



# Beginning with Habitat



Conserving Maine's Natural Landscape  
for Plants, Animals, and People



You can ensure that clean water, healthy wildlife habitat, local farming, sustainable forestry, and open space for recreation remain key elements of Maine's landscape.

Beginning with Habitat can help.





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Conserving Maine's Natural Landscape  
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Maine Department of Inland Fisheries and Wildlife  
Beginning with Habitat Program

2012

## About Beginning with Habitat

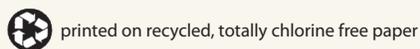
Maine's Beginning with Habitat program is an award-winning, first-in-the-nation effort to bring the best available information to local planners, municipal leaders, landowners, residential and commercial developers, and other concerned citizens. Founded in 2001, the program is an innovative and highly collaborative partnership that brings together public agencies and private conservation organizations to consolidate information on wildlife and habitat from all over the state. It also develops practical tools for communities to incorporate conservation into land use planning. It is the only statewide, smart-growth initiative in Maine that provides on-the-ground tools to local communities for landscape-scale conservation. The model has been recommended for use in all 50 states.

Beginning with Habitat partners include Maine Audubon, Maine Coast Heritage Trust, The Nature Conservancy in Maine, Maine Department of Agriculture, Conservation and Forestry, Maine Department of Inland Fisheries and Wildlife, Maine Department of Transportation, Small Woodland Owners Association of Maine, and the U.S. Fish and Wildlife Service.



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# Overview of Beginning with Habitat

Abundant and varied natural resources provide the backdrop of life in Maine. We drink clean water. We hunt, fish, boat, watch wildlife, and hike in some of the most scenic landscapes in the world. We grow and harvest commodities that are sought by people from all over. In essence, Maine's natural resources help create a cherished quality of life. They attract and support businesses and draw new residents and visitors. The secret is out, and the state's population is increasing as more people realize the values of living and working in Maine.

Mainers should not take their clean water, wildlife, or natural areas for granted. Travel just a short way south and you'll see many communities that missed opportunities to protect their natural resources and now must try to restore what was lost. Development has spread north, however, and Maine is now facing some of the same challenges that these southern neighbors experienced in the last several decades. Between 1980 and 2000, widespread urbanization and scattered rural development dramatically changed more than 1,300 square miles of the state's landscape (an area roughly the size of Rhode Island). In the 1990s, only the state of Virginia lost a greater share of its natural lands than Maine<sup>(1)</sup>. Maine still has the opportunity for proactive conservation, both at the local community level and throughout the state.

To maintain Maine's special qualities for generations to come, communities need the best available information to produce sound conservation strategies. They also must ensure continued economic vitality and the Maine way of life, which includes responsible development and preservation of local economies. Natural resource conservation and economic development are not just compatible, they are essential and interdependent. But good information and careful planning are needed to ensure that neither unnecessarily impedes the other. Maine's wildlife habitats and water resources are affected, for better or worse, by nearly every land use decision. Throughout the state, people are realizing the benefits of developing long-range conservation and growth plans for single parcels of land, neighborhoods, communities, and regions. Effective plans should have well-defined goals, strategies, and tools.

This is where Beginning with Habitat can help.

(1) The Brookings Institution Metropolitan Policy Program. 2006. Charting Maine's Future: An Action Plan for Promoting Sustainable Prosperity and Quality Places.

Facing page: Travis Barrett. This page (top to bottom): Ethan Nedeau, Ron Logan, Paul Cyr, Phillip deMaynadier

Beginning with Habitat is an innovative, nationally recognized initiative that consolidates natural resource information and provides practical tools to incorporate conservation into land use planning. Beginning with Habitat helps planners consider their community's diverse goals when deciding what to protect and where to grow. The program provides an efficient, low-cost way to plan for growth while assuring that communities remain attractive to residents and businesses well into the future. Although statewide in scope, it also helps local people meet local conservation priorities. Landowners, concerned citizens, local and regional planners, municipal leaders, and land trusts can all benefit from the information and tools that Beginning with Habitat provides.

## The Value of Beginning with Habitat

Beginning with Habitat provides the best available expertise and information on the location and quality of local waters and wetlands, plant and animal habitats, and large unfragmented landscapes, as well as critical connections between these areas. By knowing where these natural assets occur, people can make more informed choices about where to encourage development, and where land protection efforts can have the most lasting ecological benefits. At no cost, Beginning with Habitat provides the following services:

- **Maps and Data:** Up-to-date spatial information about natural resources is available through several sources: as large paper maps, on compact disks, and through an online map service. The electronic data can be viewed and analyzed with computer-based Geographic Information Systems (GIS).
- **Conservation Planning Assistance:** Through presentations, workshops, and technical support, Beginning with Habitat staff help with community planning and project implementation.
- **Tools and Strategies:** Beginning with Habitat tailors tools and strategies to match local needs, drawing from success stories and lessons learned by other conservation programs in the state.

Beginning with Habitat works directly with the individuals and entities who prompt or make the vast majority of land use decisions in Maine, including landowners, locally elected officials, municipal planners, volunteer committees, land trusts, and residential and commercial developers. These people have an influential role in the

appearance of Maine's landscape and the character of its communities. Critical natural resources and the state's cherished way of life can be preserved when conservation partners work together with consistent information and shared priorities.

With citizen support, municipalities can use these Beginning with Habitat tools to steer development away from high-value natural resources and toward areas most appropriate for growth. This is a win-win for both conservation and development, and good examples abound. In Biddeford, Beginning with Habitat worked with a developer to create a residential subdivision that avoided key habitats for rare wildlife species, and to set aside open space where it would yield the greatest ecological benefit. In Brunswick, Beginning with Habitat helped the town solicit feedback from local developers, realtors, homebuyers, and recreation interests regarding approaches to conservation and future housing needs. This led to the creation of a conservation blueprint now tied to the protection of more than 800 rural acres.

Proactive planning that is guided by up-to-date natural resource data yields myriad practical benefits, such as minimizing regulatory review time for proposed projects and increasing the efficiency of delivering municipal services. Beginning with Habitat has created an online "toolbox" with extensive information about creating and updating comprehensive plans and open space plans, as well as examples of how local Maine communities are promoting conservation and preserving their quality of place.

Land trusts throughout Maine increasingly seek Beginning with Habitat's assistance, particularly for defining high-value lands and waters for strategic protection within



Conservation planning in Cushing, Maine. Photo: BwH staff



With rolled-up sleeves and Beginning with Habitat maps, people engage in conservation planning in western Maine. Photo: BwH staff

their service areas. Beginning with Habitat data and maps can also assist with preparation of grant applications. For example, within the exceptional St. George River watershed in mid-coast Maine, Beginning with Habitat showed a local land trust how to focus on high-value wildlife habitat and lands that could provide the greatest public benefit if protected. This helped the land trust expand the quality and quantity of property it protects across the region.

Landowners interested in conserving their properties can use Beginning with Habitat to identify financial support or learn about ways to structure conservation agreements. Landowners seeking permits for development can speed the permit review process by taking advantage of Beginning with Habitat information early in a project's planning phase, when potential issues and opportunities can be identified and addressed more efficiently. Maps provided by Beginning with Habitat highlight many resources that are regulated by the state and federal government, and also include information about important non-regulated natural features that may help landowners evaluate their properties. Landowners can work with Beginning with Habitat to best design projects that minimize impacts and effectively designate open space that secures conservation values.

You add the crucial local knowledge and enthusiasm to champion local action. It takes multiple coordinated efforts to protect a network of lands, but the rewards are well worth the time and effort. The protected lands will

benefit wildlife, preserve clean water, support traditional natural-resource businesses, enhance outdoor recreation, and invest in Maine's highly valued rural character and quality of life.

## The Beginning with Habitat Approach

Like humans, wildlife species need food, water, and shelter for their day-to-day survival, and mates to maintain resilient populations for generations to come. Unlike most humans, however, Maine's resident animals need these resources to occur close by, within distances that they are able to travel daily (or seasonally). Some wildlife can persist in areas no larger than a grove of trees, or sometimes even a single tree trunk, whereas others may need more than a hundred square miles of unbroken wilderness. One of the great challenges for wildlife conservation is to maintain natural landscapes that allow *all* native animals to flourish. Despite any regional or global challenges to Maine's wildlife, such as pollution, non-native species, and climate change, experts believe that habitat conservation within the state's borders will allow more than 85 percent of our vertebrate animals to persist<sup>(2)</sup>.

Maine's Wildlife Action Plan and the Beginning with Habitat Program are founded on the same goal: to stra-

(2) William B. Krohn and Jeffrey A. Hepinstall. 2000. A Habitat-based Approach for Identifying Open-Space Conservation Needs in Southern Maine Towns. Report to the MDIFW Wildlife Division Habitat Committee.

### Maine's Wildlife Action Plan

The United States Fish and Wildlife Service required every state to create a Wildlife Action Plan; these were mandated in 2000 and completed in 2005. The primary goal of Maine's plan was to conserve a network of habitats that could collectively maintain in perpetuity the state's native biodiversity. To complete its plan, Maine reviewed the status of animal species (plants were not considered, aside from their values as habitat for wildlife) and identified priority actions and research needs. Completion of the Wildlife Action Plan made the state's conservation programs eligible for federal funding for wildlife and habitat conservation. The Beginning with Habitat program is core to Maine's Wildlife Action Plan, as it provides outreach and conservation assistance to communities.

### Climate Change

Maine scientists predict a three-foot increase in sea level by 2050, a higher amount of annual precipitation, more frequent severe floods, shorter winters, and more droughts. Beginning with Habitat can help communities plan for these and other potential impacts of climate change. For example, by using larger culverts and wider bridges, we can reduce the severity and duration of flooding and associated road repairs, maintain or enhance connections between aquatic and terrestrial habitats by improving fish and wildlife passage, and benefit both people and wildlife. By prioritizing low-lying undeveloped coastal areas for conservation, towns can avoid investing in infrastructure in flood prone areas and conserve sites where future coastal marshes and mudflats will form as sea levels rise.

teggally protect a network of land, water, and shoreline habitats to maintain healthy populations of Maine's native wildlife. To form such a network, three primary kinds of specific landscapes are needed: (1) water resources and riparian habitats, (2) high-value plant and animal habitats, and (3) undeveloped habitat blocks. These landscapes must be connected in a way that allows wildlife to move safely and uninhibited from one place to another.

#### 1. Water Resources and Riparian Habitats

Maine is blessed with a wealth of water resources, including wetlands, lakes, ponds, rivers, streams, and open ocean. These waters, and the land along their shores (riparian habitats), are essential for wildlife and for the health, safety, and recreational pursuits of residents and visitors alike. The values of healthy aquatic ecosystems and intact riparian buffers are immeasurable, and include benefits such as:

- Providing food, water, shelter, and migration corridors for wildlife
- Purifying and protecting the quality of surface water and groundwater, stabilizing shorelines, and reducing the severity of floods
- Maintaining ecologically, recreation-ally, and economically important fish and shellfish populations
- Providing opportunities for nature-based tourism

These benefits can be compromised by the effects of poorly planned development,

and this may ultimately affect human health, recreation, and the economic vitality of Maine's communities.

#### 2. High-Value Plant and Animal Habitats

Rare plant and animal species, rare and exemplary natural communities, and significant wildlife habitats are special parts of Maine's landscape and are vital to the overall health of our natural areas. Maine is home to at least 352 species of plants and 203 species of animals that are considered rare, threatened, or endangered, as well as 58 rare natural community types (places where certain groups of plants and animals exist together).

Ensuring the long-term survival of this treasured natural heritage is a significant conservation challenge. Threatened and endangered animals are afforded some limited protection under the Maine Endangered Species Act, but most upland (non-wetland) rare plants and rare



Maine is one of the last great strongholds for native brook trout in the United States. Photo: Bill Curtsinger



Moose, one of the great symbols of the wildness of Maine. Photo: Paul Cyr

and exemplary natural communities receive little formal state protection. Beginning with Habitat can help conservation partners identify where any of these important elements may occur, and also assist with conservation strategies, thereby enhancing local protection.

### 3. Undeveloped Habitat Blocks and Connections

Large, undeveloped natural areas with no roads are essential to sustaining Maine's great variety of plants and animals—and to maintaining the unique rural character of the state, its important natural resource-based economy, and our emblematic outdoor activities.

Many towns in Maine still have continuous tracts of undeveloped land larger than 2,000 acres that support working forests and agriculture, and protect water supplies. Local governments and conservation partners have the opportunity to protect these intact natural areas before they become ruined by rapid, unplanned growth. But quick action is needed. Even in rural and remote areas of Maine, a substantial increase of new and newly upgraded (widened and/or paved) roads is fragmenting formerly unbroken forests. Along these roads, poorly sized or maintained culverts sometimes isolate aquatic species

populations from one another, blocking them from moving through streams. Construction of new homes is also fragmenting wildlife habitat, both in subdivisions and on single lots with long, dead-end roads.

Natural corridors that connect habitat blocks are essential. Just like you travel between home, work, school, and the grocery store, wildlife species need to travel both long and short distances between habitats in search of food, water, and breeding sites. Deer, for example, move to special wintering areas during times of heavy snowfall. Brook trout move to cold, deep pools in the heat of mid-summer. Some salamander species breed only in vernal pools, but reside underground in upland forests the rest of the year. Even plants need to move between habitats, with the help of bees, bears, or wind to carry pollen and disperse seed to new areas.

When certain species cannot get to where they need to go, their populations eventually decline and then disappear, perhaps forever. Conversely, maintaining or enhancing habitat connections in strategic locations can help wildlife respond better to changes in climate, or to invasions of foreign species, and will help ensure a rich diversity of species across the landscape long into the future.





# Beginning with Habitat Maps & Toolbox

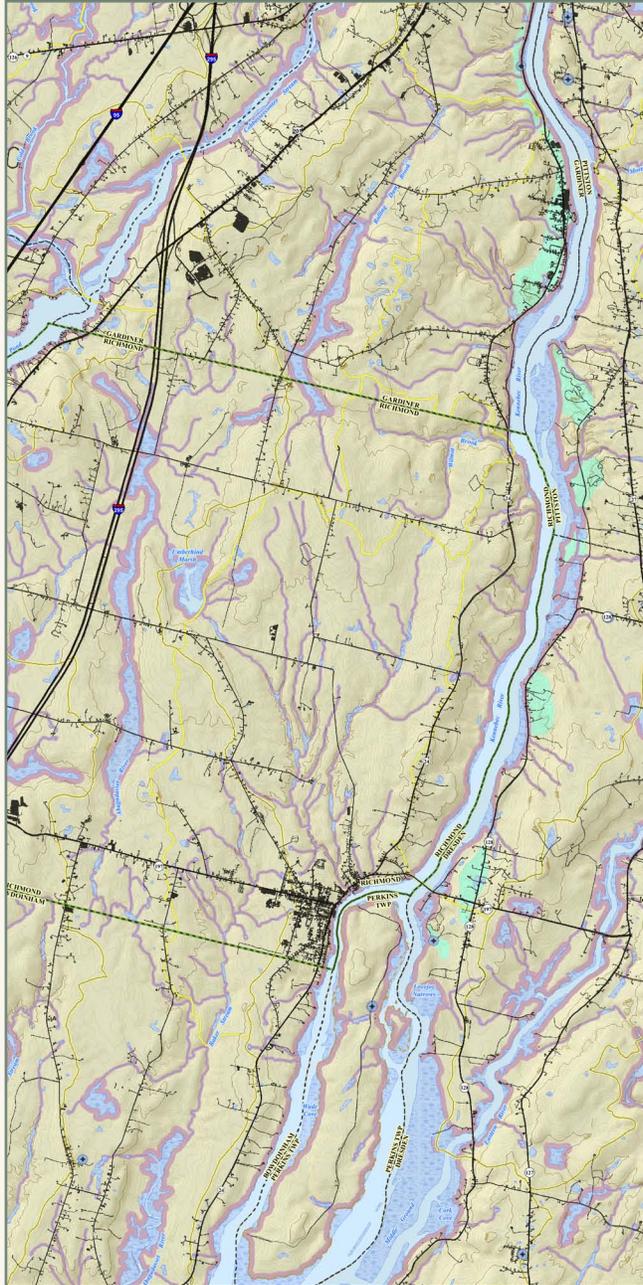
Beginning with Habitat provides each town in Maine with a collection of maps, supporting information that depicts and describes significant natural resources in a town, and tools to implement habitat conservation in local land use planning. These maps and tools help local decision-makers create a vision for their community, design a landscape, and develop a plan that provides habitat for all species and balances future development with conservation.

## Maps

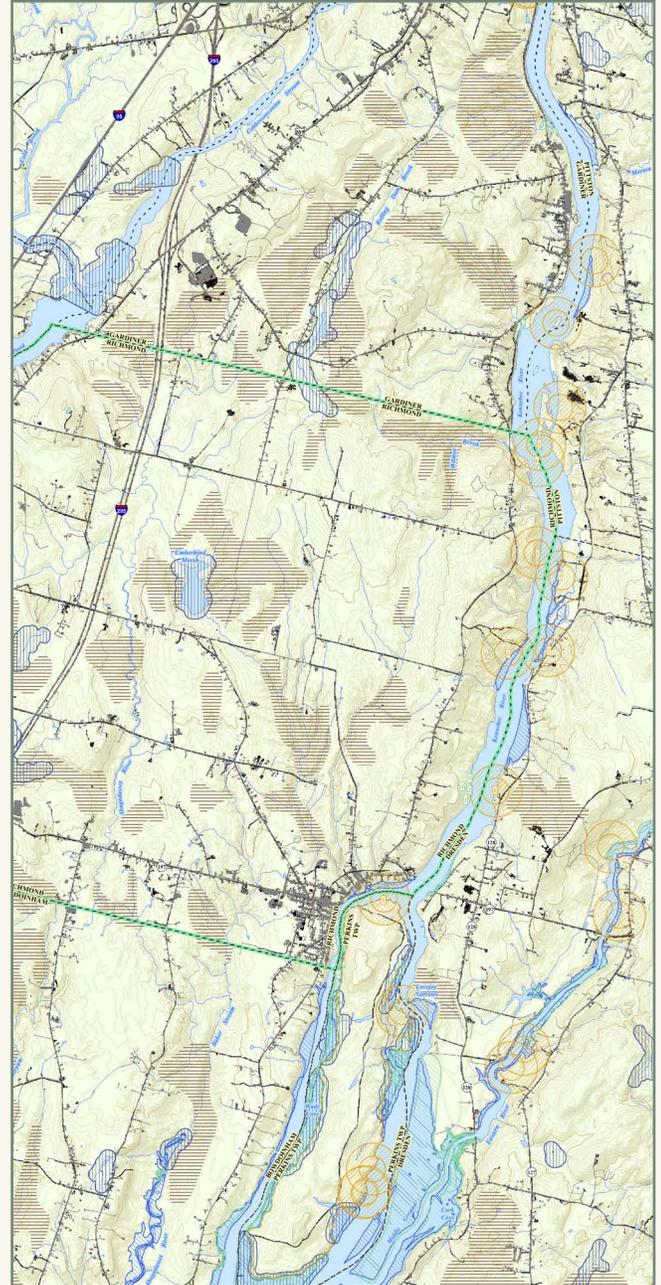
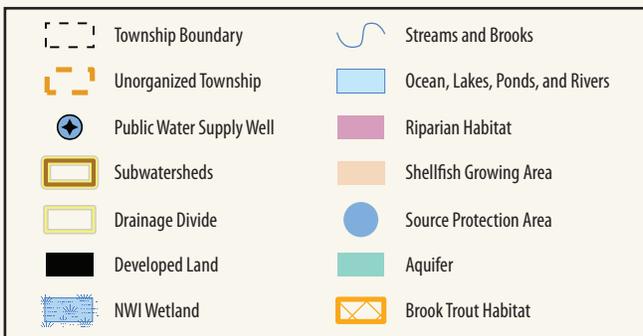
The Beginning with Habitat approach to wildlife conservation lends itself to mapping. One of the program's most important services is to provide up-to-date maps and supporting information. For each town in Maine, Beginning with Habitat offers three primary maps and three supplemental maps that collectively convey an enormous range of information that is relevant to local and regional planning. Poring over these maps with your neighbors, town officials, land planners, developers, and natural resource professionals should be one of the first steps in designing a network of wildlife habitats, designating local focus areas, and deciding where new development is most compatible with conservation.

The maps do not represent a comprehensive inventory of every town or all important habitat areas, and new data are continuously being collected and added by agencies and organizations. Although Beginning with Habitat and its partners have worked diligently to provide comprehensive natural resource maps at the state level, there is no substitute for local knowledge. Beginning with Habitat relies on citizens, who know their area best, to fill data gaps and note any errors or omissions on its maps. This not only improves the local maps, but may also add locally significant resources to statewide maps. If you currently have maps that are more than a year old, please contact us for updated versions.

Facing page: Aerial view of Damariscotta, Maine. Photo: Dave Cleaveland, [www.maineimaging.com](http://www.maineimaging.com)



Map 1. Water Resources and Riparian Habitats



Map 2. High Value Plant and Animal Habitats



### Map 1. Water Resources and Riparian Habitats

This map depicts surface water features and associated shoreline habitats, drainage areas and riparian zones, aquifers and wells that supply public drinking water, waters that continue to support native eastern brook trout, and commercially important coastal shellfish beds.

### Map 2. High Value Plant and Animal Habitats

This map includes known locations of rare species and habitats, as provided by Maine’s principal natural resource agencies. These features include rare, threatened, endangered, or declining plant and animal species, significant habitats, and rare and exemplary natural communities. Information on this map has regulatory implications under local and state land use laws.

### Map 3. Undeveloped Habitat Blocks and Connections

This map highlights large areas of undeveloped land and reveals probable habitat connections. In addition, the boundaries of protected lands are shown. This map identifies the best opportunities to conserve a broad network of intact habitats. Using the most recent aerial photo coverage available, it also shows development patterns, existing land cover, and the condition of remaining habitat. Total size is listed for any intact blocks greater than one hundred acres in size.

### Supplementary Map 7: Wetlands Characterization

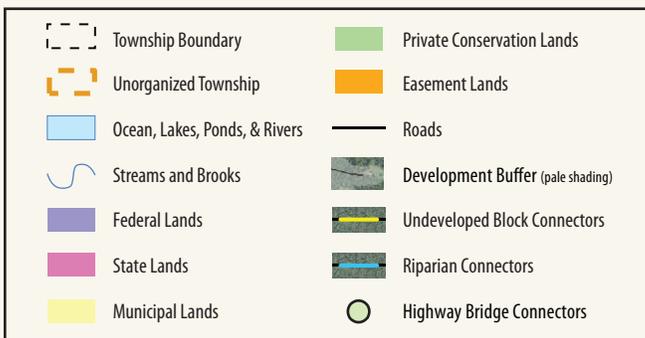
All wetlands perform valuable functions and provide important ecological “services” for wildlife and people. Wetlands shown on this map have been evaluated and prioritized based on six different ecological functions: (1) runoff/flood-flow alteration, (2) erosion control/sediment retention, (3) finfish habitat, (4) shellfish habitat, (5) plant and animal habitat, and (6) cultural/educational uses. Each wetland on this map is coded by the specific ecological function that it provides. This information can help identify wetlands in need of conservation or greater local protection.

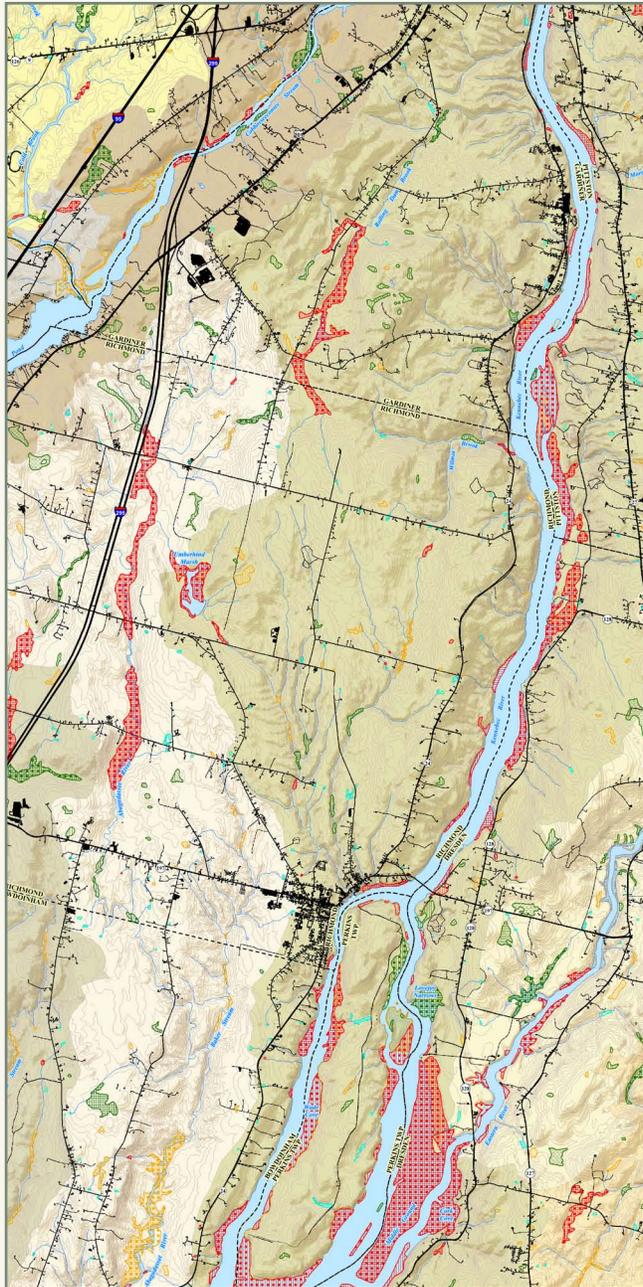
### Supplementary Co-occurrence Map:

This map represents the concentration of selected environmental asset data layers overlaid on the landscape. Its purpose is to highlight a given area’s relative conservation values as an aid in planning. It offers a generalized and subjective view and should be considered as a starting point for discussion. The layers on this map include buffer zones around water features, important natural communities, listed plant and animal species, and

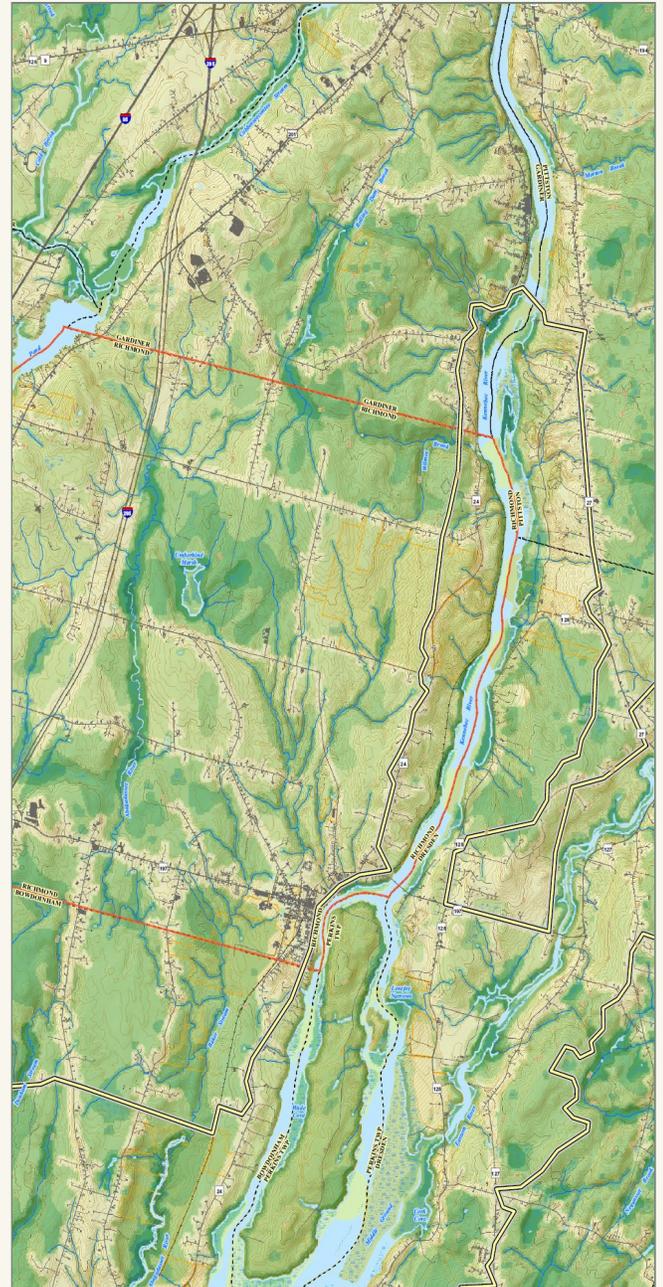


Map 3. Undeveloped Habitat Blocks and Connections

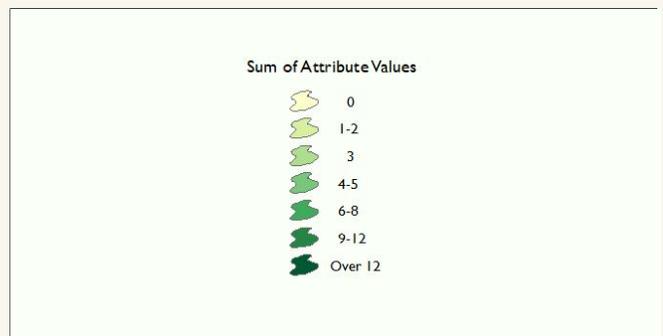
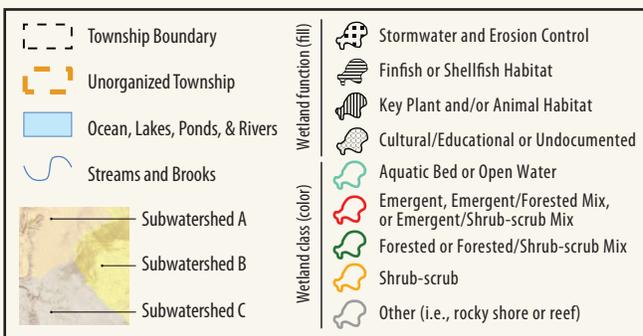


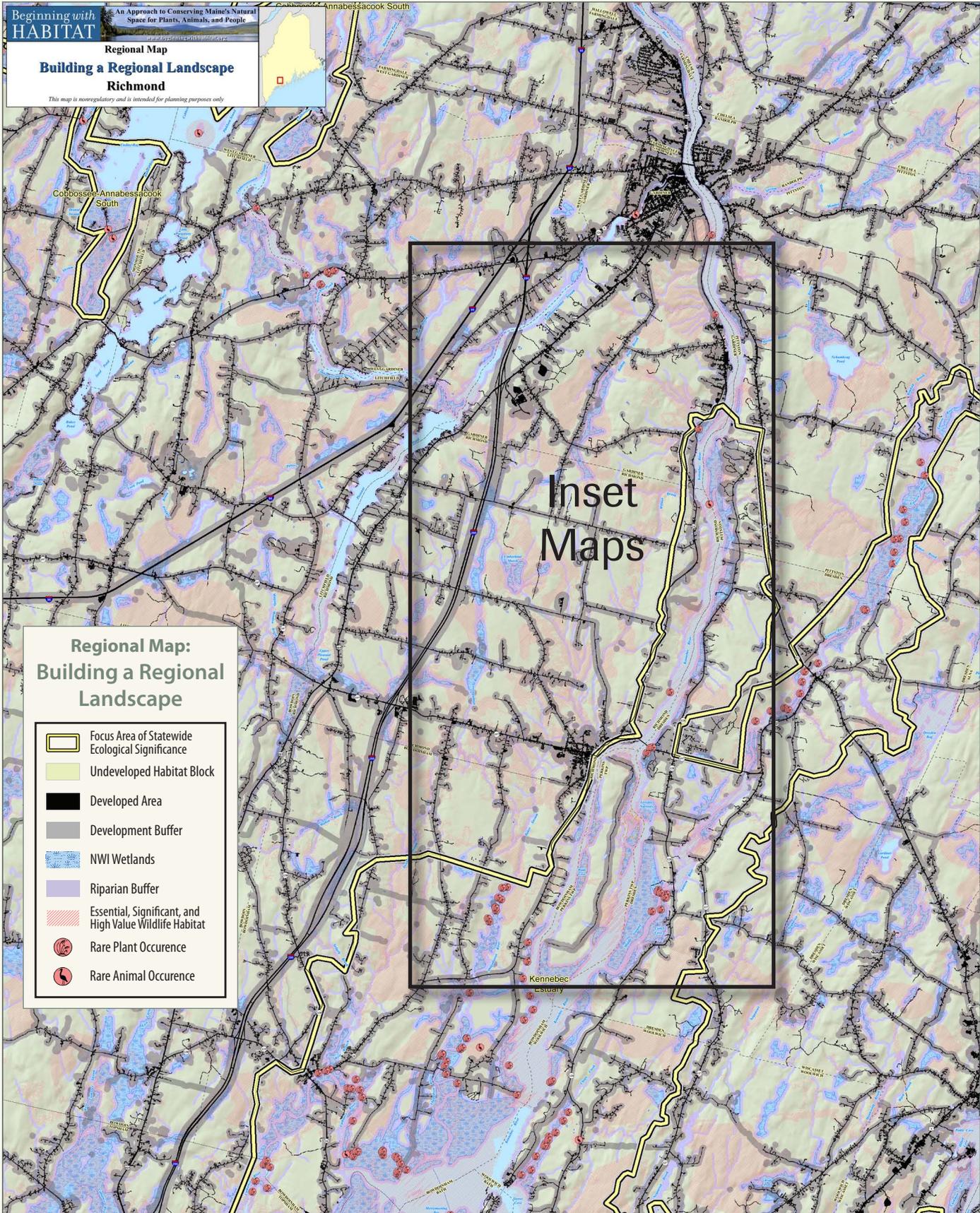


Map 7. Wetlands Characterization



Co-occurrence Map





areas of undeveloped land. Some of these layers were weighted based on rarity, size or other qualitative features.

### Regional Map: Building a Regional Landscape

Our waters, wildlife, and natural areas do not conform to town boundaries and are often shared between communities and among neighboring landowners. Municipalities, land trusts, and regional initiatives can all work together to conserve these important natural features. This map shows your town as well as the surrounding towns. It summarizes information from most of the preceding maps at the regional scale and also includes Focus Areas of Statewide Ecological Significance to illustrate the larger picture of regional conservation priorities, protection opportunities, and shared resources.

### Local Property Map Overlay

If your town has digital tax maps (GIS parcel data), Beginning with Habitat can create a transparent mylar map layer of your community's property boundaries, specifically scaled to match hardcopies of each of the other Beginning with Habitat maps. You can overlay this parcel sheet on the Beginning with Habitat maps to quickly identify property data and to facilitate both landowner contact and outreach efforts.



Caribou Bog, a Focus Area of Statewide Ecological Significance  
Photo: Maine Natural Areas Program

## Toolbox

The Beginning with Habitat toolbox contains detailed information on using Beginning with Habitat in conservation and growth planning, and it also contains numerous helpful approaches for addressing conservation issues that commonly arise in Maine towns. Among these tools are a detailed guide to using Beginning with Habitat information in comprehensive planning, text from approved town comprehensive plans, examples of actual provisions from local ordinances, helpful local lessons learned, tips for creating successful open space plans, and a range of strategies and actions on conservation topics such as invasive species and wildlife-friendly road planning. There are also examples of methods for financing habitat protection efforts, such as impact fees, local land bonds, current use tax programs, and grant sources. Finally, to help evaluate the approaches that will best fit local needs, the toolbox lists advantages and disadvantages of each of the tools.

### Comprehensive Planning

Comprehensive plans establish a vision for what community members want their towns to look like in the near and distant future. By identifying growth areas and rural areas, they set the stage for how growth will affect large natural habitat blocks and the connections between them. Towns typically update comprehensive plans every ten years. Beginning with Habitat maps and data are invaluable tools for helping town planners address topics required in a comprehensive plan, including:

- **Future land use:** Identifying future growth areas is the first step in developing a successful conservation blueprint. Up-to-date information on land use, land cover, and important natural resources is essential.
- **Transportation:** Road layout, maintenance, stream-crossing structures, and traffic all influence habitat quality, habitat connections and wildlife movement, and must be planned for accordingly.
- **Recreation:** Access to and protection of hunting, angling, and wildlife viewing areas are critical to our local economies. Long-term protection of key public open spaces requires strategic public investment.
- **Marine resources:** Land use practices near coastal habitats can result in significant impacts to coastal wildlife and local resource economies.
- **Water resources:** Effective efforts to protect water quality starts with an understanding of how wetlands and streams interconnect with aquifers and lakes.
- **Critical natural resources:** Towns are in the best position to protect irreplaceable natural communi-

### Conservation Focus Areas

At the state level, biologists from the Maine Natural Areas Program, the Department of Inland Fisheries and Wildlife, and other Beginning with Habitat partners have identified more than 140 Focus Areas of Statewide Ecological Significance that support unusually rich concentrations of rare and high-value species and natural communities that intersect with large blocks of undeveloped habitat. The state has adopted these focus areas as conservation priorities in Maine's Wildlife Action Plan as an approach to strategically investing limited conservation dollars.

You can use Beginning with Habitat's data and technical assistance to help designate local focus areas based on the statewide approach. Our staff can assist your board or committee in identifying local priorities and building a GIS approach to focus local efforts where residents feel they are most warranted.

ties and habitats for rare, threatened, and endangered species through local land use ordinances, landowner incentives, and proactive land conservation.

- **Important natural resources:** Consideration of undeveloped habitat blocks and connections is the most important step toward long-term conservation of landscape-scale features and ecological functions.
- **Agriculture and Forestry:** Protecting unfragmented natural areas, and encouraging growth in appropriate areas will ensure the necessary rural acreage for these traditional resource industries.
- **Regional coordination:** Conserving landscape-scale resources such as focus areas, shared waterbodies, watersheds, and large forests often requires cooperation between towns and with local land trusts.

### Open Space Planning

Open space plans identify important natural, recreational, and cultural resources within a community or region, and may include priorities for conservation and options or recommendations for the best ways to protect these resources. When the resources are mapped together, it becomes easier to decide where to focus limited time and dollars. Beginning with Habitat can help you collect, map, and prioritize local focus areas, identify the most important sites to protect, and to develop specific strategies—such as management recommendations, changes to ordinances, property-tax relief, easements, or acquisitions—to help you meet your open space goals.

Beginning with Habitat also helps municipalities to identify potential resource restoration opportunities, in-

cluding areas where habitat connections can be restored, such as along blocked streams, in altered wetlands, and at breaks between forestlands. Once key opportunities for habitat protection or restoration are identified, Beginning with Habitat can assist your open space planning committee, or an individual landowner, identify funding sources to help realize the local conservation vision.

### Local Land Use Ordinances

Once a comprehensive plan is approved, the town is encouraged to adopt strategies to implement it. Land use ordinances are the primary tool available to municipalities for encouraging growth in appropriate areas (and discouraging it in valuable natural areas). Many towns, including large ones with professional planning staff and small ones reliant on volunteer committees, have developed creative approaches to land use regulation that still allow for new development while reducing habitat fragmentation and protecting significant habitat features. The most successful ordinance tools are crafted with citizen participation, and that strive to conserve natural features valued by the community. Creative land use regulations include:

- Allowances for landowners to create smaller-than-required lots outside of subdivision review, with density balance conserved elsewhere.
- Road acceptance policies that promote shorter lengths and crossing structures that protect connectivity.
- Transfer-of-development fee programs that allow developers to purchase additional development "credits" in growth areas by funding protection of rural land elsewhere.
- Impact fee programs for subdivisions, calculated on a per-home basis, that reflect increased costs associated with meeting public open space expectations.
- Wetland compensation programs that allow developers to offset the functional loss of wetlands impacted by their projects with contributions to the conservation of other local wetlands.
- Natural resource overlay districts that require performance standards for development projects within priority resource areas (e.g., water supplies, large forests, or critical habitats) in exchange for flexible design.
- Conservation subdivisions that provide development with bonus lots in exchange for meaningful habitat protection.

### Conservation Planning for Land Trusts

More than 100 small and large land trusts in Maine achieve lasting conservation by protecting open space of all kinds,



Visitors in a field of Northern Blazing Star in the Kennebunk Plains. Photo: Margaret Pizer, Maine Chapter of The Nature Conservancy

including farms, forests, wetlands, and scenic and recreational areas. Beginning with Habitat works with land trusts to help them most effectively utilize resource data in designating local focus areas and identifying priority projects in their service areas. On request, the program is able to produce GIS mapping models that highlight local natural areas with the greatest ecological value. Beginning with Habitat also routinely assists land trusts to identify funding resources and document significant features on project lands. By aligning local land trusts efforts with statewide conservation priorities, Maine is able to attract out-of-state funding and more effectively implement our shared conservation vision.

### Conservation Planning for Landowners

Private landowners are the primary stewards of Maine's plant and animal habitat resources. Beginning with Habitat can connect interested landowners with biologists and ecologists from the broad Beginning with Habitat partnership who are best able to address specific landowner questions or concerns. Knowing where to get help is the first step in better stewarding private lands to maintain habitat values.

Landowners interested in developing their properties can work with Beginning with Habitat to design proj-

ects in ways that minimize unavoidable habitat impacts and effectively designate open space that secures conservation values while still achieving development goals. Tree growth and open space tax programs are available to landowners facing financial pressures from increasing tax burdens. Beginning with Habitat can help landowners identify key property features that may increase eligibility for and benefits from these current use tax programs. Additionally, Beginning with Habitat can assist in identifying private, state, and federal funds available for land conservation and management.

**Visit the Beginning with Habitat toolbox** at [www.beginningwithhabitat.org](http://www.beginningwithhabitat.org) to read more about how Maine communities are using these conservation tools. We encourage local planners to share their ideas for new tools, and to request assistance in identifying tools that will work best for their communities. Please contact our office at (207) 287-5254.

# Beginning with Habitat Case Studies

The following case studies show Beginning with Habitat in action, delivering customized information and expertise that helped four very different projects achieve significant outcomes. Let Beginning with Habitat help you put together the conservation approach that's right for your community!

## Smart Growth and Wildlife Protection in Biddeford

When Dave Ayers, owner of South Coast Development, Inc., attended a Beginning with Habitat presentation given to the Biddeford Planning Board, he was developing designs for a residential housing-lot subdivision on a parcel that extended into one of Maine's state-designated Focus Areas of Statewide Ecological Significance. The presentation prompted Ayers to seek help from Beginning with Habitat staff and regional biologists from the Maine Department of Inland Fisheries and Wildlife. He wanted guidance about reducing impacts that his project might have due to its location. He ultimately designed Terrapin Green, a conservation subdivision that avoided numerous key habitat areas, such as significant vernal pools, and designated significant open space in the heart of the Focus Area.

The Beginning with Habitat presentation also inspired Dave's wife Peggy to learn more about the significance of vernal pools and the Biddeford Focus Area. The wildlife and conservation information she discovered through Beginning with Habitat motivated her, in collaboration with abutting landowners, to establish a new 501(C)3 land trust called the Blanding's Park and Wildlife Sanctuary. The trust today conserves acreage protecting vernal pools and a local population of Blanding's turtles, which are endangered in Maine.

"It was always our belief that conservation and development should work together in cooperation to achieve mutual goals," Peggy says. In just four years, the Ayers' combined efforts contributed to the protection of over 160 acres and the dedication of a recreational trail through the sanctuary that provides public access to a rich and varied natural area in the heart of Biddeford.



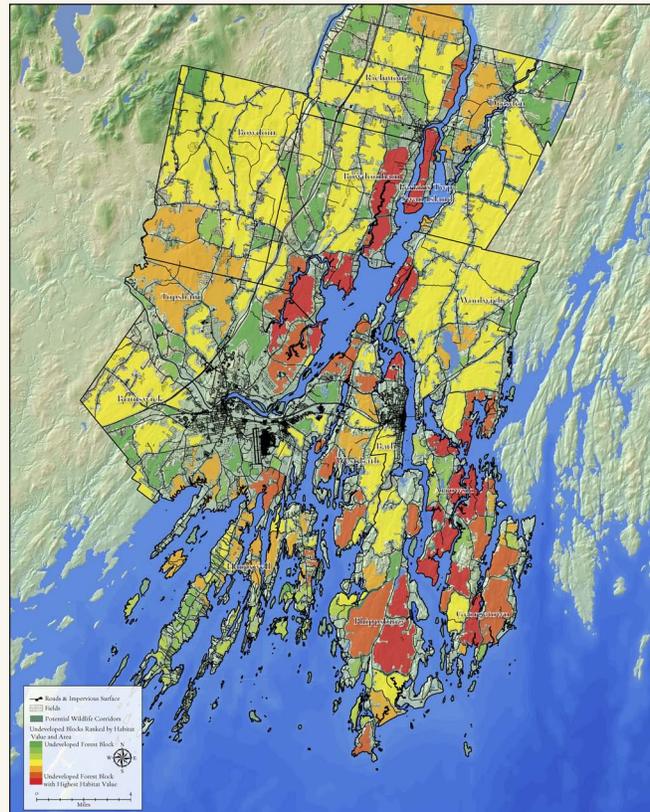
Terrapin Green

## Blanding's Park and Wildlife Sanctuary

## Conservation Blueprint for the Sagadahoc Region

Creating a conservation blueprint aimed at protecting the character and prosperity of the Sagadahoc region took collaboration among 12 Maine towns: Arrowsic, Bath, Bowdoin, Bowdoinham, Brunswick, Georgetown, Harpswell, Phippsburg, Richmond, Topsham, West Bath, and Woolwich. Beginning with Habitat and the Mid-Coast Council of Governments helped spearhead the work of a steering committee of town representatives including conservation commission and planning board members, elected officials, and town staff. Becoming highly engaged in an in-depth process, committee members and representatives from state agencies translated Beginning with Habitat data and local comprehensive and open space plans into a regional vision with specific action items that each town could implement.

Released in 2010, the blueprint outlines conservation priorities and contains an inventory of high-value resources, including an assessment of regional habitat fragmentation and identification of habitat corridors. The collaborative planning process also produced a series of detailed resource maps, with sets made available for each town. Additionally, the blueprint became a starting point for consideration of a regional climate change adaptation plan as well as a resource to inform additional local conservation actions.



Undeveloped blocks ranked by habitat value and area in the Sagadahoc region of coastal Maine.

## Comprehensive Planning in Brunswick

Brunswick's planning department and conservation commission faced a challenge many planners in Maine will recognize: implementing, under ever-growing development pressure, the conservation vision of the town's comprehensive plan, which was to create a protected network of habitat blocks. Working with Beginning with Habitat gave the town tools and strategies to define priorities, make practical steps forward, and bring local stakeholders into the process.

Brunswick had committed to a "growth zone" where it encouraged appropriate growth. To define priority areas for conservation outside of this zone, the town consulted with biologists and used snow-tracking surveys to help locate high-use wildlife areas. Ultimately, they identified a dozen large, forested, undeveloped, and connected habitat blocks extending from one side of town to the other. Next, the town held a series of focus group meetings with developers, realtors, homebuyers, and recreation interests to identify mutually acceptable approaches that could lead to protecting the conservation focus areas. The meetings brought forth many suggestions and two major results.

First, Brunswick revised its long-standing open space subdivision approach, to better guide the designation of open space and increase flexibility for developers. The town developed two overlay zones: one drawn around habitat blocks, and one around connecting corridors. Rather than dictate development design, the overlay zones set limits on the acreage of mapped habitat that can be developed before developers have to set aside compensatory habitat acreage.

Second, a local conservation blueprint evolved from the process, clearly identifying conservation priorities and also helping to direct rural growth to the most appropriate areas. Importantly, it expressed the shared vision of a variety of local stakeholders and conservation partners in a policy called the Rural Brunswick Smart Growth

Plan. In effect for six years as of 2012, the plan has already resulted in the conservation of more than 300 acres through the local subdivision process. It has also bolstered several local land acquisition grant applications, enabling the town and local land trust to protect an additional 500 acres.

## Conserving the St. George River Watershed

For 17 years, the Georges River Land Trust operated without a conservation plan and conserved an average of 50 acres per year. Working with Beginning with Habitat changed that: the Trust now conserves 200 acres annually, and 70 percent of that is high-value habitat.

When the Trust began working with Beginning with Habitat, it wanted to create a strategic plan that would focus its efforts on conserving the highest-priority natural resources, for great and lasting public benefits, of the 225 square-mile St. George River watershed. This is a unique area of mountains, seacoast, lakes, tidal streams and inlets extending from Montville to Muscongus Bay. The Trust had opportunities to protect a variety of important features, including high-value plant and wildlife habitats, natural communities and wetlands, major tributaries, linkages between significant habitat areas, large undeveloped blocks, working landscapes, and areas of traditional public access.

What would be the best plan? Beginning with Habitat offered the tools needed to find out, including the most comprehensive statewide natural resource information and a landscape-scale approach to analyzing natural resource values. This enabled the Trust to decide what was most important to consider in the watershed. Once priority sites were identified, the Trust then hired a consulting biologist to conduct field research in specific areas.

Ultimately, the Trust designated nine focus areas where it now concentrates land conservation efforts. For each area, it also developed maps and narratives that describe and illustrate its value and importance to the region—information that has proved helpful in promoting the Trust's efforts with funders and other conservation partners. The Trust leveraged the data and expertise that Beginning with Habitat provided to vastly increase both the quality and quantity of the lands it protects. It is now better fulfilling its mission "to conserve and steward the natural resources and traditional character" of the St. George River region for future generations.



Weskeag Marsh, a conservation focus area identified by the Georges River Land Trust. Photo: Janet McMahon

