FSC GROUP CERTIFICATION

Forest Management Plan Summary

F&W Certified Managed Forests

PREPARED BY

Andrew Carlo, CF
Certification Manager

DATE

July 2026

STANDARDS

Prepared to Conform with the FSC-US Forest Management Standard (FSC-STD-USA-1.1-2018) in 2026 and FSC-US Forest Stewardship Standard (FSC-STD-USA-02-2026 EN) After 2026

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SECTION

Summary Information

OWNERSHIP

LAND (GIS ACRES)

(See Spatial Data Housed By F&W Forestry)

TIMBER AND INVENTORY SUMMARY

FOREST STRUCTURE

ACTIVITY SUMMARY

Management Plans typically cover a ten-year period but may be extended by amendment.

Tract-specific management activities are planned and confirmed in the annual budget process. Operational plans are maintained in the project files for documentation purposes.

FSC-US 7.2.1

SECTION

Maps

The spatial data is managed in a Geographical Information System by F&W Forestry. That data and all maps generated from that GIS are considered a component of the Management Plan. The data includes all required elements of the FSC-US FSS (general management zones, special management areas, restoration areas and conservation zones/protection areas at a level of detail to achieve management objectives and protect sensitive sites).

FSC-US 7.2.17

SECTION

Introduction

The Forest Management Plan is composed of a central document (based on this template) and all other documents and resources which guide the management of the forest. These other documents may include growth and yield modeling, spatial data, reference documents describing standard operating practices for the forest types present on the forest, Policies and Procedures, and addenda prepared by the manager and covering various topics related to the forest. Specific to Forest Stewardship Council certification, the following documents are also considered to be components of this management plan:

- High Conservation Value Assessment
- Representative Sample Area Assessment
- Sustained Yield Harvest Level Calculation

The Management Plan is intended to guide the management of the forest in compliance with all applicable federal, state and local forestry and related social and environmental laws and regulations, and with the current FSC standard: FSC FOREST STEWARDSHIP STANDARD FOR THE CONTERMINOUS UNITED STATES OF AMERICA FSC-STD-USA-02-2026 EN.

The Management Plan will be updated periodically to reflect new forest inventory, changes in growth and productivity, environmental factors including climate change, changes in forestland ownership and tenure, or forest health. Updates may occur in the form of partial or complete revisions or addenda and may happen at times appropriate to reflect changing conditions.

STATEMENT ON FSC CONFORMANCE

The management plan is based on a template developed by F&W Forestry for the exclusive use of its clients to conform with the current FSC US Standard. That standard (FSC-STD-USA-02-2026 EN) was published by FSC US on January 1, 2026, and became effective on April 1, 2026. Points of reference to specific indicators of the standard are highlighted in green (such as FSC-US X.X.X).

SECTION

Ownership Objectives and Management Commitment

OWNERSHIP OBJECTIVES AND DESIRED FUTURE CONDITIONS (DFC)

The following is a typical suite of Management Objectives and Desired Future Conditions. FSC-US 7.3.1.

Ownership Objective	Desired Future Conditions (DFC) (Management Targets)
Maintain a healthy and productive forest	Forest stands remain productive, regenerate successfully, and are resilient to insects, disease, disturbance, and changing climate conditions.
Be a good land steward	Forest management protects soil, water, and ecological function and complies with applicable laws and best management practices.
Protect significant natural features, habitats, and High Conservation Areas	Identified natural features, habitats, and High Conservation Areas are maintained and protected to conserve their ecological values.
Protect significant cultural sites	Cultural sites are identified and protected from damage during management activities.
Produce high-quality forest products	Forest stands support sustainable timber production appropriate to site conditions and management objectives.
Maintain or enhance recreational resources	Recreational resources and access are maintained where compatible with forest operations and safety needs.
Maintain or enhance wildlife habitat	Forest structure and species composition support habitat for native wildlife.
Maintain or enhance aesthetic quality	Forest conditions maintain visual quality consistent with landowner objectives and surrounding landscapes.
Improve forest health through thinning where feasible	Stand density and structure support forest health, vigor, and long-term sustainability.
Protect cultural and community resources	Management activities respect cultural values and community resources and avoid unnecessary impacts, where compatible with other management objectives.
Provide economic and recreational benefits to local communities	Forest management supports local economic activity and recreational opportunities where feasible.

Ownership Objective	Desired Future Conditions (DFC) (Management Targets)
Consider impacts on air, water, climate, and carbon	Forest management minimizes negative impacts and supports ecosystem services related to air quality, water resources, climate resilience, and carbon storage, where applicable.

These Objectives and Desired Future Conditions guide management activities, climate adaptation strategies, monitoring, and adaptive management across the Management Unit.

Progress towards management objectives is monitored in a variety of ways and frequencies, as described in the Management: Monitoring section of this plan.

FSC-US 7.3.1

FSC RESOURCE MANAGER AND LANDOWNER COMMITMENT

F&W Forestry is a Forest Stewardship Council (FSC) Group Certificate Holder and Resource Manager. F&W Forestry and the owners of the forest are committed to manage this forest in conformance with the FSC-US Standard.

Reference is also made to the F&W Forestry FSC Certification Policies and Procedures Manual, which is integral to the management of all properties within the F&W Forestry group certification, and is considered a component of this management plan.

FSC-US 7.1.1

SECTION

General Description

LOCATION

HISTORY

HISTORIC CONDITIONS OF THE FOREST COMMUNITY

FSC-US 6.1.1

LAND USE TRENDS IN THE LANDSCAPE (CURRENT CONDITIONS, POTENTIAL FUTURE IMPACTS)

FSC-US 6.1.1

OWNERSHIP HISTORY/TENURE/USE RIGHTS

INDIGENOUS RIGHTS

Indigenous groups are contacted as part of the High Conservation Value Assessment process forests in the F&W group certification. Forest management will not threaten or diminish verified indigenous rights, and all sites of significance will be recognized and protected by the forest manager.

ROADS AND INTERNAL ACCESS

BOUNDARIES

STAKEHOLDER CONSULTATION PROCESS

In advance of any timber harvest, a signed posting describing the planned activity will be made on the site. Key stakeholders will be notified by mail or email of the activity to include a letter describing the activity and a map showing the planned site. Key stakeholders will include easement holders, active mineral or gas owners, regulatory agencies, and other relevant parties.

CLIMATE CHANGE ADAPTATION & MONITORING

Climate change resulting from the emission of excess carbon dioxide and other greenhouse gases into the atmosphere by human activity presents several substantial risks to the natural world and to human populations and cultures. These risks include but are not limited to:

- Increasing global temperatures
- Forest fire risk
- Increasing extreme weather
- Droughts and desertification
- Sea level rise and inundation of coastal areas
- Maladaptation to changes by native plants and animals
- Migration of non-native and invasive species
- Plant diseases and pest insects

Forest management has a unique position in the various responses to climate change. Forest management can be adapted to respond to and mitigate these risks (such as through enhancing resilience in systems), but it can also be adapted as a strategy to address the foundational cause of climate change: the level of atmospheric carbon dioxide.

Forest landowners and forest managers are therefore key players in the response to climate change and can influence both the climate risk to their forests and the effect of their forest management on the climate broadly, through their actions.

Climate Risks and Desired Future Conditions.

The following table demonstrates an assessment of climate change related risks for the forest, based on regional climate information, observed site conditions, and professional judgment. This assessment identifies key vulnerabilities that may affect forest health, productivity, and ecological values. It identifies the desired future conditions in the context of these risks and informs the selection of adaptation strategies described below.

The following table demonstrates an assessment of climate change-related risks for the forest and the associated Desired Future Conditions used to inform management and monitoring. The plan preparer may add, subtract or edit the table below as appropriate.

Ranking	Climate Change Risk	Rating (Severity / Likelihood)	Desired Future Conditions (DFC)	Monitoring Indicators Used
1	Increased wildfires	High (Severe / Very Likely)	Forest conditions reduce the likelihood of severe wildfire impacts and support recovery after fire under longer and more intense fire seasons.	Stand structure and stocking from inventory; fuel and disturbance observations during tract and harvest inspections; regeneration success following fire or salvage; coordination with fire agencies, where applicable.
2	Extreme weather	High (Severe / Very Likely)	Forest stands and infrastructure remain functional during stronger storms, heat events, and other weather extremes, with limited long-term damage.	Road and infrastructure condition inspections; BMP compliance following storm events; storm damage observations during tract inspections; operational adjustments due to weather.
3	Drought / mortality	High (Major / Very Likely)	Forest stands are able to withstand extended dry periods and recover following drought-related stress or tree mortality, with species and structure suited to site conditions.	Tree health and mortality observed during stand inspections; regeneration success and stocking levels; growth and yield trends from inventory; species composition relative to site conditions.
4	Heavy rainfall	Med High (Major / Likely)	Forest soils, roads, and water resources remain stable during heavier rainfall, reducing erosion and runoff impacts.	BMP audit results; roadwork and stream crossing inspections; erosion and sedimentation observations; riparian management area conditions recorded during inspections.
5	Increased invasives, pests, and pathogens	Med High (Major / Likely)	Forest conditions help limit climate-driven increases in pests, diseases, and invasive species and reduce associated impacts.	Pest and pathogen observations recorded during inspections; treatment or response documentation where applicable; changes in species composition noted in inventory data.
6	Changes in forest habitat and composition	Med (Moderate / Likely)	Forest habitat and structure continue to function as climate conditions shift and species composition gradually changes over time.	Stand- and landscape-level habitat diversity data from inventory; GIS layers showing habitat features; monitoring of HCVs and special sites.

Ranking	Climate Change Risk	Rating (Severity / Likelihood)	Desired Future Conditions (DFC)	Monitoring Indicators Used
7	Warming temperatures	Med Low (Minor / Likely)	Forest stands remain productive and ecologically functional as average temperatures increase over time.	Long-term growth and yield trends; changes in species composition over time; regeneration success relative to site conditions; stand condition observations during inspections.

Opportunities to Enhance Ecosystem Resilience in the Face of Climate Change

Forest management can be adapted to enhance the resiliency of natural ecosystems. Resiliency is understood as broad forest health, adaptability to changing conditions, and sufficient systems to avoid the risk of catastrophic losses from stresses and damaging elements (fire, insects, disease, drought, etc.).

For purposes of climate adaptation, Desired Future Conditions (DFC) are generally understood to include forests that are healthy, productive, and capable of maintaining ecological function under changing climatic conditions.

Forest management can enhance resiliency in many ways, and there are opportunities for action at several points within forest management systems.

1. Maintain and Enhance Diversity

Diverse forests and diverse landscapes are generally more resilient than homogeneous ones. Diversity can be enhanced by:

- Planning for a diversity of age classes and forest types in the planning process
- Maintaining multiple species within stands and across the forest
- Protecting and encouraging habitat features such as snags and cavity trees, coarse woody debris (CWD), and structural diversity
- Protecting Rare, Threatened, or Endangered (RTE) species and habitats
- Protecting special sites and old forests

2. Prompt Successful Reforestation

Well-stocked, healthy forests are generally more resilient and provide more benefits than understocked or unsuccessfully regenerated forests. Successful regeneration can be achieved through such practices as:

- Prompt reforestation or planned natural reforestation
- Adequate regeneration and appropriate actions to correct understocked areas

- Evaluation for afforestation of areas that are not ecologically important
- Protection of desirable or planned advanced regeneration during harvest and the retention of vigorous trees during partial harvest
- Participation in seedling co-ops and research into improved varieties of planting stock

3. Maintenance of Forest Health

- Addressing any identified forest health issues in a timely manner
- Maintaining a robust monitoring program

4. Participation in Forest Protection Programs

- Participation in forest protection research programs
- Cooperation with local, regional, State, and Federal Forest protection agencies and programs (such as USDA APHIS and State fire agencies)

Adaptation Plan to Respond to Climate Change for the forest:

The following mitigations and adaptations (Adaptation Plans) address the climate-related vulnerabilities identified above and are intended to support progress toward Desired Future Conditions.

- Periodic inventory and analysis of inventory to assess effects of current management and impacts of climate change influences.
- Analysis of growth and yield to assess effects of current management and impacts of climate change influences.
- Document harvest trends per management plan.
- Incorporate the results of research into management.
- Where changing site conditions may affect the long-term suitability of existing species, facilitated transition strategies may be considered on a limited, site-specific basis, consistent with management objectives and regulatory requirements.
- Use BMPs.
- Promote healthy stands: Manage to desired trees per acre, increase thinning, select proper species for the site, support improved tree genetics, and increase control of competition to reduce the effects of drought.
- Monitor road conditions.
- Consider adaptive silviculture planning and operations, adjust mgmt. activities to accommodate precipitation variability, encourage stand species and age diversity, and increase use of soil stabilization techniques.

- Consider adjusting equipment mix to better handle less frozen ground conditions, upgrade road infrastructure to support wider seasonality, implement BMPs during harvest activities instead of waiting until the end.
- Consider increased thinnings to reduce density of stands.

SECTION

Physical Features of the Forest

GEOLOGY

SOILS

FSC-US 7.2.6.4

Site and soil characteristics—such as slope, erosion hazard, drainage class, depth, and permeability—are considered during harvest and other operational planning. Soil maps and data may be used to evaluate site productivity and to identify areas that are more vulnerable to erosion, compaction, and rutting, so operations can be planned to avoid damage.

STREAMS, WATERSHEDS, AND MAJOR WATERBODIES

Forest management on the forest will have no negative effect on water quality within the forest or downstream. Forest management may cause risks to surface waters (most notably sediment and temperature) if precautions are not taken. Key point sources for sedimentation are stream crossings on skid trails, and waterbars, ditching and stream crossings on the access roads.

To address sedimentation at stream crossings on skid trails and truck roads, Best Management Practices (BMP's) and F&W Forestry's Water Quality Policies will be followed in the construction and use of skid trails and truck roads on the forest.

The risk of elevated temperatures in surface waters will be addressed by compliance with Best Management Practices and F&W Forestry Water Quality Policies as they relate to stream management zones.

F&W Forestry Water Quality Policies are included in the APPENDIX.

FSC-US 7.2.6.3

SECTION

Biological Features of the Forest

GENERAL DESCRIPTION OF THE FOREST

WILDLIFE RESOURCES AND BIODIVERSITY AT THE LANDSCAPE SCALE

Habitat for Species with Large Home Ranges or Affected by Fragmentation

Rare, Threatened and Endangered Species

If rare, threatened or endangered species are located on the forest, they will be mapped using GPS and added to the forest GIS project. Management strategies will be developed using sound science and professional advice to protect such species or natural communities. We will look to such programs as NatureServe and The Nature Conservancy for guidance when such strategies are unclear.

FSC-US 7.2.6.1

Critical Habitats/Significant Natural Communities:

FSC-US 7.2.6.1

Maintenance Of Landscape-Scale Habitat Elements

FSC-US 7.2.5

CONTROL OF HUNTING, FISHING AND TRAPPING

FSC-US 6.6.7

OLD GROWTH FORESTS

The Forest Stewardship Council defines Old Growth as:

Old growth: The oldest seral stage in which a plant community is capable of existing on a site, given the frequency of natural disturbance events, which may include very old examples of long-lived early- or mid-seral species. The onset of old growth varies by forest community and region. Depending on the frequency and intensity of disturbances, and site conditions, old growth forests will have different structures, species compositions, age distributions, and functional capacities than younger forests. Old growth stands and forests include:

- *Type 1 Old Growth: three acres or more that have never been harvested and that display old- growth characteristics.*

- *Type 2 Old Growth: 20 acres that have been harvested, but that have retained (through any harvesting activities) significant old growth* structure and functions.*

Should Old Growth Forests be identified on the forest at a later date, they will be protected from human disturbance to protect their unique characteristics.

FSC-US 6.8.2

INSECTS AND DISEASE

Forest insect pests, tree diseases, and other forest health issues are assessed and addressed at the time of management planning, operational planning, and in response to specific outbreaks.

FSC-US 7.2.9

INVASIVE SPECIES

Invasive plant species have the potential to invade the forest and alter its character and biodiversity. If left unchecked, invasive species can out-compete and crowd out native species through the formation of dense thickets, and they may interfere with or prevent future attempts to establish desirable regeneration.

Various control options are available and consist of manual, mechanical and chemical methods. In most situations, it is recommended that invasive species control be conducted as soon as they are detected, and before any active forest management begins.

A strategy for control of invasive plant species may be as simple as a single control treatment of scattered plants, or as complex as multiple treatments of large infestations over months or years. A 'no activity ' strategy may be appropriate in some cases.

In all cases except the simplest, a written strategy, preferably developed in consultation with regulatory bodies or referencing authoritative information, should be prepared. It should include:

- an assessment of the presence and extent of the invasive species and the degree of threat to native species and ecosystems;
- description of management activities that minimize the risk of invasive species establishment, growth, and spread;
- monitoring of control measures and management activities to assess their effectiveness in preventing or controlling invasive species.

F&W Forestry has recognized the threat posed by invasive species and has developed a policy to address the issue. That policy is included in the APPENDIX of this management plan.

FSC-US 6.6.4 FSC-US 7.2.8

DISTURBANCE REGIMES

Forests are naturally replaced when overstory trees die, providing growing space and sunlight to the forest floor which enables new trees to germinate and grow. Overstory trees die in many ways. Individual trees will ultimately die of old age in the absence of other factors.

Natural disturbances occur in events as small as the death of single trees, to as large as stand-replacing events. Fires, both from lightning and human sources, have had a major influence on the forest. Wind events, typically associated with thunder storms or hurricanes, can knock trees down or damage them enough to make them more susceptible to insects, disease and fire. Other weather events include damage from ice, snow and spring frost. In general, the larger, stand-replacing events happen at less frequent intervals.

Biotic disturbances can also be single-tree or stand-replacing events. In the early twentieth century, the Chestnut Blight eliminated the American chestnut from eastern North America. Gypsy moth and Beech-bark disease are more recent examples of biotic disturbances. Secondary insects can attack individual stems as they become stressed, damaged or otherwise weakened.

REGULATION, LONG TERM YIELD AND GROWTH

Regulation in forestry is control over the structure of the forest to meet the owner's objectives for yield. In this case, the yield objective is to release capital through the harvest of high quality, financially mature sawlogs. Intermediate harvest activity (thinning) should be timed to keep stocking levels and growth at their optimum, so that the time to final harvest and financial maturity is reached as quickly as possible. Financial maturity is influenced by tree size and products as well as the available markets for those products.

The distribution of age and size classes throughout the forest has a direct impact on the continuity of yields. If there is equal representation of the various age and size classes, yields will flow steadily as that portion of the forest reaching maturity stays constant through time. If the distribution of age and size classes within the forest is skewed, yields will vary through time accordingly. While the health and sustainability of the forest is not dependent upon the resulting pattern of yield, the diversity of the larger landscape is an important element in regional forest health and needs to be considered.

The current distribution of age and size classes throughout the forest is directly influenced by past management decision, whether that be by the current owner of the timberlands or previous owners.

Sustained Yield Harvest Calculation

The FSC-US Standard requires that: *The Organization shall normally harvest products and services from the Management Unit at or below a level which can be permanently sustained. Sustained yield harvest level for each planning unit is based on an analysis of best available information including: growth and yield; inventory of the forest; mortality rates; areas reserved from harvest or subject to harvest restrictions; and maintenance of ecosystem function.*

FSC-US FSS 5.2

The *Sustained Yield Harvest Level* is defined by FSC-US as: *Harvest levels and rates that do not exceed growth over successive harvests, that contribute directly to achieving desired future conditions, and that do not diminish the long-term ecological integrity and productivity of the site.*

The FSC-US Standard requires that the Sustained Yield Harvest Level Calculation be based on:

- growth and yield;
- inventory of the forest;
- mortality rates;
- areas reserved from harvest or subject to harvest restrictions; and
- maintenance of ecosystem function.

FSC-US 5.2.2

SECTION

Cultural/Social Features of the Forest

RECREATION

AESTHETIC IMPACTS OF MANAGEMENT

The aesthetic value of the forest is recognized as a social value, particularly along public highways and near residences.

Forest management activities will consider the impact on the social aesthetic value as part of the planning process. Examples of strategies to manage the aesthetic value include the use of visual buffers, limits on harvest unit size, and retention of trees when these activities are complimentary with the ownership and silvicultural objectives of the activity. These strategies may be used where appropriate and in-line with the owners' objectives on the forest.

In the event that there are aesthetic, cultural, historical, wildlife, riparian, soil, or other resources of such unique nature that they are not adequately protected by current F&W Forestry policies, specific experts will be consulted in order to protect the unique resource.

SOCIAL IMPACTS OF MANAGEMENT

Forest management activities can affect people and communities in different ways. Some effects may be positive, such as providing jobs or recreation opportunities, while others may be negative, such as temporary changes to access, scenery, or use of the forest. These potential impacts are considered during planning so that management activities are consistent with ownership objectives, applicable laws, and the FSC FSS, and so that social values are maintained over time.

The following social values are influenced by management decisions and activities:

Local And Regional Economic Opportunities

Management activity provides local and regional economic opportunities through, at least, forestry work, logging, trucking, and mill work. Harvest reductions, set asides and deferrals can have a negative impact on these opportunities, but may provide different opportunities in other areas.

Public Access To And Use Of The Forest

Public access to and use of the forest may provide public benefit, but must be balanced with landowner objectives.

Identified Legal Or Customary Rights

Identified legal or customary rights are respected in management decisions, and management should not diminish these rights.

Other Values Important To Local Communities

Such as scenic quality, recreation opportunities, and community character may be considered but must be balanced with landowner objectives. In all cases, maintaining forests as forests through productive forestry maintains many of these values, but there are situations when conventional forestry activities will have negative impacts on some social values, in the opinion of some observers, such as scenic views and recreational opportunities.

Ceremonial, Archaeological, And Historic Sites

These sites are avoided or protected through measures described elsewhere in the management plan. As such, there should be no negative impacts to these sites.

Workers' Rights, Gender Equity, And Occupational Health And Safety

These values are addressed through compliance with applicable labor laws, contracts, and safety requirements. As such, there should be no negative impact to these values.

Traditional Cultural Resources And Associated Rights

Where such resources or rights are present and identified, they can be avoided and protected to minimize adverse impacts.

Social impacts and values may be reviewed during management planning and periodic management plan updates. Where potential negative impacts are identified, management may be adjusted to avoid, minimize, or address those impacts, while supporting long-term management objectives.

Review of outcomes and effectiveness is addressed through monitoring as described in this management plan.

FSC-US 5.3.1 FSC-US 7.2.12

ARCHEOLOGICAL/HISTORIC/PREHISTORIC SITES AND OTHER CULTURAL FEATURES

Cultural resources include the artifacts and evidence of human activity on the land. Significant cultural resources are often the remains of abandoned dwellings and former agricultural or other land uses.

Such features and sites should be mapped in F&W Forestry's GIS of the property. Significant cultural resources should be avoided and protected during forestry activities. In general, protection of these features and sites may involve the following:

- Minimizing or avoiding crossings of stone walls, or using crossings which have previously breached and degraded the wall;

- Avoiding disturbance of large stone piles;
- Delineation of the immediate vicinity of foundations and other extensive features as machine exclusion areas;
- Operating equipment in the vicinity of significant sites during periods of dry ground, frozen ground and/or deep snow cover.

SPECIAL SITES REQUIRING PROTECTION

FOREST ECOSYSTEM SERVICES AND RESOURCES THAT SUPPORT PUBLIC VALUES

Forests provide services and resources that support healthy natural and human communities. Forests play a key role in water cycles, both holding water in forest soils and trees, and in releasing water through transpiration. Forests sequester carbon through photosynthesis, and store carbon in trees, other plants and forest soils. Soils provide habitat for wildlife and support natural communities and biodiversity.

FSC-US 7.2.6.7

ECONOMIC IMPACTS OF MANAGEMENT

Productive forest (those producing conventional commercial forest products) contribute to local, regional and national (or wider) economic systems. Forests enrolled in carbon programs involving a deferral of harvest, may generate revenue which can fund stewardship practices or contribute to other economic activity. Other forests may have an economic impact through other activities such as recreational use or leases.

FSC-US 5.1.1

SECTION

High Conservation Value Areas

HIGH CONSERVATION VALUE FORESTS

FSC introduced the concept of High Conservation Value Forests (HCVFs) in 1999 to ensure identification and proper management of forest areas with exceptional conservation value. FSC defines High Conservation Value Forests as those that possess one or more of the following High Conservation Values (HCVs):

1. HCV forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia);
2. HCV forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;
3. HCV forest areas that are in or contain rare, threatened or endangered ecosystems;
4. HCV forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control);
5. HCV forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health); or,
6. HCV forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

FSC certification prioritizes the protection of these valuable forest ecosystems.

HCV's are assessed for the forest in the HCVF Identification and Assessment document. This document also describes the process by which high conservation values are identified, assessed, and if designated, monitored. The assessment and identification is conducted by F&W Forestry Services Inc. in consultation with stakeholders, experts and other qualified parties and resources.

SECTION

Representative Sample Areas

FSC-US Criterion 6.5 states that "The Organization shall identify and protect Representative Sample Areas of native ecosystems and/or restore them to more natural conditions. Where Representative Sample Areas do not exist or are insufficient, The Organization shall restore a proportion of the Management Unit to more natural conditions.

FSC uses the concept of Representative Sample Areas (RSA's) to address this Criterion. RSA's are intended to:

1. Establish and/or maintain an ecological reference condition,
2. Create or maintain an under-represented ecological condition,
3. Serve as a set of protected areas or refugia for species, communities and community types not captured in other Criteria of this Standard.

To ensure that "representative sample areas of native ecosystems" are protected, all forests under F&W FSC management conduct a Representative Sample Area Assessment as required by the FSC Standard.

Best available information is used to identify native ecosystems that would typically occur within the management unit. For each identified ecosystem, F&W assesses the adequacy of representation and protection within the landscape in which the management unit occurs. F&W typically seeks to identify RSAs which are adequately protected outside the management unit.

F&W uses US Geological Survey's Gap Analysis Project (GAP) status as an indicator of protection level, and as described in the FSC-US FSS, F&W considers that "Protected" is generally aligned with GAP Status 1 and GAP Status 2, and under certain circumstances, GAP Status 3.

If there are no GAP Status 1 or 2 areas identified as potential Representative Sample Areas, F&W will assess Gap Status 3 areas, or designate RSAs on the management unit. If RSAs are identified within the management unit, they will be managed to conserve the ecosystem.

The one exception to this process involves management units with greater than 5% of the management unit on lands where natural ecosystems were converted to plantations. (Lands converted from agricultural use to forest plantation do not contribute to this proportion.) In these cases, Representative Sample Areas are ONLY designated inside the management unit.

FSC-US 6.5 FSC-US 7.2.6.5

SECTION

Conservation Area Network

FSC-US Indicator 6.5.7 states that *Representative Sample Areas designated per Indicator 6.5.2 and areas being managed to restore more natural conditions per Indicator 6.5.3, in combination with other components of the conservation areas network, comprise a minimum 10% area of the management unit.*

This indicator states that 10% of the forest management unit must be designated as a Conservation Area Network.

Amongst other categories, the FSC-US FSS lists the following common categories of land which can contribute to the Conservation Area Network:

- Areas managed primarily to conserve ecosystem services[1]
- Areas managed primarily to prevent negative impacts of management activities on environmental values and thereby conserve those values
- Areas managed primarily to protect rare, threatened and endangered species and their habitats
- Areas established as Representative Sample Areas (RSAs), including both RSAs* with conservation and with restoration objectives, and areas being managed to restore more natural conditions
- Areas managed primarily to conserve rare ecological communities

F&W interprets these categories as including, at least: RSA, areas managed for carbon sequestration, areas managed for conversion of plantations to semi-natural forests, RTE species habitat requiring certain management practices, and areas of rare natural communities and their buffers.

FSC-US 6.5.7 FSC-US 7.2.6.6

[1] **Ecosystem services are defined by FSC-US as follows:** The benefits people obtain from ecosystems. These include:

- provisioning services such as food, forest products and water;
- regulating services such as regulation of floods, drought, land degradation, air quality, climate and disease;
- supporting services such as soil formation and nutrient cycling; and
- cultural services and cultural values such as recreational, spiritual, religious and other non-material benefits.

SECTION

Management

SILVICULTURE

The forests in F&W's group certifications will be managed under a standard program of silviculture, as described below:

Generally, management will follow either standard even-aged management practices including:

- Harvest of mature stands by clearcut and partial cuts
- Tending of immature stands by intermediate thinnings
- Prompt reforestation of harvested areas by planting regionally-suited varieties of Loblolly pine (a native species).

Or uneven-aged management practices including:

- Single tree and group selection
- Analysis of age classes to target a balanced age class distribution
- Reforestation usually by natural regeneration

Successful silviculture requires both the tending of immature stands and the regeneration of mature or poorly performing stands. As such, active forest management should strive to maintain or enhance timber quality during tending treatments and regenerate harvested sites in a timely manner to desirable species.

FSC-US 10.1.1

Practices such as significant resource protection zones, retention, and wildlife habitat feature protections will ensure that the non-timber resources of the forest will also be sustained over the long-term.

Plantations:

Plantations on the forest are managed to conform with all requirements of the current FSC-US Forest Management Standard, and the FSC-US FSS, including opening size and retention (see F&W's Policies and Procedures Manual)

Plantations on the forest may be harvested and reforested for continued management as plantations, or for conversion to semi-natural planted stands. Such decisions are made on a stand-by-stand basis and are documented in a preharvest plan.

FSC-US PL 6.6.9

Plantations on the forest are managed as productive and efficient components of the forest management unit, and therefore contribute to and support, both on the FMU and regionally, the maintenance of forests as forests (avoiding conversions of these forests and, by displacement of production, the over-exploitation or conversions of less productive forests including natural and semi-natural stands.)

FSC-US 7.2.14

WATER QUALITY PROTECTION

Typically, if water quality degradation occurs on a harvesting operation, it is likely to occur as a result of sedimentation from roads, skid trails or landings. Another more minor, but still important, detriment to water quality is an increase in temperature.

F&W Forestry has a water quality protection policy and water quality protection guidelines that depend on the type of stream or water body. The overriding goal is to keep sediment out of the water and maintain water temperature.

One key element of water quality protection is the establishment and protection of riparian areas, which act as buffers, sediment traps and habitat for terrestrial and semi-terrestrial species along water bodies. Specific riparian area widths established as protection zones are described in State-level BMP regulations, and in the FSC-US FSS for the Appalachian, Ozark-Ouachita, Mississippi Alluvial Valley, and Pacific Coast FSC regions. Where BMP or FSC guidance is unclear, F&W provides general widths to follow in the FSC Policies and Procedures Manual.

Management of riparian areas should maintain, enhance, and/or restore the plant and wildlife habitat of riparian areas to provide:

- habitat for aquatic species that breed in surrounding uplands;
- habitat for predominantly terrestrial species that breed in adjacent aquatic habitats;
- habitat for species that use riparian areas for feeding, cover, and travel;
- habitat for plant species associated with riparian areas; and
- stream shading and inputs of wood and leaf litter into the adjacent aquatic ecosystem.

FSC-US 6.7.1

HARVEST AND OTHER OPERATIONS

By its nature, timber harvesting is a disruptive process. Silvicultural operations may be intended to mimic a natural disturbance such as windthrow or fire. Therefore, reduction of canopy density, overstory removal and ground scarification are intended to have significant environmental impacts. Harvest operations are designed to effectively create the desired conditions of density, species

composition and ground disturbance, while minimizing detrimental environmental impacts, such as erosion and sedimentation. It is acknowledged that, while these detrimental impacts can be significantly reduced, they cannot be completely eliminated in all situations.

In general, all management activities, including site preparation and harvest, and including timing, planning and equipment, should protect soil, water resources, residual trees, and other forest resources to the extent possible. Negative impacts may be mitigated by application of Best Management Practices and SOPs. F&W provides guidance on some specific issues (such as Wet Season/Wet Site guidance in the F&W FSC Policies and Procedures Manual). Nevertheless, as stated above, timber harvesting is a disruptive process, and the same can be said for site preparation before planting.

FSC-US provides benchmarks for some risk areas in FSC-US Indicator 10.11.3. These include:

- Logging and other activities that significantly increase the risk of landslides are excluded in areas where risk of landslides is high.
- Slash is concentrated only as much as necessary to achieve the goals of site preparation and the reduction of fuels to moderate or low levels of fire hazard.
- Whole tree removal is only implemented when best available information indicates that it will maintain or enhance the long-term health of the soil and other forest resources.
- Disturbance of top soil is limited to the minimum necessary to achieve successful regeneration of species native to the site.
- Rutting and compaction are minimized.
- Soil erosion is not accelerated.
- Broadcast or under burning is only done when consistent with natural disturbance regimes, or where risk of wildland fire needs to be mitigated.
- Natural ground cover disturbance is minimized to the extent necessary to achieve regeneration objectives.
- Residual trees are not significantly damaged to the extent that health, growth, or values are affected.
- Damage to non-timber forest products is minimized.

While F&W supports conformance with the FSC-US FSS, we also note that some of these items (especially those related to disturbance of topsoil and natural ground cover) are likely not achievable in any conventional harvest operation.

Specifically regarding whole tree harvesting, F&W relies on studies such as WALL, A, *Risk analysis of effects of whole-tree harvesting on site productivity* (2012), and Good Forestry in the Granite State, 3.5 Soil Productivity.

These studies describe the risks posed by whole tree harvesting, and specifically the risk of nutrient depletion by removal of the whole tree including small branches and foliage where in-tree nutrients may be concentrated.

F&W will continue to use whole tree harvesting in certain situations, taking into account such factors as site, soils, silvicultural treatment, frequency of whole tree harvesting, and economics. Decisions on what harvest method is best may be informed by the following guidance from the studies listed above:

- The risk level of change in indicators of site productivity following clear-cutting with whole-tree harvesting might be high enough to justify a need for mitigation measures. (WALL)
- Following thinning with whole-tree harvesting, the probability of occurrence of the negative effects and the risk levels were lower in comparison to clear-cutting. Therefore, mitigation measures at thinning may not be needed. (WALL)
- The greatest concern for nutrient depletion arises when the more intense practices are applied repeatedly on sites already low in nutrients (e.g., most coarse-textured sands, some shallow-to-ledge soils, and some soils with high seasonal water tables). (GFITGS)
- In general, whole-tree harvests by the clearcut method on short rotations (e.g. 40 years) should produce the greatest nutrient losses. (GFITGS)

FSC-US 10.11.3

PESTICIDE USE

Chemical pesticides are used and may be used in the future for the following purposes:

- Competition Control
- Site Preparation
- Invasive Species Control

There are NO PLANS for the use of biological control agents.

Chemical pesticides, and especially chemical herbicides are a commonly used, powerful, and necessary tool in many managed forest ecosystems.

FSC has extensive policies and requirements regarding pesticide applications. It is the intent of F&W Forestry to comply with these policies and requirements on lands within the F&W FSC Group.

It also should be noted by all landowners and managers within F&W's FSC Certification Group that the FSC Pesticide Policy starts with this statement of objectives:

The short-term objectives of the FSC Pesticides Policy are to:

- *Promote best practices to minimize associated risks to human health and the environment when using chemical pesticides;*
- *Reduce the overall volume and number of chemical pesticides in use; and*
- *Eliminate the use of the most hazardous chemical pesticides.*

The long-term aim of this Policy is to eliminate the use of chemical pesticides in the management unit.

F&W supports the short term objectives described above. F&W notes that certain inherent obstacles will need to be overcome to achieve FSCs long-term aim for the pesticide policy. F&W currently does not see solutions to many obstacles in the way of this long-term aim.

In brief, the responsibilities of the manager considering a pesticide application on F&W FSC lands include the following:

- Follow all F&W Forestry internal policies regarding pesticide applications.
- Follow all applicable laws and regulations
- Develop a written plan for the application, documenting the details of the application, and the decision process, using the F&W FSC GROUP CERTIFICATION PESTICIDE APPLICATION PLAN. This plan serves as F&W's Integrated Pest Management Plan and as such is required for conformance with FSC-US 10.7.
- Determine the FSC status of all chemicals to be applied using the FSC Highly Hazardous Pesticide List
- Collect, review, and reflect in the application the FSC Environmental Social Risk Analysis (ESRA) for all chemicals to be applied (excepting surfactants and adjuvants).
- Conduct the pesticide application in alignment with the written plan.
- Record the details of the actual application using the F&W FSC GROUP CERTIFICATION PESTICIDE APPLICATION RECORD.
- Inspect or monitor application sites as appropriate, but at least one time post-application, at a time when effectiveness can be assessed, but no later than one year after application. Record monitoring or inspection on the F&W FSC GROUP CERTIFICATION PESTICIDE APPLICATION MONITORING REPORT.

FSC-US 7.2.10

GENETICALLY MODIFIED ORGANISMS

Genetically modified organisms (i.e., GMOs) are not used.

FSC-US 10.4.1

ROADS AND OTHER INFRASTRUCTURE: CONSTRUCTION, MAINTENANCE AND RESILIENCE TO NATURAL HAZARDS

All private roads should be maintained in accordance with BMPs and should be kept in stable and well-drained condition.

Roads, landings, skid trails, and other infrastructure are necessary to support forest management activities; however, they also represent potential sources of environmental impact, both during customary use and when exposed to natural hazards.

The FSC-US Standard therefore requires that infrastructure be planned, constructed, and maintained in a manner that minimizes impacts to environmental values and reduces risks associated with natural disturbances.

The FSC-US FSS Indicator 10.9.1 requires an assessment of potential impacts of natural hazards on infrastructure, forest resources, and communities within the management unit. (There are no communities within the management unit on this forest.)

While catastrophic failures of infrastructure and impacts to forest resources are always possible, the following practices mitigate the risks of severe impacts from natural hazards: adherence to BMPs in infrastructure construction and maintenance, addressing forest health and resilience in management activities, prompt reforestation after harvest, monitoring during natural hazard events and prompt response to negative effects. Without such mitigating activities, there is potential for management activities to increase the negative effects of natural hazards.

FSC-US 10.9.1 FSC-US 10.9.1.1

It should be noted that some natural hazards play a positive role in ecosystem function (such as regeneration after wildfire). While maintaining an objective to protect and maintain infrastructure and forest resources, foresters should consider the ecosystem functions of natural disturbances where feasible.

FSC-US 10.9.1.2

Infrastructure Design, Construction, and Maintenance

Infrastructure and the transportation system should be constructed and maintained to minimize impacts on environmental values. Roads and other infrastructure should be constructed and maintained with attention to minimizing disturbance and maintaining forest and watershed function. State-level BMPs and F&W policies and procedures are the best sources of guidance to plan and implement construction and maintenance projects, while minimizing negative impacts.

In addition to road, trail and landing stability, erosion protection and resiliency, other issues to consider include:

- road and infrastructure density;
- soil disturbance and erosion;

- sediment delivery to streams, wetlands, and other water bodies;
- fragmentation of wildlife habitat and movement corridors; and
- the total area converted to roads, landings, and skid trails.

Access and off-road travel should be managed to limit unnecessary disturbance. Where appropriate, roads or other infrastructure no longer needed to meet management objectives may be prioritized for closure or rehabilitation

FSC-US 10.10.1

BOUNDARY MAINTENANCE

CONVERSIONS

F&W Forestry believes that, while respecting landowner objectives, in most cases forests are best maintained as forests.

Except under limited and specific circumstances, FSC does not permit the conversion of forest to non-forest uses, nor the conversion of natural or semi-natural stands to plantations.

FSC-US 10.6.1

ENVIRONMENTAL IMPACTS OF MANAGEMENT

The FSC-US FSS indicator 6.1.2 requires that environmental values identified within the management unit are assessed with sufficient detail and frequency to evaluate potential impacts and risks, identify conservation measures, and support monitoring.

Assessment of Environmental Values

Environmental values including soils, water resources, riparian areas, wildlife habitat, sensitive features, and other site-specific environmental conditions, are reviewed during pre-harvest planning. Existing conditions are documented and potential impacts are considered.

The level of detail in this assessment is sufficient to:

- assess potential impacts of management activities on environmental values;
- identify risks to those values associated with the activities;
- identify conservation measures needed to protect environmental values; and
- support monitoring of impacts or environmental changes following implementation.

FSC-US 5.3.1

Pre-harvest planning is accomplished through completion of the Pre-Harvest Plan Form in the F&W FSC East Policies and Procedures Manual, and the Pre-Harvest Plan App (F&W SOP).

These forms are used to document:

- environmental values present on the site;
- planned protection measures; and
- post-harvest management intentions

F&W foresters complete these forms prior to harvest. Consultation is conducted with key stakeholders, including easement holders or other rights holders.

Information gathered during pre-harvest planning is used to guide management decisions and define how activities will be carried out in order to avoid or reduce negative impacts to environmental values. Where feasible, management strategies are designed to prevent impacts. Where impacts cannot be fully avoided, strategies are used to minimize effects while maintaining environmental values.

FSC-US 6.3.1

If negative impacts to environmental values occur as a result of management activities, measures may be taken to prevent further damage and to mitigate or repair impacts, as appropriate.

FSC-US 6.3.2

MONITORING

Monitoring Purpose: Monitoring indicators are used to check progress toward management objectives, including Desired Future Conditions (DFC), and to support adaptive management decisions.

When monitoring suggests that objectives are not being met, then F&W can consider various responses: confirm monitoring is accurate, adjust objectives if unrealistic, adjust management and the management plan to better address objectives.

FSC-US 8.3.1

Monitoring addresses the following factors.

Forest Products Yield: Harvest volumes are tracked by the managing forester relative to calculated sustained yield harvest levels. Forest inventory data are adjusted for growth and actual harvest results. This factor will be monitored, at least, at the time of management plan update. Inventory is managed by the regional office and tracks actual and projected timber harvests by species, volume, stocking, regeneration status, stand and forest composition and structure, and timber quality. Inventory data are updated to reflect growth and completed harvest activities.

Forest Growth, Regeneration, and Condition: This factor is monitored through forest cruising, inventory updates, tract inspections, and timber sale inspections. Monitoring includes Seedling Delivery and Inspection, Pre-Harvest Inspections, Harvest Inspections, BMP Compliance Inspections, Tract and Stand Condition Inspections, and Roadwork Inspections. F&W Forestry mobile applications are used to document these observations. This factor will be monitored, at least, at the time of management plan update.

Flora and Fauna Composition and Change: This factor is monitored through tract inspections and timber sale inspections. Observations are documented using F&W Forestry applications including T&E Observations, Pre-Harvest Inspections, Harvest Inspections, BMP Audits, and Tract and Stand Inspections. This factor will be monitored, at least, at the time of management plan update.

Environmental and Social Impacts of Harvesting and Other Management Activities: Environmental impacts are monitored through cruising, inventory, tract inspections, timber sale inspections, pesticide application inspections, and review of applicable Environmental and Social Risk Assessments. Monitoring data are recorded using F&W Forestry applications including Hazardous Spill Response, T&E Observations, Seedling Delivery and Inspection, Pre-Harvest Inspections, Harvest Inspections, BMP Audits, Tract and Stand Inspections, Roadwork Inspections, and Logging Contract Administration. This factor will be monitored with a target frequency based on F&W SOPs.

High Conservation Value (HCV) Areas: HCV areas are monitored to ensure the maintenance and/or enhancement of identified High Conservation Values. This factor will be monitored, at least, at the time of management plan update. (Currently monitored annually.) If necessary, operational monitoring of HCV protection measures during active management activities will occur with a target frequency based on F&W SOPs.

Stand-Level Habitat Diversity: Forest inventory data are used to characterize stand-level diversity, including tree size distribution, species composition, canopy structure, and stand condition. Data on tree size, species, height, and canopy closure are collected through inventory and field inspections. This factor will be monitored, at least, at the time of management plan update.

Landscape-Level Habitat Diversity: Landscape-scale diversity is monitored through GIS data layers (e.g., wetlands, RTE species, land cover). Landscape trends are reviewed during management plan updates (see the **Land Uses and Trends in the Landscape** and **Disturbance Regimes** sections). This factor will be monitored, at least, at the time of management plan update.

Monitoring impacts on Social Values: F&W Forestry monitors social impacts primarily through engagement with stakeholders, including neighbors, leaseholders, rights holders, and local communities. Native American groups and communities holding applicable rights are identified and engaged where relevant. Cultural or special sites, when identified, are mapped using GPS, incorporated into the forest GIS, protected from adverse impacts, and monitored during operations. F&W supports local economic and social development through use of local services, processing, and value-added manufacturing. This factor will be monitored, at least, at the time of management plan update.

Costs, Productivity, and Efficiency of Forest Management: Costs, productivity, and efficiency are monitored through the annual and project-level budgeting process and periodic reporting to management and timberland owners. This factor will be monitored, at least, at the time of management plan update. It is also monitored in many cases through the annual budget process.

Climate Impacts and Adaptation Effectiveness: Climate impacts and adaptation effectiveness are monitored through standard project- and site-level inspections. Issues such as severe weather impacts, infrastructure resilience, and forest health conditions are documented, and monitoring results inform management decisions. This factor will be monitored, at least, at the time of management plan update. Site-level observations during operations will be monitored with a target frequency based on F&W SOPs.

Non-Timber Forest Products (NTFPs): Non-timber forest products are rarely harvested on F&W-managed forests. Where NTFP harvesting occurs, volumes are tracked to ensure sustainable yield levels. This factor will be monitored, at least, at the time of management plan update.

Monitoring Systems and Quality Control: All aspects of operations are monitored on a continual but unscheduled basis. Managers are responsible for overseeing staff and contractor performance. Logging operations are monitored through frequent site visits to verify safety, product quality, and compliance with contract requirements. Inventory projects serve as a systematic monitoring tool for forest conditions. This factor will be monitored with a target frequency based on F&W SOPs. F&W Forestry administers a quality control program that includes internal operational audits and inventory audits. All certification programs maintained by F&W include internal monitoring components to ensure compliance with applicable certification standards.

Monitoring Review and Adaptive Management: Monitoring results are periodically reviewed and analyzed. Where monitoring indicates that management objectives or verifiable targets are not being achieved, management practices may be adjusted to improve outcomes. This review will occur, at least, at the time of management plan update.

FSC-US 6.6.4, 8.1.1, 8.1.2, 8.2.1, 8.2.2, 9.4.1, 10.3.1, 10.8.1

SUSTAINING FOREST HEALTH AND PRODUCTIVITY

As a company, F&W Forestry believes that it has a professional and ethical obligation to recommend and implement forest practices that assure that the long-term health and productivity of the forests it manages are sustained. Maintaining the integrity of forest ecosystems, promoting biodiversity and forest productivity, and protecting critical habitat are all aspects of forest management that must be considered to assure forest health is maintained over the long term. Forest practices must also consider the larger landscape in which the forest ownership is located, and manage within the context of the regional ecosystem.

Although in most cases ownership investment objectives, timber production and protecting forest health are entirely compatible and often synonymous, situations may arise where they are not. In these situations, F&W Forestry has an obligation to advise owners against activities that are detrimental to forest health and to recommend alternatives. F&W also has an obligation to owners to advise on the financial impact to the investment of protecting forest health and sustainability.

To be sustainable, forest management must assure that future generations are not more limited in resource use options than present conditions allow. The following management principles are endorsed by F&W Forestry to assure this objective is met.

1. *Regeneration* - All harvest systems and final harvest cuts, except those where a change of land use is planned, are designed to provide for or accommodate acceptable regeneration of a healthy new stand. Specifically, forests certified under the SFI Standard are managed to comply with the following requirement: *Documented reforestation plans, including designation of all harvest areas for either natural, planted or direct seeded regeneration and prompt reforestation, unless delayed for site-specific environmental or forest health considerations or legal requirements, through planting within two years or two planting seasons, or by planned natural regeneration methods within five years.*
2. *Genetic Quality* - Tree quality and health are controlled not only by environmental factors but also genetic factors. Management decisions are therefore designed to favor vigorous, superior quality stems over lesser quality stems to assure that genetic quality is maintained. Cutting that removes only the highest quality stems for short term financial gain, leaving a residual stand with reduced long-term potential, is strongly discouraged.
3. *Biodiversity* - Many natural forests are naturally biodiverse, with a healthy mix of tree species, plants and habitat types occurring in fairly homogeneous stands. While management is generally designed to make specific stands more homogeneous in pursuit of productivity and quality, biodiversity may be maintained within the stand and, on a forest wide level, enhanced through regulation of the overall forest structure. Plantations are non-diverse by definition. Biodiversity may be achieved by tract-level diversity of stands or age classes. Conversion of existing healthy natural stands to plantations is discouraged. Where biologically and economically appropriate, management may recommend maintaining ecological reserves where portions of the forest are allowed to reach biological maturity rather than financial maturity to further enhance biodiversity.
4. *Wetland, Streams, and Soil Erosion* - All logging and road construction activities are conducted to have no permanent adverse impact on water quality and wetlands. Most states have established "Best Management Practices" (BMPs) as guidelines or regulations for protecting streams and wetlands, and preventing soil erosion. Standards required by F&W Forestry routinely meet or exceed state BMPs. Documented post-harvest inspections note adherence to BMPs and the quality of protection of soil and water resources.
5. *Wildlife* - Planning of forest practices and timber harvesting will include consideration of impact on wildlife populations. Where no specific ownership goal exists concerning wildlife species, and there are no endangered or otherwise regulated wildlife populations, management objectives will be to protect and preserve any critical habitat areas, to encourage a diversity of habitat conditions that

allow a diversity of wildlife species to thrive, and to control populations where appropriate to assure the carrying capacity of the forest is not exceeded and overall forest health is maintained.

6. *Cultural Resources* - Forest practices must be considered in the context of the local community and the social values the forest provides. Aesthetic impact on the surrounding community must be considered in planning forest practices. Historical public use and access to the forest, where not in conflict with management activities and landowner objectives, and when not creating undue liability exposure, should be allowed to continue. Historical sites, such as abandoned settlements, mill sites, graveyards and cellar holes should be identified and protected as appropriate. Local contractors, mills and other businesses should be employed where appropriate.

SECTION

Forest Inventory

DESCRIPTION OF INVENTORY PROCEDURE

MOST RECENT INVENTORY SUMMARY

SECTION

Stand/Type Descriptions and Management

DESCRIPTION OF LAND CLASSIFICATION SYSTEM

The following land classification system is used to organize data for the forest.

Standard F&W Forestry stand designations are composed of up to five attributes. This system is used for all tracts and ownerships and is used widely throughout the southeast and Appalachian states.

Standard F&W Forestry stand designations

- **Stand Origin** –This refers to how the stand originated. See Stand Origin Codes and Definitions in the Appendix.
- **Land Type** – This represents the land type for the stand. Refer to Land Type Codes and Definitions in the Appendix.
- **Primary Species or Cover Type** – This represents the major species, or sole species or cover type for the stand. This is required for all stands. Primary species or cover types compose 50% or more of the total basal area. Refer to the F&W Cover Type Codes. Note that non-forest stands over 1 acre should be mapped and are identified with a cover type code representing the non-forest land use.
- **Secondary Species or Cover Type** – This represents the secondary species and should be used with F&W Cover Type Codes in the Appendix. Secondary species or cover types (when present) compose 25% or more, but less than 50% of the total basal area. Use mixed stand codes for primary and secondary codes if no single species meets the threshold basal areas: for instance: MXHW-Mixed Hardwood
- **Year of Origin** – The year the stand was established. For plantations, this represents the best estimate of the exact year planted. For early winter plantings (November and December) the following year is assigned as the actual planting year. A December 2000 planting would have a 2001-year origin. For natural/coppice stands, assign year of origin to the nearest 10-year period (i.e. NUMP-1950, NUMP-1960, or NLMH-1940). This metric is required for all forested and cutover stands.

SUPPORTING POLICIES

Appendix

APPENDIX

F&W Forestry Statement on Invasive Plant Species

Original Draft: February 23, 2021 Revised: March 30, 2021

POLICY STATEMENT

F&W Forestry understands that invasive plants can pose a substantial threat to the management, health, sustainability, and economic viability of forests, agricultural lands, and water resources.

F&W Forestry understands that invasive plant species pose challenges at both the individual forest level and at the landscape level and, as such, effective solutions may require action by both the individual landowner and by institutional and/or governmental bodies to successfully address the problem.

F&W Forestry understands that invasive plants do not recognize property boundaries, that effective control measures can be prohibitively expensive, and that control strategies are evolving and have not yet been fully developed. In some cases, the complexities of the invasive plant problem can exceed the capabilities of individual landowners.

THUS, F&W COMMITS TO …

- Follow all laws and regulations regarding control of invasive plant species.
- Provide our foresters with the tools and training necessary to allow them to recognize invasive species in the regions where they work.
- When invasive plants are recognized on F&W-managed forestland, F&W will evaluate, on a case-by-case basis, the control options available, taking into account the level of threat, the cost of control, and the likely impact of no control.
- Communicate management options and any pertinent stewardship, compliance, or environmental issues to our clients, so that they can make appropriate and informed decisions.
- Implement control measures, upon the approval of our client, and if both operationally and economically feasible.
- If control measures involve the application of herbicides; F&W will assure that herbicides are applied by appropriately trained and licensed personnel, and only according to all label instructions and precautions.
- When required by law, regulation or applicable certification program, F&W will record herbicide applications in an appropriate manner.

As to the use of mulch and seed for erosion control, F&W recognizes that while mulch and seed are commonly used to stabilize soil disturbed by logging and road building activities, such products often contain a variety of ingredients, some of which may contain the seed of invasive species.

THUS, F&W COMMITS TO …

- Obtain from the vendor a listing of the contents of seed and mulch products.
- If required by regulation or an applicable certification program, utilize products certified by the vendor as containing only native non-invasive plant species. In other situations, products certified by the vendor as containing only seed of native non-invasive plant species will be strongly preferred.
- If required by regulation or an applicable certification program, only hay, straw, or other matting material certified by the vendor as weed-free shall be used. In other situations, hay, straw, or other matting material certified as weed-free by the vendor will be strongly preferred over hay or other products with respect to which such certification cannot be obtained or which are known to contain invasive or unknown seed.
- Should products with non-native or invasive species seed be used, the application date, location and species will be recorded in the project file. If required, the site will be monitored for the designated period.

CERTIFICATION PROGRAM GUIDANCE

American Tree Farm (See ATF Standard 4.2)

Landowner shall consider a range of forest management activities to control pests, pathogens and unwanted vegetation.

Sustainable Forestry Initiative (See Performance Measures 2.2 and 2.4)

Performance Measure 2.2. Program Participants shall minimize chemical use required to achieve management objectives while protecting employees, neighbors, the public and the environment, including wildlife and aquatic habitats.

Performance Measure 2.4. Program Participants shall manage so as to protect forests from damaging agents, such as environmentally or economically undesirable wildfire, pests, diseases, and invasive exotic plants and animals, to maintain and improve long-term forest health, productivity, and economic viability.

To conserve biological diversity: Participation in programs and demonstrations of activities as appropriate to limit the introduction, spread and impact of invasive exotic plants and animals that directly threaten or are likely to threaten native plant and animal communities.

Forest Stewardship Council (See FSC Standard C6.3, 6.6, 6.9, and 7.1)

Indicator 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

C6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are

persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

Indicator 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.

Indicator 6.9.a The use of exotic species is contingent on the availability of credible scientific data indicating that any such species is non-invasive, and its application does not pose a risk to native biodiversity. (This indicator is pertinent to erosion control seed mixes)

Indicator 7.1.f If invasive species are present, the management plan describes invasive species conditions, applicable management objectives, and how they will be controlled.

APPENDIX

Statement on Water Quality Protection

Original: June 7, 2021

The health and functions of aquatic systems, the human use and enjoyment of surface water resources, and the quality and quantity of groundwater supplies all depend on clean surface waters. As a company, we believe that the production and protection of clean surface water and the production of timber are compatible systems, when forest management follows appropriate practices.

Forested landscapes provide water of outstanding quality. Forestry operations are not typically major contributors to soil erosion and water pollution, but if water quality degradation occurs during operations, it is most often caused by sedimentation and, to a lesser extent, increased water temperature. Most sedimentation originates from roads, skid trails and landings.

It is an objective of all F&W Forestry operations to protect water quality in streams, rivers, ponds, lakes, and wetlands on the forests we manage. Primary concerns are the proper construction and maintenance of roads, skid trails and landings, stream and wetland crossings, handling of slash and maintaining adequate riparian protection zones (streamside management zones).

APPENDIX

Statement on Wet Season/Wet Site Practices

Original Policy (Fountains Forestry): September 29, 2004 — Revised Practices: June 10, 2021

F&W Forestry Services, Inc. takes appropriate steps to plan its forest management activities and operations to avoid damaging water quality and soil productivity when soils are saturated.

F&W Forestry foresters will use appropriate procedures to plan for and manage adverse weather conditions, including:

- Follow all applicable state Best Management Practices and any local regulations in the harvesting of timber and construction of road, landings and skid trails.
- Identify when soil and road conditions are not conducive to forest management and logging activities and plan such activities when conditions are more favorable.
- Schedule harvests to coincide with proper weather conditions and landowner requirements.
- Access drier and more accessible sites that can be harvested during periods of inclement weather.
- Harvest upland portions of tracts that are appropriate for wet weather conditions.
- Maintain several optional sites that can be harvested without causing excessive rutting or other environmental damage.
- Evaluate operations that may require the use of alternative logging systems or should be suspended until weather and soil moisture conditions improve.
- Construct roads during the dry season to allow them to settle and be available for later use.
- Use rock, gravel, filter fabric, tops and branches or other practices as appropriate to stabilize roads and skid trails, minimize erosion, and improve accessibility during adverse weather.

APPENDIX

Water Quality Protection Guidelines

Revised July 2008, June 2011, June 2021

Typically, if water quality degradation occurs on a harvesting operation, it is likely to occur as a result of sedimentation from roads, skid trails or landings. Another more minor, but still important, detriment to water quality is an increase in temperature.

Our protection guidelines depend on the type of stream or water body. The overriding goal is to keep sediment out of the water and maintain water temperature. To accomplish the task, we will establish streamside management zones (SMZs). A SMZ is vegetated land adjacent to perennial, intermittent and ephemeral streams and ponds or lakes requiring special attention during forestry operations. It is an area of undisturbed forest soils between disturbed soils and a stream bank. It provides a protective zone to trap and filter out suspended sediments before these particulates reach the stream. For some bodies of water as described below, the SMZ may need to be lightly cut or uncut to protect the aquatic ecosystem. In general, the larger the body of water and the steeper the slope, the wider the SMZ must be.

Every State has Best Management Practices (BMPs) to protect water quality on logging jobs. In some States the BMPs are law. In most States they are recommended practices with varying degrees of enforcement afforded. In all cases, if the laws of the State are more stringent than the guidelines provided here, State law always supersedes these guidelines. In all cases, if protection in excess of these guidelines is necessary to achieve our overall goal of protecting water quality from sedimentation and excessive temperatures, we will provide that added protection.

Every forester will know and understand the BMPs for every State in which he/she operates. Foresters will attend BMP and water quality training and field sessions as they are available and applicable to their operating conditions. As needed in particular situations, the appropriate water quality enforcement officer should be consulted to determine the right level of water protection.

Often, ongoing operations are suspended for any number of reasons including markets, logging labor availability, season, weather, etc. When logging jobs are suspended, water quality control structures should be installed sufficient to ensure soil stability and to prevent sediment from entering water bodies.

As an example of practices related to harvest season, in the northeast, winter logging jobs come to a halt for spring “mud season”. Sometimes the harvesting is complete while at other times operations are simply suspended until ground conditions allow the operation to continue. Usually, the ground is still frozen solid when winter operations are shut down. On winter logging jobs suspended because of spring conditions or completed by winter’s end when the ground is still frozen, temporary water diversion structures will be installed if possible and as necessary. Once the snow melts, a forester will inspect the site to determine if more substantial, emergency action is necessary. If so, water diversions

will be installed immediately or as soon as conditions allow. If the site is stable, permanent close-out will occur within the term of the timber sale/service contract but in no case later than mid-July. On winter logging jobs, the need for waterbars or other water diversions can often be anticipated pre-harvest. Foresters should consider pre-installing water diversions where there exists the risk of significant erosion during and after snowmelt. Resulting decisions will be recorded in the Pre-Harvest Plan.

The guidelines below refer most specifically to skid trail placement, operational buffers, etc. Road and landing location and construction should occur outside the delineated SMZs except that roads should cross streams at right angles. Culvert placement and size should closely follow BMP recommendations by the State. SMZ widths stated are a minimum. They should be increased as slope increases.

These guidelines are provided for application in areas without specific BMP requirements. Practice should follow either State BMP's or these standards, whichever is more protective.

Ephemeral Streams

Definition - Ephemeral streams are streams that flow as a result of wet weather conditions when the ground is saturated (less than 40% of the year). They disappear soon after the rain or snowmelt event has ceased. Ephemeral streams do not provide permanent aquatic habitat. Typically, ephemeral streams are not depicted on USGS topographic maps.

Operational Protection – Ephemeral streams are often difficult to find, especially under snow cover. Overall, protection is aimed at keeping machinery from skidding in them, exposing mineral soil to the next runoff. Skid trail crossings will be kept to a minimum and will be at right angles to the flow.

Intermittent Streams

Definition – Intermittent streams have well defined banks and natural channels but typically have water flow for only a portion (40%-90%) of the year. Intermittent streams do not provide permanent aquatic habitat. They are usually depicted on USGS topographic maps as a broken blue line.

Operational Protection – A 25-foot machine exclusion zone on either side of the centerline of the channel should be painted or flagged. Logging debris should be removed from the stream channel. Skid trail crossings should be kept to a minimum, will be pre-approved by the inspecting forester and at right angles to the flow.

Perennial Streams

Definition – Perennial streams have well defined banks and natural channels and have continuously flowing water most years. Perennial streams do provide habitat for aquatic plants and animals. They are usually depicted on USGS topographic maps as a solid blue line.

Operational Protection – A 50-foot buffer zone on either side of the stream channel should be flagged if the harvest will exceed the removal constraints within the buffer. Within this buffer zone, no more than 50% of the basal area should be removed in any 10-year period with the intent of always maintaining

shade for the stream. A machine exclusion should be painted or otherwise delineated 25 feet on either side of the stream channel. Logging debris should be removed from the stream channel. This protection should apply to ponds smaller than 10 acres and open wetlands. All stream crossings will allow for passage by aquatic species by matching the natural stream depth, velocity, and substrate.

Large Streams/Rivers/Ponds/Lakes

Definition - Large Streams/Rivers are defined as double line streams as depicted on a USGS topographic map. Ponds/Lakes as defined here are open water bodies larger than 10 acres.

Operational Protection – A no cut, machine exclusion zone of a minimum of 25 feet is recommended and should be painted. Between this zone and 100 feet only a third of the basal area should be removed every 10 years. This zone should be flagged. Logging debris should be pulled out of the 25 foot no cut zone.

APPENDIX

Water Quality Protection Guidelines – Road Construction

Original (Fountains Forestry): September 2004 — Revised: June 2021

Typically, if water quality degradation occurs on a harvesting operation, it is likely to occur as a result of sedimentation from roads, skid trails or landings. Another more minor, but still important, detriment to water quality is an increase in temperature.

Our protection guidelines depend on the type of stream or water body. The overriding goal is to keep sediment out of the water and maintain water temperature. To accomplish the task, we will establish streamside management zones (SMZs). A SMZ is vegetated land adjacent to perennial, intermittent and ephemeral streams and ponds or lakes requiring special attention during forestry operations. It is an area of undisturbed forest soils between disturbed soils and a stream bank. It provides a protective zone to trap and filter out suspended sediments before these particulates reach the stream. For some bodies of water as described below, the SMZ may need to be lightly cut or uncut to protect the aquatic ecosystem. In general, the larger the body of water and the steeper the slope, the wider the SMZ must be.

Every State has Best Management Practices (BMPs) to protect water quality on logging jobs. In some States the BMPs are law. In most States they are recommended practices with varying degrees of enforcement afforded. In all cases, if the laws of the State are more stringent than the guidelines provided here, State law always supersedes these guidelines. In all cases, if protection in excess of these guidelines is necessary to achieve our overall goal of protecting water quality from sedimentation and excessive temperatures, we will provide that added protection.

Every forester will know and understand the BMPs for every State in which he/she operates. Foresters will attend BMP and water quality training and field sessions as they are available and applicable to their operating conditions. As needed in particular situations, the appropriate water quality enforcement officer should be consulted to determine the right level of water protection.

These guidelines refer most specifically to stream crossings. Culvert placement and size, cross drainage structures, ditch placement, etc. should closely follow BMP's. The following guidelines should be followed as closely as practically possible.

- Use stream crossings only when absolutely necessary. Keep stream crossings to a minimum.
- Cross streams by the most direct route and at right angles to the stream channel.
- Whenever possible, find crossing sites that have stable banks, a firm stream bottom, minimal surface runoff and gentle slopes on the approaches.

- Avoid direct ditch termination by using cross drainage culverts. Divert road drainage into undisturbed vegetation, preferably outside the SMZ, so that drainage does not directly enter a stream.
- Fill over a culvert or construct a bridge so it is higher than the road approach on either side to prevent surface road runoff from draining directly into the stream. If making the crossing higher than the approaches in not possible, use a broad-based dip on either side of the crossing to accomplish the same result.
- Stabilize exposed soil around culverts and bridges immediately after installation using seed and mulch (free of any non-native invasive species) and install temporary sediment control structures as necessary to control siltation.
- Generally, install stream crossings that are 2.5 times the cross-sectional area of the stream for roads that will be maintained on a regular basis and 3.5 times for infrequently maintained roads.
- Except in unusual circumstances, cross drainage culverts should be no smaller than 12” in diameter.

Most state BMP publications have a more complete discussion on the above and should be consulted prior to any road construction project.