

Report to the 127th Legislature's
Agriculture, Conservation and Forestry Committee
on
Outcome Based Forestry
Submitted pursuant to 12 M.R.S. §8869, sub-§3-B

Prepared by Douglas Denico
Director, Maine Forest Service
and the
Outcome Based Forestry Technical Review Panel

Mike Dann

Gary Donovan

Maxwell McCormack, Jr.

Dave Struble

Peter Triandafillou

Robert Wagner

27 February 2015

Table of Contents

Introduction	1
Progress to date	1
Examples of public benefits of OBF	2
Examples of forest landowner benefits from OBF	2
BPL report to panel on 2014 activities	3
Panel evaluation of BPL performance	4
Irving Woodlands report to panel on 2014 activities	9
Panel evaluation of Irving Woodlands performance	9
Concluding remarks	15
Appendixes	
A. Key statutory provisions of OBF	16
B. Biographies of OBF panel members	19
C. Inspection matrix	20
D. Pictures illustrating consequences of FPA	21
E. Pictures illustrating benefits of OBF	22
F. Irving presentation to ACF Committee	23

Introduction

The practice of forestry is a science. Laws that regulate forestry activities do not necessarily promote the use of science-based forest management. The 120th Legislature adopted Outcome Based Forestry (OBF) to address the aspects of the Forest Practices Act (FPA) that prevented or frustrated the wise use of scientific forestry in the best interest of the people of Maine and private and public landowners (see appendices). Additionally, while the FPA was intended to curtail the creation of large, rolling clearcuts and assure their regeneration, OBF not only addresses these issues but many more issues of public concern. The only law directly impacted by OBF is the FPA.

The OBF statute was adopted by the 120th Legislature in 2001 in response to the forest policy debates of the 1990's. The OBF statute had a sunset provision until 2012 when the 126th Legislature removed the provision. Until the sunset clause was removed, interest in OBF had not resulted in an agreement being adopted in spite of repeated attempts by interested landowners to reach an accord, due to uncertainty over the law's future. In 2012, shortly after the sunset clause was removed, two landowners signed an agreement with the state (through the signature of the Director of the Bureau of Forestry, aka Maine Forest Service (MFS), see appendices).

The Governor has appointed a technical review panel (panel) as required by law. The panel works with the MFS Director to implement, monitor and assess OBF agreements. In order to participate in an OBF project, the landowner, director and panel must develop agreed-upon desired outcomes, and develop a method for determining if the outcomes have been attained and a system for reporting results to the public. The panel assesses whether the practices applied on areas subject to an OBF agreement provides at least the equivalent forest and environmental protection as provided by rules and regulations otherwise applicable to that area.

The statute clearly states that a participating landowner must manage their holdings in a way that provide a defined suite of public benefits in return for departing from certain requirements of the FPA.

This report documents progress to date on OBF regarding agreements with Irving Woodlands and the Maine Bureau of Parks and Lands.

Progress to date

Two agreements have been signed; one with the Bureau of Parks and Lands (BPL) and the other with Irving Woodlands. The Irving agreement is of a landscape proportion covering their entire Maine ownership of 1.25 million acres, while the BPL Agreement covers several different individual, specific projects on approximately 3,000 acres.¹

The objectives agreed upon between the forest landowners, panel and Bureau Director are part of the agreements and found as an appendix to each agreement.

The panel has conducted several site visits on BPL and Irving lands and reviewed landowner operations plans prior to their implementation. Field visits were very intensive for the first year; several harvest sites on Irving land were visited multiple

¹ The three tracts involved in the project cover approximately 60,000 acres.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

times. The panel now attempts to make two annual visits to each landowner, once in early winter to review the previous year's operations and planned operations for the coming year, and once in late summer to review year-to-date progress. Since 2013, panel field inspections of Irving lands have been augmented with systematic reviews of harvest operations, often pre-harvest, during harvest, and post-harvest, by Foresters of MFS's Forest Policy and Management Division (see Appendix C).

The Legislature's Agriculture, Conservation and Forestry Committee provides oversight of the panel's work on behalf of the public. The committee visited Irving Woodlands' operations in September 2014. MFS and the panel look forward to future visits to active OBF projects by the committee.

Examples of public benefits of OBF

- Assurances that the goals and outcomes of soil and water quality protection and biodiversity are being met;
- Pre-harvest planning to address aesthetic impacts of timber harvesting;
- Investment of \$37 million in construction of an 80 million board foot spruce/fir sawmill in Nashville Plantation (Irving) that employs 60 people and provides a market for smaller diameter balsam fir in northern Maine;²
- Increased wage payments to contractors and woods operators;
- Access to the scientific rationale for each harvest in an OBF agreement;
- Knowledge of harvest levels by species/products;
- Tracking of types of harvests, including clearcuts, for trends;
- Better implementation of cutting edge silvicultural practices, e.g., beech control, managing density of white pine stands for quality growth; and,
- Reduction of inspections by Forest Rangers.

Examples of forest landowner benefits from OBF

- Application of optimal silvicultural practices to the land base (see appendixes);
- Reduced administrative time devoted to adhering to FPA numerical limits, e.g. 450 trees/acre of regeneration, 250' separation zones, etc.;
- Construction of an 80 million board foot spruce/fir sawmill in Nashville Plantation (Irving) that will improve utilization of smaller diameter balsam fir;
- Reduced costs of trucking, road building and maintenance by applying scientific management to harvest areas; and,
- Increased investment in tree planting and thinning of young spruce/fir stands.

² Such markets are important for managing balsam fir-dominated stands in anticipation of the impending spruce budworm outbreak.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

BPL report to panel on 2014 activities

Northern Region

Round Pond Unit (T13R12) - No management beyond a visual check was done in 2014 on the four clearcuts (seed-tree harvests) totaling 90 acres that were harvested in 2012. 22 acres of thinning/release were conducted in the young aspen-over-spruce/fir stands.

2015 and beyond: The 2012 clearcuts will have the first formal measurements of the regeneration done in 2016 or, more likely, 2017. If suitable markets and harvest technology are available, implementation of the thinning will be done on a larger scale in upcoming years.

Eastern Region

Tunk-Donnell Unit (on T10 SD) -The second remeasurement of permanent plots within the subject stand was done in autumn, 2014, and growth continues to be rapid. Three of the crop trees on the plots have been lost from wind/snow, though mainly among the smaller residuals.

2015 and beyond: The permanent plots will be remeasured annually through 2017 (harvest year plus five), then at five-year intervals thereafter. Success of blueberries and any desirable regeneration will be monitored, with progress reported in the annual OBF reports. The Bureau is considering ground-applied herbicide to control hardwoods, particularly aspen. No additional harvests within the OBF area are anticipated during the 5-year agreement period.

Western Region

The contractor using a fellerbuncher-processor-forwarder combination has continued harvesting these stands, and in 2014 had treated 445 acres. Harvest volume totaled 11,568 cords, with 88% spruce sawlogs, 2% pine sawlogs, 8% softwood pulpwood (nearly all spruce and fir) and 2% hardwood pulpwood. At the end of 2014, approximately 60% of the total low-density pine project area has been treated. The low thinning portion of the project, in spruce-fir-pine abutting and within a zoned deeryard, has not yet begun.

2015 and beyond: The current timber sale will continue, though fewer acres may be treated in 2015 than in the previous year. The permanent plots are due for remeasurement, probably in 2015 (remeasures have occurred at either 2- or 3-year intervals), with the progress of regeneration evaluated at these times. It is anticipated that the low-density pine management portion of the OBF project area - perhaps 1,700 acres - will have been treated during the 5-year agreement period. The extent of the low thinning treatments will depend on appropriate markets being available for small diameter material.

Certification

We have not yet received the final report for the November 2014 SFI surveillance audit, which took place November 4-7. This was a dual surveillance audit, both SFI and FSC. Our 2015 surveillance audit may be scheduled sometime earlier in autumn, as the early November snowstorm downeast prevented the auditors from visiting some lots they had hoped to see.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Brief Summary of 2014 Audits: For both FSC and SFI, all pre-existing Corrective Action Requests were closed. The Bureau received two new minor CARs each from SFI and FSC. A well-placed but incorrectly used skidder crossing of a stream resulted in a minor nonconformance/CAR from each program (SFI: Performance measure 3.1; FSC: Indicator 6.5.b). Skidding was dragging mud onto the crossing, with some inevitably silting the stream. The crew should have known to stop working there in soft conditions, but inadequate instructions (perhaps by both contractor and BPL) may have also contributed. The skidding was halted and site stabilized the day after its discovery. The second SFI minor nonconformance, PM 16.1.3, arose because some BPL field staff did not fully understand the SFI Standard. This will be addressed at a BPL training meeting in spring 2015, when the 2015-2019 Standards for both programs will be covered. The second FSC nonconformance, Indicator 6.3.h, was given because the Bureau has no overriding policy document concerning invasive species. Though the staff biologist has done considerable control work on invasives, the lack of a policy document is a shortcoming that will be addressed during 2015.

Silvicultural Advisory Committee

BPL's annual Silvicultural Advisory Committee field trip is usually held in August, on a Tuesday/Wednesday or Wednesday/Thursday, and will probably feature the Eastern Region, perhaps in Washington County, which has not been visited on these trips since 2006. When we solicit committee member availability for dates in August 2015, which should be sent out in late April or very early May, MFS will be copied.

Panel evaluation of BPL performance

Introduction:

This section summarizes the comments of the panel of technical experts appointed by the Governor to review and advise the MFS and BPL on the OBF agreement executed between the two parties in May 2012. The comments pertain to the annual report required by the agreement, and which was provided to MFS in February 2015.

Desired outcomes of Outcome Based Forestry:

1. Compliance with the state's forest sustainability goals and outcomes for soil productivity; water quality; wetlands and riparian zones; timber supply and quality; aesthetic impacts of timber harvesting; biological diversity; public accountability; economic and social considerations; and, forest health.

Findings: BPL has attained compliance with the state's forest sustainability goals.

BPL's report to MFS and the panel, its certification audit reports, and supplemental information provided by BPL support this finding. The panel's review of BPL's continued certification to the standards of two recognized certification systems - Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) - support a finding that BPL has achieved compliance with the state's sustainability goals and outcomes. Certification is a continuous process that involves regular surveillance audits and periodic recertification audits; therefore, any departures from the standards will be discovered and rectified in a timely manner. BPL uses the SFI standard for benchmarking compliance with the state's sustainability standards.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

2. Enhance deer wintering areas by accelerating the progression of young softwoods into winter cover status, increasing the availability of hardwood browse in close proximity to winter cover, and providing additional edge habitat.

Findings: It is too soon to evaluate this element. Only a small area of thinning has been done in the young mixed wood stands. This area is now dominated by softwoods but needs to close canopy in order to serve as winter cover. This may take ten years or so, but that would still be sooner and surer than without thinning. With only a couple of growing seasons since the seed-tree harvests, browse has not yet become available. The opening of Irving's Nashville Plantation sawmill provides a new market for smaller diameter fir. BPL indicated that [it] has been harvesting over the past two years in deeryards, zoned and unzoned in several management units. Generally the harvests have removed the overstory fir and reduced the hardwood component while retaining cover value where feasible. BPL also is also setting priorities for possible protection of important deer wintering areas if/when the spruce budworm arrives. The panel encourages BPL to continue this effort.

3. Ensure successful establishment of forest regeneration of high value species, especially yellow birch, sugar maple, and white pine, and increase growth rates and/or timber quality on site specific areas, using a variety of forest management techniques that may include but are not limited to varying intensity of timber harvest, vegetation management, matching species to site, tree improvement techniques, pre-commercial and commercial thinning, etc.

Findings: In 2014, BPL reported that on the Tunk-Donnell Unit, "Ten circular fixed-area plots of 0.1 acre were established in 2012 and a total of 81 trees measured for DBH, total height, and height to live crown in November of that year. The first remeasurement was done in October, 2013. None of the crop trees on the plots had been lost, and the diameter increase averaged 3.75%, which translates to 0.28" diameter increment and 1.9 square feet of basal area per acre increase." In 2015, BPL reported, "The second remeasurement of permanent plots within the subject stand was done in autumn, 2014, and growth continues to be rapid. Three of the crop trees on the plots have been lost from wind/snow, though mainly among the smaller residuals." BPL further reports that the 2014 remeasure showed 0.38" average increment. Basal area increment was actually 2.2 square feet in 2013 and 3.1 square feet in 2014. Further, this growth is occurring on trees intended to be grown as high quality sawlogs. This indicates good response to the harvest and progress toward achieving desired outcomes.

4. Conduct harvests with consideration for visual aesthetics.

Findings: BPL pays close attention to aesthetic concerns as regards all of its harvesting. For example, the panel reviewed the SFI audit, which found that BPL considered visual impacts when harvesting near Eagle Lake and had no issues.

Participant commitments: The participant agrees to and commits to the following as good faith demonstrations of its commitment to practice forestry in a manner that provides at least the equivalent forest and environmental protection as provided by existing rules and any applicable local regulations:

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

1. BPL shall maintain its current Forest Stewardship Council and/or Sustainable Forestry Initiative certifications (FSC: BV-FM/COC-017429; SFI: BV-SFISUS004629-1).
 - A. BPL shall act promptly to satisfactorily address any Corrective Action Request or Nonconformance associated with its FSC and/or SFI certifications.
 - B. A member of the panel or a mutually agreeable designee shall be permitted to participate in the forest management certification audit field visits, and to provide input to the third party lead auditor on behalf of the panel.
 - C. BPL shall invite one member of the panel or a mutually agreeable designee to attend meetings of and provide input to BPL's Silvicultural Advisory Committee.

Findings: BPL has maintained its certification to the SFI standard. BPL received two minor nonconformances in its most recent certification audit; however, one nonconformance was corrected immediately; the other will be corrected this spring. Neither nonconformance materially affects BPL's operations or participation in OBF. Due to schedule conflicts, no panel members were available to observe the 2014 certification audit. The MFS bureau director attended the 2014 meeting of the Silvicultural Advisory Committee. Panel members believe that they had ample opportunity to review certification audit reports, records, discuss practices and policies, and to observe field operations. Their expectations and needs for explanations and answers to questions were satisfied.

2. BPL shall document and periodically provide results of its efforts to improve measurably the quantity and/or quality of its timber resource on those areas included in this application. In addition to documentation of compliance with applicable certification standards, BPL shall periodically provide evidence of attainment of the desired outcomes described in the agreement through the use of metrics outlined below"
 1. Estimates of harvest acreage for the entire projects summarized for the coming five year period by silvicultural prescription; overstory removal, commercial thinning, shelterwood, clearcut, etc.
 2. More specific annual harvesting plan which shows the planned acreage for harvest for the upcoming year (mapped and numerical count) by prescription, and with clearcuts exceeding 60 acres individually identified.
 3. Annual harvest summary, provided within 60 days of year end, showing the areas harvested over the previous year by prescription (actual versus plan). Information will be made available for sites visited by the panel. BPL will continue to provide information on acres harvested by harvest type, by township as required on the "Confidential Report of Timber Harvest." BPL will report on how its management activities are influencing white pine growth and the progression of thinned softwood (fir-dominated) stands into conforming deer winter cover.
 4. Regeneration targets and success for natural stands. Where available, information will be provided by site at the time the panel conducts field verifications.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

North Region

1. Semi-commercial thinning: BPL should visit harvest areas semi-annually to track their progression to secondary and/or primary deer cover, with evidence of deer use also recorded. BPL should establish permanent growth plots along with some controls in areas not thinned. These latter could be in areas where proximity to the Allagash Wilderness Waterway make extensive harvests less practical.
2. Early successional habitat: At the same time the semi-commercial harvests are monitored, BPL should visit these hardwood/alder patch cuts to check on resprouting. BPL also should conduct spring visits to check for potential woodcock use.
3. Hardwood seed-tree harvests: BPL should conduct an initial visit at harvest plus two years to evaluate the clearcuts for regeneration species and stocking. However, the success of yellow birch and sugar maple regeneration will not be fully apparent before year five or later, as trees grow up through the inevitable *Rubus*. Results from elsewhere give confidence that desirable regeneration will be present in sufficient numbers to produce a high value stand dominated with yellow birch and sugar maple, with some healthier appearing beech also retained to ensure mast production.

West Region

1. BPL will remeasure the 18 existing growth plots at intervals of two or three years. BPL may need to establish additional plots, both in the low-density pine management acres and in the first-entry low thinnings. In the latter these should mostly be within the DWA, assuming that the residual stand there is similar to that outside the zoned P-FW. In the low-density area, existing plots should be augmented as necessary to have at least five each in the high pine and medium pine areas.
2. BPL should monitor deer use within the Mosquito Brook deeryard on a continuing basis, though it need not be done too frequently (perhaps biannually) until that use becomes significant. Once that occurs, monitoring should include comparisons of treated and untreated acres within and proximate to the P-FW.

East Region

1. Summer/Fall 2015- Monitor growth and survival of crop trees (start a five year rotation of monitoring).

Findings: It is too soon to evaluate this element in its entirety; however, BPL reports that on the Tunk-Donnell Unit, “Ten circular fixed-area plots of 0.1 acre were established in 2012 and a total of 81 trees measured for DBH, total height, and height to live crown in November of that year. The first remeasurement was done in October, 2013. None of the crop trees on the plots had been lost and the diameter increase averaged 3.75%, which translates to approximately 0.28” diameter increment and 1.9 square feet of basal area increase.” This indicates good progress toward achieving desired outcomes.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

3. BPL shall report to MFS its harvest management and silvicultural metrics for the selected areas included in this application including, but not limited to:
 - A. Estimates of harvest acreage for the entire projects summarized for the coming five year period by silvicultural prescription; overstory removal, commercial thinning, shelterwood, clearcut, etc. This was provided - back pages of agreement.
 - B. More specific annual harvesting plan which shows the planned acreage for harvest for the upcoming year (mapped and numerical count) by prescription, and with clearcuts exceeding 60 acres individually identified. This was provided.
 - C. Annual harvest summary, provided within 60 days of year end, showing the areas harvested over the previous year by prescription (actual versus plan.) Information will be made available for sites visited by the panel. BPL will continue to provide information on acres harvested by harvest type, by township as required on the "Confidential Report of Timber Harvest." BPL will report on how its management activities are influencing white pine growth and the progression of thinned softwood (fir-dominated) stands into conforming deer winter cover. This was provided.
 - D. Regeneration targets and success for natural stands. Where available, information will be provided by site at the time the panel conducts field verifications. This was provided.

Findings: BPL provided all of the information requested above.

4. A Maine Licensed Forester within the Bureau shall review and approve BPL's Forest Management Plan.

Findings: BPL's regional managers - all Licensed Foresters - reviewed and approved BPL's Forest management and harvest plans.

5. Harvests will be laid out with consideration of visual aesthetics in areas of moderate and higher visual sensitivity. BPL's forest management staff will be proficient in managing for visual aesthetics.

Findings: BPL pays close attention to aesthetic concerns as regards all of its harvesting. This was noted in the audit report.

6. BPL will accommodate other reasonable requests for information made by MFS and the panel as mutually agreed upon.

Findings: BPL willingly provides any additional information requested by the panel.

Irving Woodlands report to panel on 2014 activities

Irving Woodlands provided a report to the panel in February 2015. Irving requested that the report be designated by the Director of the Maine Forest Service as confidential. The Director determined that this report contains proprietary information (information that is a trade secret or production, commercial or financial information the disclosure of which would impair the competitive position of the person submitting the information and would make available information not otherwise publicly available) and therefore is designated as confidential under the authority granted by 12 M.R.S., §8869, sub- §13.

Certain information which is not deemed confidential because it has been provided in public forums is mentioned in the following section. Irving's presentation to the Legislature's Agriculture, Conservation and Forestry Committee during the committee's September 2014 field visit is attached as an appendix to this report.

Panel evaluation of Irving Woodlands performance³

Introduction:

This section summarizes the comments of the panel of technical experts appointed by the Governor to review and advise the MFS and Irving Woodlands on the OBF agreement executed between the two parties in May 2012. The comments pertain to the annual report required by the agreement, and which was provided to MFS in February 2015.

Desired outcomes of Outcome Based Forestry:

1. Compliance with the state's forest sustainability goals and outcomes for soil productivity; water quality; wetlands and riparian zones; timber supply and quality; aesthetic impacts of timber harvesting; biological diversity; public accountability; economic and social considerations; and, forest health.

Findings: Riparian areas have important wildlife habitat functions in addition to protecting water quality. Irving biologists have developed a BMP manual to insure that these important habitats are consistently managed throughout their ownership. Upgraded training of staff and contractors took place during 2014.

Irving's riparian zone management exceeds Maine's regulatory requirements and is done with the goal of managing structure, which is beneficial for many kinds of habitat. The company's consistent attention to water quality, wetlands, and riparian zones is commendable. Benefits were especially notable relative to soils evaluations and site productivity.

Licensed foresters of the Maine Forest Service who are monitoring Irving's implementation of the agreement report that all harvests visited pre-harvest, during harvest, and post-harvest comply with the agreement. Forest Rangers continue to inspect Irving harvests for compliance with state water quality and Land Use Planning Commission standards and find 100% compliance.

³ Mr. Dann recused himself from endorsing the review of Irving's report due to his work as a certification auditor on Irving land.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Irving is taking a more strategic approach to riparian buffer management by pairing the proper equipment with specially trained crews. Such specialized management of riparian buffers will improve forest health and productivity for the long term and, in limited instances, may reduce the extent of unmanaged riparian buffers as compared to practices under FPA that tended to locate separation zones in riparian zones.

It is important to note that clearcut separation zones required by the FPA rule (pre-outcome based forestry) were temporary features that could be held on the landscape for as little as ten years and did not preclude eventual harvesting. Under OBF, Irving can take a more strategic approach to creating blocks of mature and late successional forest that will result in more, better protected areas of these forests.

Efficiency gains in harvesting operations and road improvements resulting from OBF-based opportunities are readily documented.

Irving has a sophisticated GIS process that foresters use to identify rare resource sites that exist on their ownership. This information includes data from Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, Irving staff and others. Foresters have been trained to identify rare features and any new findings are added to the database. Standard operating procedures are applied to protect these rare features as well as to provide habitat elements (snags, large woody material, etc.) across the ownership. Irving management policy also specifies that ten percent of acreages in five major cover types will be managed in a late successional condition at all times. Foresters are actively working to achieve this goal and they are being audited for compliance to this commitment. In 2014, Irving foresters were able to demonstrate that they had fully met the commitment to spatially identify the appropriate late successional forest stand types.

As for the vertebrate species indigenous to the ownership, the panel received information from Irving's 2013 forest management plan which shows the development stage distribution by cover type in each town that Irving manages. The panel used this information to assess size class and forest type distribution on Irving's land and to compare results with the model developed by the USDA Forest Service. Irving has reported updated information to the panel. Irving incorporates consideration of multiple habitat elements into its harvest planning and execution, including but not limited to: large woody material, vernal pools, den trees, threatened and endangered species, rare plant communities, and late successional forests. Irving also incorporates the latest research into its management strategies where appropriate, e.g. for Canada lynx.

Of equal concern to providing mature and late successional forest stands, is providing an adequate amount of dense young forest habitats. The majority of forest wildlife species have a primary or secondary dependence on regenerating or young age classes among all forest types for survival. There is a varied distribution of forest size classes and types throughout the ownership to support native forest wildlife species.

The panel plans to continue monitoring Irving's riparian management to assess riparian function and habitat connectivity.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

2. Improve timber quality and quantity through active forest management while reducing the forest's susceptibility to disease, insect infestations and damage caused by fire, wind and climate change.

Findings: As a result of its OBF agreement, Irving has gained substantial timber harvest benefits in terms of reduced harvest costs, layout efficiencies and access to wood that was temporarily tied up in clearcut separation zones under the Forest Practices Act rules. Irving's management activities, including cleaning up senescent timber, and removing timber prone to windthrow, lead to improved growth rates in younger stands, reduced mortality losses, and better position the forest to endure the next spruce budworm epidemic. Management activities in higher risk separation and riparian zones are progressing. At the same time, Irving is specifically identifying other areas that provide valuable mature forest habitat that could be retained. Irving believes that there will be areas of better protected, late successional forest over time as it takes a more strategic approach to implementation of the forest management plan as opposed to the temporary nature of such forests when they are retained in clearcut separation zones. The panel also finds that there has been no substantive increase in clearcutting on Irving land.

Irving has invested \$37 million in a state of the art sawmill in Nashville Plantation which opened in September 2014. Irving's willingness to invest such a substantial sum also serves as a positive indicator of improving timber supply and quality.

3. Increase reforestation success, growth rates, and/or timber quality on site specific areas and on a landscape basis, using a variety of forest management techniques that may include but are not limited to the establishment of planted areas, vegetation management, matching species to site, tree improvement techniques, fertilization, and pre-commercial and commercial thinning.

Finding: Irving has made significant investments in more intensive silviculture over the past two years. Annual acres planted have increased substantially since 2010, as have acres pre-commercially thinned. The acreage treated for competition control is about where it was in 2010. Total investments in intensive silviculture have increased significantly, and are projected to increase even more in coming years. Irving continues to address the problem of undesirable beech site occupation in a positive way.

4. Irving's continued certification to the standards of both the Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) and the panel's review of the auditors' reports provide evidence to support a finding that Irving has achieved compliance with the state's sustainability goals and outcomes and satisfied the conditions of this section. Certification is a continuous process that involves regular surveillance audits and periodic recertification audits; therefore, any departures from the standards will be discovered and rectified in a timely manner. Irving uses the FSC standard for benchmarking compliance with the state's sustainability standards.

Overall findings: Irving personnel consistently exhibited knowledge and practical know-how that illustrated and verified that executing the established standards of OBF enabled a higher level of ecologically sound forestry with a more enhanced level of productivity and improved cost effectiveness than would have occurred by strict adherence to Maine's Forest Practices Act rules. The panel finds that Irving

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Woodlands LLC has maintained its certification to the FSC standard and has made good progress in attaining the other desired outcomes.

Irving commitments: Irving agrees to and commits to the following as good faith demonstrations of its commitment to practice forestry in a manner that provides at least the equivalent forest and environmental protection as provided by existing rules and any applicable local regulations:

- A. Irving shall maintain certification status with a nationally recognized sustainable forest management certification system.
 - 1. Irving shall act promptly to satisfactorily address any Corrective Action Request or Nonconformance associated with its certification.
 - 2. A member of the panel or a mutually agreeable designee shall be permitted to participate in the forest management certification audit field visits, and to provide input to the third party lead auditor on behalf of the panel.
 - 3. Irving shall invite one member of the panel or a mutually agreeable designee to attend meetings and provide input to Irving's Forest Research Advisory Committee.

Overall findings: Irving has maintained its certification to the FSC standard and has acted promptly to address any Corrective Action Requests and Observations. Panel members have participated in the FSC audit. A panel member also participated at Irving's Forest Research Advisory Committee meeting. Panel members believe that they had ample opportunity to review certification audit reports, records, discuss practices and policies, and to observe field operations. Their expectations and needs for explanations and answers to questions were satisfied. Field operations provided effective illustrative support.

- B. Irving shall document results of its efforts to improve measurably the quantity and/or quality of its timber resource. In addition to documentation of compliance with applicable certification standards, Irving shall provide evidence of attainment of the desired outcomes described in Section 7 of its OBF agreement through the use of metrics outlined in Section C, below.

Findings: Irving has documented, and the panel has reviewed, its efforts to improve measurably the quantity and/or quality of its timber resource (see Section C, below).

- C. Irving shall annually report to MFS information about its harvest management and silvicultural metrics including, but not limited to:
 - 1. Acres of high risk separation zones harvested during the past year.
 - 2. Trends in silvicultural investments, including, but not limited to precommercial thinning and competition control, organized by Forest Operations Notification number or where commercial harvesting has not taken place in a township, by individual township.
 - 3. Estimates of harvest acreage summarized for the coming five-year period by silvicultural prescription, including overstory removal, commercial thinning, shelterwood, and clearcut.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

4. A more specific annual harvesting plan which describes the planned acreage for harvest for the upcoming year in each township by prescription, with clearcuts exceeding 250 acres individually mapped and identified.
5. Annual harvest summary for the previous year, provided within 60 days of year end, a summary of the area harvested over the previous year by prescription (actual versus planned) and total volumes. Information will be made available for sites visited by the panel. Irving will continue to provide information on acres harvested by harvest type, by township as required on the "Confidential Report of Timber Harvest."
6. Annual regeneration report for clearcuts. Acres planted by species and site class, organized by Forest Operations Notification number or where commercial harvesting has not occurred in a township, by individual township. Where available, information will be provided for sites where the panel conducts field verifications.
7. Road density (miles per acre of ownership by township).

Findings: Irving provided the requested documentation on silvicultural metrics. Irving continues to be a leader in silvicultural investments such as planting, competition control, and precommercial thinning.

Harvest planning and implementation and silvicultural prescriptions are within the norm for a large ownership. Irving also has demonstrated an ability to respond quickly to large-scale natural disturbances, adjusting its harvest plans accordingly. For example, about 900 acres were subjected to significant wind events in 2013. These events caused a great deal of blowdown and breakage of standing mature timber, primarily in areas that had not experienced harvesting for several decades. In 2014, Irving completed salvage harvesting on all accessible areas.

Irving has documented its road densities as required, and its efforts in this regard are commendable. Well-designed transportation systems (year around and winter only roads) are important to Irving. The panel found that roads were built for safe, efficient access to markets that meet or exceed MFS Best Management Practices for protecting Maine's water quality. Road density by township is an indicator of potential water quality problems sites (potential stream crossings) and reduction of forest habitat. With two exceptions, townships have a road density of less than two percent of the township area, and many have less than one percent. A plurality of townships have a road density between 1.0 and 1.5%. However, higher road densities can be a reflection of more intensive management of particular, higher productivity sites, so a primary focus on reducing road densities can be misleading.

8. Harvest opening size distribution (acres by opening size class for each harvest prescription by township).

Finding: Irving provided the requested information. Average harvest opening sizes range between 18 and 48 acres for the various silvicultural methods (selection, shelterwood, overstory removal, and clearcut).

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

9. Development stage distribution (acres by development stage within each broad cover type class by township). Development stages to be reported are: regeneration, sapling, young, immature, mature, and overmature.

Finding: Irving provided the required documentation. The percentages of Irving's ownership in different size classes conform well to the recommendations contained in the "Technical Guide to Forest Wildlife Habitat Management in New England."⁴

- D. Irving shall prepare and submit a report of the average clearcut size and total clearcut areas on an annual basis.

Finding: Irving provided the required documentation. Average clearcut size was 35 acres, with about two-thirds of clearcuts less than 25 acres.

- E. A Maine Licensed Forester within the company shall review and approve the landowner's Forest Management Plan.

Finding: Irving has certified that a Maine Licensed Forester has reviewed and approved its Forest Management Plan.

- F. Harvests will be laid out with consideration of visual aesthetics in areas of moderate and higher visual sensitivity. Irving's forest management staff will be proficient in managing for visual aesthetics and receive periodic training.

Findings: Irving has addressed aesthetic concerns, particularly in situations involving larger clearcuts, scenic areas such as the Allagash Wilderness Waterway, certain areas along public ways and sensitive viewsapes. Some Irving staff have received formal training; other field staff are coached on the principles. Irving is discussing refresher training and possible revisions to its policies and procedures during 2015. The panel and the certification auditor concur on Irving's attention to aesthetic issues.

- G. Irving will accommodate other reasonable requests for information made by MFS and the panel as mutually agreed upon.

Finding: Irving has willingly provided any additional information requested by the panel. Irving reports that at the time of implementation of the OBF agreement, it had approximately 53,000 acres tied up in unexpired separation zones. Since the beginning of the agreement, Irving has harvested approximately 14% of that total, or about 7,300 acres.

Concluding remarks

Other forest landowners have shown interest in becoming involved in the OBF policy. Those discussions may bear fruit in 2015. To accommodate the possibility of increased interest in OBF, and recognizing the significant commitment that panel members make, the MFS Director has made recommendations for additional panel members and systematic reviews of harvest operations: pre-harvest, during harvest, and post-harvest, by Foresters of MFS's Forest Policy and Management Division.

⁴ DeGraaf, R., M. Yamasaki, W. Leak, A. Lester. 2006. Technical Guide to Forest Wildlife Habitat Management in New England. University Press of New England: Hanover and London. 306 p.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Other states have shown interest in Maine's OBF policy, as it offers a path for to them to follow if scientific forestry is preferred over restrictive and costly legislation. However, Maine remains the only state in the nation to offer outcome based forestry as a regulatory option.

Appendix A. Key statutory provisions of Outcome Based Forestry

12 M.R.S., §8003, sub-3(Q)

Q. The director, in cooperation with public and private landowners, shall actively pursue creating areas on public and private land where the principles and applicability of outcome-based forest policy, as defined in section 8868, subsection 2-B, can be applied and tested. No more than 6 such areas may be designated. The director shall seek to designate areas of various sizes owned by different landowners. The designated areas must represent differing forest types and conditions and different geographic regions of the State. Prior to entering into an outcome-based forestry agreement, the director and the panel of technical experts under section 8869, subsection 3-A shall conduct a comprehensive review of the proposed outcome-based forestry agreement. The term of initial agreements may not exceed 5 years. The director may renew an agreement if requirements under this section and section 8869, subsection 3-A are met. The term of a subsequent agreement may not exceed 5 years.

12 M.R.S., §8868, sub-§2-B.

2-B. Outcome-based forest policy. "Outcome-based forest policy" means a science-based, voluntary process to achieve agreed-upon economic, environmental and social outcomes in the State's forests, as an alternative to prescriptive regulation, demonstrating measurable progress towards achieving statewide sustainability goals and allowing landowners to use creativity and flexibility to achieve objectives, while providing for the conservation of public trust resources and the public values of forests.

12 M.R.S. §8869, sub-§3-A.

3-A. Plans for outcome-based forestry areas. Practices applied on an area created pursuant to section 8003, subsection 3, paragraph Q must provide at least the equivalent forest and environmental protection as provided by existing rules and any applicable local regulations. At a minimum, tests of outcome-based forestry principles must address:

- A. Soil productivity;
- B. Water quality, wetlands and riparian zones;
- C. Timber supply and quality;
- D. Aesthetic impacts of timber harvesting;
- E. Biological diversity;
- F. Public accountability;
- G. Economic considerations;
- H. Social considerations; and
- I. Forest health.

The Governor shall appoint a panel of at least 6 technical experts to work with the director to implement, monitor and assess tests of outcome-based forestry principles. The panel of technical experts must have expertise in all of the principles listed in paragraphs A to I. In order to participate in an outcome-based forestry project, the landowner, director and technical panel must develop agreed-upon desired outcomes for the outcome-based forestry area and develop a method for determining if the outcomes have been attained and a system for reporting results to the public. The technical panel shall assess whether the practices applied on the outcome-based forestry area provide at least the equivalent forest and environmental protection as provided by rules and regulations otherwise applicable to that outcome-based forestry area. The technical panel may not delegate this assessment to any other person, except that the technical

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

panel may consider information provided by the bureau, the landowner or a 3rd-party forest certification program auditor.

12 M.R.S. §8869, sub-§3-B.

3-B. Reporting and notification; outcome-based forestry projects. The director, in consultation with the technical panel under subsection 3-A, shall report to the joint standing committee of the Legislature having jurisdiction over forestry matters as follows.

A. Beginning March 1, 2015 and annually thereafter, the director shall submit a report detailing the progress on each outcome-based forestry agreement under section 8003, subsection 3, paragraph Q. The report must include an assessment of the landowner's progress toward attaining the outcomes under subsection 3-A. The report must be presented to the joint standing committee of the Legislature having jurisdiction over forestry matters at a public meeting no sooner than 30 days after submission of the report to the committee.

B. When an initial outcome-based forestry agreement is approved by the director as provided by section 8003, subsection 3, paragraph Q, the director shall notify the joint standing committee of the Legislature having jurisdiction over forestry matters within 15 days. In the notification, the director shall address how the proposed agreement will provide at least the equivalent forest and environmental protection as provided by rules and regulations that otherwise would apply to that outcome-based forestry area.

C. When an outcome-based forestry agreement under this section is renewed as provided by section 8003, subsection 3, paragraph Q, the director shall notify the joint standing committee of the Legislature having jurisdiction over forestry matters no later than 15 days after the agreement is renewed.

A report, notification or any information concerning outcome-based forestry projects under this subsection must be placed on the Department of Agriculture, Conservation and Forestry's publicly accessible website.

12 M.R.S. §8869, sub-§7-A.

7-A. Exemption for outcome-based forestry areas. An outcome-based forestry area designated under section 8003, subsection 3, paragraph Q is exempt from the requirements of this section if specifically exempted in the agreement establishing the outcome-based forestry area.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

12 M.R.S. §8869, sub-§13.

13. Confidential information. Information provided to the bureau voluntarily or to fulfill reporting requirements for the purposes of establishing and monitoring outcome-based forestry areas, as created pursuant to section 8003, subsection 3, paragraph Q, is public unless the person to whom the information belongs or pertains requests that it be designated as confidential and the bureau has determined it contains proprietary information. For the purposes of this subsection, "proprietary information" means information that is a trade secret or production, commercial or financial information the disclosure of which would impair the competitive position of the person submitting the information and would make available information not otherwise publicly available. The bureau, working with the landowner and the panel of technical experts appointed under subsection 3-A, may publish reports as long as those reports do not reveal confidential information.

12 M.R.S. §8879, sub-§1.

1. Content. The report must describe the condition of the State's forests based on historical information and information collected and analyzed by the bureau for the 5-year period. The report must provide an assessment at the state level of progress in achieving the standards developed pursuant to section 8876-A, including an assessment of designated outcome-based forestry projects authorized under section 8003, subsection 3, paragraph Q, including a recommendation to continue, change or discontinue the outcome-based forestry projects. The director shall also provide observations on differences in achieving standards by landowner class. The report must summarize importing and exporting of forest products for foreign and interstate activities. The director shall obtain public input during the preparation of the report through appropriate methods.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Biographies of OBF panel members

Mike Dann is a retired forester from Dixmont, Maine. He earned a BS in Forest Management from the University of Maine Orono and is a Licensed Forester. He has 40 years' experience in natural resource management; 36 years with Seven Islands Land Company and 4 years with SWOAM. He is a member of SWOAM, Maine Forest Products Council, Forest Resources Association, and the Society of American Foresters. He also is a Tree Farmer. He is an FSC forest management and chain of custody auditor.

Gary Donovan is a retired wildlife biologist from Holden. He earned a BS in Wildlife Management from the University of Maine and is a Certified Wildlife Biologist since 1980. He is a member of the Wildlife Society, Washington D.C. Since his retirement in 2006, he has served as the Habitat Management Coordinator for the Wildlife Management Institute in Washington and since 2010 has been Maine's Habitat Management Coordinator for the Northern and Appalachian Mountain Young Forest Initiatives. He worked for the Maine Department of Inland Fisheries and Wildlife from 1969 to his retirement in 1995, and then spent the next ten years working for Champion International Corp in Bucksport and later International Paper when Champion was sold. He has won numerous professional awards and served on many special assignments and appointments.

Maxwell McCormack, Jr. is a retired professor of silviculture from the Maine School of Forestry and a Research Professor Emeritus of Forest Resources at the University of Maine. He currently is a consultant from his home in Unity. He is a member of many professional organizations including the Society of American Foresters, the Weed Society of America, the Northeastern Weed Science Society, Maine Forest Products Council, Maine Christmas Tree Association, The Nature Conservancy, SAM and many more. He received numerous honors throughout his distinguished career. Dr. McCormack is a graduate of the University of Maine with a BS in Forestry, earned both an MF and DF in Silviculture from Duke University. He is a licensed Maine forester.

Dave Struble is the Director of the Maine Forest Service's Forest Health & Monitoring Division, and State Entomologist. His 40+ year career with the Maine Forest Service has focused on monitoring and evaluating forest health and sustainability, and developing pest management options for Maine's forest and shade tree owners. He serves on a number of regional and national task forces and US Forest Service program oversight/management committees. Mr. Struble is a graduate of the University of Maine with a BS in Forestry and an MS in Entomology. He is a licensed Maine forester.

Peter Triandafillou is from Orono and is the current Vice President of Woodlands for Huber Resources Corp. He is a member of the Maine Forest Products Council Board of Directors, North Maine Woods Board of Directors, and the Society of American Foresters. He is currently a licensed Maine Forester and participated on numerous public boards including outcome based forestry, LURC reform, sustainable forestry, Maine wood supply and state-wide water quality rules. He formerly served on the Maine Development Foundation Board of Directors and the Maine Technology Institute Board of Directors.

Robert Wagner is the Director of the University of Maine's School of Forest Resources and Center for Research on Sustainable Forests. He holds the Henry W. Saunders Distinguished Professor in Forestry. His 30-year research career has focused on forest resource issues in New England, Canadian boreal forest, and Pacific Northwest. He has authored well over 100 publications in the fields of silviculture, forest ecology, and vegetation management. Dr. Wagner has a Ph.D. in silviculture from Oregon State University, a M.S. in forest ecology from the University of Washington, and a B.S. in forest management from Utah State University.

Appendix D. Pictures illustrating consequences of FPA



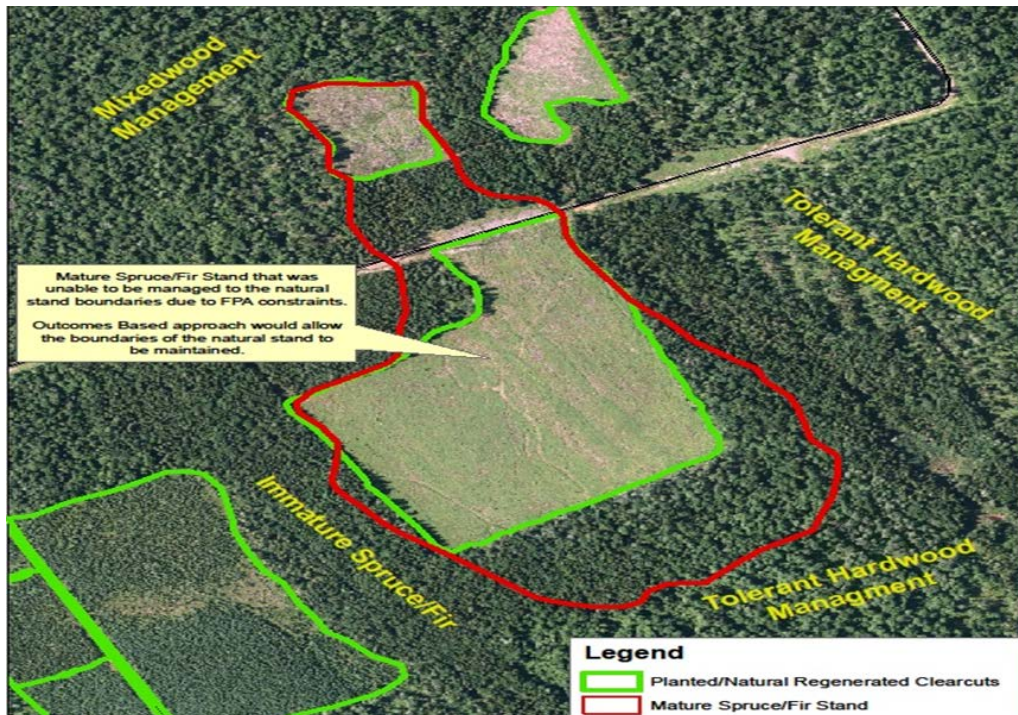
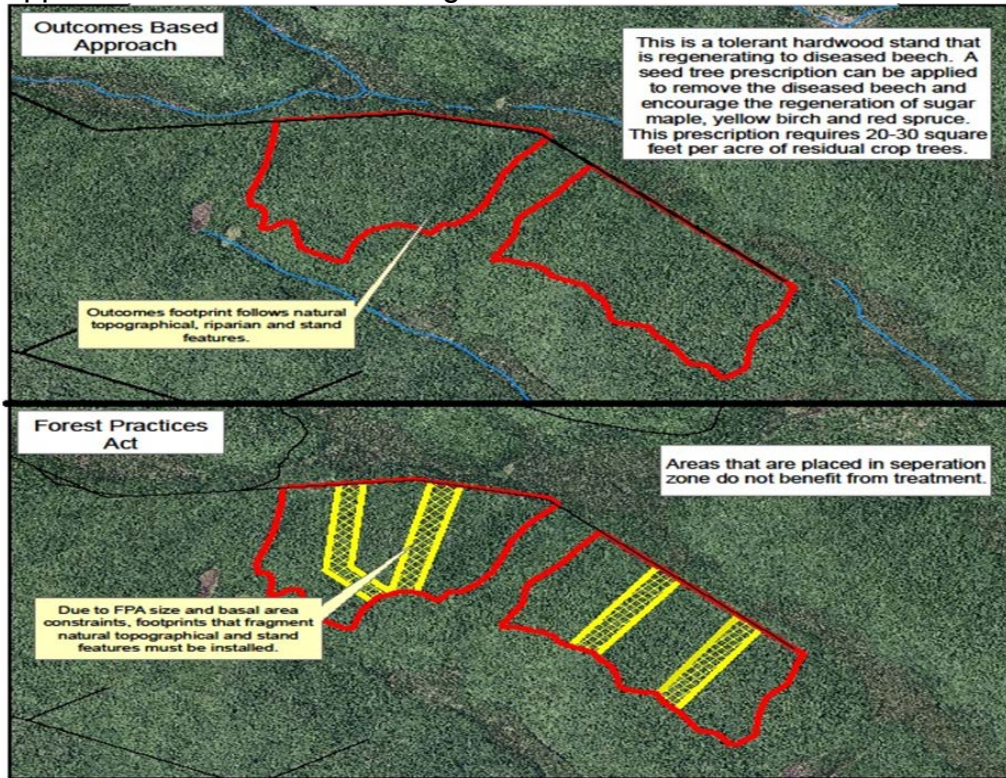
The picture above depicts an “FPA avoidance” harvest. The harvest left enough residual trees to comply with FPA; however, the residual stand is of poor quality. This is not what the framers of the FPA had in mind.



The picture above depicts a 40-acre stand where diseased beech and poor quality hardwoods were removed from the understory to leave a quality spruce stand. This is a sound silvicultural treatment; however, with a residual basal area of 25 square feet, it would be considered a clearcut that required a harvest plan and separation zone. Fortunately, the surrounding area met the separation zone standards. This is an unintended consequence of the FPA.

Department of Agriculture, Conservation and Forestry - Maine Forest Service
 Outcome Based Forestry Report

Appendix E. Pictures illustrating benefits of OBF



Department of Agriculture, Conservation and Forestry - Maine Forest Service
Outcome Based Forestry Report

Appendix F. Irving presentation to ACF Committee

See following pages