

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

UPDATED 15 JANUARY 2013

Source documents:

- 1 - 08 December 2009 FSC certification report
- 2 - 10 November 2010 FSC field audit report
- 3 - Draft 2011 FSC surveillance audit report
- 4 - 07 December 2012 FSC (third) surveillance audit report

Maine Criterion 1: Soil productivity

Goal: Maintain site productivity.

Outcome: Site productivity will be maintained or improved, and the area in roads and yards will be minimized.

FSC Audit results:

Conformance to Principle 1 (compliance with laws and FSC principles)

1.1.b. Forestry operations meet or exceed the current state forest practice regulations, best management practices for forestry, and other protective measures for water quality that exist within the state(s) or other appropriate jurisdiction(s) in which the operations occur.

Finding: Conforms. "A review of FPA violations did not reveal any cited riparian violations within the last ten years. A single clearcut buffer violation was noted in March of 2004, however JDI responded to the violation in an appropriate manner by conducting a root cause analysis and a new policy for buffer retention. There were noted weaknesses in the application of water bars on at least one active harvest site. However, a state official from the Maine Forest Service who was present during the audit did not find it concerning. Sediment in a stream crossing was observed at one active harvest site, caused by a failure in road maintenance and recent heavy rainfall. Overall, however, the vast majority of stream crossings appeared to be well constructed and maintained. At one particular harvest site, trucking roads were temporarily shut down to minimize runoff into streams and prevent road damage." [1, p. 55] This finding remains current in the 2012 audit. [4, p. 13]

The auditors made one observation relevant to this principle: "JDI maintains a plan identifying all areas in the transportation network where road conditions are in disrepair, and prioritizes them for repair based on their potential for ecological impacts and the disruption of traffic. A large mudhole was observed on a road in the Blackstone district, adjacent to a paved county road that was not identified as being in need of repair on JDI's road maintenance plan. The explanation was given that the road was traveled infrequently, and that the road maintenance issue in question was not close to impacting an area of high ecological value. The audit team agrees with this position, but still finds that JDI could improve its road maintenance practices by identifying road maintenance issues outside of areas that are undergoing active operations." The auditor recommended that JDI could improve its system for identifying poor road conditions on areas of the transportation network not used for regular timber operations. The observation was closed in December, 2012 ("JDI has modified its road maintenance policy to include the requirement that any road not used within the past 3 years will be surveyed to determine if any environmental concerns exist. The audit team thinks this new requirement addresses the concern of the Observation."). [4, p. 8-9]

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Conformance to Principle 5 (benefits from the forest):

5.1.c. Investment and reinvestment in forest management are sufficient to fulfill management objectives, ensure economic viability and maintain and/or restore forest health and productivity.

Finding: Conforms. "Investments in silviculture, road systems and management are made to support economic performance. Investments made to reduce budworm and other threats to forest health, including road systems to address and enable response to forest fire risks." [1, p. 69]

5.1.e. Management practices and silvicultural techniques lead to improvements in productivity and quality. (see Criterion 5.6. and 8.2.1). For example: stands are well-stocked; advanced regeneration is protected; quality crop trees are retained and protected; regenerated stands are fully stocked.

Finding: Conforms. "Metrics are tracked for improved productivity at the district level. Forest sites observed to be well stocked with advanced regeneration. JDI uses silvicultural techniques to improve productivity including tree improvement, planting, pre-commercial and commercial thinning." [1, p. 70]

Conformance to Principle 6 (environmental impact):

6.1.a. Using available science and local expertise, an assessment of current conditions is completed that includes: (1) ecological processes, such as disturbance regimes; (2) unique, vulnerable, rare, and threatened natural communities; (3) habitat for other species, as indicated by forest cover type and inventory data; (4) rare and imperiled species, including those that are state or federally listed (5) water resources; (6) soil resources; (see also 7.1.a and b) and (7) attributes of High Conservation Value Forests (see Principle 9).

Finding: Conforms. "JDI utilizes available science and local expertise, such as MNAP inventories for natural communities and rare plants... JDI has developed their HCVF inventory and is utilizing water table depth mapping..." [1, p. 74]

6.3.c.2. Post-harvest management activities maintain soil fertility, structures, and functions. For example: slash is randomly distributed across the harvest area; burning is used where it is appropriate to the natural disturbance regime.

Finding: Conforms. "Soil fertility is maintained by distributing slash on site and preventing rutting. No serious rutting was observed during the assessment." [1, p. 78]

6.3.c.4. If soil quality degradation occurs, as indicated by declining fertility or forest health, forest owners or managers modify soil management techniques. For example:

Limbs and small branches are scattered throughout the site after harvest.

Stem-only harvesting is used on low-fertility sites.

Low-ground pressure equipment is used on soils that are sensitive to compaction.

Finding: Conforms. "Steps are taken to avoid soil quality degradation, including to a large degree leaving residual limbs and branches. When limbs and tops are not used for biomass, the slash is turned back into the forest." [1, p. 79]

6.3.c.5. Roads are designed and constructed to minimize disruption of nutrient movement and hydrologic regimes.

Finding: Conforms. "Roads are being constructed to new standards with consideration for wetlands and sensitive areas. The amount of new road is consistent with current access

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

conditions and harvest levels. Road construction and stream crossing are well designed and road maintenance is being performed. [1, p. 79]

6.5. Written guidelines shall be prepared and implemented to control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and to protect water resources.

Finding: Conforms. "Though notable for their conciseness/brevity, there are written guidelines for controlling erosion, minimizing forest damage during harvesting and protecting water resources. Adequate conformity to this Criterion is confirmed." [1, p. 81]

6.5.a. The forest owner or manager minimizes the impacts of the road network, log landings, and skidding systems in a manner consistent with management objectives for hydrology and plant and animal habitat while simultaneously and safely serving the needs of transportation and hauling.

Finding: Conforms. "Roads are being constructed to avoid wetlands and sensitive areas. The amount of new road is minimized to harvest areas. Log landings and skidding systems are minimized in consistency with management objectives for hydrology and plant and animal habitat while simultaneously and safely serving the needs of transportation and hauling." [1, p. 81] "JDI's Standard Operating Procedures and SFM Report Card inspection system, Forest Road Construction Guidelines and other management documents address the elements of this Criteria." [4, p. 31]

6.5.b. The environmental impacts of the road network and harvest system are minimized through design and planning, careful construction and harvest, and ongoing monitoring and management.

Finding: Conforms. "Road layout is designed during the block planning phase. The maintenance approach for the road network includes the EMS and a road maintenance list. This approach to construction and maintenance seems sufficient." [1, p. 81] "Site visits confirm that appropriate BMPs are being implemented." [4, p. 31]

6.5.c. The forest owner or manager develops (through management plans, policies, and harvesting guidelines) and implements a strategy for protecting river and stream corridors, steep slopes, fragile soils, wetlands, vernal pools, seeps and springs, lake and pond shorelines, other hydrologically sensitive areas, and minimizes damage from site-preparation.

Finding: Conforms. "Management plans, policies, and harvesting guidelines protect river and stream corridors. It was observed that stream crossings, fragile soils, wetlands, vernal pools, seeps and springs were well protected. The protection of many sensitive areas is inherent in their designation as HCVF. Buffer retention for streams was especially notable." [1, p. 81] "Logging equipment is selected in order to limit damage to soil. JDI's SOPs address soil compaction and rutting; site visits confirm appropriate application of the SOPs. Harvesting on steep slopes has been limited to specialized machinery. Slash was not concentrated and appropriately used to minimize rutting." [4, p. 32]

The switch to more single grip processor systems is resulting in less ground cover disturbance and will reduce the amount of whole-tree harvesting

6.5.d. The forest owner or manager develops and implements a strategy that meets or exceeds all applicable "best management practices" guidelines for soil and water protection.

Finding: Conforms. "Most state BMPS were being met, except in one observation during an active harvest regarding water bars. However, the state representative accompanying the audit was not concerned about the apparent lack of installation. Little rutting was observed

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

and the policy metric of 30% of trails with ruts is conservative. Buffer allotment was beyond expectation.” [1, p. 81] “Access to a large portion of the JDI lands is controlled through North Maine Woods. Access to roads is blocked if there is a perceived environmental risk. All road construction is planned to minimize the amount of road on the landscape, minimize stream crossings, and avoid significant wildlife habitat and travel corridors where possible. Site visits to new road construction and several stream crossings confirm that erosion and sediment discharge are being minimized and that free upstream and downstream passage for aquatic organisms is being provided for. Access to unneeded roads is being blocked and stream crossings removed and/or stabilized. In response to an observation by last year’s audit team, all roads are now being periodically surveyed to determine if there are any environmental issues that need to be addressed.” [4, p. 32-33]

Conformance to Principle 7 (management plan)

7.1.b.1. The management plan describes the timber, fish and wildlife, harvested non-timber forest products, soils, and non-economic forest resources.

Finding: Conforms. “The management plan is complete in this regard.” [1, p. 87]

7.1.c.1. Silvicultural prescriptions have a primary objective of perpetuating a sustainable forest ecosystem based on ecological parameters such as soil types, past harvest history, natural community types, and successional trends.

Finding: Conforms. “The management plan is complete in this regard.” [1, p. 87]

7.1.h.1. The management plan includes maps of the forest’s characteristics, such as: relevant landscape-level factors; property boundaries; roads; timber production areas; forest types; topography; soils; riparian zones; springs and seeps; wetlands; archaeological sites; cultural and customary use areas; locations of and habitats for sensitive, rare, threatened, and endangered species; representative samples of existing ecosystems, and designated High Conservation Value Forests.

Finding: Conforms. “The management plan is complete in this regard.” [1, p. 88]

Principle 8: Monitoring and assessment

8.2.d.1. The forest manager or owner assesses the environmental impacts of management activities; the condition of soil, water and timber resources; and effectiveness of management policies. A monitoring program is in place to monitor requirements of Criterion 6.5.

Finding: Conforms. “The EMS is designed to assess the impacts of BMPS for environmental impacts. Also, an auditing program of EMS assessments is captured in the SFM Scorecard. JDI also uses a Harvest Operations Checklist.” [1, p. 91] “Site specific monitoring occurs as a part of JDIs EMS. Monitoring of sites post-harvest is done prior to closing out a site. Effects of harvesting activities are also tracked on the sustainable forest management report card.” [4, p. 39]

Assessment of this criterion: The FSC audit demonstrates that JD Irving has attained the identified goal and outcome for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 2: Water quality, wetlands and riparian zones

Goal: Maintain or improve the chemical, physical, and biological integrity of aquatic systems in forested areas and riparian forests.

Outcome: Forest management in shoreland areas protects water quality and aquatic and riparian forest biodiversity.

FSC Audit results:

Conformance to Principle 1 (compliance with laws and FSC principles)

1.1.b. Forestry operations meet or exceed the current state forest practice regulations, best management practices for forestry, and other protective measures for water quality that exist within the state(s) or other appropriate jurisdiction(s) in which the operations occur.

Finding: Conforms. "A review of FPA violations did not reveal any cited riparian violations within the last ten years. A single clearcut buffer violation was noted in March of 2004, however JDI responded to the violation in an appropriate manner by conducting a root cause analysis and a new policy for buffer retention. There were noted weaknesses in the application of water bars on at least one active harvest site. However, a state official from the Maine Forest Service who was present during the audit did not find it concerning. Sediment in a stream crossing was observed at one active harvest site, caused by a failure in road maintenance and recent heavy rainfall. Overall, however, the vast majority of stream crossings appeared to be well constructed and maintained. At one particular harvest site, trucking roads were temporarily shut down to minimize runoff into streams and prevent road damage." [1, p. 55]

Conformance to Principle 5 (benefits from the forest)

5.5.b. The forest owner or manager places aquatic and riparian resources, including water quality, above forest product objectives within designated riparian zones of adequate dimensions to assure resource protection. (see Criterion 6.5.c)

Finding: Conforms (but see Observation 2009.8 below). [1, p. 72]

Riparian zone buffers are consistently implemented and recorded within Work Orders, GPS, etc. SOPs address concerns and appropriate protections and actions. Cooperation with IFW on river inventory and management and managing culverts and road maintenance. JDI could retain more basal area within stands (particularly within or adjacent to riparian zones) to increase wind firmness (OBS 2009.8).

The auditors made one observation regarding this principle: "The FSC NE Standard requires that the forest owner or manager places aquatic and riparian resources, including water quality, above forest product objectives within designated riparian zones of adequate dimensions to assure resource protection." The auditor recommended that "JD Irving could retain more basal area within stands (particularly within or adjacent to riparian zones) to increase wind firmness." [1, p. 50]

Could not find reference to this in 2010 annual audit report.

Conformance to Principle 6 (environmental impacts)

6.3.c.5. Roads are designed and constructed to minimize disruption of nutrient movement and hydrologic regimes.

Finding: Conforms. "Roads are being constructed to new standards with consideration for wetlands and sensitive areas. The amount of new road is consistent with current access

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

conditions and harvest levels. Road construction and stream crossing are well designed and road maintenance is being performed.” [1, p. 79]

6.5.a. The forest owner or manager minimizes the impacts of the road network, log landings, and skidding systems in a manner consistent with management objectives for hydrology and plant and animal habitat while simultaneously and safely serving the needs of transportation and hauling.

Finding: Conforms. “Roads are being constructed to avoid wetlands and sensitive areas. The amount of new road is minimized to harvest areas. Log landings and skidding systems are minimized in consistency with management objectives for hydrology and plant and animal habitat while simultaneously and safely serving the needs of transportation and hauling.” [1, p. 81] “JDI’s Standard Operating Procedures and SFM Report Card inspection system, Forest Road Construction Guidelines and other management documents address the elements of this Criteria.” [4, p. 31]

6.5.c. The forest owner or manager develops (through management plans, policies, and harvesting guidelines) and implements a strategy for protecting river and stream corridors, steep slopes, fragile soils, wetlands, vernal pools, seeps and springs, lake and pond shorelines, other hydrologically sensitive areas, and minimizes damage from site-preparation.

Finding: Conforms. “Management plans, policies, and harvesting guidelines protect river and stream corridors. It was observed that stream crossings, fragile soils, wetlands, vernal pools, seeps and springs were well protected. The protection of many sensitive areas is inherent in their designation as HCVF. Buffer retention for streams was especially notable.” [1, p. 81] “Logging equipment is selected in order to limit damage to soil. JDI’s SOPs address soil compaction and rutting; site visits confirm appropriate application of the SOPs. Harvesting on steep slopes has been limited to specialized machinery. Slash was not concentrated and appropriately used to minimize rutting. The switch to more single grip processor systems is resulting in less ground cover disturbance and will reduce the amount of whole-tree harvesting.” [4, p. 32]

6.7.c. Equipment is not parked where fluids may leak into riparian management zones, sinkholes, or ground water supplies.

Finding: Conforms. “Fueling is done away from these areas in designated locations.” [1, p. 83] “JDI SOPs prohibit fuel storage or fueling within 100’ of water. Site visits showed no evidence on persistent fuel leaks on any equipment.” [4, p. 36]

Conformance to Principle 7 (management plan):

7.1.h.1. The management plan includes maps of the forest’s characteristics, such as: relevant landscape-level factors; property boundaries; roads; timber production areas; forest types; topography; soils; riparian zones; springs and seeps; wetlands; archaeological sites; cultural and customary use areas; locations of and habitats for sensitive, rare, threatened, and endangered species; representative samples of existing ecosystems, and designated High Conservation Value Forests.

Finding: Conforms. “The management plan is complete in this regard.” [1, p. 88]

Assessment of this criterion: The FSC audit demonstrates that JD Irving has attained the identified goal and outcomes for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 3: Timber supply and quality

Goal: Improve the quantity and quality of future timber supply when appropriate.

Outcome: The management strategy and harvest levels for the lands will increase the quality and quantity of the forest resource as appropriate in the medium and long term (20 - 50 years).

FSC Audit results:

Conformance to Principle 1 (compliance with laws and FSC principles):

1.6.c. Forest owners or managers document strategies and silvicultural treatments for several harvest entries that meet the FSC Principles and Criteria (see Principle 7).

Finding: Conforms. "JDI has a long-term perspective as indicated by a long-term sustained yield at 80 years and demonstrated silvicultural strategies on the ground. The provided management plan is for 25 years based on this overall 80 year projection and scheduled harvest entries are made and are tracked over time." [1, p. 57]

Conformance to Principle 5 (benefits from the forest):

C5.6. The rate of harvest of forest products shall not exceed levels that can be permanently sustained.

Finding: Conforms. However, the auditors found a nonconformance with indicator 5.6.a. which resulted in a Corrective Action Request [1, p. 72]. This CAR was closed in the 2010 annual audit report [2, p. 10]. "The defined planning unit is all of the JDI forestland in Maine. In addition to the "managed forest", a different annual allowable cut is calculated for each constrained zone (for example deer wintering areas, riparian buffers, etc.). Forest Modeling is based on forest inventory information gathered on the lands. A long-term (multi-rotational) allowable harvest is calculated. Interviews with David Young, Ked Coffin, Blake Brunston and Scott MacDougall confirm that they are on track to complete a project that involves new aerial photography, new forest stand typing, a new forest inventory, and new forest modeling work that will result in a new forest management plan at the end of 2013. A harvest summary provided at the audit shows that total allowable harvest levels are slightly below planned levels and that no species groups are being disproportionately harvested. Site visits confirm that appropriate silvicultural techniques are employed. JD Irving and the State of Maine have entered into an "Outcome Based Forestry" (OBF) agreement, in which certain restrictions in the Maine Forest Practices Act are waived in return for continued third party certification. This agreement has allowed Irving to practice better stand level silviculture. Field sites were inspected, along with members of the State OBF oversight committee, and all agreed that the agreement has thus far produced desired results on the ground." [4, p. 24-25]

Assessment of this criterion: JD Irving agreed to request forest inventory data collected on its ownership by the USDA Forest Service Forest Inventory and Analysis, and provide access to MFS staff under confidentiality agreement for review and analysis. Once the inventory information has been provided to MFS, JD Irving will have demonstrated that it has attained the identified goals and outcomes for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 4: Aesthetic impacts of timber harvesting

Goal: Minimize adverse visual impacts of timber harvesting.

Outcomes:

1. The landowner will minimize visual impacts of harvests, roads, landings and other management activities.
2. The landowner's planning staff are trained in and apply principles of visual quality management.
3. The landowner identifies areas with high and moderate visual sensitivity, and takes appropriate measures to avoid significant visual impacts whenever necessary.

FSC Audit results: The summary of JD Irving's management objectives (section 1.4 of audit report) states, "We will consider and incorporate aesthetics in our management activities where visual impacts may be of concern." [1, p. 13]

Conformance to Principle 4 (Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and communities)

4.4.a. The forest owner or manager understands the likely social impacts of management activities, and incorporates this understanding into management planning and operations. Social impacts include effects on:

- Archeological sites and sites of cultural, historical and community significance (on and off the FMU);
- Public resources, including air, water and food (hunting, fishing, collecting);
- Aesthetics;
- Community goals for forest and natural resource use and protection such as employment, subsistence, recreation and health;
- Community economic opportunities;
- Other people who may be affected by management operations.

A summary is available to the CB.

Finding: Conforms. "Management of aesthetics is specifically included in the plan, have identified many unique sites with aesthetic concerns, and operational plans have been adjusted to compensate for them. Harvests within the visual zone of the Allagash Wilderness Waterway were viewed during the audit." [4, p. 21]

Assessment of this criterion: The December 2012 FSC audit addressed the identified goal and outcomes for this criterion. This issue is addressed explicitly in the agreement between JD Irving and the state.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 5: Biological diversity

Goal: Maintain biological diversity with healthy populations of native flora and fauna, forest communities and ecosystems.

Outcomes:

1. Management addresses the habitat needs of the full range of species present.

FSC Audit results: 6.1.c. JDI contracted with MNAP to assess its current system of special/unique areas. MNAP ... identified potential gaps in the current assessment of forest types and natural communities. Much of the work has now been completed by MNAP and is incorporated into the JDI management system (1, p. 75). The company has designed and implemented a comprehensive assessment of current habitat conditions for non-RTE species and, based upon the outcome of the assessment, identified and implemented actions aimed at addressing specific habitat deficiencies. [2, p. 7]

2. Maintain or manage for acreage in the late successional (LS) condition through management and protection.

FSC Audit results: JDI must formally seek and duly consider scientific advice on the ecological appropriateness/adequacy of the 7%/3% targets for old forest and very old forest cover as well as the definition (age delineations) for "old" and "very old."

As part of the audit, JDI provided specific comments on its late-successional policy from members of its Research Advisory Committee, which includes notable forest ecologists from Maine and New Brunswick. Comments from these experts were considered and incorporated into the company's current late-successional forest policy.

The company's response is in full compliance with the requirement of the CAR. [2, p. 7]

JDI must survey/analyze its Maine forest estate for the presence of intact old growth forests and un-entered old growth stands (as defined by the Regional Standard). Any areas found to meet the definition of un-entered or intact old growth must be managed in conformity to NE Regional Indicator 6.4.c.

At the time of the audit, JDI presented its Old Growth Stand Risk map and explained how it has collaborated with the Maine Natural Areas Program and Manomet to develop protocols and training programs for identifying late-successional and old growth stands.

Implementation of these programs was also presented at one of the field stops during the audit. The company also presented protocols for the conservation of late-successional and old growth stands, in accordance with Indicator 6.4.c.

The audit team concludes that the response fully complies with the intent of the CAR. [2, p. 8-9]

The December, 2012 audit report added the following Observation: "A clarification of the protocol under which forest operations can take place adjacent to known or potential old growth stands would improve conformance. (Finding 2012.1)" [4, p. 10]

3. Maintain a reasonable component of standing dead trees, live cull trees, and down logs across the landscape (not necessarily on every acre).

FSC Audit results: 6.3.b.2. JDI protects, maintains and enhances habitat diversity by reserving wildlife trees and snags during harvest; utilizing retention areas; and distributing fine and large woody debris during most harvest operations.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

6.3.c.1. Most prescriptions seem to adequately retain coarse woody debris, though some additional debris could be retained during clearcuts. [1, p. 78]

4. High Conservation Value Forests are properly identified and values are protected on the ownership.

FSC Audit results: 9.1.a. Irving has contracted with the MNAP for several years to perform ecological inventories designed to identify the occurrence of individuals or habitat for rare, threatened, and endangered (RTE) plants or natural communities. Irving also collaborates with the MDIFW and the USFWS regarding the location of RTE animals or their habitat.

Irving also has professional biologists and ecologists on staff who conduct ecological inventories that would identify potential HCVF sites.

Irving has a long-standing Unique Areas Program that encompasses a wide range of rare or interesting features, including some areas designated as HCVF. Areas can be entered into the Unique Areas Program via nominations from the public, stakeholder groups, State or Federal agency staff, or Irving employees.

To date, Irving has identified 6 areas, totaling approximately 3,700 acres, as HCVF. These areas include watershed protection areas for Long Lake, Yankeetuladi Old Growth Hardwood Forest, Cross Lake Fen, Orchard Bog, Chase Pond Lakes, and the St. Francis Floodplains. [1, p. 93]

There is no evidence suggesting that HCVF may be potentially degraded. Via the Unique Areas Program Irving has developed long-range management plans for ensuring the conservation of HCVF attributes in identified areas. [1, p. 94]

“HCVFs were originally identified in cooperation with biologists at the Maine Natural Areas Program. A report documenting the annual surveillance of all identified HCVFs on the JDI lands was reviewed at the audit. Annual monitoring has not indicated any increased risks to HCFV attributes.” [4, p. 41]

5. Rare, threatened and endangered species habitats are properly identified, and the land is managed to protect the habitats and occurrences of rare, threatened and endangered species.

FSC Audit results: 6.2.a. MNAP has been assessed for company lands and provides information about the presence of species and natural communities. Additionally, JDI trains staff and contractors to identify rare, threatened and endangered species [1, p. 75]. Based on the MNAP assessment and observed sightings, several conservation zones have been set aside from active management. Most of these conservation zones function to connect viable habitat on the landscape. [1, p. 76] “The Maine Natural Areas Program biologists have done an evaluation of all JDI lands and recorded the presence or likelihood of RTE and unique communities. JDI foresters are trained to recognize the most likely RTE species. JDI staff biologist is consulted when any area is suspected of containing RTE species or a unique community. JDI staff biologist is an expert botanist and is able to recognize rare plants and natural communities of the region and develop appropriate protection measures when such resources are present.” [4, p. 26]

6. Important plant communities are properly identified, and the land is managed to protect important plant communities.

FSC Audit results: Same as above. Protected areas include exemplary examples of red spruce and sugar maple stands. ... Additionally, other stands identified by the MNAP analysis were integrated into the protected areas program. [1, p. 79]

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

7. Deer wintering areas are properly identified and managed to maintain or improve their value as winter cover for deer.

FSC Audit results: All identified Deer Wintering Areas (DWA) are managed consistent with habitat objectives developed in consultation with Maine's Inland Fisheries and Wildlife Department. [1, p. 13]

Related FSC Audit results:

The 2009 audit identified several biodiversity-related non-conformances and observations. These nonconformances were closed in the 2010 annual audit report) [1, p. 43-45; 2, p. 7-9].

The 2011 audit contained the following observation: "JDI has developed an innovative approach to identifying and recruiting old and very old stands. A scorecard for rating stands that may qualify as old or very old, based on stand age and late seral characteristics such as presence of lichens and fungus. The end goal is to recruit target areas of 7% old and 3% very old forest, which is currently under-represented on the landscape. Once these targets are met, areas may be ranked for conservation value using the scorecard, and areas of lower conservation value may be moved out of late-successional protection if new areas of higher value are identified. While the processes in place for identifying old growth will likely result in additional protected areas. However, the definitions as stated in the "Policy for Maintaining Late-Successional Forests" do not exactly correspond to the new Type 1 and Type 2 old growth definitions in FSC-US standard. In particular, the policy does not contain the area requirements contained in the standard. In addition, the policy of allowing trading out of lower quality old growth stands would violate the requirement that old growth be protected. However, this finding is only an observation, since the reality of the amount of late successional forest on JDI's land is such that the target area goals have not been met, and thus no trading out is foreseeable in the near future. The auditors made the following recommendation: "Old growth definitions and protection measures should be updated, in order to guard against the possibility that newly identified areas or changes in management practices do not lead to a non-conformance." [3, p. 6-7] This observation has been closed.

The 2011 audit also contained the following observation: "JDI's "Policy for Maintaining Diversity in Harvested Areas" was reviewed for conformance to the new definition of legacy trees. The definition in the new standard identifies legacies trees as, "a tree, usually mature or remnant of old growth, that provides a biological legacy. For the purposes of this Standard, it is an individual old tree that functions as a refuge or provides other important structural habitat values." The standard requires that legacy trees are not harvested when they are present. The current policy identifies that vertical structure in the form of islands are to be maintained, and that when features such as trees containing stick nests are found, the islands should take advantage of these trees. However, this general guidance is not the same as requiring that legacy trees not be harvested when they are present. In addition, it is unclear what protection measures would be in place in harvested areas under 10 ha, and thus not requiring islands under the policy. This finding is only graded as an observation, since conversations with staff during the field tour indicated that trees meeting the definition would be protected, and no specific examples of trees meeting the definition were found in planned harvest areas. However, the policy could be updated to prevent the possibility of a non-conformance." The auditors made the following request for corrective action: "Management plans, or other appropriate documents, must ensure that legacy trees, as defined by the FSC-US Forest Management Standard, are not harvested." [3, p. 7-8] This observation has been closed.

The 2009 audit contained one observation which remains open: "The FSC NE Standard requires that the forest owner or manager places aquatic and riparian resources, including water quality, above forest product objectives within designated riparian zones of adequate

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

dimensions to assure resource protection.” The auditors made the following recommendation: “JDI could retain more basal area within stands (particularly within or adjacent to riparian zones) to increase wind firmness.” [1, p. 50; 2, p. 13-14] This observation has been closed.

The 2012 audit contains the following observation: “JDI’s current Legacy Tree definition is broader than the FSC definition, resulting in trees such as snags and nest trees being defined as Legacy Trees in addition to those meeting the FSC definition.” The audit team recommended that, “While all trees currently protected under the JDI policy are valuable stand components that warrant protection under the Indicator, a clarification and/or redefinition of “Legacy Tree” in the JDI policy would help ensure conformance with the Indicator (Finding 2012.2).” [4, p. 11]

Assessment of this criterion: The FSC audit demonstrates that JD Irving largely has attained the identified goal and outcomes for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 6: Public accountability

Goal: Demonstrate sustainable forestry and build public confidence that forest management is protecting public values for the long-term.

Outcomes:

1. The landowner will maintain independent 3rd party certification with a nationally recognized sustainable forestry management certification system without major, unresolved non-conformances on managed lands.
2. A Licensed Forester within the company will review and approve the landowner's Forest Management Plan.
3. The landowner will employ Licensed Foresters who are actively involved in the management, planning and supervision of operations on the land.
4. All timber harvesting contractors will employ at least one person possessing Certified Logging Professional or Qualified Logging Professional certifications or the equivalent.

FSC Audit results: JD Irving has obtained its FSC certification without major, unresolved non-conformances on its managed lands.

Assessment of this criterion: JD Irving has largely attained the goal and outcomes identified for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 7: Economic considerations

Goal: Optimize benefits to the local and regional economy while also achieving the goals specified for the other criteria, to the extent allowed by market conditions.

Outcome: The landowner's management activities support as vibrant and diverse a forest products industry as is practicable, including loggers, truckers, and production facilities.

FSC Audit results:

Conformance to Principle 5: Benefits from the forest

C5.1.d. Appropriate to the scale and intensity of management, the forest owner or manager reinvests in the local economy through ongoing capital investment.

Finding: Conforms. "Long-term investments have been made within the company (buildings, trucks, equipment, tools, roads, etc) and within the community. Community support is provided for schools, community events, and special activities."

C5.1.e. Management practices and silvicultural techniques lead to improvements in productivity and quality.

Finding: Conforms. "Metrics are tracked for improved productivity at the district level. Forest sites observed to be well stocked with advanced regeneration. JDI uses silvicultural techniques to improve productivity including tree improvement, planting, pre-commercial and commercial thinning."

5.2.a. Preference is given to local, financially competitive, value-added processing and manufacturing facilities.

Finding: Conforms. "A list of buyers was provided by JDI to confirm sale of materials to local facilities, including internal mills." "A customer sales list provided by Roy Bernard at the audit showed a range of sales from 4GMT for personal use to 35,000 GMT to a local mill. Local contractors are used to harvest, load and truck forest products." [4, p. 23]

5.2.b. New markets are explored and/or developed for an expanded diversity of forest products and logging by-products.

Finding: Conforms. "New markets have been developed for biomass utilization. Value added product development is actively pursued. Seeking certification is in large part driven by the effort to engage in certified wood product markets. Pulpwood, sawlogs, tie logs, and other products are also utilized." "A forest products specification sheet provided at the audit shows that a complete range of products, from high end specialty logs to pulpwood are harvested. Site visits confirm this." [4, p. 23]

5.2.c. Some sales of forest products or contracts for services are scaled or structured to allow small businesses to bid competitively.

Finding: Conforms. "Evidence of small scale services and a diversified customer list were provided for review by the team. The list confirmed the inclusion of small scale sales of forest products and contracts."

5.4.a. Forest management diversifies forest uses and products, while maintaining forest composition, structures, and functions.

Finding: Conforms. "A diversity of forest products are harvested and provided through management. These products include chips, sawlogs, studs and tissue." "Outside Sales spreadsheet provided by Roy Bernard showed that JDI sold a wide variety of products to 50+ different area mills and individuals." [4, p. 24]

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

5.4.b. Management optimizes the multiple economic benefits derived from the forest while maintaining the social and ecological standards required for certification.

Finding: Conforms. "Participation in North Maine Woods contributes to recreational tourism related economic development and business opportunities. More recently, JDI has begun to explore possible non-timber forest product opportunities." "Outside Sales spreadsheet provided by Roy Bernard showed that JDI sold a wide variety of products to 50+ different area mills and individuals." [4, p. 24]

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 8: Social considerations

Goal: The landowner supports the communities surrounding their lands and operations, and except where special circumstances dictate otherwise, the landowner continues to provide historic and traditional recreational opportunities that do not conflict with the Landowner's objectives or values.

Outcome: The landowner provides opportunities for appropriate historic and traditional recreational uses that do not conflict with the landowner's values or objectives.

FSC Audit results:

Conformance to Principle 4: Community relations and workers' rights

C4.1. The communities within, or adjacent to, the forest management area should be given opportunities for employment, training, and other services.

Finding: Conforms. "Irving does provide opportunities for employment to residents of the communities in and nearby the forest estate. There remain opportunities to further improve the tenor and substance of working relationships with contract loggers and haulers."

4.1.b. Forest owners or managers negotiate with contractors with the goal of developing relationships that are long-term and stable.

Finding: Conforms. There has been improvement in negotiations as evidenced by conversations about productivity assumptions and JDI attempts to use a "win-win" approach to their relationship with contractors to facilitate long-term relationships. However, there are opportunities for JDI to improve the manner in which it arrives at terms of engagement with its contractors in order to more truly engage in bilateral negotiations arriving at mutual benefit (see OBS 2009.4)."

4.1.c. Employment conditions (e.g., remuneration, benefits, safety equipment, training, and workman's compensation) are consistent for both local and non-local workers doing equivalent jobs.

Finding: Conforms. "There was no evidence of inconsistency for local and non-local workers, which included Irving employees and bonded contractors not employed by Irving. JDI must review the current state and terms of relations with contract loggers and truckers in order to identify and implement actions that would lead to improved contractor satisfaction with the terms of their relationships with JDI (see CAR 2009.2)." [1, p. 64]

JD Irving conforms to the remaining social and work environment criteria under Principle 4.1. A full recitation is omitted to conserve space.

Assessment of this criterion: The Corrective Action Request is closed; the FSC audit demonstrates that JD Irving has attained the identified goal and outcome for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Criterion 9: Forest Health

Goal: The forest is healthy and vigorous with no serious insect infestations or disease outbreaks.

Outcome: The landowner does what is prudent and practicable to monitor for and prevent and control insects, disease, and fire, consistent with good practice in the industry and assists the MFS in forest health monitoring programs on the ownership.

FSC Audit results:

Conformance to Principle 5 (Benefits from the forest):

5.1.c. Investment and reinvestment in forest management are sufficient to fulfill management objectives, ensure economic viability and maintain and/or restore forest health and productivity.

Finding: Conforms. "Investments in silviculture, road systems and management are made to support economic performance. Investments made to reduce budworm and other threats to forest health, including road systems to address and enable response to forest fire risks." [1, p. 69]

Conformance to Principle 6 (Environmental impact):

6.3.c.3. Prescriptions for salvage harvests balance ecological and economic considerations (see indicator 5.6.b). For example:

- Coarse woody debris is maintained.
- Den trees and snags are maintained.
- Natural background levels of 'pest' populations are allowed before pest control actions are carried out.

Finding: Conforms. "There were no large scale or observed salvages. If there were salvage then the EMS would require balancing ecological and economic considerations in the prescription." [1, p. 78]

6.3.h The forest owner or manager assesses the risk of, prioritizes, and, as warranted, develops and implements a strategy to prevent or control invasive species, including:

1. a method to determine the extent of invasive species and the degree of threat to native species and ecosystems;
2. implementation of management practices that minimize the risk of invasive establishment, growth, and spread;
3. eradication or control of established invasive populations when feasible: and,
4. monitoring of control measures and management practices to assess their effectiveness in preventing or controlling invasive species.

The 2011 audit report contained the following finding: "As described in CAR 2011.1, the current invasive species policy does not meet all the required elements of indicator 6.3.j [sic?]. This finding is listed separately since the standard references the previous indicator, and FSC procedures prohibit CARs from being issued to indicators from more than one criterion. The auditors issued a minor CAR: "The management plan shall describe invasive species conditions, applicable management objectives, and how they will be controlled (see Indicator 6.3.j [sic?])" [3, p. 10-11]

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

The 2011 audit report contained the following observation: “The audit team reviewed the “Revised Policy to Control Invasive Species on J.D. Irving, Ltd. Freehold Lands” dated August 25, 2011. This policy requires that any flora or fauna being introduced be reviewed by company managers, introduce invasive plant recognition into annual training sessions, and report occurrences of invasive species to interested regulatory bodies. In addition, a training presentation given by the ... Department of Conservation on how to identify common invasive species in Maine, such as Japanese Knotweed [sic]. Interviews with staff indicate that the current amount of invasives on JDI’s land is low, probably due to the remote nature of much of the forest ecosystem in Maine.

While this policy and related training have begun the process of has identified some of the issues, it does not meet all the required elements of the new indicator covering invasive species management. In particular, the policy does not indicate how JDI will determine the extent of invasives and the threat they pose, what eradication or control efforts would take place, and how such control efforts would be monitored.”

The audit team issued the following minor CAR: “JDI shall develop a strategy to prevent or control invasive species, including: ...

3. eradication or control of established invasive populations when feasible: and,
4. monitoring of control measures and management practices to assess their effectiveness in preventing or controlling invasive species [3, p. 6]”

The 2012 audit made the following finding and observation: “JDI’s current strategy to assess the risk of, prioritizing, and implementing a strategy to prevent or control invasive species contains the 4 elements listed in the Indicator. An assessment of the invasive plant Phragmites was reviewed by the audit team. The assessment concluded that control of Phragmites was not feasible, but documentation for how this conclusion was reached was general in nature. The assessment was found to meet the intent of the Indicator. JDI should, however, develop a report with more explicit information on extent, costs, control alternatives, and consultation with State and regional experts to guide future assessments of invasive species (Finding 2012.3).” [4, p. 11-12]

6.6.a. Forest owners and managers demonstrate compliance with FSC Policy paper: “Chemical Pesticides in Certified Forests, Interpretation of the FSC Principles and Criteria, July 2002” available at http://www.fsc.org/en/whats_new/documents/Docs_cent/2.

Finding: Conforms. “JDI appears to be in compliance with the FSC policy paper.” [1, p. 82] “Review of pesticide use showed no products on the FSC list of Highly Hazardous Pesticides being used.” [4, p. 35]

6.6.b. Forest owners or managers employ silvicultural systems, integrated pest management, and strategies for controlling vegetation that minimize negative environmental effects. Non-chemical techniques are preferred in the implementation of these strategies. For example, components of silvicultural systems, integrated pest management, and strategies to control vegetation may include:

- creation and maintenance of habitat that discourages pest outbreaks;
- creation and maintenance of habitat that encourages natural predators;
- evaluation of pest populations and establishment of action thresholds;
- diversification of species composition (see Glossary) and structure;
- use of low impact mechanical methods;

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

- use of prescribed fire.

Finding: Conforms. "For planted stands, JDI uses mixed species and numerous other strategies to minimize the potential effect of budworm outbreaks. In conjunction with the state, JDI also monitors budworm population levels and trends. JDI avoids planted stands by using natural regeneration and has attempted to use sheep on many other treatments as alternatives to chemical techniques." [1, p. 82] "JDI's pesticide use is governed by an overall strategy document titled "Policies and Guidelines for Pesticide use in Forest Management". This contains policies that require consideration of safety, environmental impact, efficacy, and cost prior to use. In practice, the aerial spraying of glyphosate and the minor use of Arsenal and Oust has been determined to meet these criteria." [4, p. 35]

6.6.c. Forest owners or managers develop written strategies for the control of pests as a component of the management plan (see Criterion 7.1).

Finding: Conforms. "Written strategies are presented under Forest Health strategies section of the management plan. This section describes a variety of insects and insect traps. JDI also participates in the state's insect and disease monitoring program." [1, p. 82] "The selection of Glyphosate (and the minor usage of Arsenal and Oust) addresses the non-target species concern. Ground spraying is considered as an alternative to aerial application in cases where there are environmental or social concerns. Adequate buffer zones are employed." [4, p. 35]

6.6.d. Whenever chemicals are used, a written prescription is prepared that describes the site-specific hazards and environmental risks, and the precautions that workers will employ to avoid or minimize those hazards and risks, and includes a map of the treatment area.

Chemicals are applied only by workers who have received proper training in application methods and safety. They are made aware of the risks, wear proper safety equipment, and are trained to minimize environmental impacts on non-target species and sites.

The 2011 audit report contained the following observation: "Conformance to the indicator would be enhanced if JDI prepared comprehensive written prescriptions meeting the requirements of 6.6.d in a single document prior to chemical's being used." [3, p. 9-10]

Finding: Conforms. "JDI's pesticide use is governed by an overall strategy document titled "Policies and Guidelines for Pesticide use in Forest Management." In response to an Observation during the previous audit, these Policies and Guidelines have been amended to include site specific maps and documentation that show specific hazards, environmental risk areas and the management strategies used to avoid and/or minimize them. A site visit to an aerial herbicide site treated this year along with the associated documentation and map showed conformance. Chemicals are applied only by State-licensed personnel." [4, p. 35-36] "The applicable indicator requires that written prescription describing site-specific hazards, environmental risks, and precautions that workers will employ to avoid or minimize those hazards and risks. JDI does not prepare a standard written pesticide prescription prior to each application of pesticides. Individual areas are selected for pesticide application by based on the level of competing vegetation, as analyzed by aerial observation and field investigation. Individual maps of pesticide application areas are prepared indicating site-specific hazards such as watercourses. These maps are referenced in an herbicide plan, a spreadsheet that lists the individual applications, their locations, sizes, and the species composition of the target stand. Only a single type of pesticide and single application method is used (aerial spraying of glyphosate). Taken in total, this system meets the all the elements of the indicator, and is thus narrowly in conformance, but the system does not produce a single document that includes all elements of the prescription as envisioned by the indicator." This observation was closed in December, 2012 ("JDI revised their pesticide

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

application program to include a document that summarizes site-specific hazards and environmental risks, precautions taken to minimize those risks, and a map of the treatment area. Examples of this document were reviewed at the audit. The audit team concludes that this meets the requirements of the Observation.” [4, p. 9]

6.6.g. (6.6.e. in 2012 audit) If chemicals are used, the effects are monitored and the results are used for adaptive management. Records are kept of pest occurrences, control measures, and incidences of worker exposure to chemicals.

Finding: Conforms. “Chemical effects are monitored by walking and flying the applications sites. Adaptive management is used based on the outcome of the application. Detailed records are maintained, including application plans and maps.” [1, p. 83] “All applications are monitored for effectiveness with one goal of minimizing the amount of pesticide required to achieve satisfactory results. Records of applications and worker exposures (none) are kept.” [4, p. 36]

C6.8. Use of biological control agents shall be documented, minimized, monitored, and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

Finding: Conforms. “JDI does not use chemicals found on the FSC’s prohibited list. GMO organisms are not deployed within the subject forest estate. Chemical use is limited in its extent of use. Overall, adequate conformity to this Criterion was confirmed.” [1, p. 84] “No biological control agents are used on JDI lands.” [4, p. 37]

Assessment of this criterion: The FSC audit demonstrates that JD Irving generally has attained the identified goal and outcomes for this criterion.

**OUTCOME BASED FORESTRY - JD IRVING
CORRELATION OF STATE CRITERIA, GOALS, AND OUTCOMES
WITH FSC AUDIT RESULTS**

Overall assessment of the criteria and indicators: The 2012 FSC audit demonstrates that JD Irving generally has attained the identified goals and outcomes for the nine criteria and associated indicators. Previous audits identified several observations and minor corrective action requests; all of these have been closed. JD Irving is expected to close any future CAR's and observations in a timely manner. There are no significant departures from the state's goals and outcomes.