 million acres of forestland statewide; 17.1 million acres are considered timberland and the other half million acres are in parks and wildlife preserves. Softwoods comprise approximately 7.8 million acres of woodland; hardwoods, 6.7 million acres; and mixed woods, 3.1 million acres. The principal softwoods found in Maine are spruce, fir, white pine, cedar, tamarack, and hemlock; the principal hardwoods are maple, birch, beech, oak, ash, and aspen. LURC's jurisdiction encompasses over half of the forestland in Maine, 9.5 million acres, and includes much of the state's spruce-fir forest.

Most of the information about Maine's forest resources comes from inventories that assess the nation's wood supply, conducted by the U.S. Forest Service. The federal agency completed the most recent federal inventory in 1980, and another is underway with the results due in 1996. To fill in the gap, the Maine Forest Service (MFS) undertook an assessment of Maine's wood supply and published its findings in 1993.

Compared with the results of past surveys, MFS's Assessment found a decline in the growing stock volumes of spruce and fir. (Growing stock is defined by MFS as larger trees, 5 inches diameter at breast height or more, of sufficiently high quality that 50% of the tree can be used for pulpwood or a higher value product.) MFS attributes much of this decline to mortality and reduced growth rates

associated with budworm damage and harvest rates. The growing stock volumes of other softwoods, principally hemlock, white pine, and cedar, are stable or increasing. According to the Assessment, the quality of the softwood resource has improved based on the percentage of potential sawlog wood that is actually sawlog quality.

The spruce budworm has had a major impact on the forest over the past century, recurring cyclically every 60 or so years, concurrent with the maturation of large volumes of balsam fir. The forest resource was affected by a major outbreak of spruce budworm which lasted from the early 1970's to the mid-1980's. This outbreak damaged or killed millions of trees, prompting premature harvest of many stands. The forest is still recovering to pre-outbreak rates of growth. As a result of this and prior outbreaks, the spruce fir forest demonstrates an age-class imbalance. Young trees of these species are abundant, but larger trees will be scarcer for the next 20 or so years.

Hardwood growing stock volumes have generally remained stable since inventories were first begun 30 years ago. However, MFS's Assessment indicates a decline in the quality of the hardwood resource since the 1960's and suggests that high grading – the practice of removing only the best trees and leaving lower quality trees behind – may be the cause.

Ownership

Maine has the largest proportion of industrial forestland ownership of any state in the nation. Statewide, nearly 95% of the forestland is privately owned, with land management and pulp and paper companies owning and controlling a large portion of it. Most of the industrial forestland ownership in the state is within the Commission's jurisdiction.

Industrial owners generally own forestland and wood processing facilities, usually pulp mills or sawmills. Nonindustrial owners usually manage land for timber but do not own wood processing facilities. Small, nonindustrial owners generally do not manage their land as a full-time endeavor.

Information from the Maine State Bureau of Taxation on ownership patterns in the unorganized townships is shown in the following table. The 40 plantations and organized towns within LURC jurisdiction, for which statistics on ownership are not readily available, generally have more landowners and more fragmented ownership patterns than unorganized townships. Therefore, the figures for all of LURC jurisdiction are likely to be considerably higher, particularly in the smaller categories of ownership.

It is estimated that, for townships whose status has not changed since 1971 (for example, by organizing to a plantation or town form of government, or conversely, deorganizing), the number of landowners with landholdings less than 500 acres in size has increased from 5,500 to approximately 8,400 – a 53% increase.

Leasing of land is a common practice in the jurisdiction and is not reflected in the above numbers. Leases are most commonly used for relatively small recreational lots. Approximately 5,600 leases were held in the unorganized townships in 1991.

Forest Use

Traditionally, Maine's forests have supported wood products industries that are vital to the economies of surrounding communities as well as the state, and provided the environment for many nontimber, forest-based activities, such as recreation. The past two decades have seen increasing diversity in the use and value of Maine's forest resources, as well as growing intensity of use. The forest industry, the dominant landowner and user of the forest resource, and some other industries have contributed to this trend through more intensive forest management, increased use of hardwoods, construction of biomass plants, and evaluation of lands for purposes other than timber production, such as windpower, mining, and other forms of resource development. Concurrently, the forest resource has experienced increasing use for recreation, including a number of new forms of recreation, and growing interest in its biodiversity.

Forest Industry

Timber harvesting, originally for lumber, and later for pulp and paper production, has long been the major use of Maine's forest. Today, the forest provides raw material for pulp and paper, lumber, and other forest products, and the forest industry is the largest single contributor to Maine's economy. Wood is typically harvested by independent logging contractors and used by one of the following: the paper industry, comprised of a small number of large companies; the lumber industry, comprised of a large number of small firms; or by wood products manufacturing entities, of which there are 200 to 300 in the state. Forest products constitutes 44%

LANDOWNERSHIP IN UNORGANIZED TOWNSHIPS -1991

Size of ownership	No. of Landowners	No. of Parcels	Total acreage
< 1 ac.	3,519	4,474	2,247
> 1 - 10 ac.	2,769	3,439	11,946
> 10 - <40 ac.	1,092	1,517	33,423
40 - <500 ac.	1,926	2,674	287,026
500 - 1,000 ac.	67	241	178,340
> 1,000 - < 5,000 ac.	63	242	591,062
> 5,000 ac.	68	533	8,098,784
TOTAL	9,504	13,120	9,202,828

Source: Maine State Bureau of Taxation data; compiled by LURC staff.

Notes: (1) Does not include ownership data for plantations and towns in LURC jurisdiction;

(2) Does not reflect the approximately 5,600 leases in these areas.

(3) Bureau of Taxation practice of combining contiguous parcels in the same ownership may under-represent the number of parcels.

(4) The practice of holding land in common, undivided ownerships may result in some overrepresentation of the number of landowners and the number of parcels, principally in the larger acreage categories.

of the total value of all products manufactured in the state. Paper, lumber, and wood products industries employ 8% of all Maine workers, but account for 35% of total payroll in the state, making it clear that a vigorous and healthy forest contributes significantly to the well-being of Maine's economy. The forest products economy relies heavily upon wood coming from areas within LURC jurisdiction.

Spruce and fir dominated the forest products industry for years, but their importance as measured in terms of percentage of the harvest has decreased. Starting in the 1980's, there has been a major shift away from use of spruce and fir and toward hardwood as a source of pulpwood. Today, more hardwood than softwood is harvested in Maine to make paper. The decline in use of spruce and fir pulpwood is attributed to its rising cost and concerns over its long-term supply. Sawlog production of spruce and fir has expanded, but overall harvest levels have dropped concurrent with significant increases in the use of other species. Trees of sawlog size will become scarcer for the next 20 or so years. This shortage has been predicted for some time, although its specific length and severity remain uncertain. The declining use of softwood in pulp production and increased management of young spruce and fir stands to improve productivity may help to alleviate future shortfalls.

While utilization of hardwood has increased, the management difficulty remains the lack of regional pulpwood markets. Without markets for low-quality hardwood, hardwood quality may continue to decline if low-quality trees are left in the woods.

In the 1980's, biomass energy emerged as a new use of wood. Wood-using industries have traditionally used waste wood to generate heat or steam, but not on a large scale. No biomass facilities are located in LURC jurisdiction, but many are adjacent and utilize wood from the jurisdiction. In 1990, these plants consumed four million tons of wood fuel, 40% of which was mill residue. The

Harvesting near Trout Pond

remaining 60% was generated by integrated logging jobs and came from harvest residues, poor quality hardwood, noncommercial species, and products of pre-commercial thinnings.

Establishment of Forest Practices legislation in 1990, administered by the Maine Forest Service, has affected use of the forest. The original legislation provided for increased technical assistance to forest landowners, establishment of a clearinghouse for information about forest management, improved forest management activity reporting, and development of rules regarding forest regeneration and clearcutting. The increased technical assistance, however, was never provided due to lack of funding. The rules enable better tracking of forest utilization by requiring notification of intent to harvest commercial forest products for sale and reporting of products (volume) harvested. They also establish standards pertaining to clearcutting and regeneration. The rules define clearcuts based on basal area per acre of trees of acceptable quality and species and regeneration standards. Areas of nonclearcut land must be left adjacent to clearcut land, the specific standards varying based on clearcut size. Clearcuts as defined in the law are prohibited.

Maine's forest resources may be affected by nationwide changes in wood supply and demand. Reduced harvest levels in the Northwest may precipitate increased demand for wood from the northeast. This trend may be further accentuated if the U.S. Forest Service decides to eliminate below cost timber sales on National Forestland.

In the foreseeable future, timber production will continue to be the most significant economic use of the forest resource in the jurisdiction, but other uses continue to be explored. A number of new uses of the forestland base have surfaced in the past decade, such as windpower and mining. The value of land for development has also increased, particularly near shorelines and scenic places, due to heightened demand for recreational homes.

Recreation

Recreation has long been a common and popular use of the Maine Woods, and the state

Bowater's gate near Seboomook Lake

enjoys a longstanding tradition of public recreational use of privately-owned land. Historically, these uses have been low impact, dispersed activities which were generally compatible with the forest resource and its use for fiber production. More information on recreation and associated issues is provided in the Recreational Resources section of this plan.

Other Values of the Forest

While uses of the forest resource have diversified and to some degree intensified, appreciation of the resource's value independent of its economic and other uses has also grown. Biological diversity, or biodiversity, is a new, emerging value associated with the forest resource. Biodiversity refers to all forms of life (animals, plants, and microorganisms) at all levels of organization (genes, species, and ecosystems). There is increasing interest in maintaining a diversity of species and ecosystems across the landscape to preserve genetic diversity and important functions played by natural systems.

The northern forest maintains biodiversity through the different types of ecosystems it encompasses, ranging from forested wetlands to upland forests; the many species of animals, plants and microorganisms that make up the ecosystems; and the multitude of genes that comprise the organisms. Some advocates of biodiversity are concerned that timber harvesting practiced on a large scale disrupts ecosystems and reduces biological diversity. Impacts depend upon the following factors: the size of the disturbed area; the size, shape and distribution of undisturbed fragments and the extent to which they are interconnected; the presence of undisturbed habitat to serve as source pools for recolonization of disturbed areas; and the amount of time allowed for the disturbed areas to recover.

Since it is logistically impossible as well as impractical to attempt to conserve each element of these systems individually, the trend in maintaining biodiversity involves protection of a representative array of ecosystems well-distributed across the landscape. New approaches to forest management have been proposed which incorporate this

and other concepts designed to maintain substantial levels of wood production while preserving biological diversity. While many of these approaches remain theoretical, trials of some have begun in Maine.

The Maine Council on Sustainable Forest Management, created by the Governor in 1995, is a complementary effort. Tasked with developing "practical, credible benchmarks of sustainability against which forest landowners can assess their forest management practices," the Council has the potential to influence the future biological productivity and diversity of Maine's forests. The Forest Biodiversity Project is a similar effort, initiated in 1994 by public and private landowners, the scientific community, and conservationists to protect biological diversity on Maine's forest lands.

LURC Regulatory Approach

Reasonable regulation of forest practices in environmentally sensitive areas is a high priority of the Commission. The purpose of this regulation is to minimize adverse effects on water quality, fisheries, wildlife, and aesthetic and recreational values while allowing for economic utilization of the forest resource.

The Commission's regulation of timber harvesting and related uses is statutorily limited to zoned protection and development subdistricts, although the statute requires land management roads in management subdistricts to be built and maintained according to road guidelines adopted by the Commission. In most protection zones, the Commission prescribes specific performance standards for harvesting and road-building activities in order to preserve water quality, recreational, and aesthetic values. Where landowners have reason to exceed these standards, they may apply for a permit from the Commission to do so. A permit is required for all harvesting and related activities in zoned development subdistricts.

The most common zoning designation of forestland is the General Management (M-GN) Subdistrict. The General Management zone is intended to enable forestry and agriculture to occur with minimal interference from unrelated development in areas where the resource protection afforded by protection subdistricts is not necessary.

The Commission's standards establish two other management subdistricts which are appropriate for forestland: the Natural Character (M-NC) and Highly Productive (M-HP) Management zones. Neither of these zones have been used yet.

The Natural Character Management zone was designed to maintain the character of certain large undeveloped areas of the jurisdiction and to promote their use primarily for forest and agricultural management activities and primitive recreation. As in the M-GN zone, forest management, including land management roads, is exempt from regulation in the M-NC zone. But whereas the M-GN zone allows residential dwellings of any size, M-NC zones require dwellings to meet the criteria for remote camps, which includes a building size limitation and a prohibition on utilities. Campgrounds, mineral extraction, buildings relating to forestry and agricultural management are allowed in the district, and public utilities are allowed by special exception.

The Highly Productive zone was designed to prevent highly productive agricultural and forestlands from being lost to other incompatible uses. This zone has not been applied to forestland due to the difficulty of defining qualifying lands, but the Commission remains committed to maintaining prime and other important agricultural and forestlands.

A considerable amount of forestland, about 185,000 acres, is in the Fish and Wildlife Protection (P-FW) Subdistrict because it provides habitat for wintering deer. The deeryard protection program is discussed in greater detail in the section on Fish and Wildlife Resources.

The Commission's approach to forestry regulation is perhaps unique in the United States. Tailored to the circumstances of the jurisdiction, this framework provides protection in sensitive areas while allowing for a substantial degree of discretion and flexibility by landowners in managing the bulk of their land for timber production.

The overall approach to zoning of forestland is sound, but there continue to be issues which bear attention. As areas in the General Management (M-GN) Subdistrict continue to be rezoned to development, the M-GN zone has come to be viewed by some as a holding zone for land that is appropriate for conversion to other uses. One approach to addressing this trend is to consider measures which will limit conversion of land most appropriate for resource-based uses and direct development away from these areas.

Forest Resource Issues

The extensive forest resource of the jurisdiction has many diverse values, ranging from timber production to recreation to remoteness. In many

Lots for sale

ways, this resource has been maintained by circumstances of ownership, access, and other factors. These circumstances were likely as important as LURC policies in determining how the forest has been used. Recent decades have brought changes which may reduce this de facto protection of the forest and its myriad values.

As the Northern Forest Lands Council stated in its final report, "The conditions which up to now have conserved the Northern Forest can no longer ensure its perpetuation. The forces for change and current problems... may be stronger or weaker depending on economic cycles, but over the long run they will bring about change that, if left to proceed on its own, is likely to damage both the forest and the people who live there."

Fragmentation of Forest Ownership

A potential threat to forest resources is fragmentation of forest ownership and associated changes in use and management of the forest. Fragmentation of forest ownership is used here to describe land sales that incrementally result in forestlands comprised of smaller lots and more owners.

Many of the jurisdiction's values are closely linked to forest resources, including large-scale commercial forestry, ecological diversity, and recreation in a remote setting. Stability of ownership and dominance of large, landscape-scale parcels are most compatible with these values. Fragmentation of ownership and associated changes in use and management threaten to undermine the integrity of the forest resource in a way that compromises these values.

An unprecedented amount of forestland changed hands during the 1980's. Some of the transactions involved large landholdings, such as the Diamond Occidental lands, and the Great Northern lands (sold twice in a three-year period). These land transactions were unsettling to many because they came at a time when forestland was being viewed, for the first time, as an increasingly valuable commodity for nonforestry uses. Much of this land was ultimately purchased for forestry use – the Great Northern lands, for example – but some of these transactions have resulted in the sale of lands for recreational lots. Portions of the Diamond lands have been sold for these purposes. Ultimately, the large amount of acreage changing hands and increasing use of land for development

in parts of the jurisdiction shook the traditional vision of the region as an area of stable ownership and land use patterns.

The North Woods have experienced periods of active land trading and speculation in the past, but this trading has always involved large parcels of land. More recent land transactions have included the creation of many smaller parcels, making size a potentially limiting factor in the future use of these lands for forest management purposes.

Between 1971 and 1991, the number of landowners owning less than 500 acres increased significantly and an estimated 193,000 acres of land were subdivided from large ownerships into largelots (40 to 500 acres). In 1991, there were nearly 4,200 lots of between 10 and 500 acres, totalling 320,000 acres, within the unorganized townships (i.e. not including the 40 plantations and organized towns also within LURC's jurisdiction).

As lot sizes decrease, the likelihood that owners will manage land for commercial forestry decreases. Some parcels become too small to operate commercially, and some small landowners are not interested in commercial forest harvesting. When small parcels are managed for timber, productivity typically declines between 33% and 66% due to the lack or discontinuity of sound forest management practices.

A 1991 survey of small woodland owners in Maine confirms this notion, finding that respondents with more woodland acres were more likely to harvest timber for sale and to follow a plan or schedule for growing and harvesting timber. This leads to the complementary conclusion that smaller ownerships are less likely to be actively managed for timber. In short, as ownership becomes increasingly fragmented and parcel sizes decrease, some land is effectively removed from commercial timber production and productivity is reduced on others.

It is estimated that at least 56,000 to 105,000 acres of forestland have been removed from commercial forest management since LURC was established. While this amount is small in relation to the total amount of land remaining in forest management, it is a noteworthy trend. Maine's volume of spruce, fir, and quality hardwood has declined, and with future demand likely to be high, loss of forestland for timber production and reductions in productivity are a legitimate concern.

Of equal concern is that land divided into smaller lots becomes more ripe for development – whether that is the original intent of the division or not. The 1980's demonstrated that there is a high level of interest in seasonal housing in remote regions of the state. Demographics, changes in recreational preferences, and improvements in the economy will likely increase the demand for residential and recreational lots. This interest, and the resulting disparity between the value of land for forestry and its value for development, will continue to serve as an powerful economic incentive for converting high value lands to development.

While is olated hunting camps have coexisted with forestry for many years, more broad-based residential development is not as compatible with industrial forest activities such as aerial spraying and heavy truck transport on logging roads. New residential areas within or near commercial forestlands increase the potential for conflicts between uses. The term "shadow conversion" is used to describe the effect residential development tends to have on adjacent woodlands, often forcing commercial forest activities to be curtailed or modified.

In the past, landowner objectives and the market have limited land conversion in the heart of the jurisdiction as much or more than LURC policies. Many large landowners have chosen not to pursue development on their lands because of tax policies, potential for conflicts of uses, and other disincentives. However, times have changed, as have landowners and their objectives, tax policies, and other factors influencing land use patterns. These factors should not be relied on to preserve the traditional form of the forest and associated values.

There is continuing debate regarding the extent of fragmentation that has taken place and the degree to which it poses a threat. The Commission believes that in selected areas, fragmentation of ownership has negatively affected forest productivity and resulted in some undesirable development. But the Commission's primary concern is the longer-term threat posed by a continuation of this trend, and the Commission believes that now is the time to address this issue with clear policies and actions.

The Commission's goal is to maintain the forest resource in a way that preserves its important values, including large-scale commercial forestry, ecological diversity, and recreation in a remote setting. It will pursue this goal on several fronts. As outlined in greater detail in Chapter 4, the Commission proposes to seek legislative reconsideration of the statutory exemption for 40-acre lots to

eliminate its use for development purposes. It also proposes new development policies to guide future growth to appropriate areas, with specific implementation measures to be developed through a collaborative effort. Finally, the Commission will seek to encourage conservation of select areas of the jurisdiction that are particularly representative of the jurisdiction's principal values and, overall, are especially valued for their remote and relatively undeveloped condition.

Conflicts Between Uses

As use and ownership of the forest diversifies, the potential for conflicts between uses increases. Each user group has different, sometimes conflicting ideas of how the forest resource should be used. Those pursuing recreational development may object to certain forest management practices; those pursuing low-impact recreation may object to the use of the forest for more intensive recreational development.

The M-GN zone, as presently structured, assumes that many activities can co-exist without adversely affecting each other or the forest resource. The effectiveness of the zone will be reexamined in light of the increasingly diverse and intensive uses of the forest. For this reexamination, the Commission will formulate a strategy for identifying what uses are most compatible with the district's primary purpose – permitting forestry and agricultural management activities with minimal interference. The Commission will identify recreation activities that are compatible with forestry and other traditional uses and promote those in the North Woods. Development which commits land irrevocably to other uses and detracts from the forest resource will be directed to locations where it will not significantly affect this valuable economic and recreational resource. Management for multiple use, which calls for the most judicious use of the resource for a variety of compatible purposes, will be encouraged whenever possible.

Insect and Disease Outbreaks

Maine's forest resources have been affected by outbreaks of insects and diseases as long as they have existed. While the recurring spruce budworm is the most obvious example, other, less predictable natural threats also have noteworthy effects, such as the beech fungus and the hemlock

looper. The Commission developed a number of specific responses to the spruce budworm outbreak of the 1970's and 1980's. The Commission may draw upon these responses in the future as needed to address future natural threats that cannot be predicted.

Forest Practices

LURC's forestry standards have proven to be generally sound, but problems have arisen in the practical administration of some of the Commission's standards. In 1984, the Commission established a Forestry Issues Committee to review LURC's forestry regulations and to recommend possible improvements to them. Overall, the Committee found the Commission's forestry regulations to be fundamentally sound, but made a number of recommendations. Some of the recommendations have been implemented. The small streams mapping project was completed, in which additional small streams were mapped using aerial photography and information provided by landowners that wished to participate. LURC road and water crossing standards were revised to clarify which engineering formulae are acceptable for sizing culverts and bridges. Also, enforcement of the Commission's standards has improved dramatically due to the establishment of regional field offices, an increase in LURC enforcement personnel, and adoption of joint enforcement agreements with other agencies, including the Maine Forest Service.

A number of recommendations have not been implemented, in most cases because they involve complex technical or scientific issues which have not been easy to resolve. Many of these issues revolve around the technical capability to evaluate the impact of timber harvesting on water quality. Despite efforts to work with the academic community on these issues, practical approaches to monitoring and evaluating water quality remain elusive. Nonetheless, the enforcement staff has found ways to fairly evaluate impacts on water quality and effectively enforce LURC standards designed to protect valuable natural resources. The Commission will continue to consider the Forestry Issues Committee's recommendations in the context of changing circumstances and priorities and will take action to implement them as needed.

The Commission monitors a number of forest practices issues including the effects of forest practices on water quality and recreation; the possible long-term ecological effects resulting from pesticide and herbicide applications; the effects of large harvesting machinery on soil compaction and erosion; the effects of whole tree utilization on soil nutrients and subsequent tree growth; the impacts of increased accessibility to previously remote and fragile areas; and the effects of forest practices on wildlife habitats, steep slopes and high mountain areas. The Commission will continue to monitor these issues and adhere to a course of reasonable regulation in a manner consistent with its statutory mandate in order to prevent undue adverse impacts of forestry practices.

Sludge Spreading

Toward the end of the 1980's, the practice of landspreading paper mill sludge began to increase as a more economical alternative to landfilling the material. As the practice increased, so did public concern over the possibility that landspreading might adversely affect ground and surface water, wildlife, and other natural resources. Limited research has been undertaken on the effects of landspreading paper mill sludge.

A considerable amount of the landspreading of paper mill sludge takes place in LURC jurisdiction. Following a public hearing on this issue, in 1989 the Commission adopted rule changes which allow land application of residuals in Management districts without a LURC permit, provided such land application complies with the regulations of the Department of Environmental Protection (DEP). The Commission adopted these rule changes with the understanding that it will reconsider the issue upon conclusion of a "Comprehensive Research Program" on land application of residuals. DEP required industry to undertake this research program as a condition of its landspreading permits and established a Research Advisory Committee to review the research, ensure that it met the highest scientific standards, and was complete, unbiased, and verifiable.

The sludge research program has not produced usable results and the Research Advisory Committee dissolved due to dissatisfaction with the research program's methods and progress. DEP continues to review applications to landspread residuals under its regulations in the absence of comprehensive information about the environmental and public health risks posed by repeated, long-term applications of sludge to the same forestland and farmland. The Commission is concerned about the scientific uncertainty surrounding the effects of this practice, especially since most landspreading occurs on forestland within its juris-

diction. Consequently, it will continue to advocate more study of the issue and will consider limiting this practice if it appears that potential risks cannot be controlled and the risks associated with this practice clearly outweigh the benefits.

Other Policy Initiatives

Northern Forest Lands Study

In 1990, Congress established the Northern Forest Lands Council to seek ways for Maine, New Hampshire, Vermont, and New York to maintain the "traditional patterns of land ownership and use" of the Northern Forests. Following extensive study, the Council determined that the conditions which have conserved the Northern Forest in the past can no longer be relied upon to ensure its perpetuation. In its final report, the council identified a number of problems and forces for change that are affecting the Northern Forest, including:

- Rising taxes, causing loss of land from natural resource uses.
- Pressure for development of high-value areas near shorelines and scenic places.
- Jobs lost to competition from other regions and countries, and, thus, taken away from the north country.
- Incomplete knowledge of land management techniques to maintain or enhance biological resource diversity.
- Lack of funding and clear priority-setting for public land and easement acquisition.
- Insufficient attention to and funding for public land management.
- Fear of losing public recreational opportunities and access to private lands.
- Failure to consider forestland as a whole, as an integrated landscape.
- Increased polarization among forest user groups.

The Council proposed a strategy that focuses on strengthening the forest-based economy, fostering long-term stewardship of private land, allowing for public acquisition of land with exceptional public values where those values are threatened, and enhancing management of public land. The Council's major recommendations include:

- Changing local, state, and federal tax policies to encourage long-term ownership and management, in particular property taxes, estate taxes, capital gains taxes, and passive loss rules.
- Stronger support for public land acquisition and management that incorporates a careful planning process, and consideration of other tools to protect important public values.
- Encouraging assessment of the status of biodiversity in each state and development of a process for conserving and enhancing biodiversity across the landscape.
- Stronger support for public and private initiatives that enable landowners to keep their land open and available for recreation, including a federal excise tax on recreation equipment to help fund these programs.
- Further study of forest practices and appropriate action to promote sound forest management practices.
- More technical and financial assistance for private landowners interested in allowing public use of their land for recreation and noncommodity use.
- Stronger support, in the form of increased funding and educational and technical assistance, for wood products market development, and rural development related to forestry.
- Review of government regulations to promote simplification and stabilization of the regulatory process.
- Improved information-gathering, particularly that pertaining to identification of land conversion trends.

One specific recommendation regarding land use planning is noteworthy: "Agencies and organizations involved with land use planning should review their existing programs and plans. They should assess them for adequacy in guiding development to appropriate areas, and in supporting traditional uses of the forest."

The Commission is generally supportive of these recommendations as they are complementary of the Commission's goals and policies contained herein.

Geologic and Mountain Resources

Every Maine landscape, from the rocky coast to the heights of Mount Katahdin, is the product of a complex geologic history that spans millions of years. Cycles of weathering, erosion, and deposition, interrupted by episodes of mountain building, volcanic activity, and glacial sculpting have left behind an intriguing and distinctive landscape comprised of bedrock formations and surficial deposits that are an important part of the state's natural resource base.

Maine's landscape generally reflects the shape of the underlying bedrock. Bedrock usually lies within 20 feet of the land surface and provides the skeletal framework of hills and valleys, while the more recent history of glaciation is responsible for most subtleties of the landscape.

Most areas within the Commission's jurisdiction fall into one of four physiographic regions: Mountain Uplands, Downeast Mountains, Central Uplands, and the Northern region. The Mountain Upland region stretches from the state's western border to Mount Katahdin; the Downeast Mountain region lies just inland from the coast and is distinguished by prominent, rounded, granite peaks; the Central Uplands region is bounded on the south by the Downeast Mountains and to the north by the Mountain Upland region and is distinguished by rolling terrain with relatively little elevation change; the Northern region lies in the northwest corner of the state, and is marked by hills and some low mountains. Elevations throughout the jurisdiction are generally greater than 500 feet except along the coast and in the major river valleys.

Characteristics

Bedrock Resources

In geologic terms, Maine is relatively quiet now. The state is distant from sites of tectonic activity which are distinguished by volcanoes, earth-

Examining 400 million year old fossils

quakes, and other geologic events. Some earthquakes do occur along fault and shear zones in the bedrock, but most are too small to be felt or damage property. Widespread regional uplifting has created fractures and joints in bedrock which store groundwater, sometimes in significant quantities.

Bedrock in Maine has been through several periods of intense deformation and mountain building, and is mostly igneous or metamorphic in origin. Igneous rock formations, those formed from molten material, are located in two broad belts. One extends from the Sebago Lake region north to Rangeley, then northeast to Houlton. The other belt runs from an area southeast of Penobscot Bay to Eastport. Elsewhere within the jurisdiction, metamorphosed shales and sandstones are the predominant bedrock type. Metamorphic rocks have been altered by extreme heat and pressure, which cause minerals to recrystallize, usually forming harder, more durable rocks. Both metamorphic and igneous rocks are generally resistant to chemical weathering.

Unusual geological features were inventoried as part of the Commission's Wildland Lakes Assessment in 1987. The inventory contains information on physical features that are: (1) a type locality or rare occurrence; (2) critical to the interpretation and understanding of the geology of a region; or (3) an outstanding example of a particular feature. Bedrock features surveyed include significant outcrops, cliffs, caves, and waterfalls. While this inventory is impressive, it is not comprehensive; it only identifies features located within 250 feet of a lake or which dominate the view from a lake.

Bedrock sometimes provides a valuable record of the early development of life through fossils – the remains, trace, or imprint of a plant or animal that has been preserved in the earth's crust. Most of Maine's fossil sites are in the northern part of the state, associated with rocks that have not been affected by metamorphism.

Surficial Resources

The most recent major influence on the shape of Maine's landscape is the glacial activity that occurred between 25,000 and 10,000 years ago. During this period, the Laurentide ice sheet advanced into and receded from the region. The topography of the jurisdiction today is a direct result of this glacial activity. The glaciers scraped the soil off of the landscape, chipped away at the underlying bedrock, transported rock debris for miles, and deposited quantities of sand, gravel, and other unconsolidated sediments as they receded, creating new landforms and subtly altering the landscape.

Drumlins are elongated hills formed from compact glacial sediment that was plastered to the earth by the pressure of the overlying ice. Eskers are sand and gravel deposits left by meltwater streams in tunnels within the glacier. They form narrow, winding hills across the landscape. Some of Maine's esker systems are among the longest in the country – up to 100 miles long. Glaciation also created thousands of lakes and ponds as water collected in kettleholes left by blocks of ice and behind dams of glacial debris.

Flowing water deposited sorted sands and gravels, many of which form aquifers that store large quantities of groundwater. Elsewhere, the receding glacier deposited till, an unsorted mixture of sand, silt, clay, and rocks. As the ice sheets melted, sea level rose, flooding major river valleys and lowlands as far inland as Bingham and Millinocket. The sea subsequently receded to its present location, but its inundation of these areas resulted in widespread deposition of marine silt and clay.

Unusual geological features inventoried as part of the Commission's Wildland Lakes Assessment included surficial geologic features such as sand beaches, reverse deltas, moraines, kettleholes, boulder trains, and exceptional lake depth. Again, while impressive, this inventory is not comprehensive; it only identifies features located within 250 feet of a lake.

The Maine Geological Survey has mapped high-yield sand and gravel aquifers in portions of the jurisdiction. The only areas not yet mapped are north and west of Moosehead Lake, including the northern two-thirds of Piscataquis County and northwest portions of Aroostook County. The Sand and Gravel Aquifer maps depict known deposits of coarse-grained material that, in all probability, can supply useful quantities of groundwater. The maps are best used to locate sites favorable for development of water supplies and to identify areas poorly suited for activities that have the potential to degrade groundwater, including storage or disposal of hazardous and other waste.

Soil Resources

Soils are the product of thousands of years of physical and chemical weathering of bedrock and surficial deposits such as glacial till, outwash, and

marine and lake sediments. Soil formation is influenced by climate, particularly temperature and precipitation, living organisms, type of parent material, topography, and time.

Soils in Maine have developed primarily on glacial, marine, and alluvial deposits overlying bedrock. Much of the parent material is till, an unsorted mixture of clay, sand, and broken rock which is usually similar in composition to the underlying bedrock. Soils in Maine are predominantly shallow, stony, sandy to silty glacial tills which are acidic. Soil types in the jurisdiction vary widely, ranging from excessively drained gravels to very poorly drained swamps and bogs. The majority of soils are classified as Spodosols or Inceptisols, in which iron, aluminum and organic materials have been leached from the upper layers of soil. Many soil types found in the jurisdiction are inappropriate for most forms of development because of slope or shallowness to bedrock or wetness.

The Soil Conservation Service (SCS) maps soils at two different intensity levels in areas within LURC jurisdiction. In forested areas, SCS generally conducts reconnaissance soil surveys which only identify major differences between soil groups covering 20 to 40 acres. In these reconnaissance surveys, the soil groups often contain small inclusions of differing soil types. Higher intensity soil surveys are used for more developed regions and open fields. These surveys identify soils in units as small as 3 to 6 acres, but these too contain areas of other soils. SCS soil surveys are intended for general informational uses only.

Only a portion of the state has been mapped by SCS, and much of the area that has not been mapped falls within LURC jurisdiction. SCS estimates that mapping of the state will not be completed before the year 2005. No mapping has been done by SCS in most of northern and central Maine (northwestern Aroostook and Piscataquis counties), much of Washington County, part of Hancock, and small parts of Oxford, Franklin, and Somerset Counties. Mapping is complete and publication planned for portions of Franklin County. Field mapping is complete for small sections of Washington County, most southern sections of Piscataquis and Somerset, and northern sections of Oxford and Franklin. Completed surveys exist for eastern and northeastern portions of Aroostook County. The soil survey for Penobscot County has been published but is now out of print.

Mountain Resources

The Appalachian Mountains, the spine of the eastern seaboard, reach their northern terminus in LURC jurisdiction. They stretch northeast across the state, ending with Mount Katahdin, the highest peak in Maine (5,267 feet). Many of Maine's mountains are composed of granite, particularly those in the Downeast Mountain and Mountain Upland regions. Others are composed of volcanic rock, such as Mount Kineo, or metamorphic rock, such as Bigelow Mountain.

Mountaintops are fragile environments with harsh, subalpine climates characterized by lower temperatures, higher wind velocities, higher humidity, and more precipitation than areas at lower elevations. The growing season is shorter, soils are often fragile, shallow, acidic, and infertile, and slopes are steep, resulting in greater vulnerability to erosion. The diversity of vegetation decreases as elevation increases, a reflection of the harshness of the environment. Plant communities of low diversity are generally a product of greater environmental stress. On upper mountain slopes, plant communities are composed of mosses, lichens, sedges, and grass-like plants which are very sensitive to disturbance. At lower elevations, communities of stunted fir, spruce, and birch are found, usually followed further downslope by a forest of balsam fir, red spruce, and white and yellow birch. The growth rates of all species are slower at high elevations. A rare plant species found in mountainous areas in the jurisdiction (Boott's rattlesnake-root) is under review for federal endangered/threatened status.

Mountain areas are important sources of high quality surface and ground water. Mountains receive more precipitation than lower elevations. This water filters through soil and fractured rock and ultimately adds to stream flows, springs, and groundwater supplies at lower elevations.

Uses of Geologic Resources

Bedrock and Mineral Resources

Some bedrock formations have specific economic values. Development and utilization of Maine's mineral resources have contributed to the state's economy for more than 150 years.

Historically, the state is best known for its granite quarries, but limestone and metallic ores have also been mined, as have feldspar, mica, mineral specimens, and gemstones. The Katahdin Iron Works, located in the jurisdiction near Brownville, is the site of Maine's only 19th century iron works operation. Iron was extracted from iron sulphide ore at the Iron Works from 1844 until 1890.

Over the past decade, there has been a national effort to identify more of the country's mineral resources, with the goal of making the United States less dependent on foreign sources. As a result, interest in the state's mineral resources has grown, and exploration is underway for a number of minerals in the jurisdiction, including copper, lead, zinc, nickel, cobalt, tin, tungsten, silver, gold, and bismuth. In 1978, a large deposit of copper, gold, and zinc was discovered near Bald Mountain in Aroostook County. Interest in mining this and other sites has fluctuated, reflecting the changing economics of mining as metal prices rise and fall. Several permits have been issued by LURC for various levels of metallic mineral exploration. Most activity has focused on the Bald Mountain site in T12 R08 WELS in Aroostook County and a site in Lower Enchanted Township in Somerset County.

Economically valuable deposits of certain semi-precious stones are also present in the jurisdiction. Tourmaline and (less commonly) beryl and topaz are sometimes found in pegmatite, a coarse-grained granite that often contains much larger minerals than typical granite. In 1972, a series of tourmaline pockets were found at a mine in Newry, which abuts the jurisdiction in the western mountains. Interest in gemstone mining persists, generally on a small scale. Most gemstone mining is occurring in the western mountains.

Fractured bedrock is an important repository of potable water. Most of the jurisdiction is not serviced by public water supplies, so the availability of potable water on-site is an important land use consideration. Groundwater is discussed in greater detail in the Water Resources section.

Soils and Surficial Resources

Soil, the primary medium supporting plant growth, is critical to biological life. Timber production continues to be the principal use of soil resources in the jurisdiction. A small amount of land remains in agricultural use.

Another use of soil is topsoil removal for use in development projects. It is unknown whether this activity occurs in significant amount in the jurisdiction, but it will be discouraged since it permanently reduces land's productive capacity.

Soil and subsoil, along with the unconsolidated material they lie over, also play an important role in the disposal of wastes. They absorb and purify domestic wastes in septic systems and, on a larger scale, they dictate what areas are appropriate for disposal of municipal or special waste in landfills. Because of their distance from population centers, sites with suitable soils within the jurisdiction have been potential candidates for waste disposal facilities.

Surficial deposits are economically valuable for sand and gravel extraction. Recent studies suggest that the distance materials are being transported to job sites is increasing. As existing supplies in production are exhausted, demand for materials in states to the south may increase demand for material from Maine.

Many surficial deposits have important natural values as well. For example, eskers are unusual landforms that are limited in number, and some sandy areas support unique plant communities.

Mountain Resources

Timber production is the most common economic use of mountain areas. Between 1983 and 1992, the Commission issued 16 Forestry Operations Permits (FOP's) for harvesting in P-MA zones, affecting approximately 6,500 acres of land. Intensive recreational development, ranging from ski areas and four-season resorts to vacation homes, is also located in some mountainous areas. Windpower development is the newest proposed use of mountain resources. Metallic mineral mining may be proposed for mountain areas as well.

Primitive recreation is a common activity in mountainous areas. Hiking, cross-country skiing, snowshoeing and other forms of recreation in these areas are generally compatible with the natural and cultural values associated with mountains.

LURC Regulatory Approach

Bedrock and Mineral Resources

In 1991, the Commission and the Board of Environmental Protection jointly adopted comprehensive rules regulating metallic mineral mining

activities in the state (Chapter 13 of the Commission's rules). These rules provide for a permitting process that consolidates a number of previously separate permits required by the Department of Environmental Protection and LURC. Concurrently, the Commission adopted rule changes regarding zoning issues associated with mining. Mineral exploration is allowed in most zones, but major exploration and mining are only allowed in a Planned Development (D-PD) Subdistrict. Chapter 12 of the Commission's rules provides guidance regarding how the Commission will evaluate proposals to rezone areas to the D-PD zone for purposes of metallic mineral mining.

The Commission's procedures establish a two-stage permitting process for mining operations. First, a developer must petition the Commission to rezone the area proposed for mining and related facilities to the D-PD Subdistrict. If the area is deemed appropriate for this type of use and rezoned, the site review process follows, focusing on design, engineering, and environmental protection.

Soils and Surficial Resources

The Commission has established a Soils and Geology Protection (P-SG) Subdistrict to protect areas that have precipitous slopes (slopes greater than 60%) or unstable characteristics from uses or development that could cause accelerated erosion, water sedimentation, mass movement, or structural damage. The Commission has also adopted standards for timber harvesting in sensitive areas, roads and water crossings, and filling and grading, to establish sound land use practices designed to minimize erosion and prevent sediment from entering surface waters.

Under the Commission's rules, small gravel operations (less than 5 acres) and pits used solely for road purposes can occur in General Management (M-GN) zones. Larger commercial operations generally must occur in areas zoned for commercial-industrial development. The Commission also has specific standards governing mineral exploration and extraction activities.

Mountain Resources

To protect the fragile environment and values associated with mountain areas, the Commission has placed lands at elevations above 2,700 feet in the Mountain Area Protection (P-MA) zone. The Commission's standards include provisions to include areas below 2,700 feet in the P-MA zone where site conditions warrant, and to exclude areas above 2,700 feet where it is demonstrated that other designations will not jeopardize the resource values of these areas.

The P-MA zone regulates certain land use activities in mountain areas to preserve the natural equilibrium of vegetation, geology, slope, soil, and climate. This protection zone reduces the risks to public health and safety created by misuse of unstable mountain areas, protects water quality, and preserves mountain areas for their scenic and remote values, wildlife habitat, recreational opportunities, and other uses. Approximately one hundred mountains in the jurisdiction meet the general criteria for P-MA zoning.

Geologic and Mountain Resource Issues

Bedrock and Mineral Resources

Modern metallic mineral mining has not been practiced in Maine on a large scale, so it is difficult to predict the economic and environmental implications of this land use. A large mining facility can bring significant economic benefits to the state, expanding its economic base and creating employment opportunities. Such benefits are particularly valuable in rural areas which lack a diverse economic base. But this activity has potential to cause serious environmental problems, and the Commission will evaluate proposals for metallic mining operations with particular care.

Contamination of surface and ground water is the greatest potential environmental risk associated with mining and encompasses several aspects of the mining process. First, water used in processing may become contaminated and must be properly treated before it is discharged to the receiving waterbody. Second, water and air interacting with the mine pit surface and waste material can generate sulfuric acid, which leaches heavy metals from rocks and soil with which it comes into contact. Measures must be taken to prevent contamination of groundwater by the tailings impoundment, and water must be prevented from coming into contact with exposed metal-bearing rock and waste material. These measures must be permanent to ensure long-term protection of water resources.

The Commission's approach to mining is aimed at providing an appropriate mix of flexibility and control as reflected in Chapters 12 and 13 of the Commission's Rules. In recognition of the site specific nature of mining, large-scale mining facilities are allowed in planned development zones which are not required to be adjacent to existing developed areas. The rezoning phase focuses on the socio-economic and environmental effects associated with metallic mining facilities. The site review process is designed to ensure a high quality operation that is protective of existing uses and natural resources, and establishes specific data gathering requirements and standards regarding facility design, operation and closure.

Surficial Resources

Gravel extraction operations have the potential to adversely affect their surroundings. Historically, most gravel pits in the jurisdiction have been small scale and at low densities. If demand for gravel increases, the Commission may see more proposals for larger scale extraction operations.

The Commission will continue to differentiate between small pits needed to accommodate localized demand and larger pits used to service a larger, more regional demand. Because of their proportionately greater impact, large extraction facilities will receive greater scrutiny on issues of location, need, and impact on existing uses and resources.

The Commission will periodically review its standards for gravel pits to ensure that existing uses and resources are adequately protected. It will also seek to review its permitting process to promote consistency with rules administered by the Department of Environmental Protection and to ensure these facilities receive an appropriate level of review in a timely manner. The Commission will maintain a policy of prohibiting excavation below the water table in most cases and requiring reclamation of excavated areas.

As information about the location of sand and gravel aquifers improves and more Aquifer Protection (P-AR) zones are designated, the Commission must address the potentially competing demands for water supply and gravel extraction. Identification and protection of other values associated with surficial deposits will also continue.

Soil Resources

Soil mapping in the jurisdiction is incomplete, and the Commission is frequently without benefit of readily available, detailed information on soils

when it reviews applications. The Commission needs more comprehensive soils information to ensure that development is not located on inappropriate soils. Since soils information will not likely be available for the entire jurisdiction for some time, and the information available is only appropriate for very general use, the Commission will determine which types of activities it needs better soils information for and require applicants to provide this information.

For many years, the Maine Subsurface Waste Disposal Rules (also known as the state plumbing code) have played an important role in determining whether land is suitable for development and the Commission's standards have reflected this function. The agency responsible for administering these rules, the Department of Human Services, however, does not believe the plumbing code should be relied on as a growth management tool, and it has enacted a number of changes that allow more engineering of septic systems to overcome site constraints. In light of these changes and other considerations, such as nitrate contamination, that are not addressed by the plumbing code, the Commission will evaluate the adequacy of its standards concerning overall soil suitability.

One of the greatest threats to soil resources is erosion. Erosion is the detachment of soil particles and loss of soil from an area by the action of water, ice, gravity or wind. Natural erosion is that which occurs under natural environmental conditions of climate and vegetation, undisturbed by man. Natural erosion has been occurring at a slow rate since the earth was formed, accounting for the levelling of mountains over geologic time and the associated development of landscape features such as plains, valleys, and deltas from transported sediment.

The normal process of erosion can be accelerated by disturbance of the natural environment through clearing, earthmoving, excavating, and other land use activities that expose soil or alter normal drainage patterns. These activities can increase erosion to rates which significantly exceed natural rates and adversely affect natural resources.

Erosion is a major threat to the productivity of land. As topsoil is lost, land's productive capacity declines and it becomes less able to support vegetation. Its ability to absorb and infiltrate water is also greatly reduced, resulting in decreased groundwater recharge and accelerated erosion of sediment by surface runoff. In sufficient quantity, eroded sediment can adversely affect aquatic environments as well.

The greatest potential causes of erosion and associated sedimentation in the jurisdiction are land management roads and development. The Commission's standards for roads and water crossings have helped to minimize erosion problems associated with land management roads. The Commission will continue to pursue ways of promoting effective erosion control measures for land development, including measures designed to minimize short-term erosion and sedimentation associated with the construction phase and permanent measures designed to prevent long-term increases in erosion. The Commission will continue to base its considerations and decision-making on the most current information available, and will always give preference to nonstructural measures to minimize erosion, such as limiting clearing, retaining vegetative buffer strips, and careful siting.

Mountain Resources

Mountains and the scenic, natural, recreational, economic and other values they possess are a limited resource in Maine. Mountain areas are increasingly popular sites for recreational facilities, vacation homes and windpower generation. Mountain development carries a significant risk of erosion due to steep slopes and the high erosion potential of many mountain soils. It also threatens to diminish many of the values associated with mountain areas, including scenic qualities and vegetative communities. Consequently, proposed uses of mountain areas must be carefully evaluated to ensure that important values associated with these areas will be preserved for this and future generations. The Commission recognizes that there is disagreement about the significance of high mountain values. It will continue to consider all perspectives when evaluating specific proposals.

Ski areas, popular for recreation and as destination resorts, are frequently located at least in part in Mountain Area Protection (P-MA) zones. While the proposal of new ski areas is unlikely, the Commission will probably continue to receive proposals to expand existing areas. Such proposals must be evaluated carefully to ensure that mountain resource values are not degraded.

While many of the jurisdiction's mountain areas have excellent wind energy resources, wind turbines and associated infrastructure have the potential to compromise the values the P-MA zone is designed to protect. Proposed windpower sites are most appropriately rezoned to the Planned

Mount Abraham

Development (D-PD) Subdistrict, and a number of issues deserve particular attention during the rezoning and site development process. They include:

- *Visual impacts.* Turbines and power lines sited on mountaintops and ridgelines have the potential to be visible from long distances away.
- *Soils impacts.* Many soils in mountainous areas are extremely sensitive to disturbance. Construction of access roads on steep slopes is probably the biggest potential threat.
- *Wildlife impacts.* Birds flying into turbine blades is a major concern.
- *Technical feasibility.* Large-scale windpower generation is an untested technology in harsh climates such as Maine's.

In light of the limited supply of mountain resources and their value, it is unlikely that all such areas will be considered suitable for rezoning and associated development by the Commission. The Commission has also determined that off-site measures may not be an appropriate means of mitigating adverse impacts identified for particular proposals.

In the longer term, the most reasonable approach to windpower siting issues may be to conduct a comprehensive study of where they are most and least appropriate or perhaps a broader study to identify high mountain resources with particularly high resource values which are not appropriate for most development. The Commission believes such a study is best conducted as part of a statewide effort.

The lands of the jurisdiction offer exceptional recreational' opportunities for Maine residents and visitors alike. These opportunities are created by the presence of recreational resources that are unparalleled in the Eastern United States in terms of abundance, diversity and uniqueness, including:

- More than 3,000 lakes and ponds, ranging from tiny kettleholes to 74,890-acre Moosehead Lake.
- Over 16,000 miles of rivers and streams, from mountain rivulets to the mighty St. John. The area possesses the highest con-

centration of undeveloped rivers in the East, and includes the Allagash, the nation's first state-administered wild and scenic river. Renowned canoe routes follow this and other rivers.

- Five significant whitewater river segments with dependable summer flows. These include two heavily used whitewater rafting areas.
- Approximately 100 mountain peaks over 3,000 feet high, including the Bigelow Range and Saddleback Mountain.
- The Appalachian Trail, which includes 281 miles in Maine – much of it within the jurisdiction – terminating at Mt. Katahdin.
- Abundant and diverse wildlife resources that include moose, deer and bear, and populations of rare species such as the Canada Lynx and golden eagles.
- Diverse fishery resources that include wild landlocked salmon and trout.

As exceptional as these resources are, it is the area's remoteness and lack of development that sets it apart. There is something special about hunting, fishing or camping surrounded by over 10 million acres of largely undeveloped forestland. For many users, these remote, undeveloped qualities not only enhance, but essentially define, their recreational experience, distinguishing it from excursions in more populous areas. As other recreational lands are increasingly developed, opportunities for backcountry experiences will become scarcer, and the remote values of the jurisdiction will become even more highly prized.

The very attractiveness of these areas for recreational pursuits, however, can lead to increased use and development that can diminish these qualities and other recreational values as well. In some cases this diminishment may be subtle: the exceptional fishing on a pristine pond may be slowly eroded as the number of users and boats increase, eventually resulting in a recreational experience more similar to one in a more populous area of the state or country. In other cases, impacts may be more immediate and obvious: seasonal home development and the roads constructed to serve it may quickly transform the remote character of an area and even negatively affect the natural resources that have provided the recreational opportunity. This tension between utilizing recreational resources and ensuring that this use does not adversely affect the value of these resources is a recurring theme in many of the issues involving recreation. In its policies, the Commission seeks to balance these considerations, recognizing the need to accommodate recreation-related activity and development while preserving the values that make recreating in the jurisdiction so special.

Recreational Resources

Recreational Lands

Private Lands

Public lands represent only a small percentage of lands within the jurisdiction used for recreational purposes. Traditionally, the public has enjoyed recreational use of millions of acres of undeveloped private land for free, or at minimal cost.

North Maine Woods, Inc., a nonprofit organization representing major landowners, manages recreational use of over 2.8 million acres of private lands north of Baxter Park and west of Route 11. Through a series of checkpoints, the organization collects user fees and monitors use of the area.

[1]This plan generally uses the term "recreation" rather than "tourism" to categorize uses and facilities related to the many outdoor pursuits enjoyed by residents of and visitors to the jurisdiction. Recreation is the term used in the LURC statute, in previous comprehensive plans and in the Commission's rules. Many outdoor sports enthusiasts do not consider themselves tourists, and the term tourism encompasses many activities and facilities that do not occur within the jurisdiction. The Commission, however, recognizes that recreation is part of the larger economic sector of tourism, and that this sector is gaining in its importance and planning implications. In specific discussion of economic benefits and impacts, the term tourism is generally used. But generic use of the word recreation is not intended to deemphasize the economic importance of tourism to the jurisdiction.

The organization also manages the 200,000-acre Ki-Jo-Mary multiple use area located west of Millinocket.

North Maine Woods maintains and develops a network of campsites in these areas and provides visitors with travel directions, information on recreational opportunities and general assistance. The organization also collects information on public use trends that can be used for recreational planning. North Maine Woods works cooperatively with a number of state agencies, and is under contract to collect fees and maintain campsites on several state owned lands.

Outside the areas managed by North Maine Woods, recreational opportunities are available on most larger tracts managed for forestry purposes, although landowner policies on public access vary. Private roads, some with checkpoints, others ungated, provide access to most of these areas.

Public Lands

Lands in the jurisdiction used solely for public recreation are owned and managed primarily by state agencies. The Department of Conservation, Bureau of Parks and Lands, manages approximately 41,000 acres of state park land in the jurisdiction. These include the Allagash Wilderness Waterway, Cobscook Bay State Park, Grafton Notch State Park, Lily Bay State Park and a portion of Rangeley Lake State Park. In addition, Baxter State Park (202,539 acres) lies in the middle of the jurisdiction. It is managed by the Baxter Park Authority, and, by opinion of the Attorney General, is not subject to the Commission's regulatory authority.

Other publicly owned lands are managed for multiple use, of which recreation is a major component. The Bureau of Parks and Lands manages roughly 414,000 acres of public reserve lands in the Commission's jurisdiction. It is the Bureau's task to determine the most efficient and economic management of each public lot for multiple use purposes, including forestry, recreation, and wildlife habitat. The largest of the public reserve lands is the Bigelow Preserve in Franklin County.

Not included in the numbers on state ownership are the Great Ponds – all lakes and ponds ten or more acres in size – which are owned by the state with Common Law rights, allowing pedestrian access and use by the public.

The federal government administers 100,700 acres within the jurisdiction, including a portion of the White Mountain National Forest in Oxford County and portions of the Moosehorn National Wildlife Refuge in Washington County. While these lands are managed for a variety of public purposes, forestry, recreation and preservation of wildlife habitat are the most significant. The White Mountain National Forest is managed pursuant to a detailed management plan which has been approved by the Commission, and is implemented through a Resource Plan Protection (P-RP) Subdistrict.

The Appalachian Trail in Maine stretches from Mount Success on the New Hampshire border to Mount Katahdin. Of the 281 miles of the Appalachian Trail in Maine, almost all are located in the jurisdiction. The National Park Service now owns about 30,000 acres which protects 180 miles of the trail. The remaining 100 miles pass through state-owned lands.

The Nature Conservancy manages a number of parcels in the jurisdiction. These lands include Big Reed Forest Preserve and the Hermitage, in Piscataquis County; Marble Fen and Seboeis River Gorge, in Penobscot County; Moose River Preserve, in Somerset County; Rocky Island, in Aroostook County; and Bradbury Island, Mark Island, and Sheep Island, all in Penobscot Bay. While these lands are held for preservation, nonintensive public recreation is allowed in some areas.

Of the nearly 4,500 miles of river canoe routes in the state, many are in the jurisdiction and are used extensively for canoeing, kayaking, and on some river segments, whitewater rafting. Stretches of the Kennebec River and the West Branch of the Penobscot have some of the most challenging whitewater rapids in the Northeast. Other major canoe routes include the Allagash, St. John, Dead, Machias and Moose Rivers.

Recreational Use and Demand

Although it is difficult to generalize about all activities, the trend since the early 1970's has been one of increased recreational use and demand within the jurisdiction. For a number of activities, demand slackened during the mid-to-late 1980's, paralleling the Northeast's economic downturn. In the early 1990's, however, use has grown steadily for most activities, and this trend is expected to continue and even accelerate throughout the decade. The demand for backcountry recreational uses in the Northeast is estimated to be growing at

a rate that is more than double the population growth rate.

The best sources for information on recreational use are the Statewide Comprehensive Outdoor Recreation Plan (1993), produced by the Department of Conservation, Bureau of Parks and Recreation, and updated every five years; and information compiled by North Maine Woods.

Trends

Figure 1 illustrates use trends for the area managed by North Maine Woods. Overall recreational use increased most rapidly in the late 1970's and early 1980's, and has risen more slowly in the late 1980's and early 1990's with periodic downturns. Since 1976, total visitor days have increased by 50%, with hunting and fishing the dominant activities.

For the large areas of the jurisdiction that are not managed with a system of checkpoints, it is impossible to accurately determine use levels. In a 1991 survey of Maine residents conducted by the Bureau of Parks and Recreation as part of its Statewide Comprehensive Outdoor Recreation Plan, the following activities had high levels of participation: pleasure boating and lake/pond fishing (38%), flatwater canoeing (32%), developed site camping (26%), river/stream fishing (25%), deer hunting (22%), primitive camping (21%), and day hiking (20%). In analyzing these and other sources of data the following trends are evident:

- The majority of recreational users are Maine residents. For the North Maine Woods area, 77% of the visitors were from Maine, 10% were from Canada, and 8% were from other New England states.
- Resident hunting licenses have declined in the 1990's, but this has been offset by increased sales to nonresidents. The reestablishment of the moose hunt has contributed significantly to the number of hunting days.
- Whitewater rafting use increased dramatically during the 1980's as this industry developed, but growth slowed in the early 1990's due to state-imposed limits and other factors. In the mid-1990's, there has been an upturn in use, resulting mostly from increased weekday trips.

Table 1: Major Public Lands Within the Jurisdiction Used for Recreational Purposes

Public Lands	County	Agency	Acreage
State Owned Lands			
Allagash Wilderness	Aroostook	Bureau of Parks and Lands	22,840
Grafton Notch State Park	Oxford	Bureau of Parks and Lands	3,190
Cobscook Bay State Park	Washington	Bureau of Parks and Lands	868
Lily Bay State Park	Piscataquis	Bureau of Parks and Lands	924
Rangeley Lake State Park	Franklin	Bureau of Parks and Lands	400
Bigelow Preserve	Franklin	Bureau of Parks and Lands, others	43,244
Mahoosuc Unit	Oxford	Bureau of Parks and Lands	27,253
Namakanta/Rainbow Unit	Piscataquis	Bureau of Parks and Lands	26,692
Duck Lake Unit	Hancock	Bureau of Parks and Lands	25,220
Eagle Lake Unit	Aroostook	Bureau of Parks and Lands	23,882
Round Pond Unit	Aroostook	Bureau of Parks and Lands	23,114
Telos Unit	Piscataquis	Bureau of Parks and Lands	22,806
Richardson Lake Unit	Oxford	Bureau of Parks and Lands	22,640
Debouillie Mountain Unit	Aroostook	Bureau of Parks and Lands	21,871
Federally Owned Lands			
White Mountain National Forest	Oxford	U.S. Forest Service	48,029
Moosehorn National Wildlife	Washington	U.S. Fish and Wildlife	22,600
Appalachian Trail	Several	U.S. Park Service	Approx. 30,000

- Snowmobiling has become a major winter recreational activity in the jurisdiction. Statewide, snowmobile registrations increased 5.7% per year between 1970 and 1993.
- Overall, people are recreating more often, but for shorter periods of time. This puts more pressure on "peak" weekends such as Memorial Day and Labor Day.

Future Demand

The demand for recreational opportunities within the jurisdiction will continue to increase due to the following factors:

- Improved road access to recreational opportunities and better maps and guidebooks.
- Loss of recreational opportunities in more developed parts of the Northeast and Maine, and increasing interest in back-country experiences and nature study.
- The aging of the population as baby boomers move into middle and senior age brackets. While this group will engage is less active forms of recreation than when they were younger, they are likely to have more leisure time and more money to spend on recreational pursuits and expensive equipment such as recreational vehicles and powerboats.

Whether recreational use in the late 1990's increases rapidly or more slowly will be largely dependent on the pace and extent of economic recovery in Maine and the Northeast. According to the Statewide Comprehensive Outdoor Recreation Plan, resident user days are expected to increase moderately between 1994 and 1999 for hunting, pleasure boating, lake and pond fishing, canoeing and kayaking, and ski touring. User days are expected to increase slightly or stay the same for riding off-road vehicles, primitive camping, river and stream fishing, downhill skiing, hiking, snowmobiling and nature viewing.

The aging of the population may have a greater effect on demand for certain recreational facilities than on activities themselves. Older residents will continue to fish, hunt, boat and snowmobile, but they may want lodging and support facilities that offer more services and amenities. As the more affluent of this group move toward retirement age, there is likely to be an increased demand for destination resorts and for new and upgraded dwellings for primary or vacation residences.

Recreational Use Characteristics and Impacts

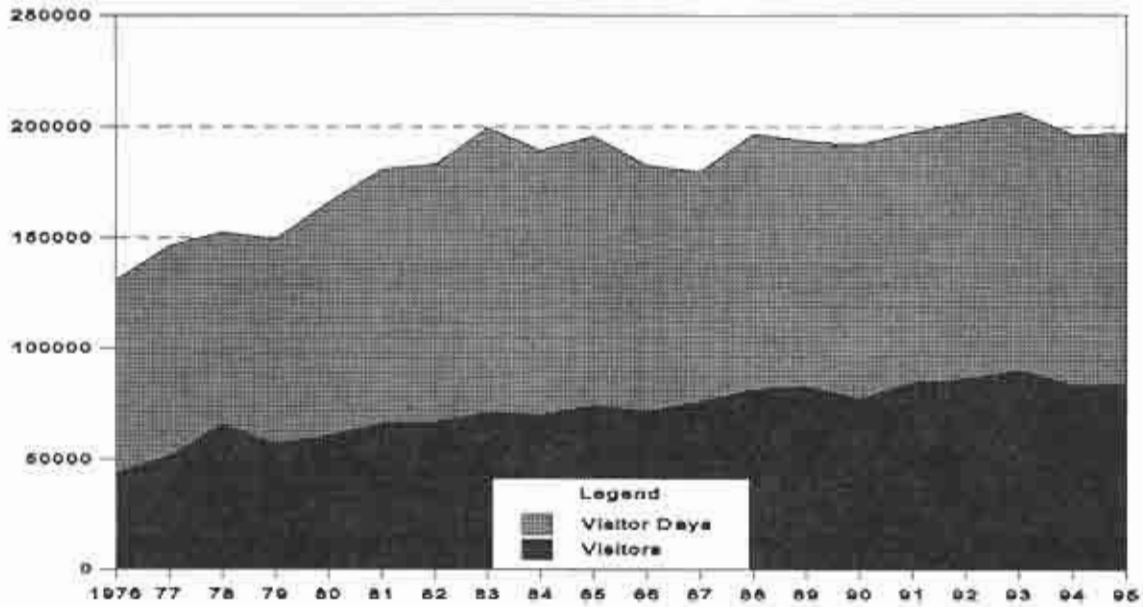
The term "recreation" encompasses a wide range of activities and facilities that differ markedly in regard to typical users, costs to participate, intensity, compatibility with other uses, natural resources they depend on, and potential adverse effects. The Commission has long recognized such differences in its policies of promoting primitive recreational activities and diversified, nonintensive, nonexclusive use of recreational resources. Nonexclusive uses are those in which a wide range of people can participate, generally at reasonable cost.

Evaluating activities and facilities according to the factors listed above provides additional guidance on which uses are most compatible with the Commission's values and which have potential for adverse impacts.

The most obvious kinds of impacts are those that cause harm to surroundings and natural resources: trail and campsite damage, slope and

Camping along the Penobscot River

Figure 1: Use Trends for North Maine Woods area, 1976-95



shoreline erosion, water pollution and harm to fish and wildlife. But there are also a number of impacts that, while not causing serious environmental damage, may affect the recreational experience for other users. These include noise, smells and emissions, trash, lighting, and other visual effects.

Recreational Activities

Sightseeing and nature viewing are probably the most "passive" of the recreational pursuits. These activities depend on the maintenance of scenic resources and wildlife habitat. Sightseeing and foliage viewing are most common in the more accessible parts of the jurisdiction, especially at state parks, islands with ferry service, and natural, historic and cultural sites. As the population ages, these passive forms of recreation are expected to increase in popularity.

Hiking, mountain climbing, backpacking, primitive camping, ski touring, snowshoeing, and canoeing and kayaking (flatwater and whitewater) are more active pursuits that generally depend on the availability of trails or accessibility to backcountry areas or water resources. A major aim of most of these activities is to get away from it all and to experience a wilderness setting; they are therefore very sensitive to intrusions by development and by more intensive activities. Hiking and camping activities can cause wear-and-tear on trails and sites, which require periodic maintenance as a result. The winter activities in this group have little negative impact.

Mountain biking is a relatively new recreational activity within the jurisdiction that also depends on trails. The activity has the potential to cause trail damage, but use appears to be dispersed and at low levels. The activity is prohibited by landowners on many land management roads because of safety concerns regarding conflicts with logging trucks.

Hunting, fishing and trapping are primitive recreation pursuits that have a rich tradition in the Maine Woods. These activities depend on the maintenance of high-value wildlife resources and the habitats that support them. The abundance and diversity of wildlife in the jurisdiction makes for exceptional hunting and fishing, but users are also attracted by the opportunity to engage in these activities amidst a remote setting. Although they are "extractive" in that they entail the harvesting of wildlife, this extraction is carefully managed so that wildlife resources are not only minimally affected, but often enhanced. Over the course of a year, fishing is probably the most intensive activity among this group, especially on lakes and streams with high-value fisheries. However, during the fall, moose and deer hunting are dominant recreational uses within the jurisdiction.

Motorized recreation within the jurisdiction includes snowmobiling, power boating, and use of backcountry vehicles such as all-terrain vehicles, dirt bikes, and 4-wheel drive trucks. These activities vary considerably in their characteristics and

impacts. While most users of motorized vehicles are attracted by the jurisdiction's remote qualities, they are generally more tolerant of the presence of other recreational users and some forms of development.

Snowmobiling depends on snowy winters and the maintenance of trail systems. An extensive network of trails passes, for the most part, over privately owned land and trails typically maintained by snowmobile clubs. Snowmobiling generally has less impact than other forms of motorized recreation. With thousands of miles of unplowed roads and acres of frozen water in the jurisdiction, the use is dispersed over a wide area. Because it generally takes place on frozen ground, it has minimal impacts on trails.

While power boating is enjoyed as a recreational pursuit by itself, it is often used to access fishing areas. It is dependent on access to waterbodies, usually in the form of a boat launching ramp that is accessible to trailers or a seasonal camp. The impacts of motorized boating are highly variable, depending on the size, power and purpose of the craft and the nature of the use area. While a number of small boats with low horsepower engines may hardly be noticed, a high-powered speed boat may affect most of the other users on a lake and its shores.

Backcountry vehicles are used extensively within the jurisdiction both as a means of accessing remote areas to engage in other recreational pursuits and as a form of recreation themselves. Use of all-terrain vehicles is probably the most common activity in this group, although a number of private land owners restrict it on their roads and trails. The primary physical impacts of backcountry vehicles are trail wear and accelerated soil erosion, especially when conducted in areas without adequate base. The noise levels of unmuffled vehicles are particularly high and have potential to disrupt other recreational users.

Whitewater rafting is an organized, high-volume, nonmotorized activity that utilizes outstanding stretches of rapids, primarily on the West Branch of the Penobscot and Kennebec Rivers. The intensity of whitewater rafting, and its potential impacts, are shaped by its dependence on timed releases from upriver dams. During these release times, rafting represents a dominant, high visibility use that may intrude upon other recreational users. The facilities associated with whitewater rafting are discussed in the next section.

Recreational Facilities

Recreational facilities within the jurisdiction provide either direct recreational opportunities or support services such as lodging and equipment outfitting that cater to recreationists. In considering recreational support facilities, it is also important to consider services available in communities that border the jurisdiction. Towns such as Rangeley, Greenville, Millinocket, Jackman, Ashland, Allagash, and Lincoln have traditionally served as gateways to the North Woods, and facilities and services located there help meet recreational demand generated by the jurisdiction's resources.

The jurisdiction's recreational facilities range from primitive campsites to expansive ski areas. While some facilities are located in state parks and other public lands, most are located on private lands, usually near water bodies.

Boat launches are a support facility that provide access to waterbodies. They are located on most of the larger lakes and ponds throughout the jurisdiction. Some sites provide access to motorized vehicles and ramps for trailers; other sites are hand-carry only. Most sites are owned and managed by either the Department of Inland Fisheries and Wildlife, Bureau of Parks and Lands or local governments.

Launches with trailer access are an example of a small-scale improvement that can significantly change the character of a water resource by increasing motorized boating. Actual impacts are highly dependent on the size of the water resource and its levels of use and development.

Dispersed, isolated recreational experiences are available at campsites run by both North Maine Woods, Inc. and the Department of Conservation. There are roughly 90 primitive sites managed by the state, and North Maine Woods manages over 600 campsites in Northern Maine. There are also a number of campsites located within state parks.

Properly located and designed campsites generally have low impacts, but their dispersed nature makes regular maintenance difficult, and their site conditions are largely affected by the amount of use they get and the camping practices of visitors. Primitive sites without motor vehicle access generally have the least impacts and may be the most compatible with the character of some remote areas.

Most campgrounds within the jurisdiction are privately run operations. As of 1994, there were at

least 20 commercial campgrounds in the Commission's jurisdiction, ranging in size from 20 to 60 sites. Many of these facilities provide utility hookups for trailers and recreational vehicles as well as other amenities.

Commercial campgrounds are usually sited near waterbodies. Campground impacts vary significantly depending on differences in size, amenities and the recreational experience the campground tries to create. Like sporting camps, some campgrounds focus on maintaining a wilderness experience for their clientele. Accordingly, such facilities are designed to enhance privacy and minimize disturbance to the natural setting. Other campgrounds serve as relatively high-density seasonal communities for recreational vehicles and trailers and have many of the potential impacts associated with this type of development.

Sporting camps within the jurisdiction have long provided hunters and fishermen with lodging, meal and other services amidst a wilderness setting. Over 30 traditional sporting camps are located in the area, most along lakeshores. In addition, there are a number of other commercial lodging facilities that meet the needs of recreationists.

Most sporting camps are located along lakes and rivers and are less accessible than commercial campgrounds. Sporting camps support mostly traditional, low impact activities such as hunting and fishing, but also serve forms of motorized recreation such as boating and snowmobiling. Sporting camps depend on the presence of high recreational values to attract and sustain their clientele, and they are very sensitive to the impacts of nearby development and uses that diminish these values. The impacts of sporting camps themselves vary according to their size and extent of improvements.

Most of the facilities supporting whitewater rafting were developed during the 1970's and 1980's when this sport grew rapidly in popularity. The highest concentration of bases is along Route 201 near The Forks. Bases generally consist of bunkhouses, dining halls – several of which are open to the public – and other amenities for their guests.

Whitewater rafting bases are distinguished from sporting camps and most campgrounds by the particularly high use they receive during the whitewater rafting season. On a busy weekend, each of the larger bases may feed, lodge and transport over 150 people. Generation of traffic, solid waste and sewage is significantly higher than most other recreational facilities, except for downhill ski areas.

Two ski resorts are based in the jurisdiction: Saddleback in Sandy River Plantation and Squaw Mountain in Big Squaw Township. In 1984, Saddleback received a permit from the Commission to significantly expand its operation. Squaw Mountain has limited snowmaking capacity, and its use levels have been low compared to the state's larger ski areas. The facility changed ownership in the early 1990's and future expansion plans are unknown.

Two other large alpine ski resorts, Sugarloaf USA in Carrabbassett Valley and Sunday River Skiway in Newry, are based in the fringe of the jurisdiction, and have a significant "spill-over" effect on adjacent townships. Sunday River, in fact, received approval from the Commission in 1990 to expand into neighboring Riley Township.

Alpine skiing is a destination-oriented activity with a clientele interested primarily in the speed and excitement of a run down a mountainside. Alpine skiing takes place primarily on privately owned land, and ski facilities usually offer a range of recreational and resort activities including ski touring and summer sporting opportunities.

Alpine skiing facilities are dependent on large mountains and intensive infrastructure: lifts, snowmaking equipment, roads and parking areas, and lodges. With much of this development occurring on mountainsides, there is obvious potential for adverse effects on natural resources and the visual character of these areas. But while these areas are among the most intensively developed and used areas within or adjacent to the jurisdiction, they are also intensively managed.

Most of the existing recreational facilities within the jurisdiction are inclusive in that they offer opportunities to enjoy the North Woods at a reasonable cost. Of the facilities listed, campsites and campgrounds are the least expensive to users. Boat ramps also must be considered highly inclusive because they provide water access to the general public.

The characteristics and impacts of seasonal housing development are covered in more detail in the development section of this plan. But it should be noted that this use, which is often classified as recreational, is exclusive compared with most other types of recreational facilities. And, cumulatively,

seasonal housing development may have the greatest impact on natural and recreational resources within the jurisdiction.

LURC Regulatory Approach

Consistent with state statute and its *Comprehensive Land Use Plan,* the Commission's approach to recreational uses focuses on supporting and protecting primitive recreational resources and opportunities. Primitive recreational activities are allowed in all zoning subdistricts, and a Recreation Protection (P-RR) Subdistrict has been applied to areas that "support or have opportunities for unusually significant primitive recreational activities" to protect them from incompatible development and other intensive land uses.

To date, the Commission has placed in P-RR zones approximately 300 miles of hiking trails, including nearly the entire Appalachian Trail. In addition, because of their significance as canoe trails or for other forms of recreational boating, the Commission has applied P-RR zoning to major portions of the Lower Dead, the Moose, the Penobscot and Allagash Rivers, and a number of other rivers and streams, listed in the Appendix. Resource Plan Protection zoning has been applied to major portions of the St. John and Penobscot Rivers. The Commission has also applied P-RR zoning to 177 remote, undeveloped ponds having a cold water game fishery. Through this form of zoning, the Commission will continue to support protection of the jurisdiction's most significant recreational resources.

Some significant recreational areas receive high levels of protection by zoning designations designed to protect underlying natural resources or values. The Accessible Lake (P-AL) Subdistrict applies to undeveloped, high value lakes that are accessible by roads. The Mountain Protection (P-MA) zone provides protection for areas above 2,700 feet elevation. And the Unusual Area (P-UA) Subdistrict covers areas with a variety of significant values that may also possess important recreational resources.

For recreational resources in other areas, there is no specific protection beyond that afforded by management district zoning or that applied normally to shoreland areas. The rationale behind this approach is that many nonintensive, outdoor recreational activities in these areas can coexist with other land use activities, including forest management.

Recreational facilities themselves are regulated like other types of development, although locational needs and potential impacts are accounted for. Low impact facilities such as camp sites are allowed in management zones without a permit and in most protection zones with a permit. Facilities with more substantial improvements such as sporting camps and campgrounds are permitted less universally, but are still allowed in General Management Subdistricts, and as a special exception in Great Pond zones.

Alpine ski area development is allowed in development zones and as a special exception in Mountain Protection (P-MA) zones. Most other recreational facilities are limited to development zones as well. For any development permit, impacts on natural resources, existing uses, and recreational resources are major review considerations.

While the Commission's approach to recreational uses is generally sound, there are a number of existing and emerging issues that warrant consideration as discussed below. Some of these issues suggest possible changes to the Commission's zoning framework, but most can be addressed by fine-tuning of policies and standards, by education and outreach, and by working with landowners and groups representing recreation users and suppliers.

Recreational Resource Issues

Impacts of Development

While the impacts of growth and development are discussed in greater detail in Chapter 4, the encroachment of development on recreational resources is a major issue that deserves highlighting here. Potential impacts include not only adverse effects on natural resources that provide the recreational opportunity, but diminishment of remote values that enhance the recreational experience. Development can also cut off or reduce public access to areas traditionally used by recreationists.

Seasonal housing development is most likely to occur in areas with high recreational values. Future demand for seasonal homes in these areas is expected to grow as the baby boomer generation moves toward retirement age.

Seasonal housing is appropriate in many areas of the jurisdiction, but it can conflict with the

Commission's goals of protecting primitive recreational opportunities and promoting diversified, nonintensive, and nonexclusive use of resources. Compared with most recreational facilities, seasonal housing gives relatively few people the opportunity to experience the jurisdiction's recreational resources. Owning a piece of remote Maine is a widely shared dream, but it presumes an unending supply of water frontage or scenic lands whose qualities are unaffected by others pursuing the same dream.

Although some seasonal development occurs in LURC-approved subdivisions, much of it occurs incrementally, on a lot-by-lot basis. The effect of this development pattern is often a gradual erosion of recreational and natural values that goes unnoticed or is accepted as inevitable. Over a period of time, this type of development can transform the character of an area as the number of cleared areas, roads, buildings, docks and boats increase.

While the Commission has enacted a number of measures to protect the jurisdiction's highest value recreational resources (e.g. P-RR and P-AL zoning), it will also ensure that incremental seasonal development is not eroding the values of other recreational areas. For proposals involving rezoning and subdivision review, the Commission will continue to encourage measures such as clustering and open space preservation to minimize the impact of new seasonal development. The Commission will seek to better address the impact of lot-by-lot development on recreational resources.

A significant percentage (46%) of the commercial development that occurred between 1971 and 1991 was also located near water bodies. Much of this development was small-scale and recreation-related. It occurred primarily in fringe areas or as expansions to existing facilities. The requirement that most new commercial operations receive a rezoning and development permit gives the Commission considerable control over protecting recreational resources. The Commission's rules are less clear regarding the appropriateness of expansions of nonconforming commercial uses in high-value recreational areas.

Large-scale projects such as hydroelectric facilities, mining operations and ski area expansions have the potential to dramatically affect adjacent recreational resources. LURC's policies and regulations governing these projects, however, provide the Commission with strong tools to promote their proper siting and site development. This is particularly true of regulations governing metallic mining. The Recreation Protection (P-RR) zoning of high-value rivers has also significantly reduced the threat of inappropriate hydroelectric development. For rivers not zoned P-RR, the Commission will carefully weigh the value of recreational resources in siting new dams. Issues involved with ski area development are discussed below.

Potential Use Conflicts on Waterbodies

As the areas receiving the most recreational use, lakes are the most likely location for use conflicts. Canoeists, kayakers, primitive campers, anglers, sailors, power boat enthusiasts, campground groups, sporting camp visitors and lakeside camp owners all come to take advantage of the values that lakes have to offer. And increasingly, other activities and vehicles such as high-speed powerboats and personal watercraft are making their way to lakes in the jurisdiction.

As the discussion of recreational characteristics indicates, various activities and facilities create very different effects and potential impacts, and some groups of users are more sensitive to these effects than others. Noise, obtrusive lighting, and excessive boat traffic are some of the effects that may disturb other users. And as more types of users use a finite resource, the likelihood of conflicts is heightened.

Larger lakes can generally accommodate higher levels of use without conflicts. But if these large lakes are highly accessible or are extremely popular because of their high resource values, activity levels per square mile of water area can exceed those on much smaller lakes, especially on peak weekends.

The location of a lake within the jurisdiction and the expectation of the user are also significant factors. For larger lakes on the fringe of the jurisdiction, the recreational experience may be much more similar to that on lakes in the organized areas. Lakeside residents and visitors may treasure periods of solitude, but they are accustomed to higher levels of use on the lake, especially on holidays and weekends.

These levels or types of uses, however, may seem totally incongruous on a smaller or more remote pond. Many users of those areas have travelled there to fish or camp in a wilderness setting and the quality of their recreational experience is predicated on quiet and extremely low levels of activity. In this context, the introduction of a high speed power boat or jet ski can significantly diminish the experience of an entire user group.

Any serious effort to address use conflicts should include a reexamination of the type and power of watercraft allowed on waterbodies within the jurisdiction. The issue should be evaluated in terms of anticipated impacts not only on natural resources, but also on remote values and the specific values of certain lakes. The Commission will work with other state agencies, sportsmen's groups and other interested parties in addressing this issue, particularly on remote lakes and those determined to have outstanding or significant values.

Likewise, the Commission will work closely with other state agencies and affected groups concerning the siting of new or improved boat ramps on waterbodies in the jurisdiction. These facilities have the potential to significantly change the levels and type of use on lakes and rivers. While increased motorized boat access may be appropriate on many waters in the jurisdiction, it may have negative impacts on others, particularly on more remote ponds that historically have had limited motorized access. Consistent with its lakes program, the Commission will review proposals for boat ramps allowing motorized access with particular care, especially those on Management Class 1, 2 and 6 lakes.

Public Access

As mentioned previously, a large percentage of the land used for recreational purposes is privately owned. Large landowners have continued the time-honored practice of allowing the public access over and use of most of their lands for hunting, fishing and other recreational pursuits.

But as access to private lands and associated use has increased, so too have concerns over the real and potential costs and impacts of this use. One group of issues involves landowner concerns. Even responsible use of private lands entails wear and tear on roads, trails and camping sites, and abuses such as trespassing, littering, vandalism, illegal dumping and site alterations can impose substantial costs on landowners. Just the presence of recreationists creates liability worries and the possibility that an errant camp fire could spark a devastating forest fire.

Unauthorized or unmanaged motorized camping on private lands can create overcrowding and adverse lakeside impacts, especially during peak vacation weekends. These situations may become more common as landowners and private operators increasingly charge fees to offset management costs and recreationists search for remaining "free camping" opportunities.

Such concerns have caused some landowners and their management companies to reconsider their stance concerning public access. Some have responded by gating land. Others have taken a more active role in managing recreational use. Posting of land is increasing among smaller landowners. A bill modifying the liability laws on public use of private land was enacted by the legislature, addressing some liability concerns, but others remain.

Private lands play an important role in meeting recreational demand, and their continued availability to the public should be encouraged. Promoting multiple use of land and resources is a broad goal of the Commission, and this principle remains central to the management strategy of most of the large landowners. But multiple use also means a balancing of land uses and ensuring that one activity does not threaten others, or harm resources.

While many of the decisions regarding public access are in the hands of the landowners, state agencies, recreational organizations and other interested parties can work together cooperatively to discuss and resolve problems. The North Maine Woods organization is an example of such a cooperative arrangement.

Another aspect of public access involves the effect of improved accessibility on publicly owned recreational resources. The ongoing construction of new land management roads creates additional opportunities for access to areas with high resource values. This improved access can lead to unexpectedly high levels of use, or ultimately to the development of seasonal camps.

The Commission will work with landowners and other state agencies to ensure that plans to extend or improve roads to high-value resources include consideration of the potential impacts of increased use and development. The Commission will also be supportive of efforts by landowners to close land management roads when they are no longer used for hauling timber, are not deemed essential for fire protection, and when doing so would help preserve the recreational and natural values of an area.

On the other hand, development and posting of land can lead to the restriction or elimination of access to lands traditionally used for recreation. In the review of proposed developments, the Commission will consider impacts on existing access routes.

Sporting Camps

Sporting camps are a traditional feature of the North Woods that support primitive recreational pursuits and some motorized activities such as boating and snowmobiling. Most sporting camps are located in remote settings, and maintenance of relatively pristine surroundings is essential to most of the camps in attracting and maintaining clientele.

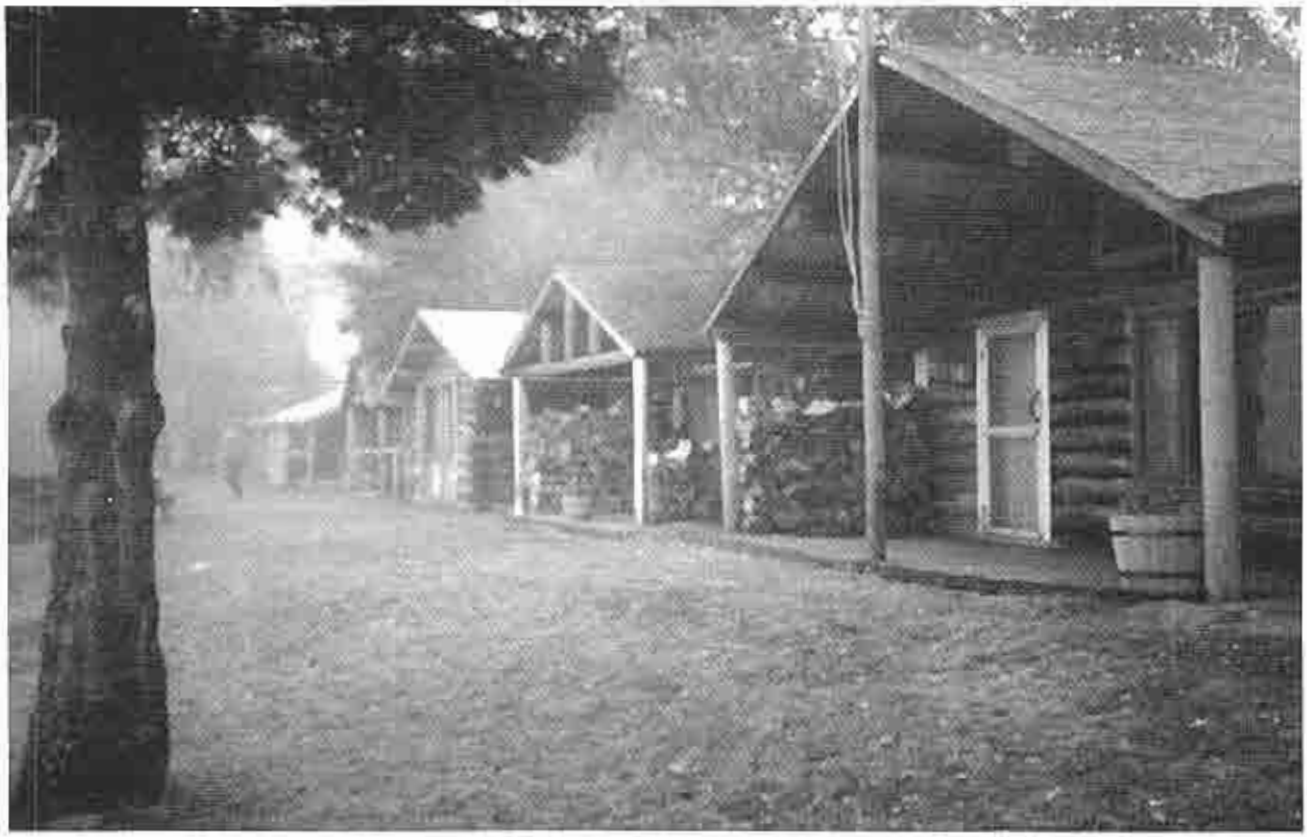
The number of sporting camps within the jurisdiction has dwindled over the past 50 years to the point today where fewer than 40 traditional camps operate. Considering their cultural value and compatibility with remote recreational settings, a basic question is whether LURC's policies and regulations are adequately supportive and protective of these facilities.

One significant concern is the use of sporting camps as development "nodes" to justify rezonings on lakes in remote areas where adjacency could not otherwise be demonstrated. The ensuing development could diminish both the resource value of the pond and the viability of the sporting camp itself. The appropriateness of the present General Development (D-GN) zoning of many of these facilities will also be reexamined.

A parallel concern is the location of a number of sporting camps on lakes with other development zones or on Management Class 3 lakes where the adjacency criteria can be waived. Proposals to rezone land for development in the vicinity of sporting camps will need to demonstrate that the recreational and cultural values of sporting camps will be protected from incompatible development and land use.

The Commission has at its disposal a number of existing mechanisms that can help protect sporting camps. In the review of new development, it will promote clustered designs as an alternative to shoreline development sprawl, and features such as buffering and common water access areas to minimize lakeside impacts. And it will promote concept plans, especially for lakes with sporting camps, to minimize conversion of lake frontage to development.

The Commission will also support sporting camps by facilitating the permitting process for minor amendments and reconstruction projects.



Moose Point Camps on Fish River Lake

Also, given the small number of sporting camps and the large number of people for whom they provide recreation, the Commission will give special consideration in its development standards for sporting camps. Such special consideration may include the reconstruction of nonconforming structures, particularly boathouses and camps that are part of a cluster of buildings. While the main lodges of new sporting camps should meet the Commission's setback requirements for commercial structures, the guest cottages (which have comparable impacts to private residences) need only meet the dimensional requirements of private residences.

In conferring special status on sporting camps, two issues arise: (1) differentiating between traditional sporting camps and other recreational lodging facilities that do not merit special protection, and (2) the potential for conversion or expansion of sporting camps into facilities that are more intensive or less compatible with remote values. Both of these issues may be resolved by fashioning a clear definition of traditional sporting camps and the values they have that are worthy of protection.

Commercial Whitewater Rafting

The rapid growth of commercial whitewater rafting during the 1980's raised a number of concerns regarding its potential impacts on and compatibility with the jurisdiction's principal values. While there is now considerably less concern that commercial whitewater rafting will dramatically change the character of the jurisdiction, a number of considerations remain.

On the rivers where it occurs, commercial whitewater rafting is an intensive use that periodically crowds stretches of whitewater with boats and exuberant rafters. Others using the river, particularly fishermen, may see rafting as an intrusion on their enjoyment of the resource. The levels of use evident in the early 1990's, however, seem to strike an appropriate balance in controlling river congestion and recognizing other values and uses along these rivers. The appropriateness of these use levels needs to be periodically evaluated and any proposals to increase these usage levels should be reviewed with extreme care.

The high volume, high-turnover nature of most rafting bases distinguishes them from sport-

Whitewater rafting

ing camps and most campgrounds where users engage primarily in primitive recreational pursuits or dispersed motorized uses, and where use levels are relatively low. While some rafting operations have diversified to provide other recreational opportunities, including primitive activities, the Commission views businesses with a rafting component as fundamentally different from traditional sporting camps and primitive camping facilities. From the Commission's perspective, businesses with rafting operations are intensive recreational facilities which are best sited in appropriately located development zones, away from potential conflicts with existing uses, significant natural resources and other values of the jurisdiction. Larger rafting operations are most appropriately viewed as outdoor adventure resorts that are ideally located at the fringes of the jurisdiction near existing services and infrastructure.

In reviewing new businesses with rafting bases and expansions of existing ones, careful consideration will be given to on- and off-site impacts due to the high-volume use of these facilities. Traffic, parking, septic and solid waste considerations are especially important, as are screening and careful management of activity areas for existing bases near shoreland or residential areas.

Campsites and Campgrounds

Camping is an activity that occurs at many different types of facilities, ranging from primitive sites consisting only of small cleared areas and fire rings to sites in a full-service campground with sewer, water and electrical hookups. Most of the issues involving campsites and campgrounds relate to the development, management and regulation of these facilities in all their different forms.

The Commission's approach to camping facilities is to classify them into three subcategories – remote camp sites, campsites and campgrounds – and to regulate them according to their expected level of improvements, accessibility and impacts. The Commission will review these subcategories to determine whether they can be refined to deal with issues regarding which category particular facilities belong in and the appropriateness of standards or requirements for facilities once they are so classified.

For instance, the term "campground" seems to encompass a broad range of facilities, from relatively primitive and low impact clusters of sites that can accommodate a relatively small number of people, to fully improved facilities with utility service that more closely resemble seasonal trailer parks.

Like sporting camps, many campgrounds within the jurisdiction depend on their remoteness, low use levels and privacy to attract and maintain clientele; in this regard they are quite different from larger campgrounds elsewhere in the state which become full-blown communities during summer months, with all the services and impacts of relatively high-density housing development. The general trend in recent campground development has been toward more low-impact, primitive-style facilities, and these types of campgrounds are generally more compatible with the jurisdiction's values and recreational goals.

Both within campgrounds and elsewhere, issues have arisen regarding the length of residency of "camping" trailers, and at what point they should be treated as single-family homes. Without understood limits and consistent enforcement, there is greater likelihood that permanent siting of trailers will be used to circumvent the Commission's sewage disposal and dimensional requirements.

These and other issues will be addressed by refining the standards and definitions governing camping facilities, recognizing that there will always be gray areas in their classification and regulation. In any revisions, the Commission will continue to adhere to the principles that camping facilities should be treated according to intensity of use, potential impacts and characteristics of the resources on which they are sited. In more remote locations, preference will be given to facilities most supportive of primitive recreational uses.

Alpine Ski Areas

Alpine ski areas are the jurisdiction's most intensive recreational facilities, and most of the issues relating to them involve their potential impacts on natural resources and adjacent land uses and activities.

The most likely future trend is continued expansion of Sugarloaf, Saddleback and Sunday River ski areas, with a considerable amount of "spill-over" development – seasonal homes, lodging accommodations, restaurants and sports outfitters – in adjacent areas. These areas are all located on the edge or just outside the jurisdiction and are near major highway corridors; from an overall

planning perspective, expansion of existing areas is preferable to the development of a new ski mountain, especially one located in a more remote area. However, expansion of existing areas must be accomplished with extreme care to address the environmental constraints of mountainside development and to preserve the natural and recreational values of these areas.

For any future ski area expansion or related support service development within the jurisdiction, the Commission will pay particular attention to the following considerations:

- **The effect of wastewater disposal on surface and groundwater water resources.** As intensive recreational facilities, ski areas produce large volumes of wastewater. Several ski areas have sewer treatment plants that handle wastewater from resort facilities and related residential development. Proposals for new ski area expansion must demonstrate the adequacy of these systems in handling the additional wastewater generated from this development in an environmentally sound manner. The impacts of proposed on-site septic systems will also be carefully evaluated, especially in relatively densely developed areas on significant grades.
- **The impacts of snowmaking facilities on the quantity and quality of surface and groundwater resources.** While there is a lack of conclusive data linking snowmaking activities to water quality problems, this issue deserves further examination as snowmaking facilities are expanded and water usage is vastly increased.
- **The visual impact of ski area and related development on scenic values in the vicinity, especially from the Appalachian Trail and other significant trails and view points.** The proximity of both Saddleback and Sugarloaf to sections of the Appalachian Trail make this a particular concern, although sensitive layout and buffering can help minimize impacts. In approving Saddleback's expansion proposal, the Commission determined that there would be no undue adverse impacts on the AT. For Sunday River Skiway, the most likely impacts are those on scenic qualities of the Mahoosuc Range as continued expansion into Riley Township occurs.

Condos at Saddleback ski area

- **The secondary impacts of ski area development on roadside sprawl.** Ski areas attract lodging facilities, restaurants, sports outfitters, and other retail and service establishments, and seasonal housing – both single-family and multi-family dwel-lings. While there are opportunities for this sort of development to be clustered in a village setting (e.g. Sugarloaf's Mountain village), it often occurs in a strip pattern along highways and access roads leading to the mountain. Ski area-related development may well be appropriate in the adjacent fringe communities, but it can be designed in a manner that does not detract from an area's natural character and overall attractiveness. The Commission encourages clustering, good site design and a zoning approach that avoids development sprawl near ski resorts.

Tourism-Related Issues

With its multiple outstanding values, the jurisdiction has tremendous potential for recreation-based tourism. As the tourism sector continues to grow, however, a number of challenges and opportunities are likely.

Some recreation-based businesses are dependent on the maintenance of the remote and undeveloped character of many parts of the jurisdiction. Sporting camps and remote campgrounds are two examples of businesses that depend on these values. Guide services, nature tours, and outdoor leadership schools are others. The demand for such "nature-based tourism" is on the rise nationally, and opportunities within the jurisdiction appear considerable. These opportunities can be threatened, however, by the encroachment of development and resulting impacts on natural character values. As formerly remote areas become developed, these businesses are likely to lose clientele or be forced to move their operations elsewhere.

Many of the values that these businesses depend on are maintained by large landowners who have foregone development opportunities. While large landowners have historically allowed public use of their lands, most do not benefit economically from recreational use. In fact, public use generally results in increased management costs and liabilities for the landowner. Ultimately, landowners may be more willing to maintain relatively pristine areas for recreational use if they can benefit financially from the growing tourism sector.

Emerging Recreational Uses/Facilities

Recreational uses and facilities exist today that were probably not contemplated in the early 1970's. Likewise, in the future there are likely to be new recreational uses not considered by this plan.

The Commission recognizes that it must be flexible in its approach to this evolving field, and adapt its policies and standards to address new uses. On the other hand, the Commission will carefully consider the potential impacts of any new uses on the principal values of the jurisdiction. While the Commission encourages recreational diversity, it will ensure that new uses or activities do not diminish the experience for traditional recreational users.

Special Natural Areas

Certain rare plants, animals, natural communities and geological and hydrological features possess unique or outstanding qualities of educational, scientific, and social value. They cut across traditional resource categories to represent a fairly diverse list of animals, plants, and natural sites. These resources are scattered throughout the Commission's jurisdiction. Maine statutes recognize the benefits posed by such resources and provide for their identification, and to differing extents, their protection through various state agencies.

Description and Examples

State law defines natural areas as any area of land or water that retains its natural character and supports or contains endangered, threatened, or rare plants, animals, and ecological systems, or rare or unique geological, hydrological, natural historical, scenic or similar features of scientific and educational value. These resources can be placed in one of four broad categories: (1) Rare and endangered plant habitat; (2) Rare and endangered wildlife habitat; (3) Rare natural communities and ecosystems; and (4) Unique geologic, hydrologic and other similar features. These resources are difficult to describe generally since their significance involves uniqueness, scarcity, or exemplary characteristics.

The rarity of particular plant species depends upon a number of factors involving numerical scarcity, special habitat requirements, geographical restrictions, range limitations and population vulnerability. Endangered plants are those in danger of extinction throughout all or a significant portion of their range within the state, while threatened plants are those likely to become endangered within the foreseeable future. Examples of rare plants in LURC's jurisdiction are numerous. One of the most well-known is Furbish's lousewort. The banks of a 140-mile stretch of the St. John River provide the only recorded location in the U.S. of Furbish's lousewort, which is listed as an endangered species. Most of the lousewort locations are protected voluntarily by landowners through the Critical Areas Register of Maine's Natural Areas Program or the *St. John River Resource Protection Plan*. Three other plant species, which are under review for endangered/threatened status, grow along streams or rivers in the jurisdiction. These are the auricled twayblade, St. John oxytrope, and New England violet.

As with plants, Maine's endangered wildlife species are those in immediate danger of extermination within the state, while threatened wildlife are those species that will become endangered if populations experience further decline. In addition, other species have been identified as needing special attention to prevent them from becoming endangered or threatened. Under the Maine Endangered Species Act, the Maine Department of Inland Fisheries and Wildlife identifies the essential habitat areas which provide physical or biological

Cypripedium Reginae or Showy Lady's Slipper, a rare plant in Maine

features essential to the conservation of endangered or threatened wildlife. Designation as essential habitat occurs only when habitat loss has been identified as a major factor limiting a species' recovery. It offers protection against projects that will significantly alter or unreasonably harm the habitat. Both bald eagle and roseate tern nesting areas have been designated as essential habitats in Maine, and piping plover and least tern nesting, feeding, and brood-rearing areas are proposed for such designation. The jurisdiction hosts both bald eagle and roseate tern nesting areas.

Interacting plants, animals and their common environment form natural communities which recur across the landscape. Occurring together over a particular portion of the landscape and held together by some common physical or biotic feature, natural communities form ecosystems. Natural communities are not equally common, and hence, rare or exemplary natural communities and ecosystems are scattered about the LURC jurisdiction. The old-growth forest at Big Reed Pond is unique because of its size and variety of communities. Over 5,000 acres in size, the area supports no rare or exemplary vegetation types, but the total complex of vegetation is unusual. It is a truly undisturbed system, large enough to continue intact, and no other place in Maine will be qualitatively similar to it, now or in the future.

Unique geological, hydrological, natural historical, scenic, and similar features comprise the final category of natural areas. The diverse nature of these resources make them the most difficult to describe as a group. The Critical Areas Register of Maine's Natural Areas Program lists many of them. Examples within the jurisdiction include rare fossil deposits portraying evidence of the development of life, unusual rock formations created by the action of flowing water, and striking waterfalls set in remote locations.

Uses and Values

The varied natural areas resources of LURC's jurisdiction provide many significant opportunities for education and scientific research. Because of the scarcity and uniqueness of some resources, they offer the chance to study and analyze aspects of natural resources and systems that are only known through theoretical, rather than practical, research and analysis.

The concept of biodiversity is particularly relevant to LURC, because of the Commission's statutory obligation to both preserve ecological and natural values and encourage the multiple use of land and resources. The value of biodiversity lies in its variety, which is a basic property of nature that sustains ecosystems, supports human populations, and provides an extensive array of food, fiber, health, economic, recreational, aesthetic, and other benefits. Keeping natural systems functioning helps to maintain those benefits, provides opportunities for research, and reduces the need for costly and difficult efforts to save individual species or to recreate natural communities.

Natural areas resources also render recreational benefits. Many people plan activities around visits to such areas merely to view a scarce or outstanding resource. However, depending upon the nature of the resources, they can be degraded or destroyed if human use exceeds their capacities for disturbance.

LURC Regulatory Approach

LURC uses various methods to protect significant natural areas within its jurisdiction. In some instances, the Commission has placed particular natural areas in protection subdistricts. The St. John River Resource Protection Plan, developed as a cooperative effort by landowners along the river and adopted by the Commission, identifies the habitat of Furbish's lousewort as sensitive areas and maps its locations. The Fish and Wildlife Protection (P-FW), Mountain Area Protection (P-MA) and Wetlands Protection (P-WL) Subdistricts afford protection to rare and endangered alpine and wetland species to the extent that they are located in zoned areas.

The Commission also designates certain natural areas as Unusual Area Protection (P-UA) Subdistricts. Some of the unique geologic, hydrologic and scenic features of the state occur within state parks which are zoned P-UA, such as Mother Walk Falls, Screw Auger Falls and Table Rock in Grafton Notch State Park. Other unique areas are not in state parks. For example, both Gulf Hagas, a narrow, slate-walled canyon three miles long with numerous waterfalls, and the Hermitage, an exemplary old-growth white pine stand, receive protection through P-UA zoning.

Gulf Hagas

The Commission coordinates its review of applications with other state agencies responsible for tracking and protecting various species and resources. The Natural Areas Program conducts ongoing inventories of rare plants, natural communities, and critical areas resources, maintains a data base from the inventories and other information sources, and administers the Critical Areas Register. The Maine Department of Inland Fisheries and Wildlife carries out the inventories and programs needed to enhance or maintain rare fish and wildlife populations. When the Commission receives an application that involves unique or exemplary natural areas, LURC staff forward a copy to the pertinent state agency for review and comment. Depending upon the level of concern expressed by the review agency about a proposed land use activity and its impact upon the resource, the Commission encourages applicants to incorporate the recommendations into the proposal.

Natural Areas Issues

Threats to Resources

Any land use or development activity, including timber harvesting, that is proposed on or near a natural areas site has the potential to disrupt, degrade or destroy the resource. The nature of the threat varies according to the characteristics and vulnerability of the particular resource. The type of protection afforded by the Commission ranges from applying conditions as part of the permitting process to restricting some activities in areas that fall within protection subdistricts. In all cases, identification of the resources is the critical first step in the process.

Needs

Since the jurisdiction covers such an expansive area, the identification of resources remains an issue in terms of efforts to provide protection. In all likelihood, many significant natural areas resources await discovery, and so, because of lack of information, may be destroyed by human activities.

Protection measures used by the Commission include placement in the Unusual Area Protection (P-UA) Subdistrict. The P-UA designation, however, has been used only for the most outstanding resources, leaving many without reliable protection, although inclusion on the Critical Areas Register provides voluntary protection by landowners. An attempt to standardize the criteria for coverage in P-UA's may serve to extend protection to more of these resources within the jurisdiction.

Water Resources

The Land Use Regulation Commission is charged by law with the responsibility "to prevent the despoliation, pollution and inappropriate use of the water" in the jurisdiction. Most of Maine's rivers originate in the region. Therefore, the Commission is responsible for preserving good water quality for major portions of the state. This water is valuable for drinking, for crops, for commerce and industry, and as a resource for recreation and energy.

Lake Resources

Characteristics

The jurisdiction is host to a wealth of lake resources unparalleled in most regions of the nation. These lakes, ranging in size from less than one acre to over 70,000 acres, help to define the Maine landscape. Among these lakes are some of the largest and least developed water bodies in the northeastern United States.

Largely the gift of receding glaciers, these lakes display such variety that it is impossible to characterize a typical Maine lake. Some are shallow; others are deep and cold. Some are regular in shape and ringed with dense forest; other have irregular shorelines, islands, rock outcroppings, and beaches.

Fully one-half of Maine's lakes are located in the jurisdiction. These 3,000 ponds and lakes cover more than 680,610 acres, or about 6% of the area, and provide about 35 million feet of shoreline. Half of these lakes are less than 10 acres in size, representing less than 2% of total lake surface area and about 12% of total shoreline. Fourteen of Maine's 15 largest lakes are wholly or partially within the jurisdiction, including Moosehead Lake, the largest lake in the state with 74,890 acres.

The Maine Wildland Lakes Assessment was initiated in 1986 to establish a systematic base of natural resource and land use information on all lakes within the Commission's jurisdiction. The study considered all lakes with a surface area of 10 acres or more. Approximately 1,500 lakes, representing about one-half of the lakes but over 98% of

Grand Lake Matagamon

the total lake surface area in the jurisdiction, met this size requirement . A number of smaller lakes were added to the study because they were found to possess especially noteworthy natural resource values.

Information on fisheries, scenic quality, botanic features, physical characteristics, wildlife, shoreline character, and cultural resources was collected and evaluated to determine the resource significance of these features on each lake. The resource classifications of all lakes studied are shown in Appendix C of the Commission's Land Use Districts and Standards.

The study also collected information on land and water use characteristics, including access, zoning, water level fluctuation, proximity to services, ownership, and public water supply. The information collected in this study is recorded in an extensive database of these lakes.

Uses

Lakes have contributed to the state's social, economic, and environmental well-being. Historically, they provided convenient transportation routes for Indians and early settlers, as well as for Maine's emerging timber industry. They also served as sites for early hunting camps and resorts, establishing Maine as the nation's premier sporting camp state.

Today, lakes in the jurisdiction serve many important functions. They have long been a magnet for outdoor enthusiasts, offering experiences ranging from lakeshore camps to remote fishing and canoeing. Distinguished by generally excellent water quality, most lakes provide high quality fish and wildlife habitat, recharge groundwater supplies, and contribute to the flow of streams and rivers.

Lakes attract more residential development than any other geographic feature in the jurisdiction. The annual number of new dwellings approved on lakes increased steadily in the latter part of the 1980's, rising from roughly 100 in 1985 to 218 in 1990. Since 1971, 53% of all new lakefront dwellings have been located on lakes considered to be of statewide significance with multiple outstanding vales. These lakes represent 40% of the total shoreline in the jurisdiction, indicating that development is disproportionately concentrated on high value lakes.

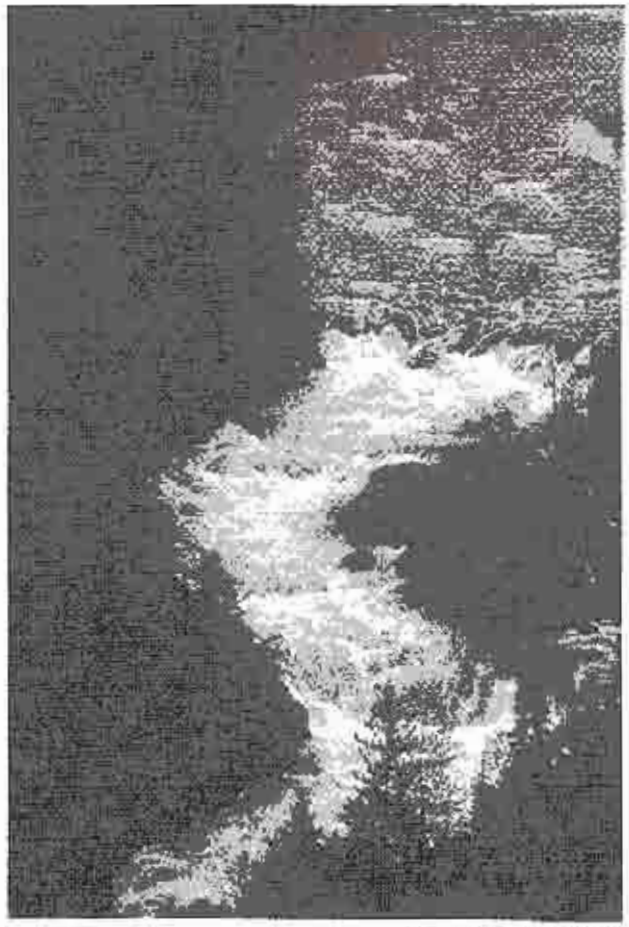
Other forms of development also occupy shoreland, including sporting camps, recreational development, and some commercial uses. Since 1971, 46% of all Development Permits have been located in shoreland areas.

River and Stream Resources

Characteristics

Maine is unique in the northeastern United States in the number and diversity of significant natural and recreational river resources that it possesses, including:

- River gorges, waterfalls and white water rapids identified as being outstanding geological or hydrological features;
- More miles of undeveloped free-flowing rivers than any other state in the Northeast, including particularly significant undeveloped stretches along the Allagash, Aroostook, East Machias, Machias, Penobscot, Pleasant, St. Croix, and St. John systems;



Long Fall, Dead River

- River corridor segments which provide habitat for diverse populations of rare and endangered plant species;
- Famous Atlantic and landlocked salmon, trout and other game fisheries; and
- Significant white water, back country, and other canoeing and rafting experiences.

Six major drainage basins span the jurisdiction: the St. John/Aroostook River Basin; Penobscot River Basin; Kennebec River Basin; Eastern and Central Coastal Basins; Androscoggin River Basin; and Western Coastal Basins. Large portions of four of these basins are located in New Hampshire, Quebec, or New Brunswick.

Of the 19 major rivers in the state, five are considered pristine – the Allagash, Dead, East Branch of the Penobscot, West Branch of the Penobscot, and Fish Rivers – all of which lie within the jurisdiction. Seven of the 19 are pristine in their upper watersheds, before entering more industrialized areas. These are the Androscoggin, Aroostook, Kennebec, Penobscot, Presumpscot, St. Croix, and St. John Rivers.

The Maine Rivers Study, carried out by the Department of Conservation with assistance from the National Park Service in the early 1980's, comprehensively inventoried and assessed 32,000 miles of the state's streams and rivers. Over one thousand miles of these rivers were classified as "A" Rivers of highest significance, because they possess a variety of unique and/or outstanding recreational or natural values of greater than state significance. Nearly 760 miles of these Class "A" rivers lie in LURC jurisdiction. In addition, the study classified several hundred miles of rivers and tributaries as "B," having natural and recreational values with outstanding statewide significance.

Uses

Maine's rivers have always been an important part of the state's culture and economy. They were used for travel by Native Americans, European settlers, and 19th-century tourists. Millions of logs were floated down the Penobscot, the Kennebec and the Androscoggin during annual spring log drives until the 1970's.

Today, recreation is the most common use of rivers and streams. Several rivers in the jurisdiction provide spawning grounds for trout, salmon, and other important game fish and attract people from all over the Northeast to fish. Other recreational opportunities include boating, particularly whitewater canoeing, kayaking and rafting.

Development on rivers and streams – while less common than along lakeshores – is a common land use. Approximately 11% of new dwellings approved in the jurisdiction between 1971 and 1991 were located on a river or stream.

Another significant use, limited to certain river and stream segments, is hydropower. Since hydropower development often conflicts with a river's other resource values, namely, recreation, scenic preservation, and fisheries, the state moved to establish a balance between these values in the 1980's.

The 1981 State Energy Policy recommended developing hydropower on all sites where the advantages of a facility outweigh the adverse impacts. However, recognizing that once a site is developed for hydropower the resource is permanently altered, this policy directed the Department of Conservation to work with environmental, economic, energy, and other appropriate interests to identify river stretches in the state that provide unique recreational opportunities or natural values and to develop a strategy for the protection of these areas. This led to the Maine Rivers Study and subsequent enactment of the Maine Rivers Policy in 1983.

Groundwater

Characteristics

The jurisdiction has vast, largely untapped groundwater supplies. Surficial deposits of sand and gravel and fractured bedrock provide pathways and storage for percolating ground water. Recharge areas collect precipitation and surface water that replenishes these aquifers.

Limited mapping has been done of groundwater supplies within the jurisdiction. Almost no mapping has been done of sand and gravel aquifers in Piscataquis and Somerset counties excepting their southernmost areas. Most of the maps for the rest of the jurisdiction are at a scale of 1:50,000 and are designed for use in locating sites favorable for development of water supplies or unfavorable for storage or disposal of waste or hazardous material. Some areas in western Maine and Penobscot County have been mapped in greater detail as part of the Significant Aquifers Project. For

these areas, maps which more accurately characterize each sand and gravel aquifer are available at scales of 1:50,000 or 1:24,000. No maps of bedrock aquifers are available in the jurisdiction, but some information is available from the Maine Geological Survey.

3

Uses

The most common use of groundwater in the jurisdiction is as drinking water supply, mostly for individual dwellings and camps. Commercial uses such as lodging establishments, restaurants and recreational facilities also use significant amounts of groundwater. In addition, several public water suppliers serving adjacent towns have wellheads in the jurisdiction.

At least one water bottling operation is located in the region. Other potential uses of groundwater includes snowmaking and industrial processing.

LURC Regulatory Approach

Lake Resources

The Commission has established minimum shore frontage, setback and clearing standards focused on preventing environmental degradation and providing reasonable development opportunities. The Great Ponds Protection (P-GP) Subdistrict was applied to the shoreland of all lakes and ponds "not to wholly preclude residential and recreational development on Great Ponds, but to regulate these areas so that development will not degrade the waters, recreational potential, fishery habitat, or scenic character..." Shoreland can be rezoned to Development subdistricts if certain criteria are met.

The Commission has always made a special effort to provide for shoreland development while maintaining protection of significant natural values. Nonetheless, in the mid-1980s, faced with increasing demand for lakefront property, the Commission acknowledged the danger that, even with minimum standards, lakes in its jurisdiction might, by attrition, lose the very character that makes them so unique.

In response to this threat, the Commission in 1990 adopted an *Amendment of the Comprehensive Land Use Plan Regarding the Development and Conservation of Lakes in Maine's Unorganized Areas.* The Amendment forms the foundation of the Commission's Lake Management Program. The main purposes of the program are (1) to establish a comprehensive database on lakes in the jurisdiction and (2) to develop policy and implementation measures that provide more comprehensive protection for lakes.

Under the program, lakes in the jurisdiction are grouped into seven management classes based on natural resource values and land use characteristics identified in the Wildlands Lake Assessment. Each class has specific planning and management objectives designed to protect and enhance its values. One category of lakes, Management Class 3, consists of those lakes determined to be potentially most suitable for development.

A major new planning policy under the program is "to guide lake development based on identified land use characteristics and natural resource values, conserving important values and directing development toward those lakes or lake areas most capable of absorbing new development." The pro-

Aziscohos Lake

gram also establishes a general planning guideline that development on lakes will remain below an average of one dwelling unit per 400 feet of shore frontage, and one dwelling unit per 10 acres of lake surface area.

A number of important elements from the Lakes Management Program have been incorporated into the Commission's rules. Two lake management classes, "High Value, Least Accessible Lakes" and "Remote Ponds," have been zoned as Recreational Protection (P-RR) Subdistricts in which motorized access and development is prohibited. Lakes in another Management Class, "High-Value, Accessible Ponds," have been zoned as Accessible Pond Protection (P-AL) Subdistricts, which limit development densities to one development unit per mile of shore frontage. In addition, seven factors identified as most important in reviewing the suitability of lake-related development proposals have been incorporated into the Commission's *Land Use Districts and Standards*.

Through this program, the Commission is encouraging the use of concept plans as a flexible alternative to traditional shoreland regulation. Concept plans are landowner-created, long-range plans for the development and conservation of a large block of shoreland on a lake or group of lakes. Adopted concept plans are zoned as Resource Protection (P-RP) Subdistricts.

The Lake Management Program includes a number of other important elements that are central to the Commission's lake planning efforts. The entire *Amendment of the Comprehensive Land Use Plan Regarding the Development and Conservation of Lakes in Maine's Unorganized Areas* is included as an appendix to this plan.

River and Stream Resources

As with lakes, the Commission has established minimum shore frontage, setback and clearing standards for rivers and streams. The Shoreland Protection (P-SL) Subdistrict has been applied to the shoreland of rivers and streams to "regulate certain land use activities in certain shoreland areas in order to maintain water quality, plant, fish and wildlife habitat and in order to protect and enhance scenic and recreational opportunities."

Following publication of the Maine Rivers Study, an executive order established the protection of certain rivers (substantially the "A" classified rivers) and urged independent regulatory agencies, such as LURC, to take action consistent with that policy.

The Commission responded in 1983 by amending its rules to clarify that river and stream segments identified in the Governor's executive order as meriting special protection expressly qualify for Recreation Protection (P-RR) zoning. Water impoundments and commercial and residential development are prohibited in the P-RR Subdistrict, making this zone a particularly appropriate one to carry out these policies.

The rule change adopted by the Commission and approved by the Legislature was based upon the Commission's enabling statute, its stated goal of protecting significant natural and recreational river resources, the Maine Rivers Study, and the Executive Order on Maine Rivers Policy and provided a solid foundation for application of protection zones to river resources of documented importance.

The Commission has employed a variety of measures to protect important recreational river stretches from incompatible development. A total of 659 miles of rivers are protected by Recreation Protection (P-RR) and Resource Plan (P-RP) zoning. Most high value rivers have been placed in the P-RR zone which prohibits dams, water impoundments, and commercial and residential development. Significant stretches of the St. John and Penobscot rivers have been placed in P-RP zones, whereby a special management plan provides for the protection and management of the river resource.

Sections of the Aroostook and Big Machias rivers have been placed in the Special River Transition Protection (P-RT) Subdistrict. This zone is designed specifically for stretches of river that have significant recreational resource values, lie in "transitional" areas between "big woods" and downstream organized areas, and have a significant community present. The zone is similar to the P-RR zone but allows for limited development utilizing a combined setback/frontage standard. Stretches of river that have been protected are listed in the appendix of this Plan.

Under Maine law, hydropower development is regulated by the Maine Rivers Policy and the Maine Waterway Development and Conservation Act. The Maine Rivers Policy protects outstanding segments of rivers and streams in the state from the construction of new dams, and provides for more stringent review of the additional development of dams

existing on these segments. The Maine Waterway Development and Conservation Act requires a single application and permit for the construction of all hydropower projects, structural alteration of some projects, and certain maintenance and repair projects. The Commission and Board of Environmental Protection jointly adopted administrative regulations for hydropower projects in 1987. These regulations, which provide for a single application and permit for hydropower, are administered by LURC for hydropower projects located completely within the jurisdiction.

Floodplains

The Commission uses the 100-year flood plain for purposes of delineating flood prone areas and establishing appropriate land protection strategies. The 100-year flood plain is the area in which flooding is normally expected to occur once in 100 years, or where there is a 1% chance of being flooded in any given year. The Commission has designated a Flood Prone Area Protection (P-FP) Subdistrict that prohibits most forms of building, since such preventive controls are far more effective and less expensive than after-the-fact protection such as flood walls and dams. The restrictions in this subdistrict comply with an agreement between the Commission and the Federal Emergency Management Agency (FEMA) that requires that building development be limited in this way so that flood insurance can be made available to persons within the jurisdiction.

Groundwater

Certain types or densities of development can have negative impacts on the quality and quantity of groundwater in an aquifer. Such impacts can result in long-term damage in which remedial actions are infeasible or extremely expensive. Recognizing this, the Commission has created an Aquifer Protection (P-AR) Subdistrict which limits development of potentially polluting activities on aquifers which are in use or anticipated to be used for public, industrial, or agricultural purposes.

Water Resource Issues

Lake Issues

Development

In the 1980's, demand for recreational property grew substantially throughout the northeastern United States. Land costs along Maine's coast increased dramatically and many lakes near population centers became saturated with recreational camp development. Seeking both affordable property and a less crowded atmosphere, many people desiring to purchase waterfront property turned their attention to the recreational opportunities offered by lakes in the Commission's jurisdiction.

Between 1985 and 1991, over one-third of all building and development permit applications within the jurisdiction involved lakes. Subdivision applications have been even more heavily weighted toward lakes; since 1982, 44% of all subdivision lots have been located adjacent to lakes. Expanding both in number and distribution across the region, lakeshore development has significant potential to affect important natural values, timber harvesting, and traditional uses associated with lakes, such as sporting camps.

The Commission's Lake Management Program was developed largely to address concerns that development was incrementally eroding

Smith Pond, Pre-LURC Development

the values of lakes in the jurisdiction. This program has clearly been successful in protecting certain classes of ponds (particularly the 281 ponds in Management Classes 1,2 and 6,) and in providing more guidance in the review of shoreland-related development. The program has been less clearly successful in guiding development toward the lakes viewed as most suitable for development, and in protecting the values of other lakes, especially lakes with outstanding multiple values (Resource Class 1A) that do not fall into Management Classes 1, 2 or 6.

The policies and implementation measures of the plan provide an opportunity to better guide the location of growth on lakes jurisdiction-wide and to refine zoning approaches in rapidly growing regions with high-value lakes. With the rate of shoreland development expected to continue and possibly accelerate during the late 1990's and into the 2000's, the Commission will regularly assess the effectiveness of its efforts in protecting lake values.

In 1992, the Maine Legislature established the Great Pond Task Force to coordinate the state's great pond protection efforts. Among its many charges is the responsibility to develop a great ponds management strategy and a classification system that is reasonably consistent with the Commission's classification system. The Commission will work with the Task Force to ensure a coordinated approach in dealing with Maine's great ponds.

Lake Water Quality

Water quality is an important characteristic of lakes, because the quality of a lake's water in large part determines its value and usefulness as a resource. A lake with good water quality is much more valuable than one which has poor quality water. In most cases, the quality of a lake's water depends upon the nature and use of its watershed – the area which supplies water to the lake.

All water bodies are susceptible to water quality degradation, either by natural processes or human activities. Eutrophication is the natural aging process of lakes and ponds. Young lakes, also called oligotrophic lakes, are characterized by

Post-LURC development on Aziscohos Lake

having low dissolved nutrients and abundant oxygen and are usually deeper, clearer, and colder than older lakes. Oligotrophic lakes often contain cold water fish such as salmon and trout. Old lakes, also called eutrophic lakes, have a high nutrient concentration but low oxygen content. Some fish, such as bass and pickerel, can exist in these eutrophic lakes because they can live in waters with high temperatures and lower dissolved oxygen. But many cold water fish species important for recreational purposes cannot survive in eutrophic lakes.

Human activities can speed up the natural aging process in lakes. This is known as cultural eutrophication. Disturbance of the land surface by activities such as timber harvesting, agriculture, or land development disrupts natural processes which normally purify water moving through and across land. As a result, water moving through disturbed land picks up considerably more sediment and nutrients than water moving through undisturbed woodland.

This runoff and its load of nutrients ultimately reaches lakes and ponds. Most lakes can utilize a certain amount of phosphorus without undergoing a significant change in water quality. However, if the amount of phosphorus entering a lake increases above natural levels and remains high over time, the lake will eventually become overfertilized and produce excessive amounts of algae. Algal blooms reduce water transparency, deplete the oxygen supply, and alter fisheries and wildlife habitat, resulting in reduced recreational appeal and impaired water potability.

Water quality in Maine is relatively good, and the waters of the jurisdiction, particularly eastern and northern Maine, are generally quite pristine. There are a few exceptions. The Department of Environmental Protection, which administers state and federal mandates regarding lake water quality, has identified 51 lakes in LURC jurisdiction that are considered to have impaired water quality based on the incidence of repeated algal blooms or other factors. The impaired water quality of these lakes is primarily due to organic enrichment caused by agriculture, timber harvesting, or watershed development.

Nine lakes that do not or will not meet state water quality standards despite implementation of technology-based controls for point and nonpoint sources of pollution have also been identified. These lakes are listed below:

Long Lake (T17 R04 WELS)
Cross Lake (T17 R05 WELS)
Square Lake (T16 R05 WELS)
Madawaska Lake (T16 R04 WELS)
Fitzgerald Pond (Big Squaw Twp.)
Spencer Pond (East Middlesex Canal Grant)
Haley Pond (Dallas Plt.)
Pleasant Lake (T04 R03 WELS)
Onawa Lake (Elliottsville Twp.)

Additional work designed to improve water quality is planned for Long Lake, Cross Lake, and Madawaska Lake.

One thousand of the lakes in the jurisdiction have been designated by the Commission as water quality limiting lakes (WQLL). The WQLL designation was originally developed to address the cumulative impact of individual lot development on lake water quality. The Commission recognizes that the formula for identifying water quality limiting lakes is rudimentary and understands the need to update its approach to review of impacts on water quality. To meet this need, Commission staff continues to work with DEP to develop a systematic approach to protecting water quality, one which more accurately reflects the level of knowledge about the relationship between land use and lake water quality.

The state, as part of its Nonpoint Source Management Program, is in the process of developing a set of manuals on Best Management Practices (BMPs) designed to reduce the adverse effects of land use activities on water quality. When these manuals are complete, the state will look to the Commission as well as other agencies to promote use of BMPs through education and other means.

Maintenance of the good lake water quality in the jurisdiction depends largely upon future land use. Conversions of predominantly forested, undeveloped land to low-density residential development within a watershed can adversely affect lake water quality. Forest management also continues to be evaluated for impacts on lake water quality, and agriculture remains a major cause of water quality problems in some agricultural watersheds. The Commission will continue to monitor lake water quality, changes in land use, and seek to minimize the impact of land use on lake water quality.

Surface Use Conflicts

Lakes and ponds are being used by an increasingly diverse group of watercraft, ranging from canoes and small-engine fishing boats to high-powered motor boats. As the diversity of watercraft and the number of lake users increases, so too does the potential for conflicts between uses.

As the principal presence addressing land use issues in its jurisdiction, LURC is sometimes drawn into surface use conflicts. The Commission will work with the Great Ponds Task Force, other state agencies, sportsmens' groups, and other interested parties on this issue and support efforts to establish coordinated and effective approaches. See the Recreation Resources section for a fuller discussion of potential use conflicts on lakes.

River and Stream Issues

Hydropower

Hydropower development was a significant issue in the 1980's, during which time there was strong interest in hydropower development on many rivers in the jurisdiction. Since then, regulations for reviewing hydropower projects have been adopted and responsibility for granting water quality certification has been assigned to the Commission for projects otherwise requiring a permit from the Commission.

Water Quality

The generally pristine quality of its rivers and streams is a distinctive feature of the jurisdiction. Assurance of their continued high quality is important to the future use and value of the region and to other areas downstream.

Most threats to water quality come from nonpoint sources of pollution, principally from timber harvesting and extraction, land development, and agriculture. These and other activities can both accelerate stormwater runoff and contribute pollutants to streams and rivers.

There have been significant advances in the reduction of nonpoint source pollution. The Commission's standards on clearing, roads and water crossings in shoreland areas are aimed at minimizing the movement of pollutants into waters. Efforts to further reduce nonpoint pollution will be focused on educational programs and strict enforcement of these standards. The Commission will also encourage the use of other best management practices for other land uses with potential to affect river and stream water quality.

Shoreland Development

River and stream shoreland is not as heavily developed as lake shoreland, but shoreland development remains a potential issue. Proximity to water is the most sought-after feature for recreational lots in the jurisdiction, and demand for river shoreland may increase. Development of river shoreland will be closely monitored to ensure that it is properly sited and does not adversely affect water quality, recreation, and other values of rivers and streams.

Floodplains

Maine's climate provides conditions conducive to flooding, especially in late winter and early spring. Spring rains, coupled with snowmelt, sometimes produce severe flooding. Ice buildup in lakes and rivers complicate the situation as ice jams often obstruct water flows. The volumes of water released when these jams break can threaten human life, devastate buildings, and damage infrastructure.

The identification and protection of floodprone areas is necessary to protect landowners as well as the public. Poorly conceived uses of flood prone areas contribute to damage caused by floods and can result in severe economic losses for individual landowners and the public in general. Bridges, structures, and other artificial obstructions in flood prone areas can impede water and ice flow. Demolished structures become hazardous debris and create pollution downstream. Collectively, even small structures in flood prone areas reduce flood storage capacity. Preserving flood prone areas in their natural condition augments the normal carrying capacity of a river channel and provides a temporary storage area for flood waters.

Little mapping of floodprone areas has been done in the jurisdiction. The Federal Emergency Management Agency (FEMA) has preliminarily mapped floodprone areas in 30 townships in LURC jurisdiction, but these maps are not always accurate and therefore are of limited value. Since there

is no information on floodprone areas in townships which have not been mapped by FEMA, the Commission has used soil information to identify such areas.

Periodically, the Commission reviews applications for structures in or adjacent to floodprone areas and the lack of good information continues to be a problem. More data on flood levels on lakes and rivers is needed to enable the Commission to make good decisions about where development can safely be allowed.

Groundwater Issues

Potential contamination is the most serious threat facing groundwater supplies. Groundwater contaminants are extremely persistent due to slow groundwater flow rates and minimal biological activity. Almost all groundwater contamination in Maine originates from nonpoint source pollution, principally underground storage tanks, agricultural activities, landfills, road salt storage and application, abandoned hazardous waste sites, and septic tanks.

Collectively, septic systems discharge the largest volume of wastewater into the subsurface environment. The major contaminants of concern are nitrate, bacteria, and viruses. Major factors affecting the potential of septic systems to contaminate drinking water are the density of systems per unit area and hydrogeological conditions.

While the Commission's Aquifer Protection (P-AR) zone is designed to protect important groundwater supplies, its application has been limited in the past due to lack of information. Mapping of aquifers in the jurisdiction has improved, but the issue of identifying areas likely to be used for public or nonresidential uses remains. When the Commission undertakes prospective zoning for development in certain high-growth areas, it will review, as a parallel effort, the need for aquifer protection in these areas.

Where possible, LURC will adopt Best Management Practices for activities that pose a threat to groundwater quality, as recommended by the statewide groundwater protection strategy. The Commission will protect groundwater quality throughout the jurisdiction through proper controls on potentially polluting activities.

The "Meadow" on Monhegan is an aquifer, the island's primary water source

Wetland Resources

Extensive wetland resources exist throughout LURC's jurisdiction. Until the past two to three decades, wetlands were considered wastelands that were inhospitable to people. Draining and filling them was an accepted and desirable practice. Today, these same wetlands are now recognized as vital components of larger ecosystems which perform many valuable functions.

Characteristics

Generally, wetlands are land areas where the water table is at, near, or above the land surface for extended periods of time. Although there are some variations in how wetlands are defined and delineated, most wetlands are identified by the presence of particular types of soils and vegetation that result from or are tolerant of periodic submersion by water.

An estimated 25 to 30% of Maine's total area is wetland. About half of this total is estimated to be forested by evergreen species. The remaining wetlands are a mixture of open meadows, bogs, marshes, swamps, fens and forested deciduous wetlands.

Documentation of the vast array of wetland natural communities and conditions in the jurisdiction is incomplete. However, the U.S. Fish & Wildlife Service has classified and mapped wetlands and deep water habitats in Maine through the National Wetlands Inventory. This mapped information shows the wide variety of wetland conditions ranging from marine intertidal wetlands to inland forested wetlands. Wetland types often converge so that a single wetland classification rarely covers an entire wetland.

In addition to the National Wetlands Inventory, the Maine Natural Areas Program has developed a classification system for all ecosystems and natural communities throughout the state including wetland community types. Additionally, it has identified a number of exemplary and rare wetland community types in the Commission's jurisdiction.

Most wetlands are hydrologically connected to lakes, ponds, rivers, streams, and brooks. However, there are isolated wetland systems whose wetness is sustained through groundwater seepage and/or soil saturation. Most rivers and tributaries are bordered by wetlands as well.

Wetlands underlain by peat deposits are a relatively common feature in the Commission's jurisdiction and are particularly abundant in eastern and northern Maine. By contrast, well drained, mountainous parts of the jurisdiction contain relatively few peatlands.

The jurisdiction contains relatively few coastal wetlands. They are small features found on islands and along the mainland coast. Unlike their freshwater counterparts, coastal wetlands in the jurisdiction are isolated and self-contained, not part of a larger system.

Wetlands can change from one subclass or water regime to another as a result of natural succession, human induced changes, or (to a lesser extent) beaver activities. Wetlands are not static, underscoring the need to periodically update mapped wetland information to maintain a reasonable level of accuracy.

Uses and Functions

Wetlands have many useful functions. They act as natural sponges that absorb, hold, and slowly release surface water. By doing so, wetlands help reduce flood damage by storing water during times of peak water levels. Wetlands also help to protect water quality by acting as settlement basins, filtering suspended sediments and absorbing nutrients and heavy metals. Wetlands also help to stabilize shorelines, absorbing wave action and storm energy, thereby buffering shoreline erosion.

Wetlands offer a range of wildlife and vegetation types, providing habitats for numerous species, including some that are rare in Maine, New England, and in some cases, North America. Wetlands support beautiful orchids, blueberries, cranberries and, is some instances, commercially valuable timber such as cedar and black spruce. Wetlands also provide breeding, feeding, nesting, resting, and wintering areas for a variety of birds, fish, insects, reptiles, amphibians, and mammals. This range of flora and fauna offers opportunities

for hunting, fishing, trapping, photography, nature appreciation, and environmental education.

Compared with the southern part of the state, few wetlands in the jurisdiction have been converted to agricultural uses. By contrast, wetlands (mostly forested) are routinely used for forestry operations. Red maple, black spruce, larch, and to a lesser extent, ash and northern white cedar, dominate forested wetlands, providing sources of wood for the state's forest products industry. Most harvesting activities take place during the winter months when the ground is frozen, thereby reducing environmental damage and increasing mobility in the woods. Due to soil properties and seasonal wetness, these forested wetlands often produce timber at a slower rate than upland areas.

Another use of wetlands has been for mining of peat. Because peat takes thousands of years to form, it is essentially a nonrenewable resource. Peat resources do not underlay all wetlands or even a particular wetland type, and therefore have to be considered a special attribute of certain wetlands. In the early 1980's, the University of Maine developed a classification system for Maine's peatlands for the Department of Conservation.

Wetland

A minimum of 35,000 acres of commercially valuable peat exists in the jurisdiction. While peat extraction has not been very active over the last 20 years, the potential exists for this resource to be more heavily utilized in the future. The principal uses of peat are as horticultural and agricultural soil amendments, however, peat is also used as a fuel. There is a large- scale peat mining operation on a 1,000-acre raised peat bog known as the Denbo Heath in T16 MD and Deblois. Peat as an energy resource is discussed in the Energy Resources section of the plan.

Historically, the Commission has received relatively few applications to alter jurisdictional wetlands. The reason is twofold: first, most people avoid activities in a wetland if they have a choice; and secondly, under Commission rules and standards, several common land use activities, such as forest management, do not require a permit.

LURC Regulatory Approach

The Commission regulates land use activities in coastal and inland freshwater wetlands by designating them as Wetland Protection Subdistricts (P-WL). The Commission's purpose for protecting wetlands is to conserve wetlands in essentially their natural state because of the indispensable biologic, hydrologic and environmental functions which they perform.

Wetland Resource Issues

In the 1990's, a major challenge for the state has been reaching agreement on a system of comprehensive wetland protection that offers consistent standards and non-duplicative review. The Commission has participated in efforts to improve and streamline wetland regulation in the state and these efforts continue.

Overlapping Jurisdiction

Historically, the Commission has shared regulation of wetlands in the jurisdiction with two other agencies: the Army Corps of Engineers and the Maine Department of Environmental Protection (DEP). Under section 404 of the federal Clean Water Act, the Army Corps of Engineers is responsible for regulating activities in wetlands regardless of their size. Under the Natural Resource Protection

Act (NRPA), DEP is charged with regulating wetlands in all areas of the state. Except for larger projects, the DEP has generally deferred to the Commission in permitting wetlands within the jurisdiction. But the Commission has shared regulatory jurisdiction over wetlands with the Army Corps of Engineers.

Regulators, business leaders, and environmentalists agree that regulatory duplication serves neither the resource nor the applicant. Through legislation adopted in 1992 and 1995, the Maine Legislature sought to address the issue of duplicative review and a number of other wetland issues. The 1992 initiative directed the Commission to consider changes in its approach to make it more consistent with NRPA. The 1995 law amended NRPA, and resulted in the state's participation in a federal program that eliminates the need for Army Corps permits in many situations.

The Commission is in the process of modifying its approach to be consistent with the amended NRPA law. It also seeks agreement with the Army Corps on streamlined permitting. But there are several issues that must be addressed as this is accomplished, as discussed below.

Mapping

The Commission utilizes a straightforward, map-based approach to wetland protection. If a proposed activity will affect a mapped wetland, a permit is required. This system works well to protect wetland resources as long as the maps provide an acceptable level of accuracy in identifying wetlands of the type and size the Commission wishes to protect.

The National Wetland Inventory for Maine, the Commission's principal source of wetland information, provides the best source for mapping wetlands at a reasonable cost. A study of the accuracy of this inventory in the Commission's jurisdiction shows that the existence and type of wetlands over 3 acres in size are accurately depicted 90-92% of the time. There is, however, an ongoing debate in the scientific community about the accuracy of this Inventory in identifying wetland boundaries.

The Maine Department of Environmental Protection and Army Corps have traditionally required field delineation of wetlands. This approach provides more accuracy than National Wetland Inventory maps, but requires applicants to pay the cost of delineating wetland boundaries, preparing alternatives analysis, and documenting wetland functions.

The Commission believes that a map-based approach is still the best method for ensuring adequate protection of wetlands at a reasonable cost to the regulated community. Issues concerning mapping accuracy could be addressed by requiring applicants to perform field delineations in some cases, particularly for projects with potential for significant potential wetland impacts.

Consistency with NRPA

The Natural Resource Protection Act regulates both forested and nonforested wetlands. As a result of the 1994 amendments, NRPA also now applies to wetlands of any size. Under the NRPA approach, wetlands are classified into different tiers according to assessed values, with permitting requirements varying accordingly.

As of 1996, LURC regulated only nonforested wetlands, 10 or more acres in size. Modifying the Commission's rules to be consistent with NRPA will result in more comprehensive wetland protection. Scientific evidence suggests small and forested wetlands can provide as many valuable functions as their larger and nonforested counterparts.

But regulating these additional wetlands will also add complexity to the Commission's approach. Instead of one Wetland Protection (P-WL) Subdistrict, there will likely be several types of P-WL zones, each with its own set of allowed uses and standards.

As the Commission revises its rules, a likely issue will be whether variations between LURC's approach and NRPA are justified based on the distinctive characteristics of the jurisdiction or the Commission's role as a local planning entity. Wetland value rating is a good example. Under NRPA's approach, wetlands characterized as "scrub-shrub" are rated as low value. The Commission, on the other hand, has traditionally treated large wetlands of this type as high value. In resolving these and other such issues, the Commission will strive for regulatory consistency, while ensuring that its approach adequately protects the jurisdiction's wetland resources.

Staffing and Resources

Making the Commission's approach consistent with NRPA also has implications for staff

resources. Including wetlands that are forested and less than 10 acres in size will significantly increase the number of wetlands regulated by the Commission. While most forestry related activities would be exempt from review in these areas, development activities would not.

Particular aspects of the amended NRPA law could require considerable staff time and expertise. For example, a provision exists allowing applicants to mitigate wetland impacts by constructing new wetlands elsewhere. This concept of mitigation has merit, but the Commission will address staff capacity and training issues before incorporating such provisions into its approach.

Wildlife and Fisheries Resources

The wildlife and fisheries resources of the jurisdiction provide economic, environmental and social benefits to the people of Maine. Residents and visitors enjoy Maine's woods, streams, and lakes for recreation, many forms of which are related to or dependent on the presence of fisheries and wildlife.

Characteristics

Wildlife

The lands of the jurisdiction offer a rich mix of forests, mountains, hills, uplands, wetlands, flats, lakes, ponds, rivers, streams, and coastal areas. This diverse landscape supports a large number and diversity of wildlife species, some of which are rare. Wildlife species which inhabit the area include deer, black bear, moose, bobcat, beaver, snowshoe hare, fisher, a variety of waterfowl, ruffed grouse, bald eagle, several hawks and owls, numerous other small mammals, amphibians, and passerine birds. The success of individual species depends upon the quality and quantity of appropriate habitat – principally food, water, and cover located proximate to each other.

Numerous game species are actively managed by the Department of Inland Fisheries and Wildlife (IF&W). Managed species include black bear, moose, white-tailed deer, furbearers, and game birds. Management measures include established hunting seasons and harvest limits. Endangered and threatened species are also managed by IF&W through measures such as habitat protection, management agreements, permit review and other strategies.

Fisheries

The jurisdiction's large number and variety of inland waters support populations of 44 of Maine's 51 inland fish species. Although significant warmwater fisheries (primarily bass, pickerel, and perch) exist within the jurisdiction, coldwater fisheries (primarily trout and salmon) predominate. As of 1994, IF&W had surveyed 1,070 lakes (645,887 acres) that are wholly or partially within LURC jurisdiction. Of these, 808 (375,810 acres) provide coldwater fisheries only; 119 (86,353 acres) provide warmwater fisheries only; and 63 (180,458 acres) provide a combination of coldwater and warmwater sportfish species. Only 79 lakes (3,231 acres) have no sport fisheries.

Each fish species, inland, as well as coastal and estuarine, has specific physical, chemical, and biological habitat requirements. Water temperature, water chemistry (especially dissolved oxygen), availability of suitable habitat for reproduction, food supplies, and competition from other species of fish are all factors which influence the ability of a species to survive. The introduction of new species (e.g. the Northern Pike and Muskie) may also have the effect of displacing native fish species with which they compete. Stocking and removal of fish also affect the distribution and abundance of fish species in Maine.

Uses Affecting Fisheries and Wildlife Resources

Each species has specific foraging, shelter, and breeding habitats. All fish and wildlife species rely upon the maintenance of sufficient habitat to support population levels, and physical alterations to the landscape can destroy habitat for individual

species. Certain habitat types, such as high value wetlands, deer wintering areas, fish spawning and nursery areas, and coastal nesting islands, are of particular concern because of the dependence of various animal species upon them for survival. For example, in the case of colonial nesting birds, a relatively small development on an island used for nesting can significantly disrupt an entire colony.

Wildlife

Research has demonstrated that riparian areas – lands immediately adjacent to waterbodies – serve as important habitat and travel corridors for a wide-range of wildlife species. Disruption of these areas by clearing or development can therefore have far-reaching impact. A number of the Commission's rules and standards are aimed at minimizing alterations in riparian areas.

The principal use of the forest in the jurisdiction is for timber production. Forest management clearly alters wildlife habitat, but there is disagreement over its overall impact on wildlife. One view is that the impacts of timber harvesting are scattered over the landscape and relatively short-term. Species whose habitat is disrupted move to other areas; other species actually benefit from harvesting activities.

Another view is that intensive timber harvesting has far reaching impacts on wildlife species, and, on balance, harms more species than it helps. According to this perspective, negative impacts are caused not only by removal of vegetation, but also by construction of haul roads which fragment habitat and impede movement.

The Commission believes evidence is lacking showing a link between timber harvesting and an overall decline in the jurisdiction's wildlife resources. The forest environment is a dynamic system that has long adjusted to natural and human alteration. Maintenance of riparian areas may be the most effective way of assuring that wildlife can adapt to these changes.

For particular species, the effects of timber harvesting are better documented. The deer population depends upon a diversity of habitats which must include a mix of food and cover. While dense conifer stands provide winter cover, open areas where new growth can occur are necessary for food production. Thus, some timber harvesting contributes to the health of the deer herd by making food available. Extensive harvesting in areas needed for winter shelter, however, can cause deer mortality.

On the other hand, extensive harvesting has had a positive influence on the density and distribution of moose. Moose, which were rare in the jurisdiction 40 years ago, are now abundant due in part to the creation of new habitat. Large clearcut areas, which are unsuitable for deer browsing because of their lack of cover, are ideal for moose.

Fisheries

Many uses of land and water resources affect the quantity, quality, and diversity of aquatic habitat available for fish. The demand for forest products and outdoor recreation, combined with increased accessibility, can stress the fishery resource. Many human uses of land and water resources can alter one or more of the basic physical, chemical, or biological characteristics of aquatic habitat. These influence the composition of fish species through changes in conditions necessary for survival of the less adaptable species, especially the coldwater game fishes. Thus, uses of the land and water can cause far-reaching, sometimes irreparable changes in water quality and aquatic habitat.

Disruptions to fish habitat and fisheries are most easily identified from large scale alterations of the landscape. But small scale alterations, while singly causing more subtle changes, can also be important because of their cumulative effects, and because a specific and limited habitat type may be essential to some species of fish. Also, tiny headwater streams may be habitat for game fish fry and the insects and fish upon which they feed.

A variety of land uses affects water quality and aquatic habitats. Among the more obvious are:

- Logging, farming, development, and other land use activities can cause erosion and associated sedimentation of waterbodies. Sedimentation of even small streams affects downstream habitats. Silt inhibits light penetration in the water necessary for photosynthesis. Sedimentation reduces the abundance and diversity of bottom-dwelling invertebrates necessary for the ecological balance and may reduce or eliminate suitable fish spawning and nursery areas.
- Deposits of logs and slash in stream channels may restrict fish movements, smother spawning grounds, cause chemical changes in the water, and change the course of stream channels.

- Cutting trees to the water's edge permits greater exposure of water to sunlight, causing the abnormal warming of waters, sometimes beyond the tolerance limits of cold water species.
- Introduction of toxic chemicals from the use of insecticides, fungicides, herbicides, and mining or other activities may kill fish or essential aquatic organisms in the food chain.
- Improperly placed culverts and bridges may block fish movements and change flow characteristics.
- New logging roads can increase access to once remote areas often increasing fishing pressure in nearby waters and causing a decline in fishing quality.
- Extensive shoreland clearing can result in erosion and sedimentation.
- Filling, dredging, beach construction, or shoreline alteration may eliminate existing fish habitat.
- The construction of dams for hydropower, water storage, flood control, or irrigation purposes can obstruct fish movement and cause fluctuations in stream flows and lake levels which influence fish movements and reproduction. Artificial flowages change aquatic habitat, and often the distribution, abundance, and composition of fish species.
- Permanent structures in the water can change shoreline water and wind currents. This can result in erosion of materials from one area and deposition into another.

A number of these land uses and potential impacts are addressed in the Commission's planning policies and regulatory approach.

LURC Regulatory Approach

The Commission employs two tools to protect fisheries and wildlife resources: zoning and land use standards. Because of the sensitivity of certain fragile habitats to competing uses, the Commission has created the Fisheries and Wildlife Protection (P-FW) zone. With this zone, the Commission protects critical portions of identified deer wintering areas, important coastal seabird nesting islands, and other significant wildlife habitat while allowing

limited timber harvesting and other traditional uses that are not destructive of these habitats. To date, the Commission has placed in the P-FW zone over 185,000 acres of deer wintering areas and critical portions of 40 coastal islands used for nesting. The Commission also employs the Recreation Protection (P-RR) zone to protect remote ponds that have coldwater fisheries.

The Commission's other tool to protect fisheries and wildlife resources is land use standards and guidelines regulating timber harvesting, road construction, and structural development activities near water bodies. These guidelines are designed to minimize the potential adverse effects of development upon fisheries and other aquatic life while still allowing for a reasonable degree of development and forest management.

Deer Wintering Areas

The Land Use Regulation statute calls for the Commission to administer a zoning program which protects shelter needed by the deer herd for winter protection. The Commission places an area in the P-FW zone when the Department of Inland Fisheries and Wildlife demonstrates that the area meets specific criteria regarding vegetative conditions and use by deer for shelter. Timber cutting within the zone is regulated, usually according to a plan worked out in the field between the Department's wildlife biologist and the landowner. The goal is to maintain a reasonable degree of winter shelter for deer while allowing for periodic timber harvesting on a sustained-yield basis over the long term.

Twice, the Commission has comprehensively reviewed and discussed its deer wintering area program in response to specific concerns and changes affecting the program. No other aspect of the Commission's programs has elicited such singular attention over the years – a measure of the value of the resource to all parties.

The first review was undertaken in 1981 to take a fresh look at certain issues that had been extensively debated since the inception of the deeryard zoning program. The Commission held a conference on deer yard zoning in the fall of 1981 at the University of Maine at Orono. Based on what was learned at the conference, together with experience the Commission had gained from administering the deeryard program and itself debating the issues, the Commission produced a policy document designed to state comprehensively its policies regarding the deeryard zoning issues.

Some of the issues identified in the document have since been addressed, while others remain pertinent. The Commission outlined its approach to ensuring that small landowners are not unduly burdened by protection of the deer resource. It established a policy on timber harvesting in stands damaged by budworm which may have relevance to future insect or disease outbreaks. It also addressed a number of administrative issues. These policies have been updated, integrated with the Commission's 1990 policies on the deeryard program, and are outlined in detail in the appendices to this Plan.

The second review was initiated in 1988 in response to an increase in proposals to zone new deeryards. IF&W attributed the upsurge in new deeryards to deterioration of existing yards (due in part to budworm damage), an increasing deer population, and other factors. Landowners were concerned about the impact of future rezoning proposals on their expectations for land in which they have made substantial investments.

After reviewing the program, its efficacy, and its impact on the regulated community, the Commission concluded that the fundamental structure and function of the program were both necessary and appropriate. Nevertheless, the Commission discovered several opportunities for improving the program by adopting a policy document and a number of rule changes.

The Commission expanded the informational requirements associated with the rezoning process to provide a broader context in which to consider individual rezoning proposals and thereby improve the basis for decision-making. It revised the rezoning process to provide equal opportunity to landowners to evaluate whether the biological criteria of the zone are met. It defined the scope of the deeryard program by establishing that zoned deeryard acreage shall not exceed 3.5% of each Deer Management District. This cap allows for considerable, but not unlimited expansion of the program. And, the Commission clarified the criteria for removing deeryard zoning from an area.

In the policy document, the Commission provided the rationale for the rule changes described above. It also addressed a number of other areas, some of which have seen positive developments since the policy document was approved. IF&W has produced guidelines for timber harvesting in deeryards that are designed to bring more consistency and predictability to the process of developing harvesting plans. IF&W has also assessed and

made recommendations on virtually all remaining interim deeryard zones, resulting in the final elimination of these temporary zones from LURC zoning maps.

Finally, IF&W and several landowners have worked cooperatively to develop innovative long-range management plans for deeryards. Several such plans are in place, protecting large areas of deer wintering habitat outside of the regulatory framework. The Commission encourages development of these plans which substantially increase the timber management options available to landowners.

The 1990 policy document has been updated and integrated with the 1982 policy document and is included in the appendices to this Plan.

Fisheries

The Commission has applied Recreation Protection (P-RR) zones to 177 remote ponds in its jurisdiction. The lakes that have been placed in the P-RR Subdistrict are all highly prized brook trout ponds, but one also has a landlocked salmon fishery and two have populations of the rare blueback trout (a variation of the Arctic char). These lakes were incorporated into the Commission's lake management program, adopted in 1990, as Management Class 6 lakes.

The principal purpose of the P-RR zone is to provide a degree of protection to areas that support unusually significant primitive recreation opportunities. Remote ponds represent the few remaining waters that have limited access (not accessible by 2WD vehicle within 1/2 mile) and offer a near-wilderness fishing experience that consists both of high quality fishing and high aesthetic values. The P-RR zoning indirectly provides some protection to the coldwater fisheries in the ponds so zoned.

The Commission continues to consider application of the P-FW zone to identified salmon and other important fishery habitats found in its jurisdiction.

Wildlife and Fisheries Resource Issues

Impact of Development on Habitat

It is difficult to document the overall impact of development on fish and wildlife in the jurisdiction to date. IF&W believes the development which has occurred has had minimal effect thus far, but is concerned about certain trends, in particular, the disproportionate amount of development that has concentrated along lakeshores and other riparian areas which are important to both fish and wildlife.

Forty-three percent of all building permits have been issued in riparian areas. Scattered development interrupts and fragments this habitat, becoming a barrier to furbearers, deer, and smaller animals. If the trends of the last 20 years continue without actions to guide future development to appropriate areas, IF&W believes problems will arise for fish and wildlife resources.

Essential Habitat

Pursuant to the Maine Endangered Species Act, the Department of Inland Fisheries and Wildlife can designate "Essential Habitat" for endangered or threatened species. Essential habitat protection in Maine is applied to bald eagle and roseate tern nest sites, and additional listed species may receive attention in the future. Any project which is wholly or partly within a designated Essential Habitat and is permitted by a state agency requires approval by the Commissioner of Inland Fisheries and Wildlife.

Because of the protection provided to bald eagle nest sites by these provisions, the Commission has not taken steps to apply the P-FW zone to these areas. In the future, the Commission will consider whether identified essential habitat warrants designation as a P-FW zone.

Bald Eagles

Chapter 4

Development

The Commission has a dual mandate with respect to conservation and development in the jurisdiction. It must reconcile the need to protect the natural environment and other important values from uses that cause degradation with the need for traditional, resource-based uses and reasonable, new economic growth and development.

Historically, development has stayed mainly on the edges of the jurisdiction, with the exception of scattered seasonal dwellings and traditional, resource-based uses such as sporting camps. This pattern of development was compatible with use of the region principally for nonintensive recreation and forestry. It also served to protect the natural resources and distinctive character of the interior of the jurisdiction.

Since its inception in 1971, the Maine Land Use Regulation has sought to reinforce and promote this pattern of development. Now, with over 25 years of permitting data regarding the location and intensity of development, the Commission has an opportunity to evaluate the success of its efforts in guiding development, and to determine whether a continuation of development patterns evident over that period will assure future protection of the jurisdiction's principal values.

This section provides a characterization of past, present and likely future development activities, an evaluation of development trends and the Commission's planning and zoning approach, and a discussion of the central development issues facing the jurisdiction, including recommendations for addressing them.

Inventory of Land Use and Development

Historical Development

Natural resources have dominated the history of the area that is now the Commission's jurisdiction. Early Indian tribes constructed a number of permanent villages along major rivers near resources and transportation routes. The first settlements by Europeans were isolated outposts producing fish, fur, and timber for distant markets. Settlements were generally limited to the most accessible areas: islands, coastal mainland areas, and lands near navigable rivers.

Much of the area never became heavily settled because, by the time it was opened up for settlement in the 1800's, pioneers were being lured west by the prospect of rich agricultural lands and mining claims. The region's harsh winters, rocky soils and short growing season also discouraged agricultural settlement.

Land ownership in Maine underwent a great transition in the first half of the 1800's. Before gaining statehood in 1820, only nine million acres of the 20 million acres of public domain had been sold or granted to private parties by the Commonwealth of Massachusetts. When Maine became a state, the remaining public lands were surveyed and divided equally between Maine and Massachusetts. The state of Maine granted some land for roads, railroads, schools and colleges during the 1830's and 1840's, both in response to, and to encourage, a growing population and a demand for more and better transportation of forest products. During that same period, many individuals became aware of the importance of Maine's timberlands and a land boom began. By 1847, almost all the public lands in the state had been sold to private interests by Maine and Massachusetts, except for a 1,000 acre public lot reserved in each township. The region's

Year-round Population Change, 1970 - 1990
LURC Jurisdiction, as Defined in 1990

Region	1970	1980	% Ch. 1970-80	1990	% Ch. 1980-90	% Ch. 1970-90	Avg. Ann. % Ch. 1970-90
Aroostook	4,535	4,444	- 2.0%	3,812	-14.2%	-15.9%	-0.8%
Central	3,009	3,379	+12.3%	3,902	+15.5%	+29.7%	+ 1.5%
Western	1,120	1,447	+29.2%	1,647	+13.8%	+47.1%	+ 2.3%
Eastern/Coastal	1,864	2,175	+16.7%	2,088	-4.0%	+12.0%	+ 0.6%
TOTAL	10,528	11,445	+8.7%	11,449	+0.03%	+8.7%	+ 0.4

Notes: Aroostook + jurisdiction within Aroostook county; Central = jurisdiction within Penobscot, Piscataquis, Somerset counties; Western = jurisdiction within Oxford, Franklin counties; Eastern/Coastal = jurisdiction within Washington, Hancock, Knox, Lincoln, Sagadahoc, and Kennebec counties. Source: U.S. Census; Market Decisions, Inc.

pattern of large landholdings and the development of a papermaking process using wood cellulose were key factors in the emergence of the area in the late 1800's as the principal resource base for Maine's commercial forest industry. The Kennebec, Penobscot and other major rivers provided a means to transport timber and power mills.

The opening of more remote areas to logging also opened the interior to recreation in the 19th century. People came from the rapidly growing cities of the East to vacation in resorts such as Kineo, Harford's Point and Seboomook, to fish and hunt while lodged at sporting camps, or to take part in camping trips into the heart of the Maine Woods.

One of the most significant changes in the history of the area was the end of log drives in the 1970's, and the construction of thousands of miles of haul roads. These roads opened up areas previously accessible only by boat or foot. This improved access resulted in scattered, low-density development across the jurisdiction, principally seasonal camps near lakes and other recreational attractions. Improved access also significantly increased use of the area by hunters, anglers, and other recreationists.

Historically, most development has concentrated on the edges of the jurisdiction, leaving large blocks of land substantially undeveloped and intact. During the 1980's, a substantial amount of land division occurred in the interior, and a number of more remote townships experienced significant residential development. While the overall amount of development in the interior remains small, these trends represent a shift in the jurisdiction's historical development pattern.

Population

The year-round population of the jurisdiction is small in relation to its large size. Overall population density in the jurisdiction is less than one person per square mile. Densities are significantly higher in communities on the fringe areas, whereas many townships in the interior have few or no year-round residents.

Year-round population was in gradual decline during this century until 1970 when it began to increase slowly. The population in 1990 was 11,449, an increase of 8.7% over 1970. By region, rates of growth in the jurisdiction's population vary widely. Between 1970 and 1990, the Central Mountain Region (Penobscot, Somerset, Piscataquis Counties) and Western Mountain region (Oxford and Franklin Counties) grew by 30% and 47% respectively, while the Aroostook County area declined by 16%.

The population of the jurisdiction swells during the summer months due to its recreational attractions and large stock of seasonal housing. While no estimates exist for seasonal population, the number of seasonal dwellings outnumbers

year-round dwellings by more than a 2-to-1 margin. Most seasonal residents are from Maine, although a significant percentage come from Massachusetts and other Northeastern states.

The median age of jurisdiction residents is nearly 37 years old, compared with 34 for the state as a whole. Thirty-five percent of the jurisdiction's households had incomes in 1990 of less than $15,000, and the median income was $21,246, compared to the state median of $27,896. The average size of year-round households is 2.62 persons, down from 2.89 in 1980.

The population of the jurisdiction is expected to continue its slow growth into the next century, with a majority of new residents settling in the Central and Western Mountain areas. The most significant demographic shift will occur in the population of Maine as a whole, and in other New England states, as the baby boom generation moves into middle age and beyond. Members of these older groups are much more likely to purchase second homes, and the jurisdiction will be an attractive market.

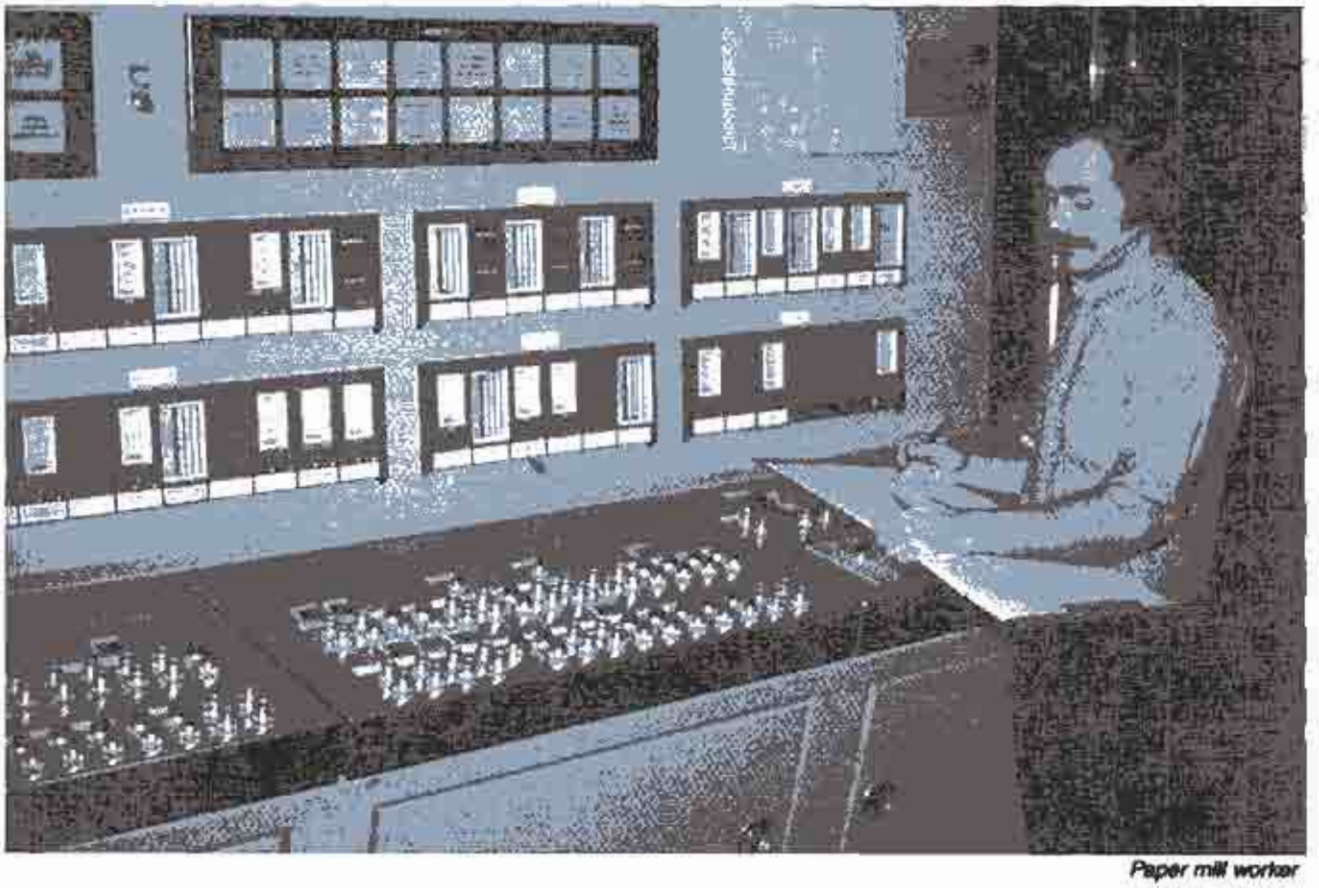
Economy

Primary Industries

The economy of the jurisdiction remains natural resource-based, with a focus on forest products and recreation. Many businesses located outside the jurisdiction depend on its natural resources, either for raw materials or as a destination for recreational activities.

The forest products industry is the largest single contributor to Maine's economy, and is the backbone of the economy of the jurisdiction. The area provides a continuous stream of raw materials for lumber and paper production. Chipping mills, sawmills, and pulp and paper mills of various sizes and types are scattered across the jurisdiction or are located in adjacent towns where they provide employment. Small, specialty wood products manufacturers contribute to the mix.

In the early 1990's, forest-based manufacturing statewide employed over 25,000 people, with a



Paper mill worker

total payroll of over $660 million. The State Planning Office projects the lumber and wood products sector will increase its employment slowly during the 1990's. Employment in the paper industry is expected to continue a long-term, slow decline.

Tourism and recreation are the next most significant economic force in the jurisdiction. The area's natural resources attract a diverse clientele which spends dollars directly on recreational activities and on support services such as lodging, food and supplies. Facilities such as ski areas, rafting bases, sporting camps, and campgrounds are major tourist attractions, but many recreational users engage in dispersed activities, either on their own or as part of organized tours. Of these types of activities, hunting and fishing have historically generated substantial economic benefit to local communities. More recently, snowmobiling has become a significant job and revenue producer during the winter months. A rapidly growing sector is nature-based tourism – organized or independent activities focused on wildlife viewing, backcountry trekking and other remote recreational experiences.

In the early 1990's, forest-based recreation employed over 24,000 people, with a total payroll of over $220 million. Evidence of growth in many recreational activities exists within the jurisdiction, but most available information on the tourism sector includes both organized and unorganized areas. The State Planning Office projects jobs in recreational services to grow by 15%- 20% over the course of the decade.

Agriculture is an important economic activity for some portions of the jurisdiction, particularly in Aroostook County and Downeast. Potatoes and blueberries are primary cash crops. On several coastal islands, fishing remains an economic mainstay.

Labor Force and Employment

Some communities of the jurisdiction have diverse local economies based on forest products, agriculture, and recreation. Most residents of the area, however, rely on adjacent organized towns for employment. In 1990, over 75% of the jurisdiction's 5,020 employed residents commuted to organized towns and cities to work, with one-third commuting more than 30 minutes.

The major job centers to which jurisdiction residents commuted for work in 1990 included:

- Four primarily manufacturing communities employing 530 residents: Millinocket (paper), Baileyville (paper and wood products), Houlton (wood products and food related manufacturing), and Caribou (electronics and food);
- Three primarily retail and service centers employing 206 residents: Bangor, Calais, and Van Buren;
- Three recreational communities employing 318 residents: Bethel, Rangeley, and Greenville; and
- Limestone, home of the former Loring Air Force Base, employing 139 residents (many of these jobs have since been eliminated as a result of the base closing).

These 11 communities account for about one quarter of the employment in the jurisdiction.

The future of the economic base that employs jurisdiction residents will be affected by many circumstances, but most notably by the health of the forest products and recreation industries, the closing of Loring Air Force Base and whether a future use is found for the site, and developments in U.S./Canadian trade.

Factors Driving Development

Historically, a major factor contributing to limited development in the jurisdiction has been the policies of large landowners. Many were generally not favorably inclined toward development because education and other costs associated with servicing new development raised property taxes, and development sometimes interfered with forestry operations. In addition, current use taxation of forestland has provided incentives for keeping land in forest management and disincentives for developing land.

But some of the considerations involved in corporate decision-making are changing. The increase in the value of land, particularly along accessible lakefronts, has made development a more attractive alternative, especially as a way to earn a relatively quick cash return compared to the long-term benefits of holding forestland. Increases in estate taxes, and other shifting tax and regulatory policies, have also created uncertainties for long-term investment in forestland.

The effects of these and other changes is that large landowners appear to be more willing to sell

land, and the trend seems to be more toward selling than the past practice of leasing, in which the landowner retained a measure of control. Waterfront lands with potentially high market values are most likely to be sold.

The primary demand for new development will come from the second home market. The fastest growing age category in the primary market area (Maine and Massachusetts) is the 45-54 year-old group, which is also the group most likely to buy second homes. Other factors that will spur the second home market are the relative affordability and availability of land, and improved accessibility within the jurisdiction. These factors are likely to offset the factors of slow population growth and a sluggish economy. Housing projections based on these factors are discussed in the next section.

Primary Development Activities

The primary development activities in the jurisdiction are housing, recreation-related commercial development, energy generating and transmission facilities, other commercial and industrial activities, road and infrastructure improvements, and waste disposal facilities.

Housing

Characteristics

The main type of structural development in the jurisdiction today is housing. U.S. Census data for 1990 show 16,330 housing units. While the average density of housing units within the jurisdiction is exceedingly low (approximately one unit/square mile), concentrations of residential development are found in the plantations and near organized towns.

Residential development typically includes the construction of dwellings, garages, and driveways and/or roads; the clearing and grading of land; and the installation of water and septic systems and utilities. It can also include the construction of other accessory buildings, the installation of docks and communications equipment, and shoreline alteration.

Seasonal homes in the jurisdiction outnumber year-round homes by a more than two-to-one margin. In 1990, the Census classified 5,085 dwellings as year-round residences and 11,244 as seasonal or recreational homes. More than 81% of year-round and seasonal residences were classified as single-family homes, 16% as mobile homes, and 3% as "other."

Year-round homes are generally located in fringe areas, particularly near employment centers. More than 75% of the employed residents of the jurisdiction commute to work in organized areas. A majority of seasonal homes are also located on fringe areas, most commonly on larger, accessible lakes.

The thirty-two plantations and eight organized towns of the jurisdiction contain a disproportionate share of the housing development. This seems to be a function more of their general location on the fringes of the jurisdiction rather than their governmental status. Many of the unorganized townships on the fringe of the jurisdiction also have relatively high concentrations of housing.

Although recent development has reduced the average age of housing stock in the jurisdiction, a significant percentage of the dwellings were constructed prior to 1960. Most of these structures were constructed as relatively primitive cottages or cabins, and they frequently are sited close to shorelines or roads. Some of these structures remain in their original state, but many have been improved or expanded.

Trends

Housing growth since the inception of LURC in 1971 has been moderate. Between 1971 and 1991, the Commission issued 5,046 permits for new dwelling units, an increase of 40% in housing stock, using the estimated 1970 Census count of 12,634 dwellings as a baseline. During this same period, the Commission approved 144 subdivisions, accounting for 1,820 new lots occupying 6,375 acres.

The 1990 Census data indicate 3,696 new dwellings in the 1970-90 period. This disparity between permit and Census data is probably the result of not all permitted dwellings being constructed as of April 1990, when Census counts were taken, and possible undercounting by the Census of vacant seasonal housing on unimproved roads or isolated camps with no road access.

While housing growth, averaged over the period between 1971 and 1991, was moderate, housing growth during the 1980's was brisk. According to Census information, 3,079 dwellings were constructed during the 1980's, a rate of over

300 units per year compared to 185 units per year averaged over the entire 20 year period. Permit activity has continued in the 300 units per year range in the first half of the 1990's.

Recent trends have reinforced the predominantly seasonal nature of housing in the jurisdiction. Of the 3,079 new homes constructed during the 1980's, 2,216, or 70%, were classified as seasonal by the U.S. Census. The Commission permit data indicates a roughly 50/50 split between new seasonal and year-round units. This is because permit applicants often categorize their homes as "permanent homes" rather than seasonal if the home is to be insulated and suitable for use in any season, or if the applicant is considering retiring to it.

New development has gravitated toward shorelines. Forty-three percent of all permits for new residences and 66% of residences categorized as seasonal were located on waterbodies, mostly lakes. And 53% of all new lakeside residences were located on lakes with a Resource Value of 1A – lakes of statewide significance with multiple outstanding natural values. Roughly 73% of approved subdivision lots were located on a waterbody.

The development that occurred during the 1971-1991 period was not spread evenly. The Western Mountain region absorbed 45% of new residences, while comprising 26% of the area's minor civil divisions. Eight communities accounted for 100 or more dwellings units each, and 29 others accounted for 40-99 units each. Together, these 37 communities, which represent 8% of the minor civil divisions in the jurisdiction, accounted for 58% of the new residences.

Most of these high-growth townships are adjacent to organized towns in the so-called "fringe" of the jurisdiction. The fringe areas account for only 45% of the total number of towns in the jurisdiction, yet they account for nearly 80% of the new building permits.

The location of improved roads has also been an important factor in the location of development. Minor civil divisions with improved roads comprise 74% of the jurisdiction, but they account for 95% of the new development. A sample of building permits during 1971-1991 indicates that roughly 50% of new dwellings front improved roads, 23% unimproved roads, and 22% unmapped roads.

Although most home construction occurred on the edges of the jurisdiction, a significant percentage of development and subdivision activity occurred in the interior. In the 1971-1991 period, roughly 986 building permits (20% of the total) were issued for areas in the interior. New residential development took place in 119 townships which previously had no improved roads. During this same period, 476 subdivision lots (26% of the total) were approved for interior areas.

During the 1971-1991 period, the amount of building activity in the interior steadily increased. From 1971-1975, an average of 20 building permits were issued each year by the Commission for interior areas. From 1976-1984, the annual average was 56 permits, and from1985-1991, it increased to 73 permits per year.

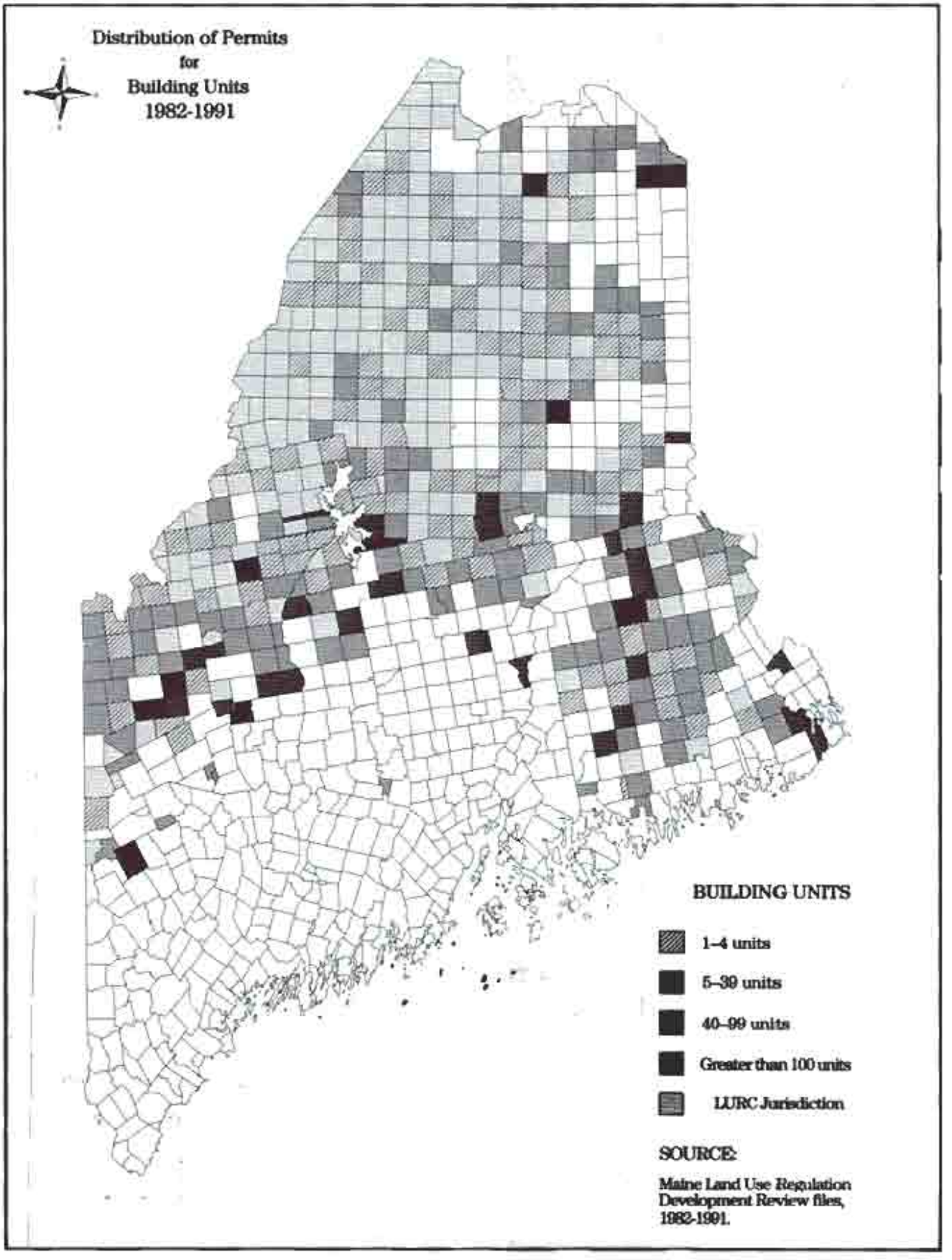
Also significant was the amount of unregulated land division activity. Large lot divisions that were exempt from LURC regulation encompassed 193,000 acres, or 97% of all acreage divided between 1971 and 1991 in the jurisdiction. Additional lots were created under the provision of the LURC law that allows two lots to be created from each parcel every five years without LURC approval. No comprehensive record of the number or acreage of these lots exists, but available information suggests it has been significant.

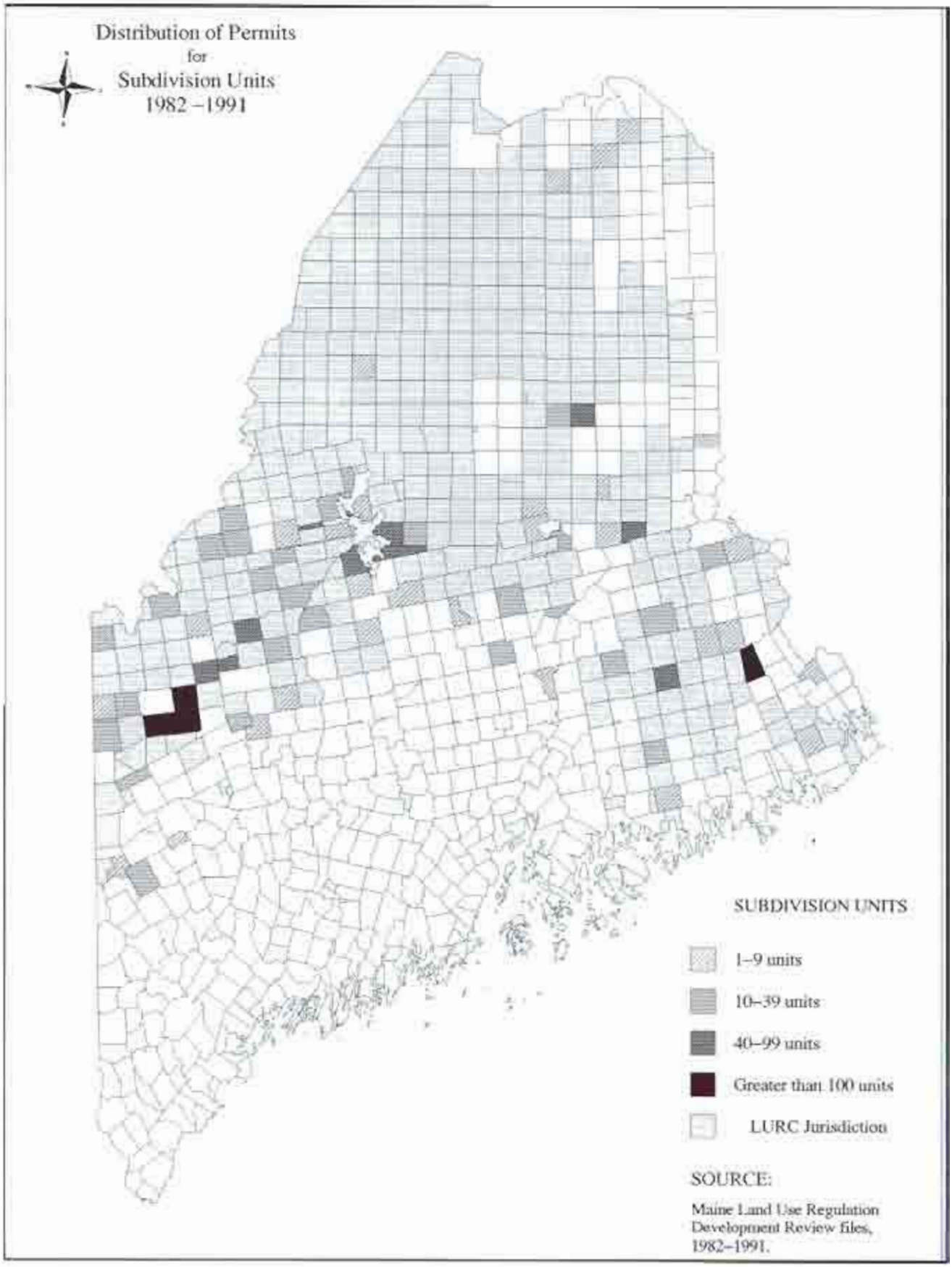
Projected Growth

According to a 1993 study by Market Decisions Inc., between 3,000 and 3,500 new residential units, most seasonally occupied, will be built in the jurisdiction between 1990 and the year 2000. This projection is substantiated by LURC permitting data for the 1990-1995 period that indicates 2,028 permits were issued for dwellings.

While the overall rate of growth is projected to remain about the same, the split between year-round and seasonal homes is likely to change. The number of year-round housing units increased at a rate of 1.65% per year in the 1980's, but the study predicts that this will decline in the 1990's to about 1% annually. This decline is due to a number of factors including a dampened economy, the effects of the "baby bust" generation beginning to form its households in much smaller numbers than the now middle-aged "baby boom" generation, and a levelling off in the trend towards smaller households. As a result, it is projected that between 1990 and 2000 there will be a net increase of new year-round households ranging from 350 to 400 in total.

In contrast, the total number of seasonal homes is projected to increase by 23% to 27% over


Distribution of Permits
for
Building Units
1982-1991
BUILDING UNITS
1–4 units
5–39 units
40–99 units
Greater than 100 units
LURC Jurisdiction
SOURCE:
Maine Land Use Regulation
Development Review files,
1982-1991.


Distribution of Permits
for
Subdivision Units
1982 –1991
SUBDIVISION UNITS
1–9 units
10–39 units
40–99 units
Greater than 100 units
LURC Jurisdiction
SOURCE:
Maine Land Use Regulation Development Review files, 1982–1991.

1990, resulting in a total of 2,600 to 3,000 new seasonal units by the year 2000. This rate of growth is similar to the 25% increase in seasonal units during the 1980's. Factors driving demand for second homes cited by the Market Decisions study include the maturing of the baby boom households to an age group which has the highest propensity to own a second home; increased accessibility of remote areas via logging roads; and relative price and availability – rural interior land and houses are less expensive than those in coastal areas.

These seasonal homes are much more likely to be built as permanent second homes with full foundations, insulation, central heating and utilities where available. The discrepancy between Census figures and LURC permit data on new seasonal dwellings supports this finding. While the Census figures classify 30% of new homes as year-round and 70% as seasonal, LURC permit data indicate a 50:50 split. This indicates that roughly a third of "seasonal" units are being constructed as second homes that can be used year-round. These dwellings are more likely to receive intensive use and to be eventually converted to year-round homes.

The Market Decisions study also projected that areas of the jurisdiction within the western and central counties (Franklin, Oxford, Somerset, Piscataquis and Penobscot) will absorb approximately 90% of this new seasonal growth (this area accounted for 88% of the new seasonal units built in the 1980's in the jurisdiction). There has been a longstanding trend toward seasonal development in the western mountain counties. In 1950, this area of the state contained only 18% of the state's seasonal units; by 1990 it contained nearly a third of the total, with seasonal units increasing at a rate that was 3 to 5 times the rate of increase for the rest of Maine.

Recreational Facilities

Description

Most recreational pursuits in the jurisdiction are low-to-medium intensity activities which require development of few, if any, facilities or support services. Among the more common examples of recreation-related facilities are sporting camps, tent and recreational vehicle camping areas, lakeside cottages and lodges, and support services related to canoeing, whitewater rafting, and kayaking. In addition, there are public and private sites for picnicking, launching boats, and swimming as well as trails for snowmobiling, hiking, cross-country skiing, and snowshoeing. (See Recreation section for more thorough discussion of recreational facilities.)

The most intensive recreational development in the jurisdiction is associated with three alpine ski resorts: the Saddleback Mountain Ski Area in Sandy River Plantation near Rangeley, Sugarloaf Mountain Ski Area in Carrabassett Valley, and Sunday River Skiway in Newry and Riley Township. Sugarloaf was once part of an unorganized township that was annexed by the Town of Carrabassett Valley in 1977. However, unorganized communities adjacent to Sugarloaf continue to provide needed support services. Squaw Mountain, a relatively small-scale facility, is also located within the jurisdiction near Greenville.

Trends

In the 1971-1991 period, recreational development accounted for 275, or about 25%, of the Development Permits issued by the Commission. Roughly 80% of this recreational development was classified as private recreation and 20% as public recreation. Over 70% of recreational facilities were located along shorelines or within riparian areas.

The most significant trend since the 1970's has been the rise of the commercial whitewater rafting industry. This industry is centered on two outstanding whitewater river segments: the West Branch of the Penobscot River and the Kennebec River Gorge. Interest in this activity has spawned more than 10 rafting companies which provide their clientele with food, lodging, equipment, guide services and transportation to and from the river. A number of rafting bases have been constructed in the vicinity of these whitewater segments; several are located along Route 201 in The Forks Plantation.

The commercial rafting industry grew most rapidly during the 1980's, but annual client volumes continue to rise in the mid-1990's. An allocation system imposed by the legislature has limited weekend peak volumes, but continued modest growth is likely due to increased weekday use and more trips on other rivers.

The number of traditional sporting camps has declined throughout this century, but there has been renewed interest in them and improved coordination and promotion by camp owners. Many of these facilities are marginal, labor-intensive operations. Their future success may be tied to increasing their clientele while maintaining the remote character of the camps and their surroundings.

A likely future trend for campgrounds, sporting camps and whitewater rafting operations is diversification into secondary activities as a means of attracting more business. For example, some sporting camps now remain open year-round to cater to snowmobilers and other winter recreationists. Several rafting bases and sporting camps have added campground areas and have dining facilities open to the general public. A number of campground stores cater both to campers and to the public at large. As this trend continues, it may become increasingly difficult to clearly distinguish between different recreational facilities and to assess potential impacts.

After a period of economic transition, the downhill skiing industry appears to be on the upswing in Maine. The two most significant developments over the past two decades have been the emergence of Sunday River Skiway as a major ski resort on the fringe of the jurisdiction and the proposed expansion of Saddleback Mountain Ski area. Continued growth by Sunday River, Saddleback and Sugarloaf can be expected as they compete for larger shares of the regional ski market. Downhill ski areas are likely to continue efforts at attracting more year-round business with activities such as golf, foliage viewing, and mountain biking.

Commercial and Industrial Development

Description

Few nonrecreation-related commercial services and facilities are located within the jurisdiction, as nearby organized areas often provide goods and services. The most common local businesses are general stores, gas stations, restaurants, and home occupations.

Most industry in the jurisdiction is related to wood products or energy production. Chipping mills and saw mills of various sizes and types operate in a number of townships. There are also some small, home-oriented manufacturers such as toymakers, potters, weavers, and furniture makers.

Hydroelectric power facilities in the jurisdiction include seven projects licensed by the Federal Energy Regulatory Commission (FERC), only four of which have generating equipment in place. Others are storage facilities which enhance flows to downstream generating projects. There are also 13 unlicensed hydro projects, although as of 1996, FERC is investigating whether these should be licensed. Over the past decade, focus has shifted from constructing new dams to relicensing existing dams. (See Energy Resources section for additional discussion of hydro projects.)

In the early 1990's, there was a high level of interest in the potential of the jurisdiction for wind-generated energy. The costs of wind-generated energy have dropped significantly, and portions of the region have relatively high sustained wind velocities. To date, the Commission has reviewed one major windpower proposal.

Although interest in the state's metallic resources is increasing, commercial mineral extraction plays only a minor industrial role. Mineral exploration has been undertaken in a number of areas. Some gemstone mining occurs in the Western Mountains, generally on a small scale.

Gravel extraction occurs throughout the jurisdiction. Most gravel pits are small operations used for road construction and maintenance or for general construction in the region; several larger pits are located in fringe areas. Peat is also harvested at one site in Hancock County, primarily for horticultural use.

Overall Trends

Between 1971 and 1991, the Commission issued approximately 1,100 development permits, of which roughly 75%, or 825, were for commercial development other than recreational facilities. Of this total, 27% were classified as facilities related to industrial forestry (e.g. improvements or expansion of sawmills or gravel pits), 35% as governmental, utility or miscellaneous uses, 25% as commercial uses (e.g., retail and services), 6.5% as farming or fishing related, and 6.5% as other industrial uses. Most of these projects or activities were located in fringe areas.

No detailed projections of future commercial/industrial development in the jurisdiction are available. It is likely, however, that the rate of 50 to 60 development permits per year, which has occurred since the mid-1980's, will continue in the 1990's.

Transportation

Description

Transportation improvements are both a form of development and a prime determinant of where

development will occur. The dominant transportation mode in the jurisdiction is road travel. While accurate numbers are difficult to obtain, the 1:100,000 scale U.S.G.S. maps (mostly dated in the mid-1980's) indicate approximately 2,000 miles of public roads and 20,000 miles of private roads within the area.

Public Roads

The area's approximately 2,000 miles of public roads include arterial routes that allow relatively high speed travel through the region, collector routes that provide important connections between arterials, and local roads that move traffic within communities and provide access to adjacent properties.

Interstate 95 is a limited access four-lane highway that serves as a primary route of travel to the region from points south. The Interstate bisects several townships, but generally stays to the east of the central part of the jurisdiction and to the west of the Downeast area. Interchanges in Howland, T2 R8 NWP (to Lincoln), Medway, Sherman, Island Falls and Oakfield serve as major gateways to the region.

Arterial routes mostly serve the western mountain and Downeast areas, or pass through fringe areas. Significantly, no arterial routes access the heart of the jurisdiction. Major arterial routes within the jurisdiction include Routes 201, 1 and 9. Minor arterials include Routes 27, 4 and 16 in the Western Mountain area, Routes 2, 2A and 6 in the Downeast region, and Routes 11, 1 and 161 in Central and Northern regions.

Other state routes serve portions of the jurisdiction, but most of these carry less traffic, functioning more as collector roads than arterials. The remaining public roads within the region are county and local roads, with paved or gravel wearing surfaces. Some of these roads serve as important links between state routes; others are lightly traveled.

Repair, maintenance and snowplowing of public roads is carried out by the state, county, or plantation government. Funds for major resurfacing and reconstruction projects are allocated by the Maine Department of Transportation.

Logging Road east of Moosehead

Private Roads

Most of the roads within the jurisdiction are privately owned and maintained. Approximately 20,000 miles of these roads crisscross the area, providing the forest products industry with a vital link between its resource base and markets.

Extensive private road construction began after the cessation of log drives on Maine rivers. Spurred by the rush to harvest trees damaged by the spruce budworm, road construction during the 1980's peaked at an estimated 1,000 miles per year. While the pace of construction has probably slowed, new private roads continue to be constructed, providing improved access to backcountry areas. Of the 1,200 notifications received annually by the Commission, approximately half include some new private road construction or road improvements. Some of the roads built for logging are gated and others are permanently closed after harvesting. According to the Maine Paper Industry Information Office, however, approximately 98% of private roads remain available for public use.

Other Transportation Modes

Rail service, once a major mover of passengers and freight in Northern Maine, now plays a relatively minor transportation role. The Canadian-Pacific line that runs between Vanceboro and St. Croix has historically been an important rail link for the paper companies and has maintained limited passenger service. Freight service on that line is expected to continue, but the future of passenger service is uncertain. Freight is also carried on other lines in Aroostook, Washington and Penobscot Counties.

Air travel is limited to nonscheduled service by float plane and at small airfields in gateway communities. Ferry service is available to Monhegan and Matinicus – two coastal island communities in the Commission's jurisdiction.

Future Trends

Most future roadbuilding in the jurisdiction will be private roads. At this time, there are no plans for construction of any new state routes through the jurisdiction. A feasibility study is planned for a new or improved route from Houlton to Fort Kent. The main changes to the public road system will occur as the result of improvements made to state and county roads and construction of new roads within subdivisions.

The pace of private road construction has slowed since the 1970's and 1980's, but the amount of road construction each year is still significant. Based on the road construction notifications submitted to the Commission by landowners, an estimated 500 miles of roads are constructed annually. Much of this involves construction of spurs and winter roads off of the major access roads. Some road construction entails the reopening of older roads that have not been used since the time of a previous harvest.

Other Infrastructure and Services

Other public facilities and services within the jurisdiction include fire and police protection, education, solid waste disposal and public utilities. These facilities and services are most available near fringe areas, where the majority of the year-round population resides.

Public Safety

Although a few towns and plantations have their own fire and rescue units, fire protection and emergency services for most unorganized communities are provided through county government, which arranges contracts with neighboring organized towns. Forest fire protection is provided by the Department of Conservation, Maine Forest Service. County sheriff departments, the Maine State Police and plantation police are responsible for law enforcement.

Education

Public education for residents of the jurisdiction is available either from state-operated schools or from adjacent educational units. As of 1996, primary or secondary schools were located in Edmunds, Connor and Kingman townships, Rockwood Strip (T2 R1) and Sinclair (T17 R4 WELS). Besides their educational function, these facilities also provide community meeting space and opportunities for organized recreation.

Solid Waste Disposal

The disposal of household and commercial wastes are handled in a variety of ways. Plantations run their own solid waste facilities or pay to use facilities in neighboring towns. In the unorganized

townships, county commissioners make arrangements for solid waste disposal. Communities on the periphery of the jurisdiction tend to use landfills in nearby organized towns.

Increasingly, however, the jurisdiction is being considered as a potential site for regional and statewide solid waste facilities. This is due in part to the large land ownership patterns, the availability of relatively inexpensive land, and low population densities. Areas within the jurisdiction were under active consideration as low-level radioactive disposal sites prior to agreements being reached with other states to send such waste elsewhere.

Spreading of paper mill sludge, agricultural wastes, and other residuals also occurs within the area. Most of this spreading occurs on lands owned by the companies that generate the wastes.

Water and Subsurface Waste Disposal

Only a small portion of the dwellings and facilities in the jurisdiction are served by public sewer or water. Most of these users are adjacent to larger, organized communities with sewer or water districts. The vast majority of dwellings, businesses, and other facilities draw water from wells, springs, or nearby surface water sources and dispose of sewage in on-site septic systems or privies.

According to the 1990 Census, 63% of the housing units in the jurisdiction have individual wells, 12% have public water, and 25% have some other form of water supply. The Census also reported that 73% of the units have septic systems, 7% had public sewer, and 21% had another means of waste disposal, most likely, pit privies. It is probable that some of the housing units served by "public" facilities rely on shared wells or clustered septic systems located near the sites.

The Commission applies the State's Subsurface Waste Disposal Rules and its own lot size standards to assure that new systems are located on suitable soils and are properly designed and constructed.

Public Utilities

Electric and phone service are the main public utilities serving the jurisdiction. While most year-round homes have electricity and telephones, a substantial percentage of seasonal homes have neither. These homes are typically located in more isolated areas that are distant from existing utility distribution lines.

The main providers of electricity are Central Maine Power, Bangor Hydro-Electric Company, and Maine Public Service Company. Several smaller electric utilities provide power as well. The power distribution system is comprised of transmission lines, which transport high voltage electricity long distances, and distribution lines, which carry power to homes and businesses.

New England Telephone Company (NYNEX) is the main provider of local phone service, but several smaller independent phone companies provide service as well. Modular phone service is also now available to many locations within the jurisdiction.

Trends

In general, the communities of the jurisdiction will continue to rely on facilities and services from organized towns. Population and housing growth will continue to increase demand for services and facilities, but if most development is located relatively close to organized areas, service costs per new dwelling unit and environmental impacts will likely remain low.

In less populated areas of the state, school districts have been consolidating. The slow growth in the jurisdiction's year-round population makes an increase in demand for education facilities unlikely. The most noticeable education-related impact may be on the governments of high-growth communities which must pay increased educational costs and provide bus service to serve new year-round development and conversions in areas that were previously only seasonally occupied.

Due to the closure of town dumps throughout the state, there may be a need for new landfills in environmentally suitable locations. Siting these facilities in more populated areas is often difficult due to local opposition; townships near organized areas may be increasingly viewed as locations for waste disposal sites.

Between 1971 and 1991, the Commission issued 525 permits for utility extensions. Many of these permits allowed short connections to existing utility lines. A number were for longer extensions to serve existing or new development. One permit was for a major power transmission line in Washington and Hancock Counties. Maine is located between a major regional user of power (southern New England and New York) and several power producers in the Canadian provinces. It may be that Maine continues to be viewed as a corridor

for transmission of energy and energy-producing natural resources.

As utilities seek new customers and owners of camps request electric and phone service, applications for future extensions into more remote areas are likely. Extension of utilities into an undeveloped area generally makes it more attractive for year-round development. A more significant, ongoing trend, however, is the extension of electric power to older seasonal developments that previously relied on hand pumped water and privies.

While verbal communication remains the most common use of telephones, technological advances are revolutionizing the use of phone lines as a vital link in an expanding communication network. Interconnected computers and facsimile machines now allow for rapid transfer of information over long distances, and it is likely that many residents of the jurisdiction will want to take advantage of these technologies. Some parts of the area are served by cable television as well, and cable lines may also become important links for a variety of communication technologies. These developments provide increased opportunities for those who wish to live in relatively remote areas and work out of their homes.

Areas with Special Planning Needs

Development in the jurisdiction has generally been concentrated along shoreland areas, around ski resorts, and near organized towns. The first Comprehensive Land Use Plan, adopted in 1976, identified several areas of rapid growth, including the Rangeley Lakes, Moosehead Lake and Carrabassett Valley region.

Examination of growth trends indicates that these regions continue to attract development. These three areas are part of the Western and Central Mountain regions, which received approximately 88% of the jurisdiction's new seasonal housing during the 1980's. These same regions are projected to receive approximately 90-92% of new seasonal homes, or 2,500-2,600 units, in the 1990's.

These areas also possess concentrations of high-value natural resources that are potentially threatened by continued high rates of growth. In its planning and zoning efforts, the Commission will pay particular attention to these areas to ensure that development is accommodated without compromising their special qualities.

In addition to these high-growth areas, several other regions or communities experienced moderate growth during the 1970's and 1980's, or possess characteristics that make significant future growth likely. Some of these areas have high concentrations of recreational and natural values that attract development; other communities owe their growth to their accessibility or location near a population or employment center. The Millinocket region is particularly worthy of note because of its abundance of high-value resources, its accessibility and its proximity to a major job center. The area is also an excellent candidate for regional planning to ensure future growth does not erode its principal values.

Rangeley Lakes Area

The multi-recreational resort nature of this region, which includes the Rangeley Lakes and Saddleback Mountain Ski Area, has made it particularly attractive to residential and recreational development. It has been the jurisdiction's most rapidly growing area. The area has an abundance of high-value natural resources: numerous large lakes – some relatively undeveloped – and panoramic views from encircling hills and ridges, which are also traversed by the Appalachian Trail. Yet the area is accessible by several state routes and is within 20 miles of a number of population and employment centers, including Rumford/Mexico, Farmington and Bethel.

Rangeley, Dallas, and Sandy River plantations have been the focus of the most intensive development permit activity in the jurisdiction. Between 1971 and 1991, a total of 565 new building permits were issued in these three plantations. Census data shows an increase of 472 residential dwelling units between 1970 and 1990, indicating that, as of 1990, almost 100 pending building permits had not yet been exercised in these three communities. Nearby Lincoln and Magalloway plantations and Adamstown Township have experienced significantly less development activity, but their location and extensive lakefront areas make them attractive areas for future growth.

The plantations and townships of the Rangeley Lakes are part of the jurisdiction's Western Mountain region (Oxford and Franklin Counties), which grew in population by 14% from 1980-1990 and 47% from 1970-1990. The region's share of the total number of seasonal homes in the jurisdiction increased from 14% to 17% during the 1980's, and is expected to increase further.

Moosehead Lake Area

Maine's largest lake is the attraction for development in this high growth area. The area is also a gateway to the North Woods and boasts a ski area (Squaw Mountain), Mt. Kineo, the headwaters of the Kennebec River and numerous other high-value lakes and ponds. The southern and western portions of the region are accessible by state routes, with well-maintained private routes serving most other areas.

Greenville is the region's employment center, employing 105 jurisdiction residents according to 1990 Census figures. Jobs in recreational services are projected to grow by 15-20 % over the next decade.

In the early 1970's, most new development on Moosehead Lake was located at its southern end, in Beaver Cove Township and Harford's Point. In the 1980's, a significant number of new building permits were issued in Beaver Cove, Lily Bay Township, Rockwood Strip, and Tomhegan Township. While these areas accounted for 70% of the new building permits issued on the lake between 1971 and 1991, new permits were issued in virtually every other township surrounding the lake as well. In the twenty year period, a total of 452 building permits were issued for new residential structures in the townships fronting Moosehead Lake.

The population of the Central Mountains region (Penobscot, Piscataquis, Somerset Counties) grew by 16% from 1980-1990, 30% from 1970-1990. The Central Mountain area also has the largest share of seasonal homes (51% in 1990).

Carrabassett Valley - Flagstaff Lake Area

As with the Rangeley Lakes area, growth in the Carrabassett Valley region is driven by the recreational attraction of a large ski resort (Sugarloaf USA) and proximity to organized towns. High-value natural resources and recreational resources in the area include the Bigelow Range, Flagstaff Lake, and the Appalachian Trail. The area is accessible by several major state roads and is within 30 miles of Farmington, Skowhegan and Madison.

While the Town of Carrabassett Valley is no longer within the Commission's jurisdiction, growth has continued to spill into nearby areas, including

Upper Richardson Lake in the Rangeley area

Coplin Plantation, Wyman Township, Freeman Township and Salem. Spring Lake Township, bordering Flagstaff Lake, and Lexington Township, within 25 miles of Sugarloaf and 15 miles out of the town of Madison, have also attracted new growth. A total of 450 permits for new residential structures were issued in these six towns between 1971 and 1991. Approved subdivisions in these towns resulted in 225 new lots during the 20-year period, with over 80% of these lots in three townships: Wyman Township, Spring Lake Township, and Coplin Plantation.

The Carrabassett Valley region straddles the jurisdiction's Central and Western Mountain regions, both of which saw noteworthy population growth between 1970 and 1990, and which are expected to receive most of the new residential development during this decade.

Millinocket Region

While this area did not experience rapid growth during the 1971-1991 period, its natural resource and recreational attributes and its relative accessibility make future growth likely. The region's main attractions are Mt. Katahdin and Baxter State Park, the West Branch of the Penobscot River, numerous high-value lakes and the terminus of the Appalachian Trail . The area also serves as a major gateway to the North Woods. The region is accessible by state routes to Millinocket, which is only 15 miles west of I-95, and by a number of well-maintained private roads, including the Golden Road.

Millinocket is the region's job center, employing 109 jurisdiction residents according to the 1990 Census. Employment at the area's paper mills may decline, but the town is pursuing recreation-related economic development. The most significant growth in the area has been experienced by two townships west of Millinocket that have high-value lake resources: T4 Indian Purchase, (68 building permits) and T1 R9 WELS (85 new building permits). T4 Indian Township contains North and South Twin Lakes and fronts Middle Jo-Mary Lake, a Management Class 3 lake that is potentially suitable for development. T1 R9 WELS fronts Ambajejus Lake. Pemadumcook Lake in nearby T1 R10 WELS has also been identified by the Commission as a Management Class 3 Lake. The township immediately west of Millinocket, T3 Indian Township, has experienced relatively modest growth (24 building permits), but easy access to two smaller lakes, Elbow and Quakish Lake, make future growth pressures there likely.

Other High Growth Areas

There are other pockets of notable growth throughout the jurisdiction where proximity to populated areas or high-value recreational resources, particularly lakes, is driving more rapid development than in other parts of the jurisdiction. These include:

Western Region:

- Significant year-round and seasonal home development has occurred in Albany Township in Oxford County (117 new building permits between 1971 and 1991). The township is nearly surrounded by organized communities, and the towns of Bethel, Norway and Waterford are nearby. Part of the township is within the White Mountain National Forest.

Central Region:

- Elliotsville, located less than 25 miles from both Greenville and Dover-Foxcroft, possesses a number of small, pristine ponds, Lake Onawa, and scenic mountains traversed by the Appalachian Trail. The township has attracted significant permanent and seasonal home development (57 new building permits between 1971 and 1991).

Eastern Region (Washington, Hancock, and Eastern Penobscot counties):

The main attributes of this area are proximity to the ocean, a high concentration of lakes and accessibility from state routes. Calais and Baileyville serve as job centers, employing 105 and 117 jurisdiction residents respectively in 1990. High growth communities during the 1971-1991 period include:

- *Edmunds and Trescott Townships* (150 new building permits) with extensive ocean frontage between the cities of Eastport and Machias;
- *Lakeville* (171 new building permits) with numerous lakes, including Sysladobsis and Upper Sysladobsis, and located within 25 miles of I-95 and the population and employment center of Lincoln;
- *Osborn Plantation and T28 MD* (133 new building permits), both with desirable lakes

and relatively easy access via Route 9, and within roughly 25 miles of Ellsworth and 35 miles of the Bangor/Brewer urban area;

- *T41 MD* (52 new building permits and 68 new approved subdivision lots), with Nicatous Lake, and approximately 40 miles east of Orono/Old Town;
- *No.21 Township* (126 new approved subdivision lots and 28 new building permits) on Big Lake in Eastern Washington County; and
- *Baring Plantation* (43 new building permits), adjacent to Calais and containing Meddybemps Lake as a draw.

Eastern Aroostook Region:

A number of communities in close proximity to major population centers in Aroostook County have experienced higher than average growth rates between 1971 and 1991, including *Connor Township and Caswell* (158 new building permits). Nearby Caribou and Limestone employed 182 and 139 jurisdiction residents respectively in 1990. The closing of the military base in Limestone may affect future demand for housing in these communities and neighboring areas.

Cary Plantation on the outskirts of Houlton and within 10 miles of a major system of lakes bordering Maine and New Brunswick, has also experienced moderate growth (62 new building permits). Houlton is a nearby employment center (major industries are wood products and food-related) for jurisdiction residents, employing 122 according to the 1990 Census.

Two other communities have had notable development drawn by recreational attractions: *Winterville Plantation* (62 new building permits) with St. Froid Lake, less than 25 miles from Fort Kent; and *Mount Chase* (119 new building permits and 63 new approved subdivision lots), located near Patten, with scenic mountains and lakes.

Coastal Islands

Compared with high-growth inland areas, coastal islands under the Commission's jurisdiction experienced modest rates of development between 1971 and 1991. These islands, nonetheless, deserve special consideration due to the high value and fragility of their natural resources and their attractiveness for future seasonal development. Even a relatively low rate of development can have a significant impact on island resources or landscapes.

The most building activity has occurred on the two islands with year-round populations: Monhegan and Matinicus Plantations. During the 1971-1991 period, 18 building permits were issued for new dwellings on Monhegan, 12 on Matinicus. Of islands with only seasonal populations, those with the most housing activity were Pleasant Island (10 permits), Hewitt Island (6 building permits) and Great Pond or Inner Island (4 building permits). A 12-lot subdivision was approved for Louds Island, and a Resource Plan for Metinic Island authorized 14 houses on the northern end of the island.

Planning for Development in these Areas

Development is likely to continue in most of the areas identified above due to the attractiveness of their high value resources and their general accessibility. In planning for future development, the Commission will strongly focus on these areas, particularly on high-value areas with the greatest growth potential.

The challenge for the Commission is to allow growth to be accommodated in these areas without compromising the resources that make them so special. Balancing development and conservation in these areas is the key to maintaining their high values, particularly their recreational appeal. A more specialized and localized planning and zoning approach is appropriate in these instances, and is discussed in the next section.

Evaluation of Development Trends and the Commission's Approach to Development

Since its inception, the Commission has recognized the importance of guiding new development to appropriate locations as an effective means of protecting the jurisdiction's principal values and minimizing conflicts between them. Two central principles of the *Comprehensive Land Use Plan* (1983) are "discouraging growth which results in sprawling development patterns" and encouraging "orderly growth within and proximate to existing compatible developed areas, particularly towns and communities."

The Commission's policy of encouraging new development adjacent to existing development, or in areas already having public services, also keeps the cost of providing public services, facilities and utilities as low as possible. This policy is consistent with the Commission's intent that needed public services be available without unreasonable expense.

This plan update provides an opportunity to evaluate growth trends since 1971 and to assess the effects of this development pattern on the jurisdiction's principal values. It also provides an opportunity to evaluate the effectiveness of the Commission's existing policies and standards in guiding development.

Principal Values and Location of Development

To effectively evaluate growth trends and the Commission's approach to development, one must first have a clear understanding of the values that make the jurisdiction so special. The Commission has identified four principal values that define the jurisdiction's distinctive character:

- The economic value of the jurisdiction for fiber and food production, particularly the tradition of a working forest, largely on private lands. This value is based primarily on maintenance of the forest resource and the economic health of the forest products industry. The maintenance of farm lands and the viability of the region's agricultural economy is also an important component of this value.
- Diverse and abundant recreational opportunities, particularly for primitive pursuits.
- Diverse, abundant and unique high-value natural resources and features, including lakes, rivers and other water resources, fish and wildlife resources, ecological values, scenic and cultural resources, coastal islands, and mountain areas and other geologic resources.
- Natural character values, which include the uniqueness of a vast forested area that is largely undeveloped and remote from population centers.

While these values collectively define the jurisdiction, they are not represented equally across its towns, plantations and townships. Some areas have abundant high-value natural resources (e.g. numerous pristine ponds) or a unique physical feature (e.g. Gulf Hagas). Other areas lack distinctive natural resources, but serve as productive forestlands or contribute to the jurisdiction's natural and cultural character.

Many areas on the fringe of the jurisdiction are accessible, are near population centers, and are relatively developed. Some of these fringe areas, however, have significant natural resource and recreational values (e.g. the Rangeley lakes region), and face considerable development pressures that have the potential to undermine these values. Other fringe communities lack significant resource values and can accommodate development with the least amount of impact on the jurisdiction's principal values.

Remoteness and the relative absence of development are perhaps the most distinctive of the jurisdiction's principal values, due mainly to their increasing rarity in the Eastern United States. These traits also enhance other values, particularly recreational opportunities and natural resources. Fishing on a pristine pond surrounded by thousands of acres of undeveloped land, for example, is very different from fishing on a similar pond in a more populated area. The value of natural resources is generally enhanced when they are part of a large, undisturbed area, especially one that encompasses entire watersheds or ecosystems.

Remote, undeveloped qualities are also particularly sensitive to permanent changes in the landscape resulting from development. The remote character of a pristine pond, for instance, may be lost long before development threatens water quality or wildlife habitat. These values may be difficult to quantify but they are integral to the jurisdiction's identity and to its overall character.

Evaluation of Development Trends and Impacts

Amount

During the 1971-1991 period, the Commission issued 5,046 permits for new dwellings. This amounts to about 250 new residences per year for the jurisdiction. During that same time period, the Commission issued roughly 50 permits per year for nonresidential structural uses. Over the remainder of the decade, permits for residential dwellings are expected to continue at 250 to 300 per year, with nonresidential permits staying at the 50-per-year level.

The Commission has concluded that this amount of development, by itself, is not a threat to the jurisdiction's values, and that 2,500 to 3,000 new dwellings and 500 nonresidential facilities can be accommodated over the next 10 years without compromising the jurisdiction's values if they occur in appropriate locations and in a compact development pattern.

Location

Most development has occurred in fringe areas where roads, services and jobs are available. Nearly eighty percent of new building permits issued in the 1971-1991 period were located in communities that abut organized towns.

New development, however, has gravitated toward fringe areas with high natural resource values. Fourteen fringe communities in the Rangeley and Moosehead Lake regions accounted for over 20% percent of the building permits issued during the 1971-1991 period. Roughly 80% of development during the 1990's is expected to occur in the Western and Central portions of the jurisdiction, which include the Rangeley Lakes and Moosehead Lake regions.

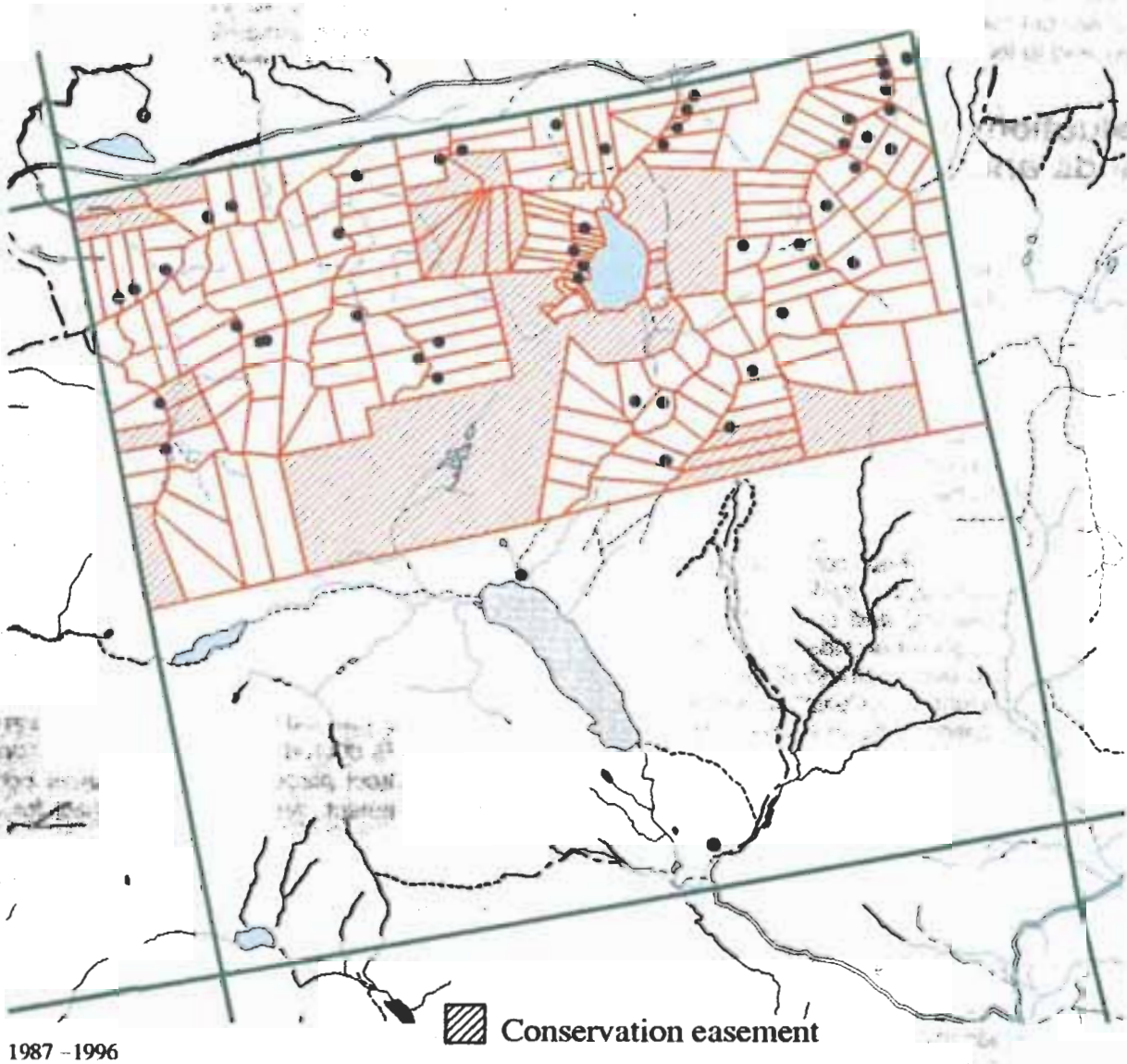
Interior areas have experienced considerably less growth, but the 20% of new building permits that occurred there over the last two decades is still significant. Some relatively remote townships, such as T41 MD and Spring Lake Township, experienced considerable development. Thousands of miles of new land management roads were constructed in the interior, creating a road infrastructure that will contribute to additional development pressures. And an estimated 193,000 acres of land were divided without Commission review. Most of these lot divisions took place either in the Commission's General Management Subdistrict or in the Great Pond Protection or Shoreland Protection Subdistricts, with a significant percentage occurring in interior areas (see map on page123).

In several instances, large lot divisions dramatically transformed the landownership patterns of interior townships over a relatively short period of time. In 1987 for example, the northern half of one township was under single ownership and undeveloped except for a sporting camp on a relatively pristine pond. Over a period of five years, the area was platted into 188 lots, ranging in size from 40 to 270 acres. Some of these lots received no review from the Commission because of statutory exemptions; others received after-the-fact review in which the appropriateness of the location was not considered. In the early 1990's, the existing sporting camp was converted to a 7-unit residential condominium, and an adjacent parcel was subdivided into another 20 lots, using the former sporting camp to demonstrate "adjacency" under the Commission's rezoning requirements. In 1992-93, revisions of the 1987-88 large lot plats resulted in a total of 134 lots offered for sale, 19 lots plus one 2,140 acre parcel placed under permanent conservation easement, and 35 lots retained for 5 years.

Since 1988, 55 building permits have been issued for the construction of dwellings on lots in this township. Without any more land divisions, over 100 additional dwellings could be constructed, with review by the Commission limited to site-specific considerations such as soil suitability and setbacks (see map on page 116).

In another more remote township, lot creation and subsequent development has dramatically changed its character. The township was in double ownership until 1987 when the western half of the township, comprising over 9,800 acres, was sold. This area was divided into two small lots on a pond and 13 exempt large lots in backcountry areas ranging from 520 to 1,290 acres. Several other lots were created through gifts and other divisions exempt from subdivision review. Between 1987 and 1997, 27 building permits were issued for lots in this township. Between 1995-97, three of these

Example of Land Division Exempt from Subdivision Review



1987 – 1996

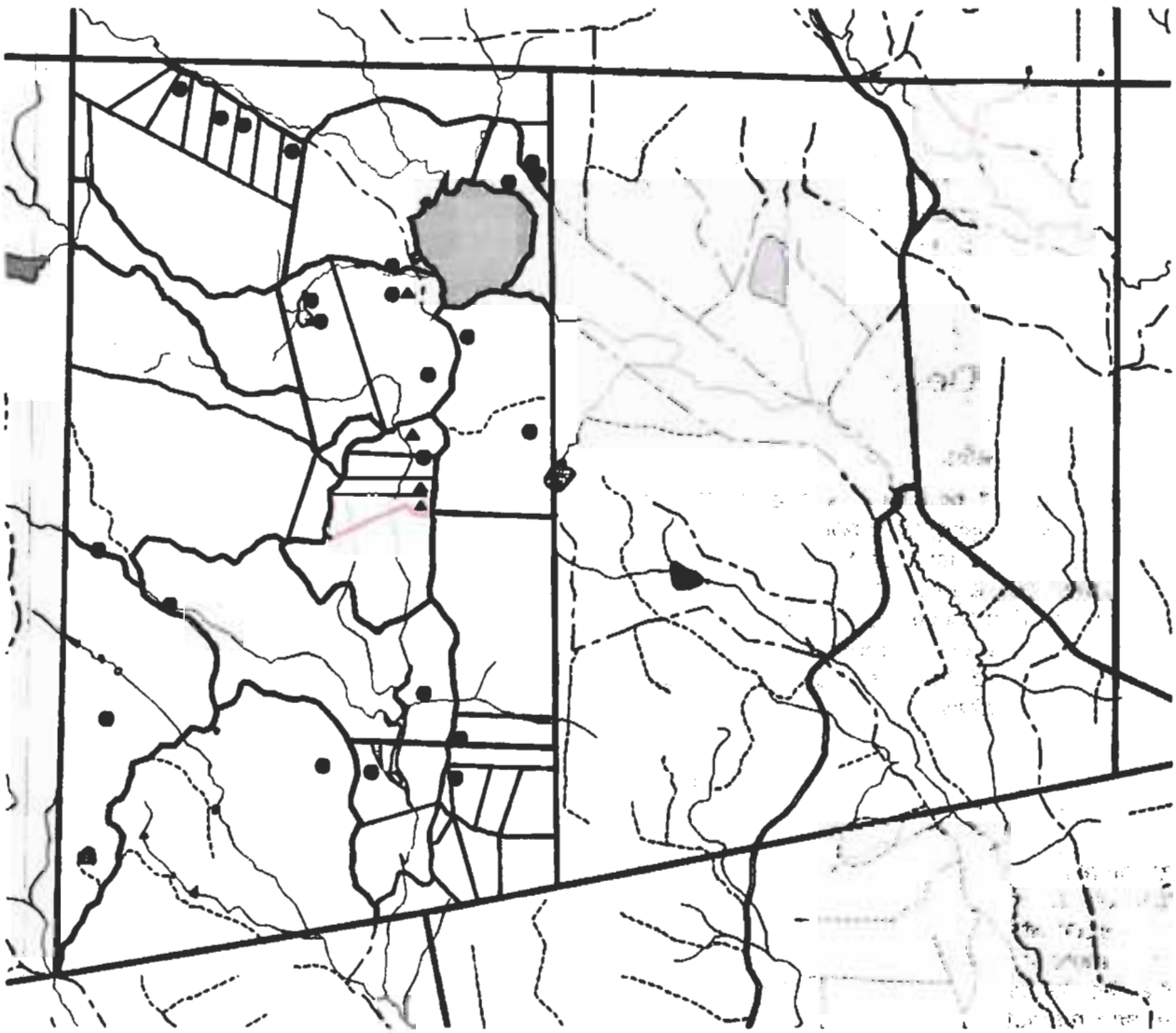
- Northern half of township, over 11,000 acres, sold by large land owner to land development company in 1987.
- Existing sporting camp facility on 45 acres sold in 1988.
- Land development company filed plats in 1987 and 1988 for remainder of parcel, laying out 188 exempt large lots ranging in size from 40 to 270 acres.
- 1991 subdivision and 1992–93 revisions of 1987–88 large lot plats resulted in a total of 134 lots offered for sale, 19 lots plus one 2,140 acre parcel placed under permanent conservation easement, and 35 lots retained for 5 years.
- LURC issued building permits for 55 residential structures (●) from 1988 through 1996.

SOURCE: MLURC Development Review files, USGS 7.5 quadrangle information

SCALE: 1 inch = 1 mile

July 25, 1997

Example of Land Division
Exempt from Subdivision Review



1987 –1997

Original exempt lots

- Western half of township, 9847 acres, sold by large landowner to lumber company in 1987.
- Lumber company divided entire parcel in 1989, creating 2 small lots on Elm Pond and 13 exempt large lots ranging in size from 520 to 1290 acres.
- Between 1995-1997, these large lots were further divided into 23 additional large lots ranging in size from 41 to 479 acres.
- 23 building permits (●) and 4 development permits (▲) issued by LURC from 1989 through March 1997.

SOURCE: MLURC Development Review files, USGS 7.5 quadrangle information

SCALE: 1 inch = 1 mile

July 25, 1997

large lots were further divided into 23 additional large lots ranging in size from 41 to 479 acres (see map on page 117).

The pattern of lot creation described above is a significant departure from the jurisdiction's historical pattern of development. Prior to 1970, most scattered development in the interior of the jurisdiction was in the form of relatively primitive camps on small lease lots. For the most part, the pattern of large landholdings remained unbroken. The creation of a significant number of new lots in interior areas – especially lots in the 40- to 499-acre range which are so consumptive of land for a building lot – is unprecedented, as is the trend of seasonal dwellings being built or improved as permanent second homes.

Impacts of Development

Evaluation of Benefits

Development between 1971 and 1991 has provided jobs, housing and improved services and facilities for the residents of the jurisdiction. Some development has also supported or enhanced the jurisdiction's principal values. New businesses and facilities related to wood products have reinforced and strengthened the jurisdiction's role as a diverse, working forest.

The development and improvement of sporting camps, campgrounds, individual campsites and boat ramps during the 1971-1991 period have enhanced primitive recreational opportunities, as has the expansion of the private road and trail network. Ski area expansion and the growth of the commercial whitewater rafting industry have supported more intensive recreational uses in particular areas. Tourism is a mainstay of Maine's economy, and recreational development in the jurisdiction has contributed to this sector.

New development has benefited local building contractors and suppliers. Some forms of development, particularly commercial and industrial uses, have generated substantial tax revenues while requiring a minimum of services and facilities.

Residential development has mixed benefits. The construction of year-round dwellings has provided often affordable housing to existing residents and newcomers. New year-round residents can serve to invigorate established communities, buttress the local labor force, and provide clientele to local businesses. Seasonal development can also benefit local retail and service establishments and provide Mainers and visitors with opportunities to enjoy the jurisdiction's outstanding recreational resources.

New residential development is often viewed favorably from a fiscal standpoint because of increased tax revenues. The costs of added services and facilities associated with residential development, however, usually more than offset tax revenues. This is particularly true with year-round housing requiring a full range of services, including education. New year-round housing has been least costly to serve when located near facilities and services in adjacent organized communities.

Seasonal housing requiring few services is most likely to yield fiscal benefits. But the location of many seasonal homes away from existing services and facilities increases potential service costs. During the 1971-1991 period, seasonal housing has increasingly been constructed as permanent second homes geared to multi-season use and possible conversion. The fiscal benefits of seasonal housing can therefore be limited or fleeting, particularly second home development in more remote areas.

Remote camps are a form of low-impact seasonal development that may be appropriate in many locations where second homes may not. Under the Commission's rules, remote camps are defined as dwellings "consisting of not more than 750 feet of gross floor area that is not served by any public utilities, except radio communications." These structures may best approximate the primitive hunting and fishing cabins that have long been scattered throughout the jurisdiction. This type of seasonal development is characterized by low service cost and low impacts; at low densities, it may be most conducive to maintaining the values of interior areas.

Evaluation of Adverse Impacts

Some adverse impacts are easy to identify and to avoid or mitigate; others are difficult to recognize or prevent. Full consideration of adverse impacts requires keeping abreast of scientific research and documentation, while recognizing that many impacts are subtle and incremental. Sometimes, by the time degradation of a value is clearly detected, the value may be lost, or remedial action infeasible. The Commission, therefore, will approach the identification of potential adverse impacts with a balance of good science and reasonable foresight.

In evaluating the impacts of development, the Commission has focused on residential construction because it is by far the most common form of structural development in the jurisdiction. The most prevalent type of residential development – second homes – is most likely to be located in areas with high-value resources.

Recreational facilities and other commercial and industrial activities also have potential for significant adverse impacts on the jurisdiction's principal values. However, these types of development are likely to occur at lower densities, and their impacts are likely to be project specific rather than cumulative. (Some of the potential impacts associated with these larger developments are discussed in sections on recreational resources, energy resources and geologic resources.)

The Commission has determined that the development that occurred between 1971 and 1991 had minimal adverse impacts on a number of distinctive natural resources that are clearly tied to a physical feature or location. These resources include deer wintering areas, high mountain zones, a number of remote, pristine ponds, large non-forested wetlands, Class A rivers and selected recreational trails. The most effective method of minimizing adverse impacts on these types of resources is to guide development away from them, and over the past two decades the Commission has effectively pursued this approach. Landowner stewardship or lack of accessibility has also contributed to the protection of some of these resources.

Not all of the jurisdiction's principal values, however, are linked to a distinct physical feature or location, or confined to a particular zoning district. In fact, as previously mentioned, many values are tied to the maintenance of large blocks of undeveloped forestlands. Values such as fish and wildlife habitat, ecological diversity, water quality and forest resources can be significantly affected by development activities that occur outside of specific protection zones or buffers. Values associated with primitive recreation opportunities and remote, undeveloped character can be similarly affected.

The Commission has determined that the development pattern that has taken place since 1971 is not conducive to protecting these types of values. A significant amount of development occurred in interior areas on lots that received no Commission review as to the appropriateness of their location for future residential growth. The pattern of land division and development evident in interior areas such as depicted by examples in this plan is clearly less than optimum for preserving the special values of these areas.

The most likely impacts on principal values from such patterns of development include:

- Loss of productive forest land and reduction in productivity of forestlands divided into smaller ownerships.
- Conflicts between residential uses and other uses of the forest. Development of remote areas typically results in increased nuisance complaints regarding forest practices, recreational use, and wildlife.
- Negative impacts on wildlife habitat and ecological values due to permanent clearing and conversion of land to development, intrusions into riparian zones and other habitat, and increased erosion and sedimentation.
- Degradation of water quality as a result of incremental development in sensitive watersheds or on lakes with high concentrations of existing development.
- Visual impacts on previously undeveloped roadsides, waterbodies, and hillsides.
- Loss of primitive recreational opportunities and natural character values as more remote areas are developed and access is improved.
- Increased demand for community services for dispersed development in more isolated areas, resulting in negative fiscal impacts on communities and taxpayers.

The location of most development in fringe areas is a favorable trend from the standpoint of protecting the values of interior areas. But much of this development occurred in fringe areas with high natural resources values, and impacts on these values need to be considered as well. The Rangeley Lakes and Moosehead Lake regions received considerable development during the 1971-91 period, and will likely continue to be the principal growth areas in the jurisdiction. While well-planned growth is appropriate in these areas, a haphazard growth pattern has the potential to degrade the attractiveness of these areas as recreational centers, and ultimately their tourist-based economies.

Some of the growth in these areas has occurred in a compact manner near the regional

centers of Rangeley and Greenville. Other development has extended into more remote townships, leapfrogged along shorelines, or appeared conspicuously on hillsides overlooking scenic lakes. The most likely impacts on the values of these regions are incremental effects on scenic values and water quality, and reductions in the overall quality of recreational opportunities, particularly on high-value lakes. Loss of some productive forest lands is to be expected in such high growth areas, but a more compact development pattern would have resulted in less impact on these resources.

The degree to which development occurring in the 1971-1991 period actually eroded the jurisdiction's values – either in the interior or in fringe areas – is open to debate. There will always be honest disagreement about the extent of the problem depending on one's perspective and the degree of conservatism used in evaluating impacts. For example, the Department of Inland Fisheries and Wildlife believes that development so far has had minimal impact on fish and wildlife. But the agency is concerned about the amount of development that has occurred along lakeshores and other riparian areas and the longer-term impacts of this type of development pattern.

The Commission feels that a strong case can be made that elements of the jurisdiction's remote, undeveloped character have been eroded, and that development and division of land in the interior is likely having a negative impact on ecological values and forest resources and on primitive recreational opportunities. In selected high-growth fringe areas, the Commission believes that some development has had negative effects on the values of special lakes, wildlife, and scenic resources.

The most important finding, however, is not indisputable evidence of lost values, but identification of a development pattern that is not conducive to the long-term protection of these values. And as the following evaluation of the Commission's approach to development indicates, this growth pattern is largely avoidable.

Evaluation of Commission's Approach to Development

Many of the Commission's policies and regulations have been generally effective in protecting the values of the jurisdiction. Several deficiencies have been identified, however, that work against the Commission efforts to "encourage new growth within and proximate to compatible developed areas, particularly towns and communities" and to protect the jurisdiction's principal values.

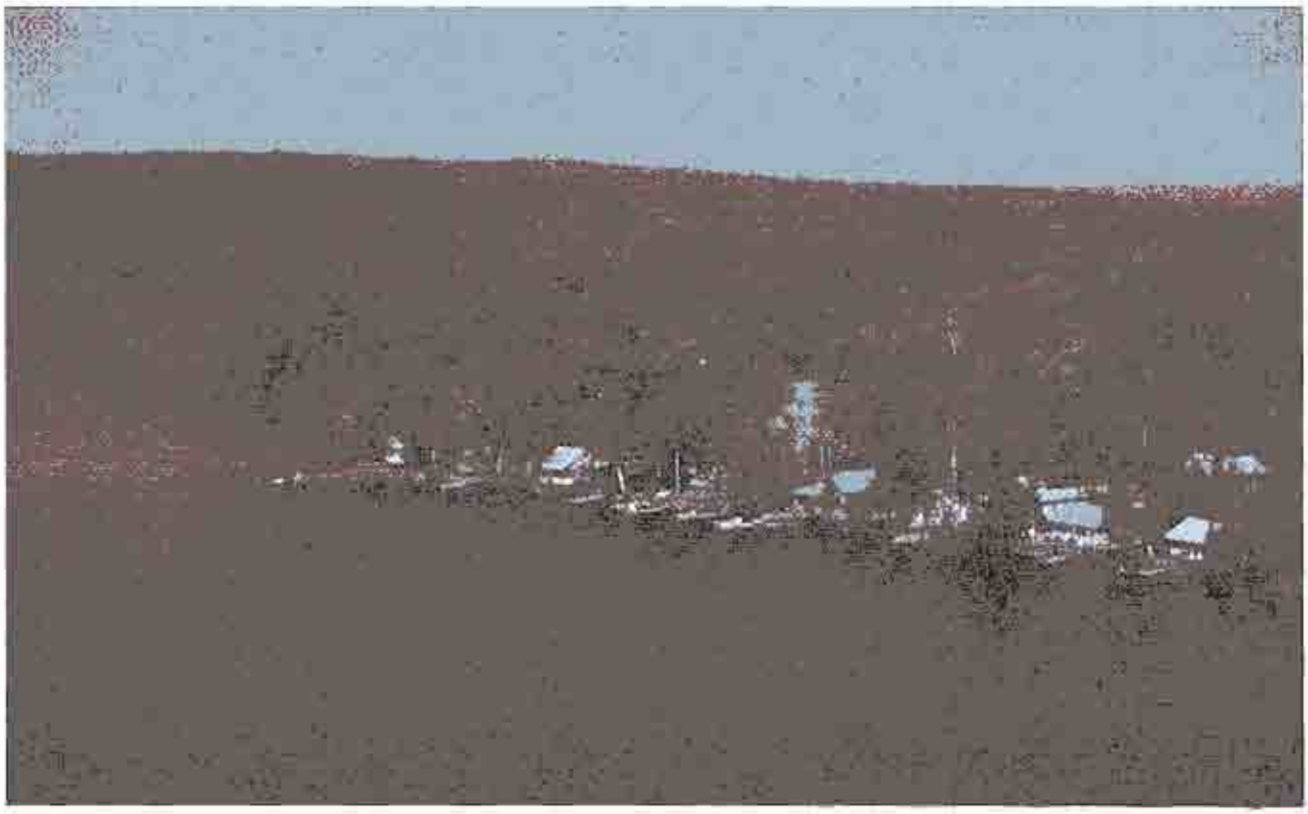
Strengths of the Commission's Approach

One of the greatest strengths of the Commission's approach is its identification and protection of distinctive or fragile natural resources: deer wintering areas, high mountain zones, Class A rivers, selected high value lakes and most inaccessible ponds, large, nonforested wetlands, and significant recreational trails. Most of these areas are prospectively zoned and buffered from potential development. During the 1971-1991 period, the Commission feels that the values of these resources have been substantially protected. While there may be other important natural resources or physical features that also warrant such high levels of protection, the Commission feels that its general approach to protecting these resources is sound, and adequate for their continued protection.

The Commission's lakes program, adopted in 1990, has generally been successful in ensuring protection of certain pristine lakes and providing guidance on which lakes are most suitable for future development. In this instance, the Commission conducted a comprehensive evaluation of the lakes of the jurisdiction and developed management guidelines based on their values. This approach may provide a model for the protection of coastal islands and other high-value areas.

Another strength of the Commission's approach is its focus on the location of major new development. A weakness of many land use regulations in other parts of the country is their focus on mitigation rather than on location. Under this approach, development is allowed in most locations as long as it satisfactorily addresses site-specific concerns. The eventual result of this type of planning is a sprawling development pattern comprised of individual projects that may not cause site-specific problems, but which, cumulatively, consume open space, irrevocably alter community character and contribute to unforeseen off-site impacts.

Site mitigation is an important tool, but it generally does not assure long-term protection of an area's essential character or of its natural resources. The most effective way to preserve the values of an area is to promote compact development patterns, and the Commission has been at least partially successful in this objective. While the Commission has struggled with the issue of appro-



Pre-LURC Development when no setbacks or vegetative buffer were required

Post-LURC Development on Aziscohos Lake with setbacks and buffer

priateness of location for some large-scale projects, particularly planned developments in more remote areas and other developments where the adjacency principle cannot be clearly applied, the overall focus on location is a strength which warrants further refinement.

Weaknesses of the Commission's Approach

The Commission has long recognized the importance of promoting compact development patterns and discouraging sprawl. Yet the application of this principle to all forms of development has been more difficult, and some of the principles and standards the Commission has used to guide growth lack refinement. Four major weaknesses are: (1) the exemption of certain lots from the Commission's subdivision review, (2) the Commission's reactive treatment of rezoning proposals, (3) lack of recognition of local and regional differences within the jurisdiction, and (4) limited control over infrastructure improvements, particularly roads.

Exemptions to the LURC Law

The statutory exemptions to the LURC law regarding divisions of landownership undermine the purposes of the law and interfere with the Commission's ability to effectively guide growth. These exemptions are for large lot divisions, originally intended to allow the creation of woodlots but now used largely to create lots for development, and for the 2 lots that can be created every 5 years (the 2-in-5 exemption) from a single parcel or ownership within each township.

The amount of exempt lot division has been substantial since LURC was created in 1971, and represents a significant departure from the historical landownership and development pattern of the jurisdiction. Over the last decade the legislature has enacted several amendments that have made the creation of large lots less attractive, but exemptions remain for large lots created away from waterbodies. The 2-in-5 exemption applies to all areas. Creation of these lots is likely to continue as a result of improved road access, changing landowner objectives and increased demand for second homes.

Whereas subdivisions and other development requiring rezoning receive Commission review regarding the appropriateness of their location, unregulated lot divisions receive no such review. When dwellings are proposed for exempt lots, the Commission generally limits its review to conformance with dimensional standards and subsurface waste disposal rules.

Exempt lots may also create new patterns of development which can become the basis for new development zones. Under the Commission's existing approach, lands rezoned for development generally must demonstrate that they are near existing concentrations of similar development. In most cases, this requirement precludes new subdivisions in remote, undeveloped areas. But developed exempt lots in otherwise remote areas could be used to support such rezonings.

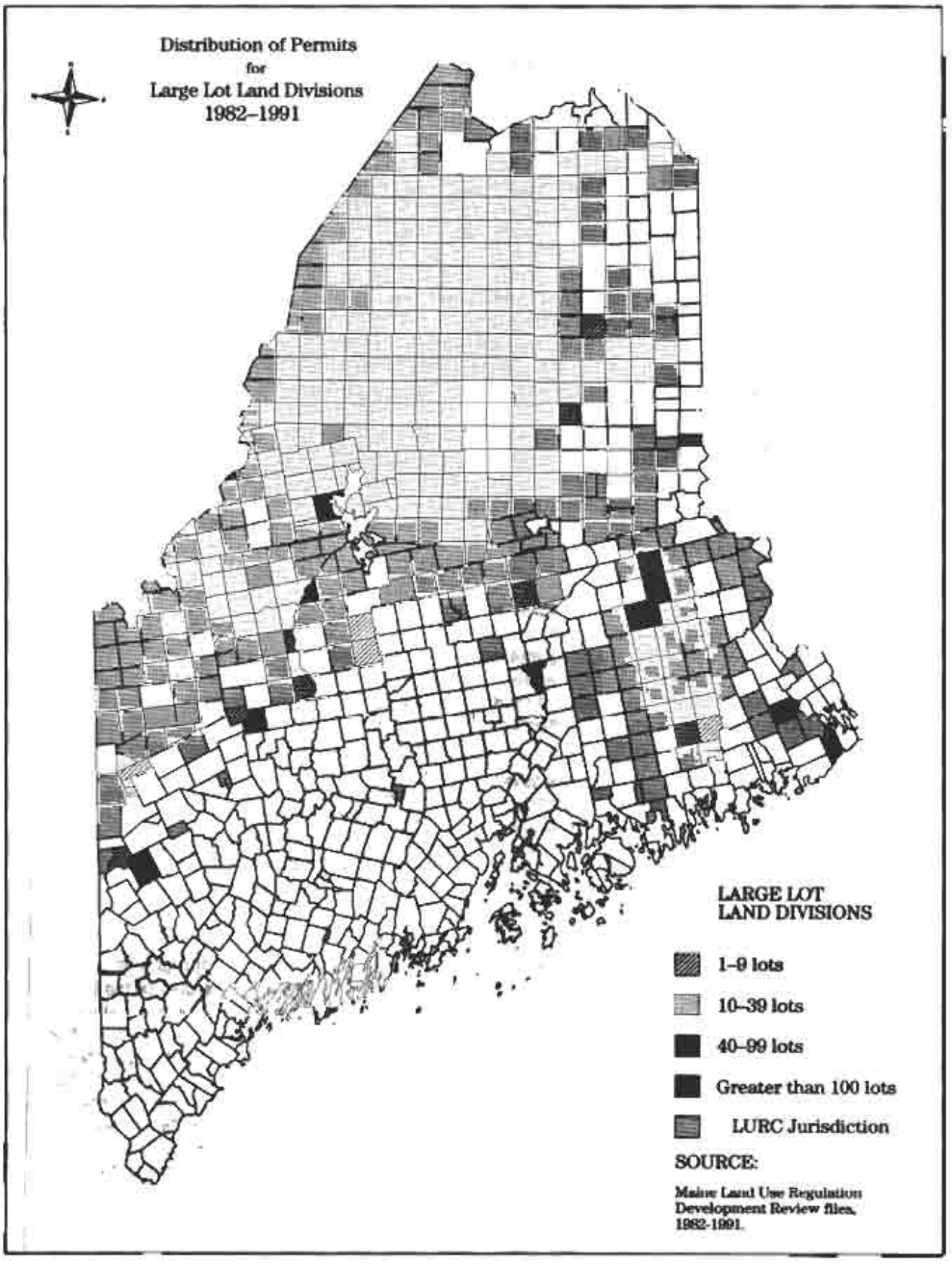
Reactive Approach To Rezoning

The Commission's existing zoning framework is largely based on identification of where development exists as opposed to where development is most appropriate. Because of this, most proposals for intensive development require rezoning of land to a Development Subdistrict at the time a proposal for development is made. Since landowners must usually initiate such rezoning proposals, zoning decisions are driven more by landowner preference and constraints than by public policy regarding the most suitable locations for development.

In the past, four basic principles have broadly guided the Commission in evaluating most major development proposals. Those principles are: (1) that most future development should take place within or near compatible developed areas, particularly near towns and communities; (2) that the rezoning should be consistent with other goals and policies of the Comprehensive Land Use Plan; (3) that applicants for rezoning should demonstrate a need for their development in the community or area proposed; and (4) that there be no undue adverse impact on existing resources and uses.

The criterion of demonstrating a need in the community or area is aimed at assuring that the rezoning is truly necessary and not overly speculative. For residential projects, the Commission has historically considered the apparent demand for new housing in a community or area; for nonresidential projects, the need for the services, goods or jobs that would result from the rezoning.

The criterion that new development should be located near existing development is referred to as "the adjacency" principle, and the Commission has generally interpreted it to mean that most rezoning for development should be no more than a mile by road from existing compatible development. The


Distribution of Permits
for
Large Lot Land Divisions
1982–1991
LARGE LOT
LAND DIVISIONS
1–9 lots
10–39 lots
40–99 lots
Greater than 100 lots
LURC Jurisdiction
SOURCE:
Maine Land Use Regulation
Development Review files,
1982-1991.

Commission recognizes that there are certain instances in which a greater or lesser distance may be appropriate in measuring distances to existing developments.

These rezoning principles have generally served the Commission well, but they have several deficiencies, especially the application of the adjacency principle. When zoning was first adopted for the jurisdiction, development zones were created around clusters of existing development with no consideration of the suitability of areas for future growth. Under the Commission's rules, relatively few existing residential or commercial structures are needed to make areas eligible for development subdistricts, and this has resulted in a proliferation of small development districts throughout the jurisdiction. Application of the adjacency principle to all of these districts renders large areas of the jurisdiction potentially appropriate for intensive development. In addition, as previously described, the development of exempt lots has potential to produce other clusters of buildings in remote areas that could be used to support rezoning of adjacent lands.

Once an area is rezoned and developed, it can, in turn, serve as the basis for rezoning other areas within a mile. The adjacency principle, then, has the potential to sanction a leapfrogging effect in which each new development potentially becomes the existing, compatible developed area from which adjacency for the next development can be measured.

The adjacency principle also lacks guidance on what types or intensities of use constitute "compatibly developed areas" and on situations where it may have limited application. Does a cluster of five dwellings, for instance, establish adjacency for a proposed 50-lot subdivision nearby? Should remote sporting camps be viewed as a development center for other types of development? On smaller coastal islands, using a one mile adjacency threshold may justify rezoning anywhere on the island.

The rezoning criterion that requires demonstration of a need has also been problematic. The subjectivity and relativity of the term "need" makes it difficult to apply in a consistent manner. The criterion has been effective in discouraging wholesale rezoning for speculative purposes, but has been more difficult to apply to smaller projects.

Overall, the existing rezoning system does not offer sufficient guidance to prospective developers as to the most appropriate and potentially approvable areas for development. While it was necessary as an interim approach to guiding growth in LURC's early years, the case-by-case review of rezoning proposals is becoming ineffective as the principal tool for guiding growth. Furthermore, it would become unworkable if market conditions or landowner objectives change, resulting in significant new development pressures.

Lack of Recognition of Local and Regional Differences

With a few exceptions, the Commission generally applies a "one size fits all" approach to different areas of the jurisdiction. An application for a building permit in Argyle Township, just north of Old Town, for instance, is reviewed in a similar fashion to a permit for a dwelling in an extremely remote areas such as Soper Mountain Township. The coastal islands under the Commission's jurisdiction are significantly different than typical inland areas, but regulation of and permitting in these areas are essentially the same. The primary focus of all permit reviews is whether the proposal meets the Commission's dimensional requirements and subsurface waste disposal rules.

For larger scale projects, the Commission performs a more comprehensive review of project impacts, but the process is the same for all areas in the jurisdiction. As the adjacency principle is now applied, the focus is on whether there is existing development in the vicinity, not on the general appropriateness of the area for intensive development. Under the previous example, a rezoning proposal in Soper Mt. Township might succeed if it were located near five otherwise isolated seasonal camps, while a similar proposal in Argyle, a few miles away from Interstate 95, may fail because there are no dwellings in the vicinity.

Use of this type of approach is understandable in light of the immense size of the jurisdiction and staffing constraints. But opportunities exist for refinements in which variations in values between different areas would be more strongly considered. As it now stands, the review process and standards that apply to some communities may, in fact, be overly conservative in light of relatively low resource values and location on the edges of the jurisdiction. In more remote townships, these same procedures and standards may provide insufficient consideration of the impact of the proposed project on principal values.

Unplanned Infrastructure Improvements

Land use is largely dependent on access. Therefore transportation improvements are a prime determinant of where future development will be located. While the original purpose of many roads in the jurisdiction is to access new areas for timber harvests or to improve hauling routes, these road improvements can also serve as a catalyst for future development, especially if they increase access to areas with high recreational or scenic values. A proposal for a subdivision on one of these roads has to meet the Commission's adjacency criterion, but permits for individual residences on lots exempt from subdivision review do not.

Roads can also affect recreational values. Improved access generally increases use, potentially causing loss of remote values, degradation of high value resources, and management problems for landowners such as vandalism, inadequate sanitary facilities and littering.

Under statute, the Commission has limited control over land management roads in Management Districts. Land management roads must meet a number of guidelines aimed at minimizing environmental impacts, but except in selected protection subdistricts, the Commission does not review the location of land management roads.

The Commission encourages the continued allowance for public access where such access would not have a detrimental impact on resource values. Some haul roads are gated and others permanently closed after harvesting, but according to the Maine Paper Industry Information Office approximately 98% of these roads stay open for public use. In some cases, public opposition can arise over the closing or gating of private roads.

The extension of utilities also has an impact on the location of development and its level of intensity. Extending utility lines into more remote areas can spur new development because of improved marketability of homes with electricity and telephone serve. The availability of electricity can substantially increase sewage generation because electric pumps facilitate water use. This is particularly true in old lakeshore development where camps often have inadequate septic systems, located close to shore on poor soils. The Commission reviews proposals to extend utilities, but determining direct and indirect impacts on the jurisdiction's values has been difficult.

Development Issues and Recommended Refinements

Central Issue: Location of Development

Summary Statement

The Commission has concluded that the principal development issue is not the amount of development taking place in the jurisdiction, but rather where it is located. This conclusion is based on analysis of the pattern and impacts of development that has occurred within the jurisdiction since 1970 and evaluation of the effectiveness of the Commission's policies and regulations in protecting the principal values of the jurisdiction. The most important finding from evaluation of these development trends is not indisputable evidence of lost values, but identification of a development pattern that is not conducive to the long-term protection of these values. Further, the Commission believes considerable opportunities exist for refinements to its approach that would promote a more sustainable growth pattern.

Recommended Refinements

Controlling Lot Creation

Analysis of the amount and location of exempt land division activity over the past 20 years clearly shows the counterproductive nature of large lot exemptions to the subdivision law. This exemption was created to enable easier exchange of forest lands, and its use for development purposes is not consistent with the legislature's original intent. The legislature will be informed about the result of exempt divisions and asked to reconsider these

statutory exemptions from the subdivision definition within the LURC law. If the large lot exemption is maintained, the law should at least be amended to limit the future use of exempt lots to forest management activities. Such changes should address the potential problem of large lots created under a forestry exemption being eventually developed.

If the legislature does not repeal this exemption to the subdivision law, the Commission will explore other mechanisms to address the impacts of scattered development in the interior of the jurisdiction. One option would be to consider more than site specific factors in the permitting of dwellings that are proposed for these exempt lots. Considerations such as the nature of road access and proximity to other dwellings could be part of this process. Permits in high-value areas in the interior could be restricted or only dwellings meeting remote camp criteria could be allowed.

While the Commission believes that lot creation through the 2-in-5 exemption has been considerable, there is no easy way to track these divisions. Without more information on the number, location and impact of these divisions, the Commission believes it is premature to seek changes in this aspect of the subdivision law. A requirement that the Commission be notified when lots are created in this manner would allow for better tracking and evaluation.

If the Commission determines in the future that the creation and development of lots under this exemption are problematic, it will consider some of the options listed above that address the permitting of buildings on exempt lots. The option of requiring buildings on exempt lots in interior locations to meet the remote camp definition may have particular merit.

Applying Prospective Zoning

Prospective planning and zoning will address several of the limitations of the case-by-case approach. Under prospective zoning, the Commission identifies areas within a community or region that are most appropriate for additional growth based on existing development patterns, natural resource constraints, and future planning considerations. These areas are then zoned as development districts, and future growth is facilitated in these zones. This approach makes the development review process more efficient and predictable, and promotes both economic development opportunities and the protection of principal values. The prospective zoning process also creates an excellent opportunity for public participation by residents, landowners and other interested parties.

Prospective zoning has already been applied in the township of Greenfield, which deorganized in 1993. After an inventory of the community's land uses and natural resources, the Commission, with input from the public, identified and zoned several areas determined to be most suitable for future residential and village growth.

The best candidates for future prospective zoning are probably high-growth, high-value regions identified in the section of the plan on areas with special planning needs. In these regions, prospective zoning could be effectively used to balance growth and economic development needs with protection of their special resource values. The four highest priority areas are:

- The Rangeley Lakes region
- The Moosehead Lakes region
- The Millinocket-Baxter State Park area
- The Carrabassett Valley area

With the state's major highway (Interstate 95) passing through or near the Commission's jurisdiction in Penobscot and Aroostook Counties, the Commission will encourage major nonresidential development along this corridor through prospective development zoning or in response to rezoning proposals for such development.

Guiding Development at the Jurisdiction Level

While applying prospective zoning at the local or regional level shows great promise, especially in balancing growth and conservation in high-growth areas on the fringe of the jurisdiction, it has several limitations. First, the process is time consuming and expensive, and, at 1996 staffing and resource levels, it may take several years to comprehensively inventory and zone a single region. By the time the Commission has applied this approach to a relatively small portion of the jurisdiction, a significant amount of additional growth may have occurred, some of it in inappropriate areas.

Second, the process focuses on individual communities or regions, and does not consider the larger issue of where development is most appropriate in the jurisdiction as a whole. The principal values of the jurisdiction differ significantly from

township to township and from region to region, but no specific guidance exists on where development can occur with the least overall impact on these values. Other than regions identified as most appropriate for prospective zoning, there are other communities on the fringe of the jurisdiction where development could be accommodated without significant impacts on the jurisdiction's principal values. Yet under the jurisdiction's one-size-fits-all approach, development in these areas is treated in a fashion similar to that in high-value interior areas. Some of the jurisdiction's more interior areas may be among the last to be prospectively zoned, yet it is the values of some of these areas that are most sensitive to development.

In order for the Commission to effectively plan for future growth and ensure the long-term protection of the jurisdiction's principal values, it will consider improvements to its overall approach in guiding growth on a jurisdiction-wide basis over the next 10 years. The Commission will evaluate the suitability of different towns, plantations and townships for future growth based on their location relative to population and job centers, availability of roads and infrastructure, demand for development, and the type and extent of principal values that they possess. The Commission will then consider incentives for promoting growth in the areas determined to be most suitable and disincentives for development in areas deemed least suitable.

The Commission believes that the success of any effort to better guide development at this level will depend on support among diverse interests and strong participation by large landowners. The vast areas of the jurisdiction remaining in unified ownerships offer considerable opportunities for promoting a growth pattern that preserves development opportunities and equity while assuring better long-term protection of principal values. Considerable opportunities may also exist for non-regulatory approaches that provide landowners with flexibility and incentives to pursue voluntary measures.

Improving the Rezoning Approach

While prospective development zoning and other growth management strategies will lessen the need for rezoning over time, there will always be a need to consider rezoning in a timely and equitable manner. Despite the relatively high rate of approvals for rezoning, developers face uncertainty when presenting a request for rezoning because the system requires so many judgements from the Commission as it applies general rezoning criteria. The Commission has developed a draft rezoning guidance system which is being applied by the staff on a trial basis to provide more equity in the rezoning process. The Commission will refine this system after this trial period and make it available to applicants as guidance in the rezoning process.

The adjacency principle will remain a central consideration in rezoning, but its application will be further refined to promote consistency and good planning. The Commission recognizes, for example, that isolated patterns of development in remote locations, such as sporting camps, should not be used as the basis for rezoning adjacent lands for development as it can establish conflicting uses. Existing development used to support rezoning should either be of a similar type, use, occupancy, scale and intensity to that being proposed, or a village center with a range of existing uses that the new development zone would complement. Several of the policies of this plan provide more direction on how the adjacency principle would be best applied in different situations.

The rezoning criterion requiring demonstration of need provides the Commission a powerful tool in evaluating the viability and scope of proposed development. The Commission, however, will assess its use of this criterion with a goal of applying it as consistently as possible. Under the proposed rezoning guidance system, the need criterion is broken down into a number of factors intended to provide a more objective assessment of need. Factors include evaluation of availability of vacant building lots, the amount of land in the area already zoned for the proposed use, and anticipated benefits such as jobs and tax revenues. As the Commission and applicants become more comfortable with this system, it should provide more predictability in the assessment of need.

In communities that are prospectively zoned, the areas most appropriate for future growth will be zoned as development districts, eliminating the need for most projects to go through the rezoning process. Requests for rezoning additional lands in these communities will be reviewed with particular care to avoid sprawling development patterns or a mixing of incompatible uses. The adjacency principle would be most applicable in allowing for needed expansions of existing development zones. Broader application of the principle, however, could lead to a proliferation of rezoning that may upset the balance between development and con-

servation that was a part of the original prospective zoning plan. In these situations, the most important consideration will be whether new areas proposed for rezoning are viable growth centers and consistent with the initial prospective zoning plan.

Considering Infrastructure Improvements

While the Commission believes that the siting of roads can have unforeseen impacts, this plan does not make recommendations to regulate the location of land management roads to control the location of development. The Commission recognizes the importance of the haul road network to the forest products industry, and road siting issues, where identified, will be addressed in a cooperative manner. If the Commission is able to review the location of new lots that are now exempt from subdivision review, the issue of roads facilitating scattered development will be at least partially addressed.

The Commission will continue to monitor the location of new land management roads and the closure of existing ones. By conducting a more comprehensive inventory of the jurisdiction's road network, the Commission will be in a better position to track the relationship between road construction and development.

The Commission does have considerable control over utility extensions, and the potential impact of proposed extensions will be carefully evaluated. Both the immediate site impacts and the long-term impacts of bringing utility services into an area will be important considerations. A prospective zoning approach will provide additional direction on which areas are most appropriate for utility extensions.

Other Major Issues

Economic Development

While the Commission is charged with protecting the values of the jurisdiction, it will ensure that reasonable economic development is accommodated, particularly facilities related to forestry, agriculture or recreation. Considerable opportunities exist for facilitating economic development in appropriate areas, and the Commission will reexamine its standards to assess their effect on economic growth.

The issue most commonly identified as a potential impediment to economic development is the permitting process. The Commission made a significant effort in 1988 to streamline its permitting process by broadening the definition of activities for which permitting would be expedited. The Commission will continue to seek out opportunities for further streamlining. Every effort will be made to make the permit turn-around time no longer than absolutely necessary to complete a thorough review in which the Commission's statutory responsibilities are carried out.

The Commission will expedite the permitting process by (1) simplifying application forms, (2) identifying minor activities and alterations for which no permit is required, (3) designating permits which could be issued at the field office level as staffing becomes available to perform such function, (4) delegating to staff the ability to act on small-scale rezoning proposals within designated growth areas which meet the Commission's rezoning guidelines, and (5) identifying types of uses that could receive accelerated review and approval. Examples of such uses include accessory structures and expansions that comply with certain size and location requirements, and new structures on lots which are either part of LURC-approved subdivisions or within districts prospectively zoned for development, particularly for sites located away from shoreland areas.

A number of enterprises support or reinforce the principal values of the jurisdiction, and these types of activities will be promoted, not hindered, by the Commission's policies and regulations. Certain facilities, for instance, can provide a means of recreational use with less impact than a large number of individual second homes or camps. In more remote areas, traditional, nonintensive facilities such as sporting camps or primitive campsites are most appropriate, and the Commission's policies and regulations will promote these types of uses.

Traditional sporting camps represent both a recreational asset and a valuable part of the heritage of the North Woods. The Commission's approach to these facilities will recognize their need to adapt to changing economic conditions and their dependence on the remote character of their surroundings. Permitting of reasonable expansions and improvements will be facilitated, with assurances that camps will not evolve into more intensive uses that could have negative impacts on the area. Proposals for other development adjacent to sporting camps will be reviewed with particular care to ensure that values on which the camps depend for their survival are not eroded.

More intensive recreational facilities are most appropriate near developed recreational centers, or as part of well-planned developments in other areas. Both commercial whitewater rafting and downhill skiing provide increased recreational opportunities and considerable economic benefits, but have potential for negative impacts on other principal values. Growth of these industries is best accommodated as expansion of existing facilities or as compact development in identified areas.

The Commission already recognizes the need to provide flexibility in the siting of buildings used in forest management or agricultural activities. These uses are allowed without a permit in General Management Districts. There may be other buildings related to forestry or agriculture that will be treated in a similar manner.

Other types of businesses that may be inappropriate in interior areas may be suitable in communities on the fringe of the jurisdiction. In developing strategies for guiding growth, the Commission will identify areas where these economic activities can occur with the least impact on principal values. Fringe areas near population or employment centers with available infrastructure and low resource values are generally the most suitable locations. For such areas that have not yet been prospectively zoned, the Commission will facilitate development by making it easier for projects proposed for these areas to meet the Commission's rezoning criteria.

In the Commission's rules, there are four different types of development zones that can be created to accommodate new development: Residential Development (D-RS), General Development (D-GN), Commercial Industrial Development (D-CI) and Planned Development (D-PD) subdistricts. While the D-GN subdistrict allows small-scale commercial development, other more intensive development that may also be appropriate in a village area is either not allowed or only permitted by special exception. Creation of a zoning classification more conducive to village-type uses would provide additional flexibility in the development of these areas.

Other types of development may have needs or impacts that could be better addressed with a special zoning designation. Solid waste facilities, for instance, are best sited in areas with existing infrastructure, but location within a village area is probably not appropriate. The zoning of most existing gravel pits as Commercial-Industrial subdistricts may also be inappropriate considering the location of these facilities in more remote areas and their ongoing expansion needs.

Impacts of Existing Development

Much of the focus of the Commission's longer range planning efforts is on new development. Expansions and conversions of existing development, however, have the potential to degrade the jurisdiction's values, and the Commission's approach to these uses should be equally protective as its approach to new uses.

Nonconforming Uses/Structures

Many existing structures, built prior to the enactment of the Land Use Regulation Law, are on inadequately sized lots, have soils unsuitable for waste disposal, or have inadequately designed or located waste disposal systems. When these structures require rebuilding or major renovation, the Commission applies reasonable requirements to upgrade the existing system so that future problems are minimized.

Some landowners have, on their own initiative, reconfigured nonconforming lots to bring them into compliance with current regulations. The Commission recognizes these efforts as being supportive of its own objectives and encourages other landowners to do likewise prior to development, sale or leasing of such lots. The Commission will seek to establish incentives for bringing lots and structures into compliance or closer compliance with current regulations. In these efforts, the Commission is mindful of issues of fairness and consistent treatment of landowners with nonconforming situations.

The Commission supports traditional uses of the jurisdiction including the traditional sporting camp. In light of the relatively small number of established sporting camps, the frequent nonconforming nature of structures associated with such facilities, and the importance of maintaining the integrity of the facility as a whole, the Commission recognizes the need to deal with nonconforming structures that are part of established sporting camps as special circumstances in considering the rebuilding or expansion of such nonconforming structures.

Conversions of Existing Uses to More Intensive Uses, Particularly on Lakes

For a variety of reasons, including improved road access, many formerly low impact, seasonal structures are being converted to more intensive and/or year-round structures. These conversions have the potential to significantly increase the impact of the use on traditional uses and natural resources, especially where they occur on lakes.

This trend manifests itself in expansions and changes in use of sporting camps and conversions of seasonal camps to year-round homes. Sporting camps have been allowed in P-GP zones because the traditional camps have been relatively low impact, resource-based uses. However, as they expand to offer more diversified commercial services or approach resort status, their impact on surrounding uses and resources may increase, and they may no longer be a compatible use in the zone. The Commission will define what it envisions as the traditional commercial sporting camp, recognizing that this definition and what is considered traditional will likely gradually change over time.

Site Mitigation and Appropriate Design

A major requirement of new development is that "provision be made for fitting the project harmoniously into the existing natural environment in order to assure that there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area..." The Commission has generally done a good job in ensuring that development has minimal impacts on its surroundings. This is particularly true of larger projects because of the thorough review they undergo as part of obtaining subdivision or development permits. Concerns such as buffering, phosphorus mitigation, and optimum site design are addressed as part of these review processes.

However, there are several weaknesses in the Commission's current approach. First, the Commission's *Land Use Districts and Standards* provide few specific standards on how this criterion is best met. For larger projects, Commission staff has relied heavily on concurrent review by the Department of Environmental Protection (which is no longer performed), and on detailed submission forms. While most applicants have proven responsive to staff suggestions on how to fit their project into the natural environment, no formal standards exist for such considerations as road design and construction, stormwater control, and environmental effects such as noise and glare. Standards such as these are commonplace in the land use ordinances of most organized communities and provide important guidance both to boards or staff reviewing projects and to prospective developers.

Lack of appropriate road standards has been a long-standing issue. Narrow, poorly surfaced camp roads do not easily accommodate snow plows, fire trucks, ambulances, or school buses, but wide, suburban-type subdivision roads may be inappropriate in much of the jurisdiction and require unnecessary amounts of clearing and impervious surface.

The Commission will adopt a set of performance and design standards for subdivision and development proposals that provide staff and applicants with clear guidance on how development can best meet the Commission's general standards. Particular emphasis will be given to developing a set of standards for subdivision roads in which design and construction requirements vary according to their function and setting. Building setback requirements from different types of roads will be reconsidered as well.

Another weakness in the Commission's approach has been lack of guidance to applicants on more innovative approaches to site design that preserve open space and retain natural features.

The Commission has been supportive of projects that incorporate both a development and conservation component, but this type of approach is not strongly promoted by the Commission's existing rules. Many new projects, as initially proposed, are characterized by unoriginal lot layouts that "grid out" parcels of land off existing roads and preserve little open space. The Commission will investigate additional incentives for promoting more creative site design and encourage pre-application conferences in which staff and applicants can discuss the merits of different development options and address design issues early in the review process.

Siting of Unwanted Land Uses and New Technologies

Proposals to site major new waste disposal, energy, or utility-related facilities in more populated areas of the state have been opposed by organized citizens groups concerned about the impact of such facilities on their communities. Because of the jurisdiction's large area and low population density, it is likely to be increasingly viewed as a desirable location for some of these land uses.

A number of power transmission lines cross the jurisdiction. These facilities can significantly affect an area's scenic, remote and other natural values. Utility companies interested in siting new transmission or pipe lines may increasingly look to the jurisdiction for several reasons. First, there are advantages in dealing with one permitting agency rather than a number of organized towns. Second, state law limiting utilities' eminent domain powers over unwilling sellers makes these companies more likely to choose rights-of-way where there are fewer landowners. Third, the jurisdiction stands between the source (the Canadian provinces) and the need areas.

While the Commission is concerned about the potential site-specific impacts of such facilities, it is also concerned that they be located in areas where they will have the least impact on the jurisdiction's principal values. Generally speaking, they are best located in areas on the fringe of the jurisdiction with good existing road access but low natural resource values.

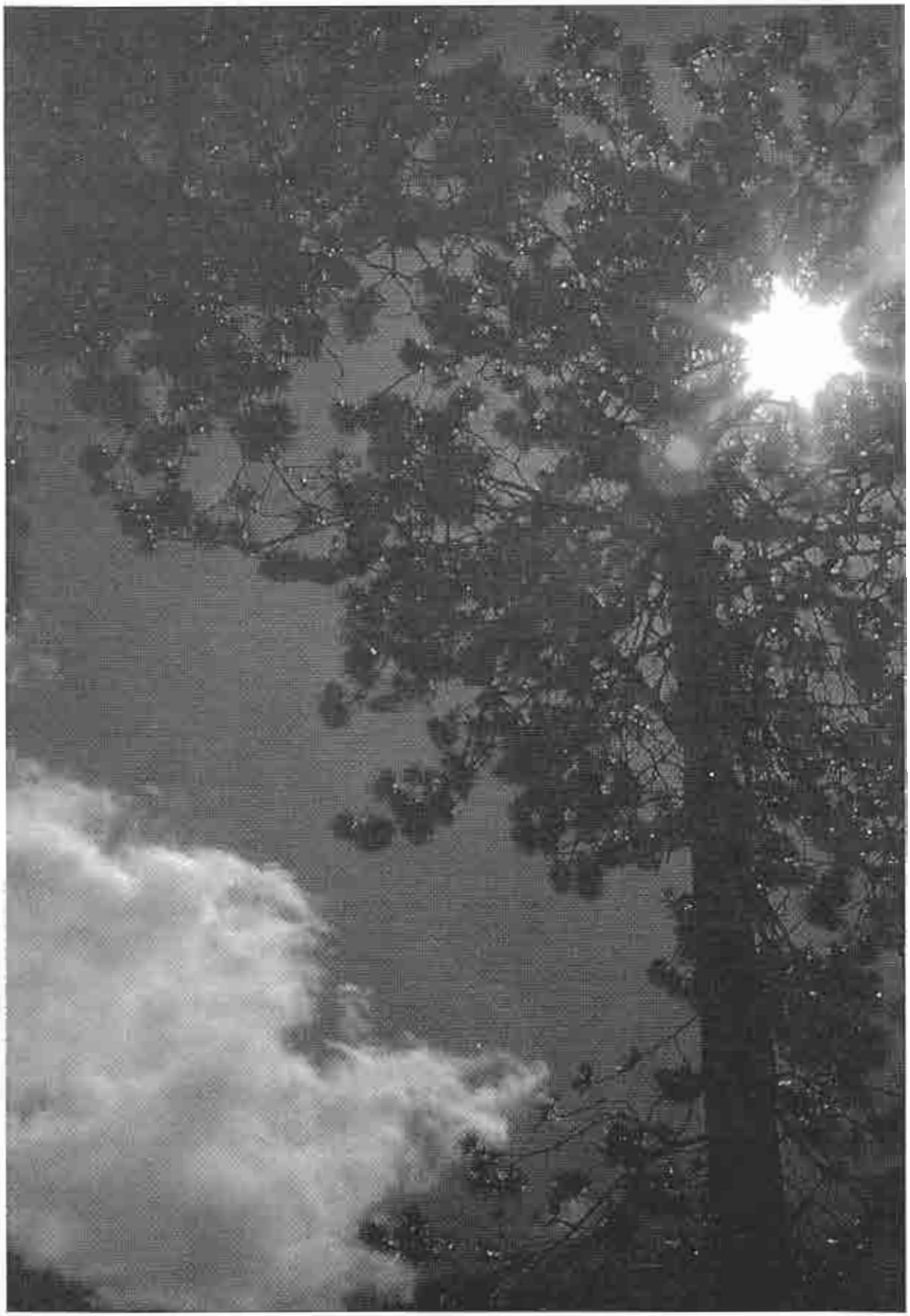
In the case of new transmission lines or pipelines, the Commission can minimize their impact by encouraging the siting of these facilities along existing right-of-ways, particularly roads, and discouraging new routes through more remote areas. In the case of radio communication towers, the Commission will ensure that such towers are dismantled and removed from the premises if unused for an extended period. To minimize the number of such towers, the Commission will also ensure that space on new towers is made available to other users where feasible.

Paper companies spread paper mill sludge on forested lands within the jurisdiction. The Commission has prohibited such spreading in certain environmentally sensitive areas and requires a permit in other sensitive areas. However, in the vast majority of the jurisdiction (management districts), the Commission does not require a permit for such activities provided it complies with applicable regulations of the Department of Environmental Protection. The Commission will continue to monitor DEP's permitting and regulation of such activities to determine whether the Commission needs to take additional measures to adequately protect the values of the jurisdiction.

In the mid-1990's, there has been considerable interest in the jurisdiction as a location for wind-generated electricity. While the Commission recognizes that windpower projects must be located where the wind resource exists, they have potentially significant on-site impacts due to their high elevation location and equally significant potential to adversely affect the jurisdiction's principal values.

Windpower and some other activities represent technologies or uses that are new to the jurisdiction. In the early 1990's, there were strong indications that large scale metallic mining operations would be proposed for some areas of the jurisdiction. In response, the Commission worked with the Department of Environmental Protection to draft uniform procedures and rules governing large-scale mining operations.

The Commission will attempt to stay abreast of new technologies and be prepared for proposals for new uses, especially ones that are likely to occur in high value areas. The Commission will try to be prepared to devote resources to assess the potential impacts of these new uses and to provide policy guidance on their appropriate development within the jurisdiction prior to acting on major development proposals.



Chapter 5

Goals and Policies for the Future

The Commission is charged with planning for future growth, not just reacting to it. This update of the Comprehensive Land Use Plan provides the Commission with an opportunity not only to look back at trends and evaluate their effect on the jurisdiction and its values, but also to develop a future vision of the jurisdiction. This vision describes how the jurisdiction ideally would look in 10 years if change is successfully accommodated and principal values are retained. The policies of this plan, which follow, are aimed at attaining this vision.

Vision for the Jurisdiction

Strengths of the Historical Development Pattern

The jurisdiction is comprised of vast areas of relatively undeveloped land, with concentrations of development principally near organized areas and relatively few scattered seasonal dwellings elsewhere. This development pattern is long established and is generally conducive to retaining the principal values of the jurisdiction and minimizing conflicts between them.

While small ownerships can be well managed, forest management activities are most efficiently conducted on large blocks of undeveloped land without undue interference from other activities. The general lack of development in the interior is conducive to the protection of natural resources and associated values. The absence of development combined with pristine natural resources in interior areas provides unparalleled opportunities for various forms of primitive recreation, while recreation-related development on the fringes of the jurisdiction supports more intensive recreation activities. The remote undeveloped qualities of the jurisdiction are well served by this pattern of development. These qualities are particularly sensitive to change; the remote character of a lake or river in the interior of the jurisdiction may be eroded long before water quality is threatened. The stewardship of land for forest management purposes on large blocks of land has, in the past, supported the Commission's broad planning goals as enumerated below.

Vision for the Future

Looking ahead to 2007, the LURC jurisdiction should retain its extensive forests, undeveloped shorelines, remote woodland character, rural communities and unique collection of natural and cultural resources. Through wise management and protection, the jurisdiction should achieve a balance of uses that provide for a continuation of traditional ways of life, sustainable economic opportunities and outdoor recreation for the people of Maine and its visitors.

The historical development pattern in which most new development occurs where principal values are least impacted should be reinforced. Ideally, a high percentage of new development should be located in those areas identified by the Commission as most appropriate for new development. New economic development should be facilitated by prospective zoning, and a streamlined review process should exist for projects in identified growth areas. Housing needs – for year-round residents, retirees, seasonal residents, and recreational users – should be accommodated, but without compromising the jurisdiction's principal values.

The vision for the jurisdiction, however, should go beyond a simplistic treatment of all fringe areas as suitable for intensive development and all interior areas as inappropriate for any development. In fringe areas with high natural resource values, special efforts should be made to balance development and conservation concerns. For example, a high percentage of growth during the next 10 years is likely to occur in the Rangeley Lakes and Moosehead Lake areas. Formulating a coherent future vision for these areas is best done as part of a regional planning process that identifies areas most appropriate for development and conservation. Likewise, in the interior of the jurisdiction, development should be limited to locations where it is most appropriate, or should be of a type and intensity that is appropriate for such areas.

Meeting This Vision

Although some of the trends evident in the period from 1971 to 1991 are consistent with the future vision for the jurisdiction, the continued creation and development of scattered lots in the interior, or other areas deemed inappropriate for intensive development, are not. Many aspects of the Commission's policies and regulations are supportive of the future vision of the jurisdiction, but the lack of control over the location of new lots in the interior or other areas deemed inappropriate for intensive development will remain a major obstacle in attaining this vision and ensuring the long-term protection of the jurisdiction's principal values. So will the Commission's largely reactive approach to rezonings and the limitations of the adjacency criterion as it is now applied.

By making several refinements in its approach, the Commission can more effectively guide growth and protect the jurisdiction's principal values while providing greater opportunities for reasonable economic development. The policies and implementation strategies that follow are aimed at meeting this vision.

Goals and Policies

5

Broad Goals of the Commission

The Commission's policies shall be directed toward the achievement of three broad goals:

1. Support and promote the management of all the resources, based on the principles of sound planning and multiple use, to enhance the living and working conditions of the people of Maine, to ensure the separation of incompatible uses, and to ensure the continued availability of outstanding quality water, air, forest, wildlife and other natural resource values of the jurisdiction.

2. Conserve, protect and enhance the natural resources of the jurisdiction primarily for fiber and food production, nonintensive outdoor recreation and fisheries and wildlife habitat.

3. Maintain the natural character of certain areas within the jurisdiction having significant natural values and primitive recreation opportunities.

Specific Goals and Policies of the Commission

The Commission's actions shall be guided by the following goals and policies:

I Natural Resources

A. Agricultural Resources (issue discussion page 23)

Goal. Conserve and protect farmlands and other agricultural resources.

Policies:

1. Discourage land use which can be destructive of prime, highly productive and other significant farmlands, and encourage agricultural management in appropriate areas.
2. Regulate agricultural practices which can cause accelerated erosion, sedimentation or pollution in order to protect soil and water resources.
3. Discourage activities which are incompatible with existing agricultural enterprises.
4. Encourage the use of Maine's best management practices for agriculture.

B. Air Resources (issue discussion page 26)

Goal: Protect and enhance the quality of air resources throughout the jurisdiction.

Policies:

1. Require compliance with all state and federal air quality standards; require compliance with more stringent standards where necessary to preserve the air quality or unique values of identified sensitive areas, or to improve the air quality of identified nonattainment areas.
2. Encourage state, federal and international initiatives directed at reducing emissions of air pollutants.
3. Encourage and monitor research on the effects of air pollutants on forest health and productivity.

C. Coastal Resources (issue discussion page 29)

Goal: Protect and conserve the special scenic, recreational, ecological, historic and other natural and cultural resources of coastal islands, and promote the traditional resource-based economies of these areas.

Policies.

1. Encourage and support marine-dependent activities that are compatible with traditional resource-based economies, island ecosystems and other island values.
2. Encourage the maintenance of traditional public access points to the shore.
3. Discourage the construction of dwellings or improvements on undeveloped islands with high natural or scenic values.
4. For construction that does take place on islands, encourage buildings of a scale, design and location appropriate to protecting natural and scenic values.
5. Emphasize the concepts of environmental and community carrying capacity in island land use planning and review of proposed projects.
6. Except for commercial uses compatible with traditional resource-based economies, discourage the construction of permanent docks and piers, and promote the use of common temporary docking areas.
7. Ensure that LURC's rezoning and development review standards are appropriate to islands given their special characteristics and constraints.
8. Address the cumulative impacts of incremental island development, using strategies such as Resource Plan zoning or encouraging development proposals that provide for permanent conservation of island lands.
9. Encourage the use of voluntary land conservation measures such as conservation easements and cooperative management agreements to protect the special resources of islands.

D. Cultural, Archaeological and Historical Resources (issue discussion page 37)

Goal: Protect and enhance archaeological and historical resources of cultural significance.

Policy:

Identify and protect unique, rare, and representative cultural resources to preserve their educational, scientific, and social values.

E. Energy Resources (issue discussion page 40)

Goal: Provide for the environmentally sound and socially beneficial utilization of indigenous energy resources where there are not overriding, conflicting public values which require protection.

Policies.

1. Encourage energy conservation and diversification and the use of indigenous renewable resources to increase the state's energy self-sufficiency.
2. Prohibit energy developments and related land uses in areas identified as environmentally sensitive where there are overriding, conflicting environmental and other public values requiring protection.

   Permit new energy developments where their need to the people of Maine has been demonstrated and they are sited, constructed and landscaped to minimize intrusion on natural and human resources.
4. Review environmental and social impacts of energy development and establish permit conditions which minimize and mitigate adverse effects of such developments.
5. Prohibit hydropower development on river stretches identified as having overriding recreational or natural values.
6. Encourage development of new, small hydropower projects and reconstruction of existing hydropower projects where these can be undertaken in an environmentally sound manner.
7. Allow new or emerging energy technologies which do not have an undue adverse impact on existing uses and natural resources.
8. Limit the scale of new or emerging energy technologies where feasible to allow time for the Commission to evaluate the technology and its impacts in large scale applications.

F. Forest Resources (issues discussion page 46)

Goal: Conserve, protect and enhance the forest resources which are essential to the economy of the state as well as to the jurisdiction.

Policies.

1. Discourage development that will interfere unreasonably with continued timber and wood fiber production, as well as primitive outdoor recreation, biodiversity, and remoteness, and support uses that are compatible with these values.
2. Protect areas identified as environmentally sensitive by regulating forestry activities, timber harvesting, and construction of land management roads.
3. Review and make appropriate refinements, from time to time, in forest practice standards for protection districts in order to make such standards effective in minimizing environmental degradation. Standards shall be responsive to the needs of private land management and to the public need for adequate timber resources to support the economic base of the state.
4. Support efforts by landowners to manage vehicular access to private roads when necessary to reduce land use conflicts and protect high value natural resources.
5. Allow harvesting of dead and dying trees resulting from insect or disease outbreaks or other causes, consistent with the Commission's responsibilities for protection of significant natural resource values and uses.
6. Discourage land uses that are not essential to forest management or timber production on highly productive forestlands.
7. Provide an educational program to guide land management, including road

construction, in an environmentally sound manner.

8 Encourage scientific research and management of forest resources in relation to other important resources, including study of the effects of landspreading of sludge.

9. Encourage the use of Maine's best management practices for forestry.

G. Geologic, Mineral and Mountain Resources (issues discussion page 56)

Geologic Resources

Goal: Conserve soil and geological resources by controlling erosion and by protecting areas of significance.

Policies

1. Regulate land uses to protect areas identified as important natural geological formations.

2 Regulate land uses in areas with identified topographical or geological hazards, including areas with fragile soils, steep slopes, high elevations, or seismic faults.

3. Administer standards for structural development and other land uses based on soil suitability.

4 Administer performance standards for timber harvesting, road construction, gravel extraction, stream crossings, agricultural practices and other land use activities in order to control potential causes of accelerated soil erosion.

5. Regulate the disposal of sewage, solid waste, manure, and septic sludge and prohibit their disposal in flood prone areas, on unsuitable soils, or in other inappropriate areas.

Mineral Resources

Goal: Allow environmentally responsible exploration and mining of metallic and non-metallic mineral resources where there are not overriding, conflicting public values which require protection.

Policies.

6. Permit exploration for mineral resources provided no more than minimal disturbance is caused to natural and cultural resources.

7 Provide for small sand and gravel extraction operations used primarily for the construction and maintenance of roads in most areas without rezoning, but subject to compliance with performance standards designed to avoid undue environmental harm.

8. Permit larger sand and gravel extraction operations in areas zoned for industrial development where a benefit to the people of Maine has been demonstrated and the operations are sited and developed in a fashion which minimizes adverse effects on other land uses and natural resources.

9. Permit major metallic mining developments only in areas zoned for planned development, and provide a rezoning procedure for this purpose which broadly considers impacts and benefits, competing uses and public values.

10 Regulate mining operations to minimize water, air, land, noise and visual pollution, to ensure public safety and health, and to avoid undue adverse impacts on fisheries, wildlife, botanical, natural, historic, archaeological, recreational, and socioeconomic values.

11 Require effective monitoring and reclamation of mining sites to protect public health and safety and to promote beneficial reuse where feasible.

12. Prohibit excavation of sand and gravel resources below the water table except where it is demonstrated there will be no undue adverse impact to ground water resources.

Mountain Resources

Goal: Conserve and protect the values of high mountain areas from undue adverse impacts.

Policies.

13. Regulate high mountain areas to preserve the natural equilibrium of vegetation, geology, slope, soil, and climate, to reduce danger to public health and safety posed by unstable mountain

areas, to protect water quality, and to preserve scenic values, vegetative communities, and low-impact recreational opportunities.

14. Identify and protect high mountain resources with particularly high natural resource values or sensitivity which are not appropriate for most development.

H. Recreational Resources
(issues discussion page 68)

Goal: Conserve and protect the natural beauty and unspoiled qualities of the waters, shorelands, mountains, plant and animal habitats, forests, scenic vistas, trails and other natural and recreational features in order to protect and enhance their values for a range of public recreational uses.

Policies.

Protect remote, undeveloped and other significant recreational areas, including such areas around rivers and streams, trails, ponds and lakes, to protect their natural character for primitive recreational activities such as canoeing, hiking, fishing and nature study.

2. Encourage diversified, nonintensive, nonexclusive uses of recreational resources.

3. Promote a range of recreational opportunities, including (a) major, intensive recreational facilities near organized areas or in new development centers determined to be appropriate, (b) less-intensive, nonexclusive recreational facilities in other areas, and (c) opportunities for primitive recreation without intrusion from more intensive forms of recreation.

4. Consider traditional sporting camps as recreational and cultural resources, worthy of protection from incompatible development and land uses, and give special consideration to sporting camps in the Commission's development standards, particularly the replacement of nonconforming structures.

5. Encourage intensive recreational facilities to locate or expand away from areas where there is a potential for conflict with existing uses, natural resources and other values of the jurisdiction.

6. Encourage traditional outdoor recreation by working with landowners to conserve the natural resources of the jurisdiction and to enhance recreational opportunities.

7. Cooperate with other appropriate agencies in identifying those lakes where surface use conflicts can be minimized or avoided by establishing limits on the power or type of watercraft on such lakes.

I. Special Natural Areas (issues discussion page 78)

Goal: Protect and enhance identified features and areas of natural significance.

Policy:

Identify and protect natural areas that possess unique physical features, or which serve as habitat for rare, threatened or endangered species or representative plant communities.

J. Water Resources (issues discussion page 84)

Goal: Preserve, protect and enhance the quality and quantity of surface and ground waters.

Policies:

1. Regulate uses of land and water, including submerged lands, shorelands, and wetlands, in order to prevent degradation of water quality and undue harm to natural habitats.

2. Protect the recreational and aesthetic values associated with water resources.

3. In flood prone areas, prohibit new structures that would be harmed under flood conditions in order to minimize the human, environmental and financial costs of floods.

4. Conserve and protect lakes, ponds and rivers and their shorelands which provide significant public recreational opportunities.

5. Permit a reasonable range of development and land uses on lakeshores in order to accommodate a range of recreational opportunities important to Maine people.

6. Require that appropriate setbacks and other development standards be met to

protect water quality, water quantity, recreational and aesthetic values of lakes and rivers.

7. Encourage cooperative uses of public and private docks, water access points and boat launching sites.

8. Control land uses on identified aquifers and their recharge areas, and along water bodies having the potential for water pollution problems, in order to avoid adverse effects on water quality or quantity.

9. Guide lake development based on identified land use characteristics and natural resource values, conserving important values and directing development toward those lakes or lake areas most capable of absorbing new development.

10. Protect ground water quality throughout the jurisdiction through proper controls on potentially polluting activities.

In areas with federally designated sole source aquifers, provide a high level of protection from potential groundwater threats.

K. Wetland Resources (issues discussion page 90)

Goal: Conserve and protect the aesthetic, ecological, recreational, scientific, cultural, and economic values of wetland resources.

Policies

1. Prohibit activities that impair wetland functions or threaten wetland values, such as construction of buildings, disposal of sewage, sludge or manure, and other inappropriate land use activities in wetlands.

2. Guide harvesting of peatlands away from areas having botanical, wildlife, fisheries, geological, water resource, recreational, scientific, cultural or other public values of overriding significance.

3. Provide an efficient, uniform system of wetland protection consistent with corresponding state and federal programs.

4. Ensure that development projects in wetlands (in this order) avoid, minimize, restore, reduce or eliminate over time and/or compensate for functional wetland losses.

L. Wildlife and Fisheries Resources (issues discussion page 96)

Goal: Conserve and protect the aesthetic, ecological, recreation, scientific, cultural, and economic values of wildlife and fisheries resources.

Policies

1. Regulate land use activities to protect habitats, including deer wintering areas and coastal bird nesting sites, ecosystems, food sources and other life requisites for wildlife species.

2. Protect wildlife habitat in a fashion which is balanced and reasonably considers the management needs and economic constraints of landowners.

3. Regulate land use activities to protect habitats for fish spawning, nursery, feeding, and other life requirements for fish species.

4. Encourage management of fisheries and wildlife resources to maintain their habitats, diversity, and populations.

5. Encourage cooperative agreements between landowners and public agencies which further the Commission's policies and goals and, when appropriate, modify the Commission's zoning to facilitate the execution of such agreements.

M. Scenic Resources (issues discussion pages 31; 56; 75; 82-83; 119; 130)

Goal: Protect scenic character and natural values by fitting proposed land use activities harmoniously into the natural environment and by minimizing adverse aesthetic effects on existing uses, scenic beauty, and natural and cultural resources.

Policies

1. Encourage concentrated patterns of growth to minimize impacts on natural values and scenic character.

2. Regulate land uses generally in order to protect natural aesthetic values and prevent incompatibility of land uses.

3. Protect the scenic values of coastal, shoreland, mountain, recreation, and other scenic areas.

4. Regulate forestry activities in important recreational and scenic areas to protect aesthetic qualities.

II Development
(issues discussion pages125-131)

A. Location of Development

Goal: Guide the location of new development in order to protect and conserve forest, recreational, plant or animal habitat and other natural resources, to ensure the compatibility of land uses with one another and to allow for a reasonable range of development opportunities important to the people of Maine.

Location of development on a jurisdiction-wide level:

Policies:

Provide for a sustainable pattern of development consistent with historical patterns which directs development to suitable areas and safeguards the principal values of the jurisdiction, including a working forest, integrity of natural resources, and remoteness.

2. Discourage growth which results in scattered and sprawling development patterns.

3. Guide development to areas near existing towns or communities and in other areas identified as appropriate development centers.

   a. Identify a group of towns, plantations and townships which are the most appropriate for growth when considering: (1) proximity to organized towns and population centers; (2) compatibility of natural resources with development; (3) demonstrated demand for development; (4) accessibility by major routes; and (5) availability of infrastructure which is, when compared to conditions in other towns, the best prepared to accommodate growth.

   b. Outside of towns, plantations and townships identified as the most appropriate for growth, identify areas that are appropriate as development centers and encourage compact patterns of development around these areas.

   c. Guide the location of different types of residential development according to potential impacts, infrastructure needs and the potential for conversion to a more intensive type of residential use.

      (1) Encourage year-round residential development near existing towns and communities, particularly in the towns, plantations and townships identified in 3.a above, where it can be efficiently served by existing services, facilities and utilities.

      (2) Encourage second home development near existing towns and communities, particularly in the towns, plantations and townships identified in 3.a above, and near development centers identified in 3.b above.

      (3) Allow remote camps at low densities throughout the jurisdiction.

4. Guide proposals for major new waste disposal and similar facilities to locations on the fringe of the jurisdiction that have good existing road access, low natural resource values, and are separate from incompatible land uses.

5. Encourage conservation of select areas of the jurisdiction that are particularly representative of the jurisdiction's principal values and, overall, are especially valued for their remote and relatively undeveloped condition.

   a. Work cooperatively with landowners to encourage the designation of large tracts of land with these values for limited or no development.

Location of development on a community or regional level:

6. Undertake prospective zoning for development, particularly within areas of the

jurisdiction where there is a need to achieve balance between expected development pressures and high resource values.

7. In communities or areas without prospective development zoning, encourage orderly growth within and proximate to existing, compatibly developed areas – i.e. existing development of similar type, use, occupancy, scale and intensity to that being proposed, or a community center with a range of uses for which the proposed development will provide complementary services, goods, jobs and/or housing.

8. Allow well planned development in areas appropriate as new development centers where: (a) there is a demonstrated public demand for and benefit from the proposed development in that area; (b) there is a demonstrated need for locating the development not proximate to established developed areas; (c) the productivity of existing forest and agricultural resources in the jurisdiction is not unduly harmed; (d) recreational resources and uses are not unduly harmed; (e) remote, natural and plant or animal habitat values are not unreasonably degraded; and (f) needed services are available or can be provided without unreasonable financial, social or environmental costs to the public.

9. In areas which are not appropriate as new development centers, allow for (a) planned developments which depend on a particular natural feature, subject to site plan review, and (b) other development, subject to concept plan review.

10. Permit subdivision for the purpose of development only in areas zoned for development.

B. Economic Development

Goal: Balance the economic benefit that Maine people derive from the natural resource-based industries of the Commission's jurisdiction, especially the maintenance and creation of quality jobs, with protecting the environmental quality and special values of this area.

Policies:

1. Encourage those forest and recreation industries and other resource-based enterprises which further the jurisdiction's tradition of multiple use without diminishing its principal values.

2. Prospectively identify areas appropriate for development, thereby building economic centers, reducing sprawl, and minimizing the cost of providing needed services.

3. Provide for expansion needs of intensive developments where such expansion will not have an undue adverse impact on the resources of the area.

4. Allow new or emerging technologies, but limit the scale or application of these technologies where necessary to allow time for the Commission to evaluate the technology and its impacts.

5. Continuously review permitting procedures to identify means to expedite the permitting process while accomplishing the agency's purposes.

6. Encourage economic development in the towns, plantations, and townships identified as the most appropriate for future growth.

C. Site Review

Goal: Assure that development fits harmoniously into the existing natural environment.

Policies:

1. Require that provision be made for fitting development harmoniously into the existing natural environment, including

   a. Requiring the use of buffers, building setbacks, and landscaping to minimize the impacts of land use activities upon one another and to maintain the scenic quality of shorelines and roadways,

   b. Requiring that developments provide for adequate parking and traffic circulation, and

   c. Limiting the number and size of signs in order to prevent undue or hazardous visual impacts.

2. Prevent the degradation of natural and cultural values resulting from cumulative impacts of incremental development.

3. Encourage site designs which have a minimal impact on the principal values of the jurisdiction, including clustering or open space preservation, and discourage unnecessarily large lot sizes.

4. Provide an educational program to guide land development in a manner consistent with the goals and policies of this Plan and regulations promulgated pursuant to this Plan.

5. Provide incentives for lot owners to bring nonconforming uses and structures into compliance or closer to conformance with the Commission's regulations.

6. Limit expansions of nonconforming uses and structures.

D. Infrastructure

Goal: Ensure that infrastructure improvements are well planned and do not have an adverse impact on the jurisdiction's principal values.

Policies:

1. Discourage the construction of major new public roads which would degrade the natural character of remote areas.

2. Require that new utility lines, pipelines, and their associated facilities be (a) located within or adjacent to existing utility or public road rights of way to the extent practicable; (b) constructed and landscaped so that they do not degrade natural values; and (c) located so as not to inappropriately encroach upon or change the character of remote areas, or produce an intensity of use that is inappropriate for a particular area.

3. Monitor the installation of new road networks in order to anticipate and plan for future growth and public access and use in appropriate areas.

4. Require that communication towers be dismantled and removed from the site when such towers are unused for an extended period of time.

5. Require that communication towers be made available for other users where feasible in order to limit the number of such towers.

E. Development Rate, Density and Type

Goal: Ensure that development is of a rate, density, and type conducive to maintaining the jurisdiction's principal values.

Policies:

1. Monitor the rate of development throughout the jurisdiction to ensure it remains at a reasonable pace, particularly outside areas identified as the most appropriate for growth.

2. Establish appropriate guidelines for development (such as density or similar standards) in areas where necessary to prevent adverse impacts on the principal values of the jurisdiction.

3. Limit development to low-impact structures in areas where the principal values of the jurisdiction are threatened by more intensive development.

4. Limit conversion of remote camps to more intensive uses where such conversion would have an undue adverse impact on the principal values of the jurisdiction.

5. Encourage development that is energy efficient and that incorporates best practical technologies to conserve energy.

6. Limit residential densities on the basis of soil suitability and other site limitations.

III. Education and Enforcement

Goal: Administer an effective education and enforcement program in regard to the laws, regulations and standards of the Commission in order to ensure landowner and public awareness and compliance.

Policies:

1. Carry out a balanced but vigorous enforcement effort to identify, investigate, and pursue significant violations of the laws and legal requirements administered by the Commission.

2. Train and utilize the field staffs of other state agencies in order to disseminate information to the public and to report compliance problems to the Commission.

3. As a general principle, hold landowners and land managers primarily responsible for land use activities resulting in violations taking place on their land. This principle is subject to appropriate exceptions where the violation occurs entirely by reason of actions by a third party (as in the case of a trespass), where the landowner has no involvement with the activities, and receives no benefit from nor has any contractual or other relationship with the third party.

4. Conduct educational programs for citizens, landowners, land managers, contractors, woods workers, lawyers, realtors, and others concerning environmentally sound land use practices and the laws and legal requirements administered by the Commission.

IV. Cooperative Initiatives

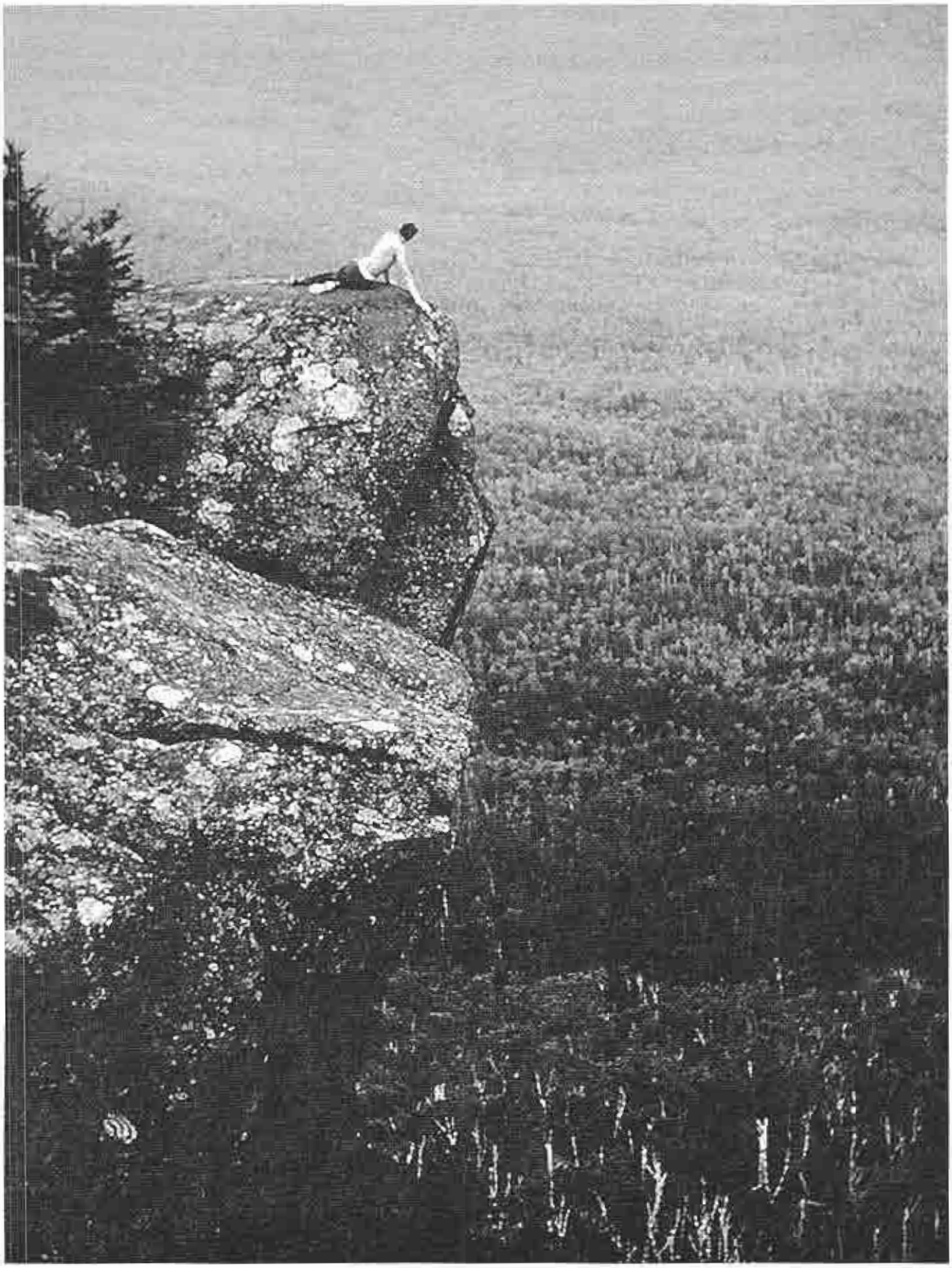
Goal: Encourage landowner initiatives and cooperative efforts which further the Commission's objectives of protecting natural resources and guiding growth through nonregulatory or voluntary actions.

Policies:

Recognize the value of cooperative approaches to the protection of important resources and values, and provide opportunities for such approaches.

2. Provide creative alternatives to traditional regulatory approaches, such as resource and concept plans, and encourage landowners to take advantage of these opportunities.

3. Promote cooperative efforts to substantially limit development on large tracts of land to ensure that these lands will remain available to sustain the state's rural, forest-based economies that depend upon forest products and recreation.



Tumbledown Mountain

Chapter 6

Implementation

Statutory Matters

Unregulated Lots

The statutory exemptions to the LURC law, including the exemptions for large lot divisions and for creating two lots every five years (the 2-in-5 exemption), impair the Commission's ability to effectively guide growth within its jurisdiction.

Information on the nature and extent of large exempt lots indicates that those lots clearly interfere with the Commission's responsibility to guide development. The Commission will work collaboratively with the Legislature to eliminate such exemptions for lots used for development purposes. If exemptions are retained to allow forest-related transactions, the revised statute should include mechanisms restricting the subsequent use of these lots for development.

If the large lot exemption is not eliminated or revised to better reflect its original intent, the Commission will explore mechanisms to address the impacts of scattered development created by such land division. In reviewing permits for these lots, the Commission may consider the nature of road access to such sites, the proximity of such land divisions to other development, and may require that only remote camps be permitted on exempt lots in interior areas.

Since information on the nature and extent of lots created under the 2-in-5 exemption is lacking, the Commission will monitor the creation of these lots over the next several years. To do this, the Commission will develop a system for tracking the creation of these lots. After evaluating this information, the Commission will decide what action, if any, to take with regard to the creation and use of these lots. If creation and development of these lots is determined to be a problem, the Commission will consider options to restrict the type of development occurring on them, such as requiring dwellings in interior areas to meet the criteria for remote camps.[1]

[1]More discussion on pages 115-122 of this plan

Guiding the Location of Development

The strengths and weaknesses of the Commission's approach to guiding development within its jurisdiction are discussed in a previous section of this plan. As mentioned in that discussion, the Commission has used a largely reactive approach to identifying areas suitable for development within its jurisdiction. To provide more predictability to both landowners and the general public as to the most suitable locations for development and to address the legislative charge given the Commission to plan for development, the Commission proposes the following actions.

Areas Most Appropriate for Development

To provide greater predictability to landowners and to concentrate development in suitable areas, the Commission will identify areas within its jurisdiction which are most appropriate for development.

The Commission will identify those towns, plantations and townships or portions thereof which are the most appropriate for growth when considering: (1) proximity to organized towns and population centers; (2) compatibility of natural resources with development; (3) a demonstrated demand for development; (4) accessibility by major routes; and (5) availability of infrastructure which is, when compared to conditions in other towns, the best prepared to accommodate growth. These towns will be distributed around the periphery of the jurisdiction.

Outside these towns, plantations and townships, the Commission will identify smaller development centers throughout the jurisdiction which are also appropriate for development. Small development centers could include areas such as the Caucomgomoc gate area, Northeast Carry, Musquacook lakes, Clayton Lake and other. The Commission may consider new development centers on some landowners' properties to provide balance and equity.[2]

Areas Least Appropriate for Development

In implementing the policy of encouraging conservation of select large tracts of land for limited or no development, the Commission shall work cooperatively with landowners. The Commission shall promote and support landowner-initiated efforts to provide increased protection of lands through measures which include nonregulatory mechanisms such as conservation easements and management agreements.

To further promote this policy, the Commission shall identify areas in the jurisdiction that are least appropriate for development. It shall establish guidelines for applying the policy language that these tracts of land be particularly representative of the jurisdiction's principal values and especially valued for their remote and relatively undeveloped condition.

For lands found to be appropriate for increased protection, the Commission, working with landowners, shall promote appropriate conservation measures – regulatory and nonregulatory. Measures used to advance this policy shall be adopted only with the agreement of affected landowners.

Prospective Zoning

The Commission recognizes the need for and benefits of prospective zoning, particularly within areas where there is a need to balance growth pressures and high resource values. Examples of areas appropriate for such prospective zoning include the Rangeley, Moosehead Lake, Carrabassett Valley, and Millinocket areas. Other areas will be the subject of a similar effort as time and resources allow. The Commission will also prospectively identify growth areas when preparing zoning maps for newly deorganized townships.

Prospective zoning differs significantly from the previously described effort of identifying areas

[2]More discussion on pages 115-127 of this plan

most appropriate for development. The latter effort will be focused on the jurisdiction as a whole, and will not necessarily result in any zoning changes. One product of this effort could be a map of the jurisdiction that provides general policy guidance by highlighting areas most appropriate for development. Prospective zoning, on the other hand will be targeted to particular regions or communities where a more refined zoning approach is determined to be necessary. It will result in specific zoning changes and revised zoning maps.

Prospective zoning efforts will include information-gathering to facilitate the identification of areas that are most or least appropriate for future growth. Since the areas targeted for prospective zoning are high growth, high value areas, the emphasis will be on directing development to locations where it will not adversely affect high value resources. The Commission will actively seek public input in the process of identifying such areas.[3]

Responding to Major Development Proposals

While prospective development zoning and other growth management strategies will lessen the need for rezonings over time, there will always be a need to consider rezonings in a timely and predictable manner.

Rezoning Guidance System: The Commission has developed a draft rezoning guidance system which is being applied by the staff on a trial basis to provide more predictability to the outcome of the rezoning process. The Commission will refine this system after the trial period and make it available to applicants as guidance in the rezoning process. Adjacency, as refined by this plan, shall continue to be a central consideration in rezonings.

New Development Centers: The Commission will consider proposals that will create new development centers where: (1) there is a demonstrated public demand for and benefit from the proposed development in that area; (2) there is a demonstrated need for locating the development not proximate to established developed areas; (3) the productivity of existing forest and agricultural resources in the jurisdiction is not unduly harmed; (4) recreational resources and uses are not unduly harmed; (5) natural resources, including remote values, and plant or animal habitat values are not unreasonably degraded; and (6) needed services are available or can be provided without unreasonable financial, social or environmental costs to the public.

Planned Developments: In areas which are not appropriate as new development centers and where development is dependent upon a particular natural feature, the Commission will continue to encourage use of the Planned Development (D-PD) Subdistrict application process. Such development must be reasonably self-contained and self-sufficient and to the extent practicable provide for its own water and sewage services, road maintenance, fire protection, solid waste disposal and police security.

Concept Plans: Development in areas not appropriate as new development centers (where dependence on a particular natural feature is not an issue) may be considered by the Commission through the concept planning process. While initially conceived only for lake shore development, the Commission will encourage the use of concept plans for nonshoreland areas as well. Concept plans provide a voluntary means of achieving a publicly beneficial balance between development and protection of resources.

Management Subdistricts

While the Commission's standards contemplate three separate management subdistricts, only the General Management (M-GN) Subdistrict has, in fact, ever been applied. In practice, all areas not placed in protection or development zones have been placed in General Management Subdistricts. There is a need to review the usefulness of the other two management zones, the Natural Character (M-NC) and Highly Productive Management (M-HP) Subdistricts and the effectiveness of the General Management (M-GN) Subdistrict.

The M-GN zone, as presently structured, assumes that many activities can co-exist without adversely affecting each other or the forest resource. The effectiveness of the zone will be re-examined in light of the increasingly diverse and intensive uses of the forest. For this re-examination, the Commission will formulate a strategy for identifying what uses are compatible with the forest resource and its values, including its value for fiber production.

The Natural Character Management Subdistrict was designed to maintain the character of certain large, undeveloped areas of the jurisdiction and to promote their use primarily for forest

[3]More discussion on pages 115-126 of this plan

and agricultural management activities and primitive recreation. This zone may be appropriate in a number of areas in the jurisdiction, but will only be applied if proposed or agreed to by affected landowners.

The Highly Productive Management Subdistrict was designed to prevent highly productive agricultural and forestlands from being lost to other incompatible uses. However, largely because of the difficulty of defining highly productive lands, this zone has never been applied. The Commission reaffirms its commitment to maintaining prime and other important agricultural and forestlands, but will only use this zone after more study.

Forestry Issue Committee on site in Merrill Strip

Rule Changes

Land Use Districts and Standards

The Commission's *Land Use Districts and Standards* are the principal mechanism for implementing this *Comprehensive Land Use Plan*. The Commission will consider changes to these regulations as necessary to implement the goals and policies of this plan.

As it did in 1988, the Commission will also continue to investigate means to streamline its regulations by identifying those activities for which no permit review is necessary or where an abbreviated permit review is appropriate. The Commission will expedite the permitting process by (1) simplifying application forms, (2) identifying minor activities and alterations for which no permit is required,

(3) designating permits which could be issued at the field office level as staffing becomes available to perform such function, (4) delegating to staff the ability to act on small-scale rezoning proposals within designated growth areas which meet the Commission's rezoning guidelines, and (5) identifying types of uses that could receive accelerated review and approval. Examples of such uses include accessory structures and expansions that comply with certain size and location requirements, and new structures on lots which are either part of LURC-approved subdivisions or within districts prospectively zoned for development, particularly for sites located away from shoreland areas.

The following areas of the Commission's regulations have been identified as problematic and possibly in need of change:

Subdivision and Major Development Regulations

All new development must meet the requirement that "provision be made for fitting the project harmoniously into the existing natural environment in order to assure that there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area affected by the proposal." The Commission's Land Use Districts and Standards provide few specific standards on how this criterion can be met; this lack of guidance has been most problematic for subdivision and major development proposals.

In the past, the Commission has often utilized development standards adopted by the Department of Environmental Protection (DEP) as the basis for reviewing major subdivision and development applications. Due to the rural nature of the Commission's jurisdiction, the small scale of proposals coming before the Commission, and the more urban focus of the DEP regulations, it is evident that the DEP regulations may not be appropriate for most major subdivision and development activities in the Commission's jurisdiction.

The Commission will develop performance and design standards that recognize the substantially different nature of subdivision and development activities in the Commission's jurisdiction. The Commission will also investigate incentives for promoting more creative site designs that preserve open space and retain natural features. Such rules should provide a predictable regulatory process and clear guidance to potential developers.

The Commission will also consider refinements to the standards of its Planned Development (D-PD) Subdistrict to incorporate the experience gained in three recent applications of that subdistrict.

Road Standards

The Commission routinely uses DEP road standards in permitting new roads for development. Given the more urban nature of these standards, the Commission has often found them inappropriate for the jurisdiction. The Commission will develop road guidelines of its own that are more suited to the rural nature of its jurisdiction including variable setbacks from different types of roads.

Nonconforming Uses

Section 10.11 of the Commission's regulations stipulate how nonconforming uses and structures may be expanded or changed. While the LURC law states that the Commission may prohibit the expansion of nonconforming use or structures, Section 10.11 is not clear about the circumstances under which such a prohibition is appropriate. These regulations have also become increasingly problematic to apply because they do not clearly address all circumstances of nonconforming uses or structures. Revisions to these regulations will be prepared to provide clarity and guidance to staff and applicants.

In revising these regulations, the Commission will consider, among other issues: (1) whether nonconforming structures should be limited to their current size; (2) whether such structures could be enlarged by a certain percentage before being required to become conforming; and (3) whether other incentives could be applied to bring nonconforming structures into conformance. It may also consider the appropriateness of giving special treatment to certain nonconforming uses or structures, such as sporting camps, which are very limited in number and whose location is an important part of an established traditional use.

Water Quality Limiting Lakes

One thousand lakes in the jurisdiction have been designated by the Commission as water quality limiting lakes (WQLL). The WQLL designation was originally developed to address the cumulative impact of individual lot development on lake water quality. The Commission recognizes that the

formula for identifying water quality limiting lakes is rudimentary and understands the need to update its approach to review of impacts on water quality. To meet this need, Commission staff will continue to work with staff of the Department of Environmental Protection to develop a systematic approach to protecting water quality, one which more accurately reflects the current level of knowledge about the relationship between land use and lake water quality.

Sludge Spreading

Sludge, a residual of paper making, is spread on forestlands within the Commission's jurisdiction. Pursuant to a 1989 amendment to its rules, the Commission prohibits such spreading in certain environmentally sensitive areas and requires a permit for spreading in other sensitive areas. However, in the vast majority of its jurisdiction in Management Subdistricts, the Commission does not require a permit for such activities provided they comply with applicable regulations of the Maine Department of Environmental Protection (DEP). The Commission adopted these rule changes with the understanding that it would revisit the issue upon completion of an industry sponsored study of the effects of sludge spreading. The sludge research program has not produced usable results, and the Research Advisory Committee established to oversee the program dissolved due to dissatisfaction with the program's methods and progress. DEP has indicated an intent to see that this work continue in some form.

The Commission will monitor DEP's efforts in this regard and will consider limiting sludge spreading if it appears that potential risks cannot be controlled and risks associated with this practice clearly outweigh the benefits.

Types of Development Zones

The Commission's standards describe five kinds of development zones, all of which are designed around the principle of separation of incompatible land uses. Experience suggests that the Commission may want to consider some special Development zones including:

(1) a new commercial zone that would provide for an intermediate level of commercial activity between that provided for in the General Development Subdistrict and the Commercial Industrial Subdistrict.

(2) village areas where special standards could be applied to facilitate compact development;

(3) remote development, such as sporting camps, which would recognize the special needs of such facilities; and

(4) solid waste disposal facilities and their need to be separate from existing developed areas and other incompatible uses.

Coastal Islands

The Commission recognizes that land use planning on coastal islands may need to be refined to recognize their special nature. For example, cluster development, while appropriate on mainland areas, may be inappropriate on some coastal islands because such compact development may threaten fragile fresh water sources. Road setbacks may be unnecessary or greatly reduced on islands due to the nature of their roadways. Also, special zoning may be appropriate for coastal islands – for example, the Commission earlier determined that it was appropriate to encourage water dependent commercial activities by establishing a Maritime Development Subdistrict within its regulations.[4]

Natural Resources Protection Act (NRPA)

In 1992, the Legislature directed the Commission to consider the procedures and related issues of developing consistent standards for implementing the Natural Resources Protection Act (at that time implemented by the Maine Department of Environmental Protection statewide) within the jurisdiction and to begin mapping freshwater wetlands within these areas.

In response to that directive, the Commission has initiated a cooperative effort with the U.S. Fish and Wildlife Service to improve upon the National Wetland Inventory which has inventoried and mapped wetlands for the Commission's jurisdiction. In response to Commission recommendations, the Legislature has exempted deer wintering areas, fragile mountain areas, seabird nesting islands, and shorelands of great ponds, rivers, streams and brooks within the jurisdiction from duplicative NRPA regulation.

In 1995, the Legislature amended NRPA and streamlined the wetland permitting process. The Commission will initiate an effort to amend its wet-

[4]More discussion on pages 29-33 of this plan

land rules and zoning maps in a manner that is consistent with this legislation. Additional legislation could then be introduced which would exempt the application of NRPA to wetlands in the Commission's jurisdiction.

The Commission will also continue to examine options for revising its standards to protect sand dunes and significant wildlife resources in a fashion that is comparable to the protection offered these resources in the rest of the state.

Definitions

For the Commission's regulations to be unambiguous, it is important that terms used in the regulations be clearly defined, especially when a commonly accepted definition is lacking. The Commission has determined that certain terms (e.g. winter haul roads) need to be defined. In other instances, terms that are defined in the regulations (e.g. commercial sporting camps and campsites) need refinement to clarify the Commission's intent in the use of these terms. The Commission's definition of subdivision will also be reviewed for clarity and equity particularly as it pertains to retained lots. The Commission will strive to make its definitions consistent with the same terms used by other agencies.

Surface Use Conflicts on Lakes

As the areas receiving the most recreational use, lakes are the most likely location for use conflicts. In 1996, the state began an effort through the Great Ponds Task Force to address this issue amongst other lake issues. The Commission will work with the Task Force and other state agencies and interested parties in addressing surface use conflicts on lakes within its jurisdiction.

Inventory Needs

Land Use Inventory

Because of the size of the Commission's jurisdiction and the impracticality of staff visiting the site of each project application, lack of an up-to-date land use inventory is an impediment to improving the efficiency of the permitting process and the enforcement and compliance program.

Within the constraints of available funding and staff, the Commission will undertake an inventory of existing land uses, including roads, within its jurisdiction. Such information would facilitate the permitting and enforcement process and help monitor the significance of land use changes occurring in the jurisdiction for future revisions to this Comprehensive Land Use Plan. The Commission will attempt to utilize the field staffs of other agencies to assist in such an inventory.

The Commission will endeavor to integrate its inventory of land uses with the Bureau of Property Taxation records to facilitate the tracking of land use changes over time including the creation of lots through the 2-in-5 exemption.

To facilitate the maintenance of such an inventory, the Commission will utilize Geographic Information System (GIS) technology to the extent possible given LURC's staffing and financial constraints.

Education, Enforcement and Public Assistance

Education and Enforcement

Adherence to environmental regulations is critical if they are to be meaningful. Over the past several years, the Commission has developed a balanced program combining concerted education efforts with a vigorous enforcement posture in order to achieve a reasonable degree of compliance with the law.

Efforts to explain the requirements of the LURC law to the affected public can go far toward preventing violations and environmental degradation. For this reason, numerous training sessions for woods workers, foresters and others have been held and educational booklets have been prepared and distributed.

At the same time, violations of the law cannot be ignored. Each year 250-300 violations of the Commission's rules and regulations are reported, many of these under the Joint Enforcement Agreement between LURC and the Departments of Environmental Protection, Inland Fisheries and Wildlife, and Conservation. All such violations are reported in turn to the Commission, and significant violations are brought to the Commission for discussion and action.

The Commission normally authorizes the staff to negotiate settlement agreements concerning violations of less than severe consequence, with the terms of the settlement subject to the final approval of the Commission. This process is designed to be fair while resulting in expeditious and efficient disposition of enforcement matters. In instances where a staff settlement agreement cannot be readily reached, and in cases involving severe violations and/or environmental damage, the Commission refers the violation to the Attorney General for appropriate legal action.

While this program has increased awareness of the law among the affected public, and numerous violations have been penalized and remedied, efforts must continue to improve compliance. It should be recognized, however, that staffing constraints hinder efforts to carry out a sustained and comprehensive education and enforcement program.

Education and enforcement are central to all of the Commission's objectives and programs. The Commission will therefore continue to pursue, as a top priority, a vigorous education and enforcement program. Toward this end, the Commission will pursue the following actions.

- Efforts will be made to inform landowners, land managers, contractors, citizens, realtors, lawyers, bankers, and others concerning the laws and regulations the Commission administers.
- The Commission will continue to train field personnel of other agencies in order to supplement the work of its small inspection and enforcement staff.
- The Commission will continue to hold landowners/managers primarily responsible for assuring that the work of contractors and other operators on their lands is in compliance with the law. Because the independent contractor status of such contractors may impair direct landowner involvement in contractor operations, landowners/managers are strongly encouraged to carefully inform and contractually require adherence of operators in accordance with LURC standards. In addition, landowners/managers may wish to bring contractors involved in violations into discussions with the staff leading up to a settlement as well as seeking contractor payment of monetary penalties where fair.
- The Commission will make appropriate exceptions to holding landowners/managers primarily responsible for violations on their lands. Such exceptions will be made when the violation occurs entirely by reason of actions of a third party (as in the case of a trespass), where the landowner/manager has no involvement with the activities and receives no benefit from nor has any contractual or other relationship with the third party.
- In the course of resolving violation matters with landowners through settlement agree-

ments, the following factors will be considered in arriving at a just settlement of a violation, including the establishment of a monetary penalty in appropriate cases:

- the extent of environmental damage resulting from the violations;
- the extent and significance of the violations;
- the environmental record of the landowner, including any history of prior violations;
- the extent to which the landowner knew or should have known of the laws or standards violated;
- the responsiveness of the landowner in connection with the violation, including whether the landowner reported itself or took measures to respond to the violation without state agency request;
- the remedial efforts of the landowner; and
- the financial condition of the person charged with the violation.

- Although no two violations are identical, an effort will be made to deal similarly with violations involving similar circumstances.

Local Assistance and Public Participation

It is the Commission's policy to maximize assistance to and involvement of the communities, individuals and groups which it serves. The Commission has assisted a number of communities in preparing land use plans and zoning ordinances toward the goal of assuming local control of land use regulation. The Commission encourages local land use control for organized communities having the interest and willingness to undertake this work.

Public participation is encouraged in all of the Commission's work through public hearings, Commission meetings, permit application review, and other public forums. Public access to all information pertaining to the Commission's actions will be maintained and facilitated.

In the past, the Commission or landowners have occasionally initiated joint field trips or meetings to discuss matters of mutual concern. The Commission will make efforts to ensure there continue to be opportunities for a dialogue with landowners and other interests.

Applicant Assistance

The Commission will work toward assisting applicants in understanding and complying with its processes and requirements. To this end, the Commission will seek to simplify and clarify application procedures wherever possible, while assuring that it addresses the environmental issues of public concern. For example, in 1988, the Commission undertook a major effort to streamline its regulations and expanded the list of activities for which permitting would be expedited. In 1996, the Commission expanded to six regional offices, enhancing access for assistance to residents of the jurisdiction. The Commission will continue this effort as necessary and as resources (especially staff resources at the regional office level) become available.

Also, the Commission has began a process of redrafting each of its approximately 460 township zoning maps onto more accurate base maps. The Commission will continue this multi-year project as a means to provide more accurate zoning maps that will facilitate compliance with the Commission's regulations.

To help ensure compliance with the Commission's regulations and its Comprehensive Land Use Plan, applicants for subdivision or major development proposals are strongly encouraged by the Commission to meet with the permitting and planning staff prior to fully formulating their proposals. Such pre-application conferences have been extremely helpful in avoiding unnecessary time and expense formulating major development proposals which may not fully comply with the Commission's goals, policies, and regulations.

The draft guidelines for review of rezoning petitions shall continue to be refined to provide guidance to both the applicant and the Commission in reviewing rezoning petitions.

The Commission's award winning Land Use Handbook series will be updated and made available to the public as staff resources become available.

Other Actions

The Commission will undertake other actions from time-to-time to more fully implement the goals and poliicies of this comprehensive land use plan.

Upper St. John River

Implementation Schedule

The following implementation schedule is included as a guide in setting priorities and allocating staff time and resources. In light of changing priorities, legislative directives and other circumstances, the Commission reserves the right to depart from this schedule.

	Priority (1-4)	Duration	Staff Resources
STATUTORY MATTERS			
1. Large lots	1	Short-term	Moderate
2. "2-in-5 lots"	2	Medium-term	Moderate
GUIDING THE LOCATION OF DEVELOPMENT			
3. Areas most appropriate for development	2	Medium-term	Substantial.
4. Areas least appropriate for development	2	Medium-term	Substantial
5. Prospective Zoning			
Rangeley Lakes area*	1	Medium-term	Moderate
Moosehead Lake area	2	Long-term	Moderate. Consultant to updating assist inventory.
Millinocket/Baxter area	3	Long-term	Moderate. Consultant to assist on inventory work.
Carrabassett Valley area	4	Long-term	Moderate. Consultant to assist on inventory work.
RESPONDING TO MAJOR DEVELOPMENT PROPOSALS			
6. Rezoning Guidance System*	2	Medium-term	Light-Moderate
7. New Development Centers	Response to proposals	Ongoing	Light-Moderate
8. Concept Plans	Response to proposals	Ongoing	Moderate
9. Management Subdistricts	2	Medium-term	Moderate
RULE CHANGES			
10. Development Regulations*	1	Short-term	Moderate
11. Subdivision road standards*	1	Short-term	Moderate
12. Non-conforming uses*	1	Short-term	Moderate
13. WQLL	3	Short-term	Light to Moderate
14. Sludge spreading	3	Medium-term	Light to Moderate

	Priority (1-4)	Duration	Staff Resources
15. Types of development zones	3	Medium-term	Moderate
16. Coastal Islands	3	Short-term	Light to Moderate
17. NRPA*	1	Medium-term	Moderate
18. Definitions	2	Medium-term	Moderate
19. Surface use conflicts	2	Medium-term	Light to Moderate
INVENTORY NEEDS			
20. Land Use Inventory	4	Long-term	Substantial
EDUCATION, ENFORCEMENT AND PUBLIC ASSISTANCE			
21. Education and Enforcement*	1	Ongoing	Substantial
22. Local Assistance and Public Participation*	1	Ongoing	Substantial
23. Applicant Assistance*	1	Ongoing	Substantial
24. Other Actions		As determined	

* Already in progress

Duration
Short-term: Less than 6 months from initiation of project
Medium-term: 6 months - 1 year from initiation of project
Long-term: More than 1 year from initiation of project

Appendices

A. Definitions

B. Rivers With Special Protection Zoning

C. Land Use Regulation Commission's Lake Management Program

D. LURC Permitting Statistics

E. Land Use Regulation Commission's Policies Concerning Deer Yard Issues

F. Plantations and Towns in the Jurisdiction

G. Fastest Growing Communities in LURC Jurisdiction, 1971-91

H. Sources

Appendix A

Definitions

The following definitions apply to the following terms as they appear in this Plan (see Chapter 10 of the Commission's regulations and 12 MRSA, Section 682 for complete list of terms defined by rule or law):

Access:

The ability to travel to a specific area on foot or by vehicle. "Public access" is the ability for the public to reach areas within the Commission's jurisdiction on foot or by vehicle. By Maine law, anyone on foot has a right of access over unimproved land to great ponds.

Biodiversity:

The variety of life in all its forms, from the level of the gene to the species, to whole ecosystems including all the ways which these forms interact.

Commercial Sporting Camp:

"A building or group of buildings devoted primarily to the offering of lodging facilities for a fee to persons primarily in pursuit of primitive recreation or snowmobiling". [10.02,13 of the Commission's regulations]

This term is further defined as primarily a destination facility for the above activities rather than a transient lodging facility or a base of operations for activities in another specific location such as whitewater rafting. A sporting camp may typically consist of, but not necessarily include all of the following: a number of cabins for the housing of guests, a main lodge for serving of meals and socializing for the guests, outbuildings for housing of the owners, guides, and other workers, workshop, woodsheds, laundry, equipment storage, and other utility buildings as needed. Total gross floor area should generally not exceed 10,000 square feet for all structures associated with such a facility.

Fringe:

Those towns, plantations, or townships within the Commission's jurisdiction which are contiguous with Maine towns which have local land use control.

Multiple use:

The judicious management of all the various resources for timber production, outdoor recreation, watershed protection, fish and wildlife protection, mineral extraction, and other private and public purposes.

Multiple use may involve: (1) different uses of adjacent subareas, (2) alternation through time of different uses on the same area, or (3) more than one use of an area at one time. In the first two methods, direct competition between uses is avoided by alternating them in space and time. Where uses occur in the same space at the same time, conflicts between resource uses may occur. In this case, multiple use is more correctly interpreted as a dominant use with secondary uses integrated insofar as they are compatible.

Primitive Recreation:

"Those types of recreational activities associated with non-motorized travel, including fishing, hiking, hunting, wildlife study and photography, wild crop harvesting, trapping, horseback riding, tent and shelter camping, canoe portaging, cross country skiing, and snowshoeing". [10.02, 63 of the Commission's regulations]

Remote:

Distant from permanently settled areas within Maine.

Remote Camp:

"A dwelling unit consisting of not more than 750 square feet of gross floor area, that is not served by any public utilities, except radio communications." [10.02, 70 of the Commission's regulations]

Remote Campsites:

"Campsites which are not part of commercial campgrounds and which are characterized by their remoteness, limited scale, dispersed nature, and limited usage. More specifically, remote campsites include sites which:

a. are designed to be accessible and generally are only accessible by water or on foot;
b. are comprised of not more than four individual camping areas designed for separate camping parties, and are designed for a total of not more than 12 overnight campers;
c. have permanent structures limited to privies, fireplaces or fire rings, picnic tables, and picnic table shelters consisting of a roof without walls; and
d. require no other construction or grading and only minimal clearing of trees." [10.02, 71 of the Commission's regulations]

Traditional:

Conforming to customs which have passed from generation to generation.

Wilderness:

As defined by the National Wilderness Act of 1964, "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Little of the Commission's jurisdiction falls within this definition.

Wildlands:

A term which has commonly been used to describe the Commission's jurisdiction. A term which is not synonymous with wilderness nor is it intended to imply that the area is not under active forest management

Appendix B

Rivers with Special Protection Zoning

RECREATION PROTECTION ZONE (P-RR)
(usually, a 250-foot wide zone along each shore)

Allagash River: *Twin Brooks to Churchill Dam*

- Musquacook Stream: *Allagash River to Third Musquacook Lake*
- Chemquasabamticook Stream: *Long Lake to Ross Lake*
- Allagash Stream: *Chamberlain Lake to South Branch*

Aroostook River: *East boundary of T09 R07 WELS to Millinocket Stream*

- Big Machias River: *East boundary of T11 R07 WELS to Millinocket Stream*
- Millinocket Stream: *Aroostook River to Millinocket Lake*
- Munsungan Stream: *Aroostook River to Little Munsungan Lake*
- St. Croix Stream: *Masardis town line to Hall Brook*

Dead River: *Kennebec River to upstream end of Big Eddy*

Dennys River: *Edmunds Village to Township 14/Cooper boundary (south and west shore only)*

East Machias River: *Sections in T18 ED, T19 ED and Township 14, including Maine River*

Kennebec River, Upper: *0.5 mile above Dead River to Harris Dam*

Machias River: *Northfield town line to Fifth Machias Lake, including Fourth and Fifth Lake Streams*

- Old Stream: *Sections in T25 MD, T31 MD, and T37 MD to First Lake*
- Mopang Stream: *Machias River to Mopang Lake*
- West Branch: *Machias River to Lower Sabao Lake*

Moose River: *Attean Pond to Number One Brook*

- Holeb Stream: *Moose River to Holeb Pond*

Narraguagus River: *Beddington town line to Eagle Lake*

Penobscot River, East Branch: *East Millinocket town line to Mattagamon Road, excluding sections zoned P-RP and east shore below Grindstone Falls*

- Sebeois River: *Penobscot River to Snowshoe Lake*
- Wassataquoik Stream: *Penobscot River to Baxter State Park*
- Webster Brook: *Baxter State Park to below Telos Dam*
- Sawtelle Brook: *Seboeis River to Sawtelle Deadwater*

Penobscot River, West Branch: *Approximately Ragmuff Stream to Moosehorn Stream in T04 R14 WELS and Chesuncook Lake to east boundary of T05 R14 WELS*

Pleasant River: *Columbia town line to Beddington town line*

St. John River:

- Big Black River: *St. John River to Canadian border*
- Northwest Branch: *St. John River to Canadian border*
- Southwest Branch: *St. John River to five miles downstream of Canadian border*

West Branch Pleasant River: *Brownville town line to second West Branch Pond, excluding developed areas at Katahdin Iron Works and Little Lyford Pond Camps*

RESOURCE PLAN ZONE (P-RP)
(500 feet wide along each shore of the Penobscot, 250 feet wide along each shore of the St. John)

Penobscot River, East Branch: *Section in T05 R08 WELS and a section in T01 R07 WELS from B&A Railroad downstream 1.125 miles*

Penobscot River, Lower West Branch: *Ambejejus Lake to 400 feet below Ripogenus Dam*

Penobscot River, Upper West Branch: *East boundary of T05 R14 WELS to 400 feet below Seboomook Dam, excluding section zoned P-RR in T04 R14 WELS*

- Lobster Stream: *Penobscot River to Lobster Lake (plus 9.4 miles of lakeshore on Lobster Lake)*

St. John River: Allagash town line to Baker Branch

- Baker Branch: *St. John River to 400 feet below Baker Branch Bridge*

SPECIAL RIVER TRANSITION PROTECTION ZONE (P-RT)
(250 feet wide)

Aroostook River: *Section in Oxbow Plantation, T10 R06 WELS and T09 R05 WELS*

Big Machias River: *Section in Garfield Plantation*

Appendix C

Land Use Regulation Commission's
Lake Management Program

In June of 1990, the Land Use Regulation Commission amended its 1983 *Comprehensive Land Use Plan* by adopting a document entitled, *Amendment of the Comprehensive Land Use Plan Regarding the Development and Conservation of Lakes in Maine's Unorganized Areas.* Concurrently, it adopted changes to its *Land Use Districts and Standards* which implemented several components of the comprehensive lake management program presented in the Plan *Amendment.*

Major features of the Commission's 1990 lake management program are reflected in the Water Resources section of this Plan, but some of the background information and other important details were too lengthy to include in the body of this plan. Because of the importance of this planning effort, the entire text of the original *Amendment* is reproduced here with appropriate changes to update the text. The Commission reaffirms its commitment to its lake management program as summarized in the Water Resources section and detailed below, and it will continue to follow the guidance provided below in managing the lake resources in its jurisdiction.

I. Purpose of Amendment

This amendment to the Comprehensive Land Use Plan incorporated two major planning initiatives undertaken by the Commission - the Wildland Lakes Assessment and Lakes Action Program - as well as more current information regarding the relationship between land use and water quality.

II. Lake Issues

The unorganized territories are host to a wealth of lake resources unparalleled in most regions of the nation. These lakes have long been a magnet for sportsmen and outdoor enthusiasts. In recent years, demand for recreational property has grown substantially throughout the northeastern United States. Land costs along Maine's coast have increased dramatically and lake-front properties in areas near population centers have in many cases become saturated with recreational camp development. Seeking both affordable property and a less crowded atmosphere, many people desiring to purchase waterfront property have turned their attention to the recreational opportunities offered by lakes in Maine's unorganized territories.

The current demand for development on lake shorelands within Maine's unorganized areas is unprecedented. At virtually every Commission meeting, the Commission considers one or more issues relating to lakes and lake shorelands. Typical development proposals include those for new residences or additions to existing structures, docks and related recreational facilities, subdivisions, and roads. All told, between 1986 and 1988, approximately one-third of all building and development permit applications within the jurisdiction involved lakes. Subdivision applications appear to be even more heavily weighted toward lakes; upwards of fifty percent of all subdivision applications over the past three years involved areas adjacent to lakes. With its expansion both in volume and distribution, lakeshore development has significant potential to affect important natural values, timber harvesting, and traditional uses associated with lakes, such as sporting camps, in the unorganized territories.

While there seems to be interest in shoreland development on lakes throughout the jurisdiction, there is a trend toward development on medium- to large-sized lakes located near organized townships. In the early 1980's, development attention focuses on three main areas: the Rangeley Lakes, the Moosehead Lake region, and the Pemadumcook/Twin Lakes region. In northern Maine, interest in camp development is also evident in the Square, Cross, and Long Lakes region.

While some of the development proposals brought before the Commission are straightforward and non-controversial, an increasing number involve issues that are not easily resolved. Difficult issues that continually confront the Commission include:

- Camp development on undeveloped lakes;
- Increased vehicle access to undeveloped, backcountry lakes;
- Subdivision development on larger lakes with significant natural, scenic, and recreational values;
- Protection of significant natural resource features outside of designated protection zones;
- Continued development on heavily developed lakes or on lakes with potential water quality problems; and
- Development of private recreational facilities such as docks and access roads where these already exist at other locations on the lake.

The Commission has at its disposal a variety of tools that can be used to regulate use of lake shorelands. These include protective zoning for sensitive areas and code requirements governing setbacks, road construction, timber harvesting, and subdivision of land. While these tools have proved sufficient to manage individual developments, they do not provide the means to effectively plan for the future of these lakes.

Due in part to their numbers, and in part to their remote locations, little information has been available for most lakes in the unorganized territories. This lack of information, and the inadequacy of the existing regulatory framework to deal wisely and comprehensively with lakeshore development, was noted in the 1983 Comprehensive Plan. In fact, the plan highlighted lake protection issues as needing further consideration.

The Commission has always made a special effort to provide for shoreland development while maintaining protection of significant natural values. Nonetheless, in the mid-1980s, faced with the increasing demand for lakefront property, the Commission acknowledged the danger that, even with minimum standards, lakes in its jurisdiction might, by attrition, lose the very character that makes them so unique. In evaluating its lake management goals, the Commission identified five basic needs: 1) the need for additional protection for lakes with exceptional values; 2) the need for a mechanism to guide lakeshore development toward lakes best suited to accommodate it; 3) the need for consistent, reliable, and readily accessible natural resource and land use information; 4) the need for a clearly stated lakes policy; and, 5) the need for a coordinated program to implement this policy.

The Maine Wildlands Lake Assessment and Lakes Action Program were initiated to meet these needs. In undertaking these initiatives, the Commission acknowledged that it had not yet "fulfilled all of its responsibilities to assure that the public interest in these unusual resources is protected" (Maine Wildland Lakes Assessment Work Plan, 1986).

III. Summary of Lake Planning Efforts

A. Wildland Lakes Assessment

The Maine Wildland Lakes Assessment was initiated in 1986 to establish a systematic base of natural resource and land use information on all lakes within the Commission's jurisdiction. The study considered all lakes with a surface area of ten acres or more. Approximately 1500 lakes met this size requirement. Smaller lakes were added when these were found to possess especially noteworthy natural resource values.

Based on methods presented in the Maine Wildland Lakes Assessment Work Plan, information was collected on the following natural resources:

- Fisheries
- Scenic quality
- Botanic features
- Physical resource
- Wildlife
- Shoreline character
- Cultural resources

Lakes that possessed "significant" or "outstanding" resource values in any of these areas were identified, and each lake was placed into one of the following four resource classifications based on its cumulative resource significance:

- Lakes of statewide significance with multiple outstanding natural values, categorized as Resource Class 1A (114 lakes);
- Lakes of statewide significance with a single outstanding natural value, categorized as Resource Class 1B (211 lakes);
- Lakes of regional significance (one or more significant ratings), categorized as Resource Class 2 (577 lakes);
- Lakes of local or unknown significance, categorized as Resource Class 3 (627 lakes).

The study also collected information pertaining to land and water uses, including:

- Access
- Zoning
- Water level fluctuation
- Proximity to services
- Shoreline development
- Ownership
- Public water supply

The completion of the Assessment in June of 1987, served only to highlight the need for further action – to develop measures to protect exceptional resource values associated with lakes and to guide development to the most appropriate areas.

B. Lakes Action Program

Following completion of the Wildland Lakes Assessment, the Commission appointed a Lakes Policy Committee. The committee, which included representatives from major landowners, statewide environmental and sportsmen's organizations, the University of Maine, and the Commission, was charged to:

1) Develop a proposal for a policy that might guide future Commission lake management decisions, and

2) Identify specific actions that should be taken to implement this proposed policy.

The actions identified by the committee were ultimately consolidated into a proposed lake action program. Public meetings were held in the fall of 1988 to discuss the proposal. *An Action Program for Management of Lakes in Maine's Unorganized Areas* was accepted by the Land Use Regulation Commission in January of 1989.

The Lakes Policy Committee sought a balanced approach to lake conservation and development, and recommended to the Commission a variety of innovative regulatory and non-regulatory lake management techniques, including policy guidance, special review criteria for lake development, lake concept plans, lake management classifications, and other public and private efforts.

C. Other Initiatives

The Commission has recognized the need to update its approach to review of impacts on water quality. To meet this need, Commission staff is working with DEP to develop a systematic approach that more accurately reflects the current level of knowledge about the relationship between land use and lake water quality. Additional rule-making changes will be necessary to implement this approach when it has been finalized.

Understanding of the impacts of clearing and development activities on water quality and riparian habitat has increased dramatically in recent years. In keeping with this improved understanding, IF&W and the Lakes Division of DEP have recommended stronger standards to minimize the impacts of these activi-

ties on water quality and riparian habitat. In response to these recommendations, the Board of Environmental Protection has adopted new standards governing minimum shore frontage, building setback, and clearing for development which will be applied to shoreland in organized towns. To maintain consistent environmental policies throughout the state, the Commission has enacted comparable standards in its jurisdiction.

IV. Policy and Implementation Measures

The Land Use Regulation Commission seeks a balanced and environmentally sound approach to lake conservation and development that:

1. Conserves important lake-related natural resource values;
2. Protects water quality;
3. Accommodates reasonable shoreland development and harvest of timber;
4. Provides a diversity of public recreation opportunities; and
5. Encourages continued use of the unorganized territories for the principal purposes of fiber and food production, non-intensive outdoor recreation, and fisheries and wildlife habitat.

To meet these goals, the Commission will undertake the lake management program outlined below as part of its overall commitment to guide development and resource conservation on the shorelines of the more than 3,000 lakes and ponds in Maine's unorganized areas.

A. Policy Guidance

The Commission will seek a balanced approach to shoreland development and conservation, one which recognizes public and private needs, supports the integrity of large forest holdings, and provides opportunities for creative, non-traditional shoreland development and conservation. The Commission proposes to regulate development based on lake-related natural features and values identified in the Wildlands Lake Assessment, guiding development toward those lakes or lake areas best suited to absorb new development, while restricting use of certain high value lakes. As a general planning guideline, the Commission will seek to ensure that development on lakes will remain below an average of one dwelling unit per 400 feet of shore frontage, and one dwelling unit per ten acres of lake surface area. These guidelines are designed to preserve the natural character of lakes in Maine's unorganized territories and to prevent conflicts between incompatible uses.

B. Review Criteria for Shoreland Permits

The Commission reviews all applications to determine whether they meet statutory criteria regarding technical and financial capability, traffic and circulation, soils, and environmental fit. Of these four decision criteria, "environmental fit" is often the most difficult to assess. In order to increase predictability regarding the assessment of environmental fit, the Commission has identified the following seven areas which it will review as a guide for determining whether adequate provision has been made for fitting subdivisions and commercial, industrial, and other non-residential structures on lakes harmoniously into the existing natural environment. The same review will be applied to rezonings that precede such proposals on lakes.

Natural and cultural resource values: The Commission will utilize the findings of the Wildland Lakes Assessment and other information sources in evaluating the merits of lake-related development. The Commission will, at a minimum, specifically consider all natural resource values that received a rating of either "significant" or "outstanding" in the Assessment, and will look for a demonstration that these values will be maintained.

Water quality: The Commission will give specific consideration to the effect that a proposed development will have on lake water quality. For proposed development on lakes, the Commission will require a finding regarding the probable effect of the proposed action on lake water quality. In those instances where it is determined that an unacceptable increase in phosphorus concentration may occur, the applicant will be required to take additional measures to protect lake water quality. If unacceptable water quality degradation will result regardless of additional measures, the Commission will deny the application.

Independent of its review of specific proposals, the Commission will initiate actions aimed at refining its approach to evaluating lake water quality. This will include updating its approach to identification of water quality limiting lakes and switching to a one part per billion change in phosphorus concentration as an indicator of unacceptable water quality degradation, consistent with DEP's policy for the rest of the state.

Traditional uses: The Commission will consider the effect of lake-related development proposals on traditional uses, including non-intensive public recreation, sporting camp operations, timber harvesting, and agriculture, and will seek to ensure that such proposals do not have an undue adverse effect on these uses.

Regional diversity: The Commission will consider lake-related development proposals in a regional context. The objective will be to determine the effect of substantial land use changes on the diversity of lake-related uses afforded in any region of the jurisdiction. The Commission will make this determination based on a summary of existing lake shoreland uses in the region of the State where the proposed development will be located. The region is considered to be either the township in which the development will be located and the eight townships which abut that township, or, all townships abutting the lake in question, whichever is larger.

Natural character: The Commission will seek to maintain the natural character of lakes by encouraging: visual screening of larger developments and non-conforming structures; consolidated use of recreation facilities such as boat docks and access ramps; and provisions for long-term protection of undeveloped shoreland as part of subdivisions and commercial, industrial, and other non-residential proposals.

Independent of its review of specific proposals, the Commission will adopt stronger shore frontage, setback, and clearing standards in order to maintain the natural character of lake shorelines in th jurisdiction.

Lake management goals: In reviewing development proposals on or near lakes which fall into one of the Commission's seven lake management classifications, the Commission will seek to ensure that the proposed activity is consistent with the stated management intent for that class of lake.

Landowner equity: In certain instances, the amount of future development along a given lake's shoreline may need to be restricted due to water quality or other limitations. This can potentially cause an equity problem in that a landowner not wishing to develop his or her land in the short term could be precluded from developing at a later date due to heavy development on other parcels.

A landowner should not be penalized for voluntarily foregoing early development on lakes where development is otherwise allowed. In cases where future development may be restricted, each landowner should be allotted a percentage of allowable future development proportionate to the extent of his or her ownership. Where a landowner proposes to exceed this proportion, development rights should be acquired from other landowners.

C. Lake Concept Plans

The Commission establishes the "lake concept plan" as a flexible alternative to traditional shoreland regulation, designed to accomplish both public and private objectives. Lake concept plans are landowner-created, long-range plans for the development and conservation of a large block of shoreland on a lake or group of lakes. The plan is a clarification of long-term landowner intent that indicates, in a general way, the areas where development is to be focused, the relative density of proposed development, and the means by which significant natural and recreational resources are to be protected. A concept plan does not require the detailed technical information associated with a site-specific development plan and does not take the place of such plans.

A lake concept plan can be prepared for a lake, a portion of a lake, or a group of lakes. The plan is initiated by the landowner or landowners and must be approved by the Commission.

The goal of concept planning is to encourage long-range planning based on resource characteristics and suitability as an alternative to haphazard, incremental development. The planning process necessary to prepare a plan encourages landowners to chart the future of their lake shorelands in a manner that is thoughtful and forward-looking. The landowner gains from the insight obtained in preparing the plan, from expanded flexibility in making land management decisions, and from increased predictability regarding Commission actions. The public gains from the improved planning that results from comprehensive evaluation of lake-related recreational and natural resources, from provisions for the long-term protection of resources, from greater knowledge of future development patterns, and from the increased predictability of the development review process.

While concept plans are voluntary, initiated and prepared by the landowner, once approved by the Commission, they are binding. The Commission encourages the use of concept plans by its commitment to expedite the permitting process for approved plans and to consider adjusting certain standards, such as the adjacency criterion, provided any such relaxation is matched by comparable conservation measures. Concept plans may not be used to relax requirements associated with Management Class 1 or Class 6 lakes. A concept plan may be used to seek a variation of the density standard for Class 2 lakes. Such variation will be granted only where it can be demonstrated by clear and convincing evidence that the plan is fully protective of the lake's special values and is consistent with the Commission's management intent for the lake.

Basic requirements

A concept plan must be responsive to the Commission's policy guidelines for management of lakes in Maine's unorganized areas, give consideration to natural and cultural values identified in the Wildland Lakes Assessment, and be responsive to the Commission's intent to protect those lakes identified in the Maine Wildland Lakes Assessment as warranting special management consideration.

In general, a plan should identify: 1) all areas where new, lake-related development is to be located; 2) resource values or shoreland areas that are to be protected; 3) mechanisms that will be used to conserve important resources or areas; and 4) the life span of the plan.

The emphasis and level of detail of a plan may vary depending on whether the plan is proposed for a single lake, a cluster of lakes, or an entire large ownership. At the option of the plan preparer, a detailed description of one or more development proposals may be submitted as a component of the plan.

Public input

Plan preparers are encouraged to provide avenues for interested parties to offer input during the development of the plan. The Commission will provide opportunity for public review of proposed plans. Notice that the Commission has received a proposal for a concept plan will be given to interested parties including affected landowners and a public review and comment period will be established. Upon request by five or more people, or when desired by the Commission, a public hearing will be held.

Plan approval

Concept plans will be implemented through the Resource Plan Protection Subdistrict (P-RP). In order to approve a concept plan, the Commission must find that the proposed plan conforms with the Commission's lake policies and lake program guidelines, is feasible, and is compatible with other public and private interests. It must also find that the plan strikes a reasonable and publicly beneficial balance between development and conservation of lake resources, and that, taken as a whole, the plan is at least as protective of the natural environment as the development, management, and protection subdistricts which it affects.

When a plan has been approved, the concept plan will be incorporated into the Commission's regulatory framework through appropriate changes to existing zoning. To accomplish the comprehensive planning objective of concept plans, the width of zones should generally be designed to encompass all lake-related development planned for the area over the life of the concept plan, or 500 feet, whichever is more.

Plan amendment and termination

A time span for each plan will be established. Ten years will be the minimum period, but concept plans of less than twenty years duration will be discouraged if such plans propose significant deviations from existing standards. A plan may be extended beyond the designated time period upon mutual agreement of the landowner(s) and the Commission.

To adapt to changing circumstances, plans can be amended or terminated at any time subject to mutual agreement between the landowner(s) and the Commission and following public notice of the proposed Amendment. While proposals for amendment or termination may be initiated by either party, the Commission will be conservative in exercising this option. To ensure good planning, proposals for lake-related development proximate to a lake covered by a concept plan should be pursued through an Amendment to the concept plan. Amendments must be consistent with the intent of the original plan.

To maximize predictability, the plan shall stipulate all conditions associated with termination of the plan, such as the status of any development that was approved as part of the plan but was not initiated during the life of the plan. Upon the plan's termination, the Commission will, in conformity with its comprehensive plan, statutes, and standards, designate appropriate zoning which is consistent with zoning of equivalent areas. Any development or relaxation of regulations which took place as part of a concept plan cannot be used to justify subsequent rezonings, meet adjacency requirements, or otherwise alter zoning at any time in the future.

In the event that a plan is terminated, all transactions initiated as a component of the plan, such as the granting of conservation easements or creation of restrictive covenants on subdivided lands, will continue to apply to the extent that they are covered by legal contract or deeded covenants.

D. Lake Management Classes

The Commission recognizes six specific lake classifications for special planning and management purposes. Lakes are classified based on natural and other resource values and land use characteristics identified in the Wildland Lakes Assessment. Specific descriptions of the criteria for each classification, as well as lists of the lakes in Management Classes 1 through 6, can be found below. Those lakes which are not included in one of these six classes are considered to be Management Class 7.

Management Class 1 lakes are high value, least accessible, undeveloped lakes. It is the Commission's goal to preserve the best examples of these pristine lakes in their natural state by prohibiting development within 1/4 mile of their shores and restricting permanent vehicular access to these lakes. Existing timber harvesting standards are currently considered sufficient to protect the values associated with these lakes from forest management activities. A number of lakes that meet the criteria for Management Class 1 are not designated as such because they are already protected through remote pond zoning. These lakes are identified below.

Management Class 2 lakes are high value, accessible, undeveloped lakes. The Commission intends to conserve the special values of these lakes by significantly restricting the density and intensity of development to one development unit per mile of shoreline. These restrictions will be applied to the area within 500 feet of the lakeshore to enable the Commission to regulate back lot development which could affect the lake's special values and is consistent with the management intent of the lake. Variation of density requirements may only be sought as part of a concept plan which is demonstrated by clear and convincing evidence to be fully protective of the special values associated with the lake.

Management Class 3 lakes are those lakes identified in the Appendix considered by the Commission to be potentially suitable for development based on available information on water quality, access, conflicting uses, shoreland availability, water level fluctuation, location, regional considerations, and special planning needs. Soils were not considered in the designation of these lakes due to lack of information, and may affect the appropriateness of this designation for some lakes. The Commission supports additional responsible development around Class 3 lakes, yet will take care to ensure that their significant natural resource values are conserved. The Commission will waive the adjacency criterion for development proposals on these lakes provided it can be demonstrated to its satisfaction by clear and convincing evidence that the lake has no existing or potential water quality problems and that soils are suitable for development. This waiver is strictly limited to shoreland, and proximate areas may not subsequently use shoreland development on Class 3 lakes to meet the adjacency criterion.

Management Class 4 lakes are high value, developed lakes. The Commission's goal for these lakes is to allow a reasonable level of residential and recreational development while conserving natural resource values and maintaining undeveloped shoreland areas. The Commission will take special care in evaluating and regulating new subdivisions proposed on these lakes and will require cluster development to protect natural values except where clearly inappropriate due to site characteristics.

Management Class 5 consists of heavily developed lakes. The Commission seeks to maintain natural qualities associated with these lakes, enhance scenic values, and retain some undeveloped shoreline by requiring cluster development on these lakes except where clearly inappropriate due to site characteristics. The Commission has identified lakes approaching heavily developed status and will pursue similar goals on the lakes.

Management Class 6 lakes are remote ponds — inaccessible, undeveloped lakes with coldwater game fisheries. The Commission intends to continue to prohibit development within 1/2 mile of these ponds to protect the primitive recreational experience and coldwater lake fisheries in remote settings.

Management Class 7 consists of all lakes not otherwise classified, including many lakes which have multiple outstanding or significant resource values identified in the Wildland Lakes Assessment. The Commission will manage these lakes for multiple use, including resource conservation, recreation, and timber production, giving specific consideration to identified resource values when evaluating the merits of lake-related rezoning and permit applications. It is the Commission's intention that the majority of these lakes remain in Management Class 7 and be managed under applicable requirements.

The Commission will consider reclassification of lakes within certain prescribed limitations. In cases where clear evidence of factual error indicates that a lake was misclassified, it will be reclassified to the appropriate class. Notwithstanding the above, changes in land use characteristics that occur after November 17, 1988, including without limitation, vehicle access and residential development will not be considered in future reclassifications. It is the Commission's intent to hold public hearings on all rule-making proposals involving proposed reclassifications.

The Commission has found that, in a few special cases, Management Class 3 criteria are not sufficiently refined for properly managing large lakes that are appropriate for a mix of conservation and development and which are or are likely to be under intensive development pressure. Moosehead Lake and the Rangeley Lakes, specifically Azizcohos, Mooselookmeguntic, and Upper and Lower Richardson, are considered to be such special cases. These lakes will be placed in Management Class 7 until comprehensive plans are developed to more specifically guide future growth in these areas. The Commission envisions that such plans will be substantially complete within 5 years.

Some lakes classified in Management Classes 1 through 6 abut other jurisdictions - either organized towns or Canada. The Commission should work cooperatively with other jurisdictions fronting on these lakes and encourage them to develop programs that are compatible with and comparable to LURC's lake management program. If comparable regulations are not implemented by abutting jurisdictions within a reasonable period of time, the Commission may choose to reconsider affected lakes' classification.

E. Other Public and Private Initiatives

The Commission encourages state agencies, landowners, and others to undertake actions that are consistent with and supportive of the Commission's lake management goals. Toward this end, the Commission: encourages interagency cooperation and coordination that furthers its lake management program; encourages non-regulatory measures that promote long-term conservation of important lake areas; supports measures to provide incentives for landowner conservation of important natural resources such as lake shorelands; and, encourages responsible shoreland use through campowner education programs.

V. Periodic Update of Lake Management Program

It is the Commission's intention that its lake management program be updated periodically to ensure that it responds to changing needs in a comprehensive manner. To maintain consistency of policy, this review and update should occur concurrent with the periodic revision of the Comprehensive Plan and as needed to address changing circumstances and new trends.

MANAGEMENT CLASS 1

High value, least accessible, undeveloped lakes[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] F	W	SC	SH	B	C	P
BAY P (WEST)	4396	T07 SD	249		O					
BOGUS MEADOW P	4380	T07 SD	26	S	O	S				
CARIBOU P (BIG)	4142	T07 R10 WELS	64	S		S	S	O		
DEBOULLIE L	1512	T15 R09 WELS	262	O	O	O	S			
DEBSCONEAG DEADWATER	2076	T02 R10 WELS	500	O	O	-				S
DEBSCONEAG L (1ST)	2060	T02 R10 WELS	320	O	-	O	S	O		S
DEBSCONEAG L (3RD)	0584	T01 R10 WELS	1011	O	-	O	S		S	S
ENCHANTED P	0150	UPPER ENCHANTED TWP	330	O	O	O	O			S
GREAT WORKS P	1386	EDMUNDS TWP	50	S	O					
HOBART BOG	7451	EDMUNDS TWP	30	S	O					
HUDSON P (UPPER)	1928	T11 R10 WELS	32	O		O	-			
JERRY P	2190	T05 R07 WELS	272	S		O	S			-
JO-MARY L (LOWER)	0984	T01 R10 WELS	1910	S		O			S	S
JONES P	0172	WYMAN TWP	36		O					
KATAHDIN L	2016	T03 R08 WELS	717	S	-	O	O		S	S
LOGAN P # 2	2082	T02 R09 WELS	20	-		O	S			
MARBLE P	2186	T05 R08 WELS	75	S		S	S	O		O
MATHEWS P	2836	T08 R10 WELS	19	O						
MILLIMAGASSETT L	3004	T07 R08 WELS	1410	S	O					
MOCCASIN P	1590	T14 R08 WELS	32	O	-				-	
NORTH P	9781	T14 R09 WELS	15	O			-		S	
PASSAMAGAMET L	0970	T01 R09 WELS	461	-	-	S	S	O	-	-
POLAND P (UPPER)	PPUP	T07 R14 WELS	245	S	O	O	S	-		O
RAINBOW L	0614	RAINBOW TWP	1664	O	-	O	O			S
REED P (BIG)	2842	T08 R10 WELS	90	O			-	O		
ROUND P (LITTLE)	2874	EAGLE LAKE TWP	58	O	S					O
SAWTELLE P	3008	T07 R08 WELS	174	-	O					
SAWTELLE P (LITTLE)	5778	T07 R08 WELS	10	-	O					
THE HORNS POND	8601	WYMAN TWP	10	S		O	O			

[1]CRITERIA: not accessible within 1/4 mile by 2wd; less than 1 development unit per mile; at least one outstanding resource value.

[2]Some lakes span two or more townships.

[3]Ratings: O = outstanding; S = significant; P = present; m = missing info.

STATISTICS:

		% OF TOTAL
NUMBER:	29 lakes	1.0%
ACRES:	10,092 ac total (ave 348)	1.5%
SHOREFRONT:	703,492 ft total (ave 24,258)	2.0%

Lakes Meeting Criteria of Management Class 1
But Adequately Protected by Remote Pond Zoning (Mgmt. Class 6)

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME	SIZE(AC)	RESOURCE RATINGS E	W	SC	SH	B	C	P
BLACK L	1506	T15 R09 WELS	147	O						
BRANCH P (MIDDLE)	0912	T05 R09 NWP	34	O						
CEDAR P	0474	TB R10 WELS	65	O						S
CHAIRBACK P (WEST)	0796	T07 R09 NWP	47	O					-	S
CLEARWATER P	2692	ATTEAN TWP	34			-			O	
CURRIER P (FIRST)	2768	T09 R11 WELS	20	O		S				
CURRIER P (SECOND)	2774	T09 R11 WELS	28	O						
DIXON P	9911	PIERCE POND TWP	17	O						
ENCHANTED P (LITTLE)	0148	UPPER ENCHANTED TWP	35	O						
FOWLER P	0686	T03 R11 WELS	19	S		O	S			
GARDNER L	1528	T15 R09 WELS	288	O	O	O				
GAUNTLET P	0472	TB R10 WELS	11	S	-	O				
GREEN MTN P	3666	T06 R06 WELS	10	O						
HARRINGTON P	0702	T03 R11 WELS	40	m		O				
HELEN P	0094	PIERCE POND TWP	15	O						
HIGH P	0092	PIERCE POND TWP	7	O		-	-			
HORSERACE PONDS	0626	RAINBOW TWP	50	O		O	S			O
HURD P (LITTLE)	0596	T02 R10 WELS	60	S		O	S			S
IRELAND P	4168	T07 R08 WELS	30	O						
LANE P	2490	COMSTOCK TWP	24	S						O
LANG P	2542	PARLIN POND TWP	30	O						
LANG P (LITTLE)	2543	PARLIN POND TWP	13	O			-			
LONG P (LITTLE)	4424	T10 SD	55	S		O	S			
LOON P	2688	ATTEAN TWP	37	O						
MARY PETUCHE P	2474	PRENTISS TWP	10	S		-	-			O
MCKENNA P	0688	T03 R11 WELS	53	m		O	S			
MINISTER P (BIG)	0590	T02 R10 WELS	15	O						
RAINBOW DEADWATERS	9698	RAINBOW TWP	58	O		-				
ROACH P (FOURTH)	0446	SHAWTOWN TWP	266	S		O	S			
SLAUGHTER P	0690	T03 R11 WELS	66	O		O	S		S	-
SPRUCE MOUNTAIN P	0466	TB R11 WELS	20	S		O	-			S
SQUAW P (BIG)	0334	LITTLE SQUAW TWP	91	O		-				S
SQUAW P (LITTLE)	0336	LITTLE SQUAW TWP	25	O						S
SWIFT RIVER P (LIT)	3572	TOWNSHIP E	15	O			-			
TOBEY P #1	2674	T05 R07 BKP WKR	35	m		O	S	-		
TROUT P	3260	MASON TWP	17	m		S		O		
TURTLE P	0952	LAKE VIEW PLT	81	O		-		-		
TWIN (TROUT) PONDS	2102	T02 R09 WELS	60	O		O	S			-
WADLEIGH P (LITTLE)	2974	T08 R15 WELS	15	m		-	-			O

[1]Ratings: O = outstanding; S = significant; P = present; m = missing info.

MANAGEMENT CLASS 2

Especially high value, accessible, undeveloped lakes[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] F	W	SC	SH	B	C	P
ALLAGASH L	9787	T08 R14 WELS	4260	O	O	O	O	-	S	O
ALLIGATOR L	4498	T34 MD	1159	O	-	O	S	-	-	-
ATTEAN P	2682	ATTEAN TWP	2745	O	-	O	O	O	-	O
BALD MOUNTAIN P	0314	BALD MTN TWP T2R3	1152	O	O	O	O	-		
BEAVER P	3310	MAGALLOWAY PLT	179	O	O	-	-	-	-	
BENSON P (BIG)	0864	T07 R09 NWP	320	O		O	-	-	S	
CAUCOMGOMOC L	4012	T06 R14 WELS	5081	O	O	S	S	-	S	O
CHAIN OF PONDS	5064	CHAIN OF PONDS TWP	700	O	O	O	S	-	S	O
CHESUNCOOK L[4]	CHCH	T03 R12 WELS	18470	O	O	-		O	O	O
CHURCHILL L	2856	T09 R12 WELS	2923	O	O	-		-	S	S
CLEAR L	1938	T10 R11 WELS	614	O		O	S			
CLIFF L	2780	T09 T12 WELS	563	O		O	S		-	
CROSBY P	3330	COBURN GORE	150	O	S	O	-		-	
EAGLE L (BIG)	2858	EAGLE LAKE TWP	8288	O	O		-	O	O	P
FLAGSTAFF L	0038	DEAD RIVER TWP	20300	O	O	S	S			
IRONBOUND P	2510	ALDER BROOK TWP	40	O	-	O	O			O
JACKSON P # 2	0704	T03 R11 WELS	12	S		O	O			
JIM P	5054	JIM POND TWP	320	O	O	O	S			
JO-MARY L (UPPER)	0243	TA R10 WELS	1873	O		O	S	-		S
LOBSTER L	2948	LOBSTER TWP	3475	O	O	O	O	O	S	O
LONG L	1892	T12 R13 WELS	1203	O	O	-			S	S
MACHIAS L (THIRD)	1124	T42 MD BPP	2778	O	O	-			S	
MOOSELEUK L	1990	T10 R09 WELS	422	S	O	O	-		O	
MUNSUNGAN L	4180	T08 R10 WELS	1415	O	-	O	S	-	O	
MUSQUASH L (WEST)	1096	T06 R01 NBPP	1613	O		O	S	-	S	
NAHMAKANTA L	0698	T01 R11 WELS	1024	O		O	O	O	S	
PENOBSCOT L	0339	DOLE BROOK TWP	1019	O		O	S	-	S	O
PIERCE P	0086	PIERCE POND TWP	1650	O	S	O	S			
PLEASANT L	1100	T06 R01 NBPP	1574	O		O	S	O		
ROUND P	1470	T13 R12 WELS	697	O	O	-			S	-
SCRAGGLY L	4264	T07 R08 WELS	842	O	-	O	O	O	S	O
SPENCER L	5104	HOBBSTOWN TWP	1819	O	-	O	O	O	O	-
SPENCER P	0404	E MIDDLESEX CANAL GR	980	S	O	O	S			
TELOS L & ROUND P	2710	T06 R11 WELS	2276	O	S	O	S		S	
TIM P	2362	TIM POND TWP	320	O		O				-
UMSASKIS L	1896	T11 R13 WELS	1222	O	O	-			S	S

[1]CRITERIA: accessible to within 1/4 by 2wd; less than 1 development unit per mile; two or more outstanding resource values in fisheries, wildlife, scenic or shore character — outstanding wildlife value must be due to especially concentrated and/or diverse wildlife values.
[2]Some lakes span two or more townships.
[3]Ratings: O = outstanding; S = significant; P = present; m = missing info.
[4]Includes Ripogenus Lake, but not Caribou Lake.

STATISTICS:

		% OF TOTAL
NUMBER:	36 lakes	1.2%
ACRES:	93,478 ac total (ave 2,596)	13.7%
SHOREFRONT:	3,313,189 ft total (ave 97,447)	9.8%

MANAGEMENT CLASS 3
Potentially suitable for development[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS E	W	SC	SH	B	C	P
BEAU L	9785	T19 R11 WELS	2003	S	-	-	-	S	S	S
BIG L	1288	NO 21 TWP	10305	O	O	-	-	O	O	
BOWLIN P	2188	T05 R08 WELS	115	S	-	S	-	-	-	
BRANDY P	9651	T39 MD	723	S	O	-	-	-	-	S
BRASSUA L	4120	ROCKWOOD STRIP-East	8979	S	-			-	O	
CARIBOU L	CHCA	T02 R12 WELS	4600	O	O			O	O	O
CHENEY P	2494	HAMMOND TWP	99	S	-			-	-	S
CLAYTON L	1958	T12 R08 WELS	264	S						
EBEEMEE L(UPPER)	0966	T04 R09 NWP	196							S
ENDLESS L	0942	T03 R09 NWP	1499	S					S	S
FALLS P	1490	T18 R10 WELS	256	S	S		-		-	
FISH RIVER L	0009	T13 R08 WELS	2642	S	S	O	S		S	
GLAZIER L	9789	T18 R10 WELS	1120	S	-			S		
GRAHAM L	4350	T08 SD	7865	S	O	-		-	O	
GRAND L (WEST)	1150	T06 ND BPP	14340	O	O	O	O		O	
HORSESHOE P	3336	COBURN GORE	37		S					
INDIAN P	4090	SAPLING TWP	3746	S	O				S	
JO-MARY L(MIDDLE)	0986	T4, INDIAN PURCHASE	1152	S		O	S		S	S
LONG P	2536	LONG POND TWP	3053	S	S	O	S		S	
LONG P	3356	SEVEN PONDS TWP	35	S						
MACHIAS L (BIG)	1960	T12 R08 WELS	692	S	S				S	
MACHIAS L (LITTLE)	1578	NASHVILLE PLT	275	S	S					
MATTAMISCONTIS L (LT)	2138	T03 R09 NWP	275	S						
MATTASEUNK L	3040	MOLUNKUS TWP	576	S						
MUD P	0023	JIM POND TWP	14	S			-			
ONAWA L	0894	ELLIOTTSVILLE TWP	1344	O	O	O	S		S	-
PEMADUMCOOK CHAIN L	0982	T01 R10 WELS	18300	S		O	S		O	S
POCUMCUS L	1110	T05 ND BPP	2201	O	O				S	
ROACH P (FIRST)	0436	FRENCHTOWN TWP	3270	S		S	S	S	S	
ROCKABEMA L	3636	MORO PLT	339	S		S	S			
ROCKY P	4476	T22 MD	666	m						
ROUND P	1594	T14 R08 WELS	90	S	S		-			
SAPONAC P	4722	GRAND FALLS TWP	922	S	-	S	S		S	P
SCHOODIC L[3]	0956	LAKE VIEW PLT	7168	S		S			S	S
SILVER L	0922	KATAHDIN IRN WKS PLT	305	S		S	S			S
SPECTACLE (SPEC) P	4450	OSBORN PLT	1754	O						

[1]CRITERIA: see page C-14.
[2]Some lakes span two or more townships.
[3]Also on Management Class 5 list.

STATISTICS:

		% OF TOTAL
NUMBER:	36 lakes	1.2%
ACRES:	101,220 ac total (ave 2,812)	14.9%
SHOREFRONT:	3,601,527 ft total (ave 100,042)	10.2%

POTENTIAL MANAGEMENT CLASS 3 LAKES

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME	SIZE(AC)	RESOURCE RATINGS[3] E	W	SC	SH	B	C	P
MOOSEHEAD L	0390	LITTLE SQUAW TWP	74890	O	O	O	O	O	O	O

Official classification of this lake will await completion of study now in progress.

SQUARE L	1672	T16 R05	8150	O					S	S

Square Lake may be placed on this list when and if the Maine Department of Environmental Protection is able to show that increased shoreland development around Square Lake would not significantly contribute to the stresses already being placed on it from lakes upstream.

AZISCOHOS L	3290	LINCOLN PLT	6700	O	O	S	S		O	S
MOOSELOOKMEGUNTIC L	MLML	RICHARDSONTOWN TWP	14101	O	O	S	O		O	
RICHARDSON L (LOWER)	3280	TOWNSHIP C	2900	O	S	S	O		S	
RICHARDSON L (UPPER)	3308	RICHARDSONTOWN TWP	4200	O	O	O	O		O	

These lakes were removed from Management Class 3 based on a recognition that the Rangeley Lakes have special planning needs that are not addressed by this classification. The Rangeley Lakes, comprised of a string of large, high value lakes subject to intensive development pressure, represent a unique resource to the state. Management Class 3 is not considered a sufficiently refined designation to adequately manage and protect these lakes, which like Moosehead, are suited to a mix of development and conservation. These lakes will remain in Management Class 7 until a comprehensive regional plan has been developed to guide future growth.

Criteria for Management Class 3 Lakes

The lakes listed in Management Class 3, also referred to as Potentially Suitable for Development, meet the following criteria:

a. Water quality
- Development of the remaining undeveloped shoreline at the rate of one dwelling unit per 150 feet of frontage will not result in a change in phosphorus concentration of 1 part per billion or more.
- Not having additional lake specific water quality problems that would be exacerbated by additional shoreline development.

b. Location
- Located within two townships of the organized portion of the State or existing settlements with public services.

c. Access
- Accessible by 2-wheel drive motor vehicle during summer months to within 1/4 mile of the normal high water mark of the lake.

d. Conflicting use
- Not totally zoned as P-FW (Fish and Wildlife Protection Subdistrict), P-WL (Wetland Protection Subdistrict), or P-RR (Recreation Protection Subdistrict).
- Not a municipal water supply.
- No major or unavoidable conflict with critical species or habitats.
- No major or unavoidable conflict with recreational activities requiring an undeveloped setting.

e. Available shoreline
- Greater than 10 acres of surface area per existing dwelling unit.
- Undeveloped shore area adequate for 10 or more dwelling units.

Water level fluctuation
- No extreme water level fluctuation (i.e. dam regulated draw down) which makes shoreline unsuitable for development.

g. Regional consideration
- No region of the state is to have all or the great majority of the large water bodies in the area identified as suitable for development; in such cases, certain lakes otherwise eligible will be omitted from the list; preference will be given to retaining lakes which:
  (1) are the least sensitive to water quality degradation;
  (2) are closest to paved, all-season roads;
  (3) are closest to existing development centers;
  (4) have the least conflict between development and their resource significance.

h. Special planning needs
- Is not a large lake determined by the Commission as having special planning needs, as evidenced by a combination of: suitability for development, high resource value or significance, and intensive development pressure.

MANAGEMENT CLASS 4
High value, developed lakes[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] F	W	SC	SH	B	C	P
ARNOLD P	3332	COBURN GORE	148	S		O	-	-	O	
CARRY P (WEST)	0048	CARRYING PLC TWN TWP	675	O	-	-	-	-	O	-
CATHANCE L	9661	NO 14 TWP	2905	O	O				S	O
CHAIN L (FIRST)	1236	T26 ED BPP	336	O					S	O
CHAIN L (SECOND)	1234	T26 ED BPP	589	O					S	O
CLIFFORD L	1304	T27 ED BPP	954	O	O	-	-		-	
CUPSUPTIC L	MLCU	ADAMSTOWN TWP	2199	O	O	O	S		S	
DONNELL P	4412	T09 SD	112	O	-	O	O		S	
GREENWOOD P (BIG)	0884	ELLIOTTSVILLE TWP	211	O	-	O	-			
GRAND FALLS FLOWAGE	7437	FOWLER TWP	6691	O	O		-	-		
HOLEB P	2652	HOLEB TWP	1055	S	-	O	O	O	-	
KENNEBAGO L (BIG)	2374	DAVIS TWP	1700	O	O	O	O	-	S	O
LYFORD P (BIG)	0438	SHAWTOWN TWP	152	O		-			O	
NICATOUS L	4766	T40 MD	5165	S	O	O	O	-	S	
POND IN THE RIVER	3328	TOWNSHIP C	512	O	S	S	-	O	-	
RAGGED L	2936	T02 R13 WELS	2712	O	-	O	S	-	S	-
RANGELEY L	3300	RANGELEY PLT	6000	O	S	O	S	S	O	O
SPRING RIVER L	4432	T10 SD	704	S	-	O	O	-		
SYSLADOBSIS L (LO)	4730	T05 ND BPP	5376	S		S	S	O	S	-
TOGUE P (LOWER)	2084	T02 R09 WELS	384	S		O	S	-	-	O
TOGUE P (UPPER)	2104	T02 R09 WELS	294	S	-	O	S		-	O
TUNK L	4434	T10 SD	2010	O	O	O	O		S	S
WILSON P (UPPER)	0410	BOWDOIN COL GR WEST	940	S	S	O	S		-	S

[1]CRITERIA: two or more outstanding resource values; accessible to within 1/4 mile by 2wd; more than one development unit per mile; not included in management class 3 (potentially suitable for development).
[2]Some lakes span two or more townships.
[3]Ratings: O = outstanding; S = significant; P = present; m = missing info.

STATISTICS:

		% OF TOTAL
NUMBER:	23 lakes	0.7%
ACRES:	42,832 ac total (ave 1,862)	6.3%
SHOREFRONT:	2,035,971 ft total (ave 88,520)	5.7%

MANAGEMENT CLASS 5
Heavily developed lakes[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	EXISTING DENSITY ACRES PER D.U.	FEET PER D.U.
AMBAJEJUS L[3]	PAMB	T01 R09 WELS	3289	10.	229.5
BAKER STREAM P	7104	BALD MTN TWP T2R3	12	3.0	1827.
BEAVER MOUNTAIN L	3562	SANDY RIVER PLT	543	4.7	253.6
BEAVER P	3354	SEVEN PONDS TWP	20	3.3	819.8
BOTTLE L	4702	LAKEVILLE PLT	281	3.8	338.0
BOYD L	2158	ORNEVILLE TWP	1005	6.4	358.3
CAMPBELL P	2574	BLAKE GORE	15	5.0	828.3
CEDAR L	2004	T03 R09 NWP	685	7.3	305.9
CROSS L	1674	T17 R05 WELS	2515	8.8	309.2
DAVIS (WAPITI) P	2196	T05 R07 WELS	69	8.6	1186.
DEAD STREAM P	4066	WEST FORKS PLT	67	9.6	1669.
DEER L	4512	T34 MD	38	5.4	861.9
EBEEMEE L	0914	T05 R09 NWP	940	5.8	391.7
FISH P	4054	MOXIE GORE	15	7.5	1973.
HILLS P	3686	PERKINS TWP	22	4.4	973.4
HUTCHINSON P	3494	ALBANY TWP	96	5.6	581.8
KINGSBURY P	0262	MAYFIELD TWP	390	4.3	277.3
KNEELAND P	3266	ALBANY TWP	16	4.0	1086.
LONG (MARTIN) P	4108	THE FORKS PLT	26	3.2	814.7
LONG P	1200	T18 MD BPP	15	7.5	1892.
LOON L	2384	DALLAS	168	2.9	248.0
MADAWASKA L	1802	T16 R04 WELS	1526	4.8	167.4
NUMBER NINE L	1756	T09 R03 WELS	120	5.2	389.4
OTTER P	7142	MAYFIELD TWP	25	2.8	409.4
PAPOOSE P (LITTLE)	3268	ALBANY TWP	19	9.5	2499.
PEEP L	9821	T30 MD BPP	32	8.0	1430.
PENMAN P	0113	T26 ED BPP	29	3.6	543.4
PLEASANT PD	0224	THE FORKS PLT	1120	5.8	180.3
PRESQUE ISLE L	1758	T09 R03 WELS	38	5.4	927.7
PROCTOR P	3210	ALBANY TWP	45	4.1	463.4
ROUND P	3584	TOWNSHIP E	42	7.0	959.2
SANDY RIVER P (MID)	3566	SANDY RIVER PLT	70	8.8	1307.
SANDY RIVER P(LOWER)	3564	SANDY RIVER PLT	17	5.7	1450.
SANDY RIVER P(UPPER)	3568	SANDY RIVER PLT	28	7.0	1289.
SCHOODIC L[3]	0956	LAKE VIEW PLT	7168	18.	386.2
SHIN P (LOWER)	2198	T05 R07 WELS	638	4.8	278.4
SMITH P	2012	T3, INDIAN PURCHASE	208	2.2	177.6
SOLDIER P	9783	WALLAGRASS PLT	96	6.9	1213.
SONGO P	3262	ALBANY TWP	224	2.5	201.0
TWIN L (SOUTH)[3]	PSTW	T04 INDIAN PURCHASE	3406	14.	388.0
UNNAMED P	7062	THE FORKS PLT	10	3.3	573.7
UNNAMED P	8735	SALEM TWP	40	2.2	481.1
WHETSTONE P	0296	KINGSBURY PLT	256	4.2	263.5

[1]CRITERIA: Lakes with less than 10 acres or 400 feet of frontage per dwelling unit taken as an average around entire lake.
[2]Some lakes span two or more townships.
[3]Also on Management Class 3 list.

STATISTICS:

		% OF TOTAL
NUMBER:	43 lakes	1.4%
ACRES:	25,384 ac total (ave 590)	3.7%
SHOREFRONT:	999,060 ft total (ave 22,234)	2.8%

(revised 02/01/95 - dropped Redington Pond & Unnamed Pond (7818) due to lack of development per new zoning maps.)

LAKES APPROACHING HEAVILY DEVELOPED STATUS[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	EXISTING DENSITY ACRES PER D.U.	EXISTING DENSITY FEET PER D.U.
BEAVER P	3588	TOWNSHIP D	20	20	5577
BRANCH P (1ST WEST)	0440	SHAWTOWN TWP	119	15	2021
CARRY P (MIDDLE)	0046	CARRYING PLC TWN TWP	126	16	2381
CARRY P (WEST)	0048	CARRYING PLC TWN TWP	675	16	678.5
CENTER P	4040	SOLDIERTOWN TWP	51	17	2646
CHAIN L (FIRST)	1236	T26 ED BPP	336	15	1133
CHALK P	3270	ALBANY TWP	25	13	2329
CHASE STREAM P	4080	CHASE STREAM TWP	75	19	4386
CUT P	1706	DUDLEY TWP	26	13	3390
DUCK L	4698	LAKEVILLE PLT	256	13	892
ELLIS P	4086	CHASE STREAM TWP	85	17	2161
ENCHANTED P (LOWER)	0142	LOWER ENCHANTED TWP	20	10	6764
ENOCH L	1328	FOWLER TWP	18	18	3291
FISH P	3324	LINCOLN PLT	20	20	6458
GULL P	3532	DALLAS	281	13	704
HATHORN P	4242	T04 R08 WELS	15	15	3264
HUSSEY P	0292	BLANCHARD PLT	15	15	3729
KENNEBAGO L (LITTLE)	3958	STETSONTOWN TWP	190	14	837.4
LONG L	1682	T17 R03 WELS	6000	20	600.4
LONG P	3582	TOWNSHIP E	254	17	1071
LONG P	4118	TAUNTON & RAYNHAM	173	14	1190
LYFORD P (BIG)	0438	SHAWTOWN TWP	152	17	1623
MATTASEUNK L	3040	MOLUNKUS TWP	576	16	1191
MAYFIELD P	0260	MAYFIELD TWP	140	14	1122
MOOSEHEAD L #6	MH06	TOMHEGAN TWP	9925	31	670.8
MOXIE P	4050	EAST MOXIE TWP	2370	14	800.2
MYRICK P	4416	T10 SD	45	15	3007
NORTHWEST P	3342	MASSACHUSETTS GORE	45	15	1986
PARLIN P	2544	PARLIN POND TWP	543	15	929.3
PEPPERPOT P	3298	ADAMSTOWN TWP	50	10	1058
POSSUM P	1310	T26 ED BPP	30	15	2532
PUDDING P	0932	BARNARD TWP	12	12	2657
SABBATH DAY P	3578	TOWNSHIP E	57	11	1547
SAINT CROIX L	1774	ST CROIX TWP	416	18	1402
SAINT FROID L	1610	WINTERVILLE PLT	2400	11	415.3
SECOND L	1134	T37 MD BPP	102	11	1726
SHAW P	5152	T03 R04 BKP WKR	45	15	2814
SILVER L	0922	KATAHDIN IRN WKS TWP	305	17	1581
SPENCER P	3586	TOWNSHIP D	15	15	3538
SPRING RIVER L	4432	T10 SD	704	19	1395
THANKSGIVING P	0288	BLANCHARD PLT	17	17	3873
TROUT P	0322	LITTLE SQUAW TWP	33	17	2628
UNNAMED P	9740	DENNISTOWN PLT	20	20	2615
UNNAMED P	9668	T05 R07 BKP WKR	12	12	8802
UNNAMED P	7314	HIGHLAND PLT	12	12	4074
WALLAGRASS L (THIRD)	1552	ST JOHN PLT	45	11	1509
WEST L	0503	T03 ND	1344	19	794.8
YOKE PONDS	0504	TA R11 WELS	134	11	1808

[1]Lakes with less than 20 acres or 1000 feet of frontage per dwelling unit taken as an average around entire lake.

[2]Some lakes span two or more townships.

MANAGEMENT CLASS 6
Remote ponds[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] E	W	SC	SH	B	C	P
ALLIGATOR P	0502	TA R11 WELS	47	S						
AZISCOHOS P	3106	MAGALLOWAY PL	12	S						
BAKER P	0422	BOWDOIN COL GR WEST	10	m						
BEAN P	0656	T02 R12 WELS	16	m	—					
BEAN P (LOWER)	0646	RAINBOW TWP	37	S	S					
BEAN P (MIDDLE)	0648	RAINBOW TWP	10	—	S					—
BEAN P (UPPER)	0650	RAINBOW TWP	25	S	S					S
BEAR BROOK BOG	4020	T06 R15 WELS	15	m	S					
BEAR P*	4018	T06 R15 WELS	138		S	O				
BEAR P	0636	RAINBOW TWP	30	S		—				S
BEATTIE P	5066	BEATTIE TWP	27	S						
BEAVER P	0670	T03 R11 WELS	15	m		S	S			
BEAVER P	0484	SHAWTOWN TWP	27	S		—				
BEAVER P (BIG)	0610	RAINBOW TWP	45	S						
BEAVER P (LITTLE)	9700	RAINBOW TWP	8							
BEAVER P (LITTLE)	0612	T03 R11 WELS	10	m						
BENJAMIN P	2684	ATTEAN TWP	121	m		S	S			
BIRCH RIDGE P # 1	0514	TA R11 WELS	11	S						
BLACK L	1506	T15 R09 WELS	147	O	—	S				
BLACK P (LITTLE NO)	1508	T15 R09 WELS	6	S	—	S				
BLACK P (LITTLE SO)	1510	T15 R09 WELS	7	S		S				
BLUFF P	0434	FRENCHTOWN TWP	10	S						S
BLUFFER P (UPPER)	2798	T08 R11 WELS	15	S						
BOARDWAY P (BIG)	0494	TA R11 WELS	15	S						S
BOULDER P	2672	T05 R07 BKP WKR	30	m						
BOWLIN P (LITTLE)	2194	T05 R07 WELS	34	S						
BRACKETT P	0290	BLANCHARD PLT	10	m						
BRANCH P (MIDDLE)	0912	T05 R09 NWP	34	O						
BRAYLEY P	2706	T07 R10 WELS	6							
BUCK P	0644	RAINBOW TWP	6							
CAPE HORN P	2568	PRENTISS TWP	22							
CEDAR P	0474	TB R10 WELS	65	O						S
CEDAR P	2654	HOLEB TWP	5							
CHAIRBACK P (EAST)	0802	T07 R09 NWP	46	S			—			S
CHAIRBACK P (WEST)	0796	T07 R09 NWP	47	O		-	-		-	S
CHASE STREAM P	4093	MISERY TWP	31	S		—			—	—
CHESUNCOOK P*	0672	T03 R11 WELS	272	S		O	O			O
CLAYTON P	2406	T06 R17 WELS	75	m						
CLEAR P	5074	LOWELLTOWN TWP	21	m					—	
CLEARWATER P	2692	ATTEAN TWP	34	-					O	
CLEARWATER P*	2476	PRENTISS TWP	11							P
CLIFFORD P	0624	RAINBOW TWP	17	S						—
CLISH P	5158	T05 R20 WELS	21	S						
CRANBERRY P(L,NOTCH)	0784	BOWDOIN COL GR WEST	7							
CURRIER P (FIRST)	2768	T09 R11 WELS	20	O		S				
CURRIER P (SECOND)	2774	T09 R11 WELS	28	O						
DAISEY P	0594	T02 R10 WELS	11	S						—
DEBSCONEAG P (6TH)	0580	T01 R11 WELS	31	S					S	S
DINGLEY P (LITTLE)	2462	T04 R05 NBKP	17	S						

MANAGEMENT CLASS 6 (con'd)

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] F	W	SC	SH	B	C	P
DINGLEY P (UPPER)	2464	T04 R05 NBKP	20	S						
DIPPER P*	4042	PITTSTON ACAD GRANT	13				—		O	S
DIXON P	9911	PIERCE POND TWP	17	O			-		-	-
DOUGHNUT P	0616	RAINBOW TWP	12	S						
DUBOIS P	2478	PRENTISS TWP	18	m						P
EDDY P	3546	SANDY RIVER PLT	9							
ENCHANTED P (LITTLE)	0148	UPPER ENCHANTED TWP	35	O						
FOGG P	0426	BOWDOIN COL GR WEST	23	S						
FOLEY P (LITTLE)	2492	COMSTOCK TWP	35	m		—	—			
FOWLER P	0686	T03 R11 WELS	19	S	-	O	S			
FROST P (LITTLE)	0668	T03 R12 WELS	35	S	S					
GARDNER L	1528	T15 R09 WELS	288	O	O	O				
GAUNTLET P	0472	TB R10 WELS	11	S	-	O				
GORDON P	0146	UPPER ENCHANTED TWP	28	S	—	—				
GOULD P	0620	RAINBOW TWP	12	m						
GREEN MTN P	3666	T06 R06 WELS	10	O						
HAFEY P	1498	T18 R11 WELS	23	S						
HALE P	2508	ALDER BROOK TWP	40	m						
HALL P	2566	PRENTISS TWP	19	S						
HALL P	5092	T05 R07 BKP WKR	42	m						
HARRINGTON P	0702	T03 R11 WELS	40	m		O				
HATHORN P	4242	T04 R08 WELS	15	S						
HATHORN P (LITTLE)	2298	T04 R08 WELS	8							
HEDGEHOG P	0556	T01 R11 WELS	5							
HELEN P	0094	PIERCE POND TWP	15	O						
HIGH P	0092	PIERCE POND TWP	7	O						
HOLBROOK P*	0632	RAINBOW TWP	224	S		S	O			
HORSERACE PONDS	0626	RAINBOW TWP	50	O		O	S			O
HORSESHOE P	9277	T16 R09 WELS	15	S						
HORSESHOE P	2686	ATTEAN TWP	50	m						
HOUSTON P (LITTLE)*	0920	KATAHDIN IRN WKS TWP	27	O						S
HURD P (LITTLE)	0596	T02 R10 WELS	60	S		O	S			S
IRELAND P	4168	T07 R08 WELS	30	O						
JACKSON P #1	0684	T03 R11 WELS	23							
JUNIPER KNEE P	0878	ELLIOTTSVILLE TWP	32	S						
KELLY P	0654	T02 R12 WELS	60	S						
LANE P	2490	COMSTOCK TWP	24	S						O
LANE BROOK P	3664	T06 R06 WELS	33							
LANG P	2542	PARLIN POND TWP	30	O						
LANG P (LITTLE)	2543	PARLIN POND TWP	13	O						
LEDGE P	3554	SANDY RIVER PLT	6							
LINE P	5162	T05 R20 WELS	7							
LONG BOG	2668	HOLEB TWP	19	m						
LONG P	2690	ATTEAN TWP	37	m		—				
LONG P (LITTLE)	4424	T10 SD	55	S		O	S			
LOON P	2688	ATTEAN TWP	37	m						
LOON P	0554	T01 R11 WELS	5							
LOST P	2694	ATTEAN TWP	5							
MARY PETUCHE P	2474	PRENTISS TWP	10	S						O
MCKENNA P	0688	T03 R11 WELS	53	m		O	S			

MANAGEMENT CLASS 6 (con'd)

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] E	W	SC	SH	B	C	P
MCKENNEY P	0154	UPPER ENCHANTED TWP	9	—						
MESSER P	4244	T05 R08 WELS	27	S						
MIDWAY P	3544	SANDY RIVER PLT	7							
MINISTER P (BIG)	0590	T02 R10 WELS	15	O						
MINISTER L (LITTLE)	0592	T02 R10 WELS	4							
MOUNTAIN CATCHER P	4258	T06 R08 WELS	84	S						—
MOUNTAIN P	0432	BEAVER COVE	56	S						S
MOUNTAIN VIEW P	0488	TA R11 WELS	13	S						
MOXIE P	3585	TOWNSHIP D	6							
MUD P	2340	TOWNSHIP 6 N OF WELD	6							
MURPHY P	0486	TA R11 WELS	12							
MURPHY P (BIG)	0638	RAINBOW TWP	15	S						
MUSCALSEA P (BIG)	4036	RUSSELL POND TWP	14	m		S				
MUSCALSEA P (LITTLE)	4034	RUSSELL POND TWP	11	m						
NOTCH P	0786	BOWDOIN COL GR WEST	10	S						
NOTCH P (BIG)	0328	LITTLE SQUAW TWP	12	S						
NOTCH P (LITTLE)	0326	LITTLE SQUAW TWP	10	S						
PAPOOSE P	0338	LITTLE SQUAW TWP	3							
PITMAN P	0598	T02 R10 WELS	20	—						
POLLY P	0692	T03 R11 WELS	15	m						
PORTER P*	4760	T03 ND	58	S						
RABBIT P	0552	T01 R11 WELS	10	m						
RABBIT P	0366	ELLIOTTSVILLE TWP	10							
RAINBOW P	4436	T10 SD	17							
RAINBOW DEADWATERS	9698	RAINBOW TWP	58	O						
REED P (LITTLE)	2838	T08 R10 WELS	25	m						
RIPOGENUS P	2910	T04 R12 WELS	76	m	S				S	
ROACH P (FOURTH)	0446	SHAWTOWN TWP	266	S	-	O	S			
ROACH P (SEVENTH)	0500	TA R11 WELS	33	S						
ROACH P (SIXTH)	0480	SHAWTOWN TWP	48	S						
ROBAR P (BIG)	2296	T04 R08 WELS	7							
ROBERTS P	5164	T05 R20 WELS	19	m						
ROCKY P (LITTLE)	0524	TA R11 WELS	12	S						
ROUND P	2670	APPLETON TWP	5							
SADDLEBACK P	3550	SANDY RIVER PLT	13	S						
SECRET P	0907	ELLIOTTSVILLE TWP	12	S					—	
SLAUGHTER P	0690	T03 R11 WELS	66	O		O	S		S	
SNAKE P	2548	JOHNSON MOUNTAIN TWP	8							
SOCATEAN P #1	4044	PLYMOUTH TWP	42	m						
SOCATEAN P #2	4046	PLYMOUTH TWP	14	m						
SPECK P	3288	GRAFTON TWP	9							
SPRING P	2832	T07 R10 WELS	15	O						
SPRUCE MOUNTAIN P	0466	TB R11 WELS	20	S		O				S
SQUAW P (BIG)	0334	LITTLE SQUAW TWP	91	O		-				S
SQUAW P (LITTLE)	0336	LITTLE SQUAW TWP	25	O		-				S
ST JOHN P (SECOND)	2432	T04 R17 WELS	105							
ST JOHN P (THIRD)	2438	T04 R17 WELS	190	S						
ST JOHN P(LOWER 1ST)	2428	T04 R17 WELS	29							
ST JOHN P(UPPER 1ST)	2440	T04 R17 WELS	30							
STRATTON P	0618	RAINBOW TWP	15	S						

MANAGEMENT CLASS 6
Remote ponds[1]

LAKE NAME	LAKE#	PRINCIPAL TOWN NAME[2]	SIZE(AC)	RESOURCE RATINGS[3] E	W	SC	SH	B	C	P
SUNDAY P	3316	MAGALLOWAY PLT	30	S	S					
SWIFT RIVER P (LIT)	3572	TOWNSHIP E	15	O	-					
TILDEN P	4418	T10 SD	36	S	—					
TOBEY P #1	2674	T05 R07 BKP WKR	35	m		O	S			
TOBEY P #2	2676	T05 R07 BKP WKR	32	m		S				
TOBEY P #3	2678	T05 R07 BKP WKR	14	m		S	S			
TROUT L	1098	KOSSUTH TWP	5							
TROUT P	5082	LOWELLTOWN TWP	55	m				—		
TROUT P	3260	MASON TWP	17	m		S		O		
TROUT P	0792	BOWDOIN COL GR WEST	20	S						
TUMBLEDOWN DICK P	0548	T01 R11 WELS	24	m						
TUMBLEDOWN P	3512	TOWNSHIP 6 N OF WELD	9	—						
TURTLE P	0952	LAKE VIEW PLT	81	O		-	-			
TWIN (TROUT) PONDS	2102	T02 R09 WELS	60	O		O	S			
TWO MILE P	9765	T16 R13 WELS	12	m						
UNNAMED P	7115	COMSTOCK TWP	15	m						
UNNAMED P	9746	ATTEAN TWP	12	m						
UNNAMED P	8934	ATTEAN TWP	5							
UNNAMED P	8416	COMSTOCK TWP	20	m						
UNNAMED P	8980	T05 R07 BKP WKR	10	m						
UNNAMED P	8942	HOLEB TWP	2	—						
UNNAMED P	8868	PARLIN POND TWP	7							
UNNAMED P	7073	T06 R15 WELS	8	—					—	
WADLEIGH P (LITTLE)	2974	T08 R15 WELS	15	m	-				-	O
WELMAN P (UPPER)	2482	PRENTISS TWP	45	S	—					—
WING P	2319	SKINNER TWP	10							
WOODMAN P	0622	RAINBOW TWP	6							
WOUNDED DEER P*	2484	PRENTISS TWP	12							

[1]CRITERIA: not accessible within 1/2 mile by 2wd; no more than 1 non-commercial remote camp; cold water game fishery.
[2]Some lakes span two or more townships.
[3]Ratings: O = outstanding; S = significant; P = present; m = missing info.

*Identified and zoned as a remote pond in 1990.

STATISTICS:

		% OF TOTAL
NUMBER:	177 lakes	5.9%
ACRES:	5689 ac total (avg 32)	.8%
SHOREFRONT:	942,506 ft total (avg 5325)	2.7%

MANAGEMENT CLASS 7

Management Class 7 includes all lakes not otherwise designated herein.

Appendix D

LURC Permitting Statistics

LURC PERMIT ACTIONS 1982 - 1995														
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
BP	202	279	273	335	403	585	587	834	900	618	691	621	615	659
DP	47	53	79	75	84	88	67	109	95	110	122	98	89	102
SP	7	7	12	9	16	18	19	36	31	33	29	16	15	11
ZP	20	25	25	14	20	22	25	33	28	34	39	29	25	13
FOP	51	41	40	36	24	16	6	8	20	14	9	11	9	8
GP	20	20	20	33	27	43	42	71	50	59	34	37	34	22
ULP	108	16	34	56	78	20	20	33	27	21	18	21	19	17
RP	8	12	12	11	6	8	9	13	12	7	5	8	5	7
BCP	6	19	21	16	7	13	8	10	20	7	5	4	7	4
WL	0	0	1	0	0	2	2	3	3	6	9	2	3	6
SA	7	8	4	3	3	12	8	8	7	7	9	12	12	9
HP	0	0	2	2	4	8	3	0	2	2	4	3	3	1
LDP	-	-	-	-	-	-	-	-	-	-	3	3	6	7

NOTE: This table shows total permit actions taken by LURC (approvals and denials). Since these figures include administrative actions and amendments to permits, the number of permit actions taken does not necessarily represent the number of new projects or activities occurring in a given year.

BP -Building Permit
DP -Development Permit
SP -Subdivision Permit
ZP - Rezoning Petition
FOP - Forestry Operations Permit
GP -Great Ponds Permit
ULP - Utility Line Permit
RP - Road Permit
BCP -Bridge Construction Permit
WL -Wetlands Permit
SA -Stream Alteration Permit
HP -Hydropower Permit
LDP -Land Division Permit

NEW DWELLINGS APPROVED IN LURC JURISDICTION

1985 - 1995

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
New dwellings	248	308	397	413	517	536	305	320	293	253	321
New dwellings on lakes	102	103	139	121	198	218	118	97	96	101	136

REGULATED SUBDIVISION ACTIVITY IN LURC JURISDICTION

(Approved Projects involving new land divisions)
1982 - 1995

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. of subdivisions	2	2	8	7	9	8	13	21	14	13	16	3	4	4
Total acres affected	16	12	247	117	496	270	511	497	380	508	443	269	46	77
Total lots created	12	7	62	74	96	78	166	153	90	94	145	37	18	29
Total condos	0	0	0	36	0	28	52	12	7	30	0	0	0	0

Note: These figures do not include large-lot subdivisions which are statutorily exempt from LURC regulations or were processed under Chapter 16 of the Commission's regulations

Appendix E

Land Use Regulation Commission's Policies Concerning Deeryard Issues

Twice, the Commission has comprehensively reviewed and discussed its deer wintering area program in response to specific concerns and changes affecting the program. No other aspect of the Commission's programs has elicited such singular attention over the years, a measure of the value of the affected resources to all parties.

The first review, undertaken in 1981, resulted in a document which set forth the Commission's policies regarding a number of issues associated with the deeryard zoning program. The second review was initiated in 1988. It resulted in a policy document addressing a number of issues and several rule changes.

The findings of these two reviews have been integrated and updated and are presented below.

The Taking Issue

In 1980, the Commission's deer wintering area zoning program was constitutionally challenged in court. After examining all of the constitutional issues involved, the Maine Supreme Judicial Court upheld the concept of using zoning to protect wildlife populations and the Commission's deer wintering area zoning in particular.

Burden on Landowners

The Commission's review of the deeryard program included extensive consideration of whether restrictions on the level of activity permitted in P-FW zones create an undue burden for landowners. The Commission recognizes that the harvesting of trees within P-FW Subdistricts carries higher administrative and operating costs than comparable operations in M-GN zones, and that removal restrictions limit the short-term return from these areas. Nevertheless, it finds that deer and timber management are not mutually exclusive and that these costs are neither excessive nor unjustified. The Commission acknowledges that many deeryards do not represent ideal situations with respect to management many are even-aged, overmature, or both. But productive timber management in deeryards is possible with proper planning. Unfortunately, many landowners have not availed themselves of the various options provided by the deeryard program, such as harvesting by plan agreement, harvesting by LURC permit, or harvesting under a long-range management plan.

Not finding existing management options inflexible or overly limiting, the Commission does not consider zoning additional acreage unduly burdensome. Nonetheless, it recognizes that there are bound to be cases in which harvesting in excess of I&FW guidelines is justified based on special site conditions or other factors. It encourages landowners to utilize the permitting process to seek approval for harvesting in these cases.

The Commission recognizes the special economic hardships which, under particular circumstances, may be caused by rigid adherence to deer yard zoning criteria and cutting prescriptions, particularly for the small landowner. Accordingly, the Commission accepts that it has an important role to play in striking a reasonable balance between the needs of deer and the needs of landowners. In seeking to strike that balance in a fair way, the Commission will exercise care to prevent any landowner from being unduly burdened for the protection of thedeer resource.

The Commission will be responsive to concerns expressed about undue economic hardship and will determine, on a case by case basis, whether a particular deer yard zone is necessary and reasonable in terms of its benefits to the public as against its economic or other burdens on the landowner. Thus, in cases where an unfair or unreasonable burden on a landowner is shown, the Commission will reconsider and, where appropriate, remove all or part of the deer yard zoning.

Having considered a variety of other approaches to responding to potential economic hardship issues caused by deer yard zoning, the Commission believes this case-by-case weighing process is the only one which allows for reasonable flexibility and responsiveness where needed without creating arbitrary and rigid rules for responding to economic hardship problems. In sum, the Commission believes that making the process more flexible and less rigid, rather than the opposite, is the proper response to this concern. This response, coupled with the other policies articulated below, should provide a fair deer yard program without imposing unreasonable economic hardships on landowners.

The Budworm Problem

The budworm outbreak of the 1970's and early 1980's created a conflict between the public's desire to protect important resources such as deer yards and the landowner's legitimate interest in salvaging budworm infested timber. This conflict was particularly acute because areas which comprise the best deer shelter tend to be composed of dense, even-aged over-mature spruce and fir, the very forest components which are most susceptible to budworm. The Commission decided that it will not require the protection of deer cover which is composed of stands of dead or dying trees, even though these may be of some continuing benefit in protecting deer. In most such instances, the Commission will allow cutting of deer shelter areas. However, in cases where dead and dying trees are a relatively small component of a stand which otherwise is reasonably healthy, the Commission may decide to restrict harvesting so as to avoid destruction of the value of the residual stand as deer shelter.

Administrative Burdens in Managing Deer Yards

There have been isolated instances where landowners have complained of significant costs and delays in awaiting approvals for cutting in deer yards. In response, the Commission streamlined its administrative processes and relies upon the wildlife biologists of the Department of Inland Fisheries and Wildlife to work out an acceptable cutting agreement in the field with the landowner in a timely manner. If landowners experience administrative problems or delays with this system, the Commission or its staff should be so informed immediately so that efforts may be made promptly to expedite the process.

Deer Yard Zoning Criteria

The criteria used by LURC to identify deer yards have been the subject of much discussion but little criticism. The only significant criticism has been that, in focusing on protection of currently used deer yards, the Commission has not provided for the identification and protection of deer yard needs 10 to 20 years into the future. However, extending the program to cover "prospective" deer yards would be speculative and impractical. Moreover, experts indicate that deer tend to yard up in the same areas year after year. Accordingly, the Commission's program will remain focused on currently used and needed deer yards, while recognizing that, if circumstances change and deer alter their yarding habits over time, the Commission should remain flexible in altering deer yard zones accordingly.

In 1990, the Commission added a number of informational requirements to the criteria for applying protective zoning to proposed deeryards. The additional information is used to provide a broader context in which to consider individual rezoning proposals — to enable a determination that the new zone is necessary and thus more appropriate than the current zone.

The Commission also considered whether other issues should be addressed in the rezoning criteria. Landowners feel that the economic and management impacts of deeryard rezoning proposals should be reflected directly in the rezoning criteria. The Commission recognizes the costs associated with its regulation of deeryard zones. It also recognizes the costs associated with unregulated use of resources. In the case of deeryards, these would include the decline in deer population caused by the unrestricted harvesting of deeryards and economic losses associated with the decline in passive and active recreation revolving around deer. Rather than evaluate costs to the landowner against costs to society on a case-by-case basis as part of each rezoning application, the Commission has factored these considerations into the standards governing activities in deeryards which allow continuing timber management of deeryards.

The Commission believes this is the appropriate approach to economic considerations, excepting perhaps cases involving protection zoning which encompasses most of a small ownership, for two reasons. First, the determination of what constitutes an unacceptable economic burden is a very complex, and somewhat subjective, calculation. Second, the Commission had difficulty envisioning a case in which unre-

stricted timber management could justifiably override deer management, thus it anticipated denying a rezoning proposal on that basis only as a rare exception to the rule.

The Commission also contemplated whether to incorporate consideration of the impact of deeryard rezonings on the wood supply in the rezoning criteria. It resolved that establishment of a limit on the amount of land that can be included within the P-FW Subdistrict in LURC jurisdiction was the most appropriate means of addressing this issue. This limit and the details of its application are described later in this document.

Deeryard Cutting Prescription Criteria

The cutting prescriptions for deer yards, as provided under the guidelines of the Department of Inland Fisheries and Wildlife (IF&W), generally appear to allow for a reasonable degree of cutting on a sustained yield basis balanced with a reasonable degree of long term deer yard protection. In the past, however, there has been some confusion regarding how the cutting prescriptions are arrived at. In response to the Commission's request, IF&W has developed and made available written guidelines regarding management of deer wintering areas which are the basis for developing cutting prescriptions.

Future Study Needs

The Commission wishes to encourage studies by IF&W and others on the effects on the deer herd of various deer yard management techniques, including alternative cutting prescriptions. The Commission recognizes that such studies will necessarily take a number of years and require a long term commitment. As such studies get underway and yield results, the Commission wishes to be informed of their progress.

The Commission also encourages additional studies by IF&W to identify other wildlife values of deer yards as well as other significant wildlife and fishery habitats appropriate for P-FW zoning protection.

Deeryard Rezoning Process

In 1990, the Commission made some changes to the deeryard rezoning process. These changes were designed to promote cooperation and coordination between IF&W and the landowner, while providing equal opportunities for evaluation of the suitability of an area for deeryard zoning. Landowners are either given the opportunity to attend IF&W's ground survey of an area under consideration as a deeryard, or they are granted the right to petition the Commission for reconsideration of a deeryard rezoning if they have information suggesting that zone criteria were not met. This approach is designed to give landowners equal opportunity to evaluate the scientific basis for the proposed zone, and minimize factual disputes by promoting exploration of an area by both parties at the same time.

Scope of the Deeryard Rezoning Program

Landowner concerns with the deeryard program have focused on the rezoning of land from Management Districts to Protection Subdistricts. These concerns were precipitated in large part by the addition of considerable new acreage to the deeryard program in the latter part of the 1980's. IF&W believes that additional deeryards are needed to support the deer population in LURC jurisdiction. The discovery and documentation of new deeryards by IF&W support this contention. The Commission believes that an increase in the acreage of zoned deeryards is justified. Deer are valued highly by people in this state and their wintering habitat should be provided a reasonable level of protection. At the same time, given the uncertainties associated with a species living at the northern edge of its range and the need to reasonably consider other needs, such as the wood supply provided by these areas, the Commission is persuaded to define the scope of the deeryard protection program by establishing that zoned deeryard acreage shall not exceed 3.5% of each Deer Management District. A 3.5% cap allows for considerable, but not unlimited, expansion of the program.

The Commission recognizes that the 3.5% cap does not reflect IF&W's estimate that 5% of the landbase will be used for winter shelter by the target deer population. Nevertheless, the Commission's mandate is different from IF&W's, and directs it to provide for the multiple use of resources in its jurisdiction. The cap reflects the Commission's feeling that protection of deeryard acreage to a level of 3.5% most appropriately balances competing uses of a highly valued land resource. If the limit is reached in a particular Deer

Management District, the rezoning process will focus on replacing lower priority deeryards with higher priority deeryards.

Permanence of P-FW Zones

In 1990, the Commission established a clearer process for reviewing the status of deeryards that are believed to be no longer used by deer. It felt the standard for removal should be strict because the deeryard program is designed to be a long-term habitat protection program, but recognized that removal of land from the P-FW designation is appropriate in some cases. Therefore, the removal criteria specify that a deeryard must not have been used by deer for ten years to qualify for removal. If this criteria is met, IF&W and the landowner will be given the opportunity to present cases to the Commission regarding the appropriateness of retaining P-FW zoning, and the Commission will make the final decision. Alternatively, a deeryard zone may be removed without extensive documentation of no use if both IF&W and the landowner agree that removal of land from the P-FW designation is appropriate.

Appendix F

Plantations in the Jurisdiction

Aroostook County

Cary Plt.
Cyr Plantation
Garfield Plt.
Glenwood Plt.
Macwahoc Plt
Moro Plt.
Nashville Plt.
Oxbow Plt.
Reed Plt.
St. John Plt.
Winterville Plt.

Franklin County

Coplin Plt.
Dallas Plt.
Rangeley Plt.
Sandy River Plt.

Knox County

Matinicus Island Plt

Lincoln County

Monhegan Plt.

Oxford County

Lincoln Plt.
Magalloway Plt

Penobscot County

Carroll Plt.
Drew Plt.
Seboeis Plt.
Webster Plt.

Piscataquis County

Kingsbury Plt.
Lake View Plt.

Somerset County

Dennistown Plt.
Highland Plt.
Pleasant Ridge Plt
The Forks Plt.
West Forks Plt.

Washington County

Codyville Plt.
Grand Lake Str. Plt.

Towns in the Jurisdiction

Aroostook County

Caswell
Hamlin
Hammond

Hancock County

Osborn

Penobscot County

Lakeville
Mount Chase

Piscataquis County

Beaver Cove

Washington County

Baring

Appendix G

Fastest Growing Communities in LURC Jurisdiction, 1971-91

		Permits Issued for New Dwellings	*County*
1.	Rangeley Plt.	297	Franklin
2.	Dallas Plt.	181	Franklin
3.	Lakeville	172	Penobscot
4.	Beaver Cove	148	Piscataquis
5.	Mount Chase	119	Penobscot
6.	Albany Twp.	117	Oxford
7.	Freeman Twp.	112	Franklin
8.	Connor Twp.	106	Aroostook
9.	Trescott Twp.	97	Washington
10.	Sandy River Plantation	87	Franklin
11.	T1 R9 WELS	85	Piscataquis
12.	Salem Twp.	83	Franklin
13.	T28 MD BPP	78	Hancock
14.	Lexington Twp.	77	Somerset
15.	Rockwood Strip (T2 R1)	73	Somerset
16.	Indian Purchase #4	68	Penobscot
17.	Orneville Twp.	64	Piscataquis
18.	Cary Plt.	62	Aroostook
19.	Winterville Plt.	62	Aroostook
20.	Coplin Plt.	56	Franklin
21.	Tomhegan Twp.	56	Somerset
22.	Osborn	55	Hancock
23.	Elliotsville Twp.	55	Piscataquis
24.	Edmunds Twp	54	Washington
25.	Caswell	52	Aroostook
26.	T41 MD BPP	52	Hancock
27.	Wyman Twp.	50	Franklin
28.	Concord Twp.	48	Somerset
29.	Argyle Twp.	47	Penobscot
30.	Prentiss Twp.	47	Penobscot

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