



FSC-US Forest Management Standard (v1.0)
(complete with FF Indicators and Guidance)

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Geographical extent: this draft National Standard pertains to forest management in the United States, with the exclusion of Alaska, Hawaii and the US territories, which are not included in this Standard.

Regional variation: regional variation has been retained from the previous FSC-US regional standards in Indicators 6.3.g.1, 6.5.e.1, and in Principle 10. Numerous guidance statements throughout this Standard also provide regional specificity. A regional map depicting the FSC-US regional delineations can be found in Appendix B of this Standard. Contact FSC-US for more detailed description of the regions.

Additional FSC policies: this document represents one component of the requirements for FSC certification. There are multiple other policies, developed at the national and international level, with which certificate holders must comply. These policies include *certificate holder compliance with the full Standard*, *partial certification*, *association with FSC*, *derogation of requirements*, *dispute resolution*, *federal lands policy*, and others that may or may not be referred to in this Standard. These policies are available at the FSC-IC website (www.fsc.org) or the FSC-US website (www.fscus.org).

Nomenclature used in this Standard: the terms Principles, Criteria, Indicators, Applicability, Intent, and Guidance are found throughout this Standard.

Principles and Criteria refer to the foundational bases upon which locally adapted forest management standards are developed. Each Principle comprises multiple Criteria. The Principles and Criteria are set at the international level and are not open to review or revision through this FSC-US level process. Major Corrective Action Requests (CARs) are issued when there is a finding of non-conformance at the Criterion level.

Indicators are set at the national level, originally by FSC-US regional standards working groups and now revised by a national-level Standards Working Group and Standards Committee. Indicators are the requirements to which certificate holders must comply. Minor CARs are issued when there is a finding of non-conformance at the Indicator level. Each Criterion may comprise one or more Indicators.

Applicability notes are intended to clarify some indicators by defining their scope of application – for example an Indicator may only apply to management of publicly-owned lands, or to management operations of a certain size or intensity.

Intent notes expand on the goals or purpose of a requirement and define terms. Intent statements are used to facilitate consistent application and audit of the Indicators.

Guidance statements are intended to help the landowner/manager and the Certifying Body to understand how the Principles, Criteria, and Indicators should be applied in practice. Certifying Bodies are expected to utilize the guidance language associated with each Indicator when seeking and weighing evidence and assessing conformance with the Indicator. Individual elements within the guidance when considered separately are not requirements of this Standard, but, in some circumstances, lack of performance relative to an individual guidance element could be interpreted to mean non-compliance if, when considering the sum of the evidence, the Certifying Body finds that there is clear evidence that the Indicator has not been met. In some cases, other information or management activity not specified in the

guidance may be provided by the forest owner or manager to demonstrate conformance with the Indicator.

Glossary terms are in bold italics when they first appear in this Standard. There are some terms that are defined differently in this Standard than in FSC's Principles and Criteria (P&C). These are: Ecosystem, Endangered species, Genetically modified organisms, Indigenous peoples, Native species, Plantation, Natural forest, Landscape.

Public lands: for the purposes of this standard, public lands refers to non-federal public lands. FSC US has a specific protocol for addressing federally-owned lands.

Federal Lands: the process for certifying federal lands must comply with the FSC-US Board approved Federal Lands Policy and Federal Lands Findings, both of which are available at www.fscus.org. Certifying Bodies shall consult the Policy and Findings to determine whether there are FSC-US approved Indicators specific to the type of federal property being assessed.

Family Forest Indicators (FF): embedded in this Standard are indicators and/or guidance specific to Small and Low Intensity Managed Forests (SLIMF), also known as Family Forests. These are identified by an "FF" and are highlighted in red. Wherever "FF" is indicated, eligible SLIMF landowners may opt to follow the FF-specific requirements for the specified Indicator and/or guidance rather than the requirements for non-SLIMF landowners. Wherever "FF" is not indicated, SLIMF landowners must follow the requirements for all landowners. For more information on the Standard as it applies to family forests, including requirements for group certificates, please see the section below titled 'Family Forests'.

Non-timber forest products (NTFPs): requirements on NTFPs, in all parts of this Standard, are intended only for those that are commercially harvested or that are recognized as customary and/or subsistence use rights. Information used to support NTFP management, including sustained yield harvest rates and methods for managing NTFPs, is commensurate with the scale, intensity, and risk of harvest operations, as well as the resources available to quantitatively assess impact and management. In all cases, the landowner or manager must at a minimum assure that NTFPs are not being depleted and that there are no negative external effects on other resources. If the landowner or manager wants to make on-product or off-product FSC-certification claims, then the Certifying Body must evaluate the management system used for the specific NTFP. The Certifying Body shall use FSC-approved standards prepared for that NTFP or it shall prepare its own NTFP standard using a process that follows FSC Standard 20-003.

Management Plans: reference to management plans, in all parts of this Standard, refers to a variety of documents or an umbrella document that describes how a collection of management documents relate to an integrated strategy for managing the Forest Management Unit (FMU). This may include a combination of ownership level plans, unit plans, site level plans, GIS, published guidelines, landowner policies, and other information.

Demonstrating Conformance: in-the-field verification of conformance with an Indicator is required whenever it is relevant to confirming that the Indicator is being met.

Areas designated for special management: multiple sections in this Standard call for designations of special management – among these are High Conservation Value Forests (HCVF); Representative

Sample Areas (RSAs); conservation zones for rare, threatened, and endangered (RTE) species; and

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Streamside Management Zones (SMZs). These designations, although designed to capture differing values are by no means mutually exclusive and in many cases, one would expect to see a high level of overlap. For example, an unentered old growth stand on an FMU would most likely be designated HCVF due to its ecological values and would also serve as an RSA as an ecological reference condition or an under-represented ecological condition. Forest managers and owners are encouraged to consider the overlap of goals when designing configurations of special management areas in order to maximize the environmental, social and economic values of the forest.

FAMILY FORESTS

Background

FSC strives to ensure equity of access to certification. In 2004, as a response to the challenges faced by small, non-industrial private landowners in accessing FSC certification, the FSC approved its Small and Low-Intensity Managed Forests “SLIMF” policy. This policy allows for SLIMF operators, known in the U.S. as Family Forests (see applicability criteria below) to be evaluated for FSC certification using modified certification procedures and a set of forest management standards that take into account scale and intensity of small forest management operations. This Standard contains a set of requirements through Indicator and guidance language that has been developed specifically for Family Forests.

Applicability of Family Forest indicators/guidance

Definition of Family Forest: A “family forest” in the United States is equivalent to a “Small and Low Intensity Managed Forest” (SLIMF) as defined in the FSC global system.

Any non-public forest management unit (FMU) that meets the FSC definition of ‘Small and Low Intensity Managed Forest’ is eligible to be considered a Family Forest and to use this FSC-US Family Forest Standard. According to FSC, these eligibility requirements are:

- Small: An FMU with a total forest area in the unit of 1,000 hectares (2,470 acres) or less; OR
- Low Intensity:
 - a) the rate of harvesting is less than 20% of the mean annual increment (MAI) within the total production forest area of the unit, AND
 - b) EITHER the annual harvest from the total production forest area is less than 5000 cubic meters,
 - c) OR the average annual harvest from the total production forest is less than 5000 m³ / year during the period of validity of the certificate as verified by harvest reports and surveillance audits.

Public Lands: Public lands will be eligible to utilize the Family Forest standard only in very limited situations. City and county parks and forests are eligible, as well as other public lands that are determined by the Certifying Body to be within the definition of the ‘Small’ component of SLIMF, but not the ‘Low Intensity’ component, provided by FSC and also to be of low risk with respect to negative social and environmental impact in those Indicators that are different in the Family Forest Standard. For public lands that are deemed eligible to use the Family Forest Standard, all Indicators in the National FSC-US Forest Management Standard that are identified as applicable only to public lands are also applicable to public lands using the Family Forest Standard.

Group certification and family forest indicators/guidance

Group certification is a process by which multiple landowners or forest managers are certified under

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one FSC certificate, and a Group Manager holds the certificate. There are several advantages for the owners/managers of family forests to form or join a group. The benefits include economies of scale when it comes to preparing multiple management plans, implementing management activities, conducting sales and marketing, as well as sharing the costs of preparing for, obtaining, and managing certification. Group managers are also often better equipped at providing landscape-level guidance, perspectives and management options on ecological systems and functions.

Group certificates and level of risk

The need to evaluate conformance with an identified Criterion or Indicator will likely increase with the size of a group and will be influenced by the configuration of the group due to the cumulative capacity of a group to influence ecological or social objectives, such as affecting landscape level ecological factors or influencing local economies. The “low risk of negative social or environmental impact” designation of some Indicators may not always be appropriate for larger groups and CBs should consider both the cumulative area covered by a group certificate and spatial structure of the group (e.g. multiple members within a single watershed) when considering the appropriateness of low risk designations when auditing group certificates. A Group Manager who wishes to have some or all group members audited to the Family Forest Indicators will conduct a risk assessment of the Group to evaluate which of the FF Indicators and guidance are appropriate for that group, and will base this risk assessment on group size, scale and intensity of operation, likelihood of impact, and other considerations. The CB will evaluate that risk assessment. These are particularly important for: Criteria 4.1, 4.4, 5.4, 5.6, 6.4 and Indicators 6.1.b, and 9.4.a, where likelihood of HC VF presence would also be taken into consideration.

The risk assessment must be conducted and evaluated as part of the evaluation process or, in cases where pre-evaluations are required, at the pre-evaluation stage.

Terminology

“Low risk of negative social or environmental impact” – Some Indicators in the Standard have been determined to be a low risk to negative environmental or social impact in the context of family forests. In the absence of evidence presented to, or otherwise brought to the attention of the Certifying Body (CB), the CB can assume that the landowner/manager is in conformance. In cases where there is cause to believe there is a likelihood of non-conformance with an Indicator (e.g., observed violations, substantiated complaints) or in cases where local conditions warrant a higher rigor of audit, CBs are expected to assess conformance with these requirements.

PRINCIPLE 1: COMPLIANCE WITH LAWS AND FSC PRINCIPLES Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

Intent: This *Principle* is concerned with adherence to international treaties and agreements and national, state and local legal requirements, including legislation, forest practice regulations, mandatory *Best Management Practices* (BMPs), licenses, and the payment of taxes and fees. Principle 1 also addresses the extent to which the landowner/manager endorses and supports the Principles of the FSC. The *Criteria* and *Indicators* in this Principle apply not only to the *forest owner/manager's* employees but also to contractors and other *forest workers*.

Where the FSC Criteria or Indicators are inconsistent with legal compliance and other requirements covered under Principle 1, and laws prevent the forest owner or manager from attesting that they are in compliance, the forest owner or manager is expected to adhere to the legal requirements while the discrepancies are examined. If the discrepancies are not able to be resolved then the forest owner or manager will be ineligible for FSC certification.

Voluntary BMPs (i.e. not legally mandated regulations) are covered under other Principles.

C1.1 Forest management shall respect all national and local laws and administrative requirements.

Indicator 1.1.a *Forest* management plans and operations demonstrate compliance with all applicable federal, state, county, municipal, and tribal laws, and *administrative requirements* (e.g., regulations). Violations, outstanding complaints or investigations are provided to the *Certifying Body* (CB) during the annual audit.

Guidance: CBs should request and consider the number, severity and temporal pattern of legal/regulatory violations, outstanding complaints or investigations associated with the *Forest Management Unit* (FMU) for the 5 years prior to the certification assessment.

The management plan or other documents provided to the CB should include a list of the key laws and administrative requirements that typically apply to management operations and a list of contact information for agencies that are responsible for local enforcement.

FF: For family forests, the management plan or other documents provided to the CB need only include a brief qualitative description of applicable laws. Also, there are no violations observed during the assessment and audit process.

Indicator 1.1.b To facilitate legal compliance, the *forest owner* or *manager* ensures that employees and contractors, commensurate with their responsibilities, are duly informed about applicable laws and regulations.

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Guidance: Examples for demonstrating compliance include: copies of laws and regulations, and summaries or checklists, are kept on file; employees are briefed on applicable laws and regulations; pre-contract meetings are conducted with contractors to review applicable laws and regulations; contracts include legal requirements; contractors sign agreements to comply with laws and regulations.

Requirements applied to a contractor or sub-contractor apply only to the extent allowed by US federal and state law. In many situations, the landowner or manager may address the requirements of this Principle through the use of contract language.

FF Supplemental guidance: on-the-ground observations show no evidence that employees and contractors are not observing applicable laws and regulations.

C1.2 All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

Indicator 1.2.a The forest owner or manager provides written evidence that all applicable and legally prescribed fees, royalties, taxes and other charges are being paid in a timely manner. If payment is beyond the control of the landowner or manager, then there is evidence that every attempt at payment was made.

Intent: Taxes and fees at minimum include, as applicable: local and/or county property taxes; severance taxes.

Guidance: Compliance may be verified through: a document that includes a list of taxes, fees, and other charges that typically apply; an annual summary of payments; a signed statement from the forest owner/manager that all payments are paid on a timely basis.

FF Indicator 1.2.a: Low risk of negative social or environmental impact.

C1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.

Applicability: Additional international agreements (such as the UN Framework) are also applicable.

Indicator 1.3.a Forest management plans and operations comply with relevant provisions of all applicable binding international agreements. Violations, outstanding complaints or investigations are provided to the CB during the annual audit.

Guidance: The forest owner or manager may demonstrate compliance by maintaining a list of applicable binding international agreements and completing an assessment to confirm compliance. A document containing a list of relevant laws, treaties and agreements is available from FSC-US.

FF Indicator 1.3.a: Low risk of negative social or environmental impact.

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C1.4 Conflicts between laws, regulations and the FSC Principles and Criteria shall be evaluated for the purposes of certification on a case by case basis, by the certifiers and the involved or affected parties.

Indicator 1.4.a Situations in which compliance with laws or regulations conflicts with compliance with FSC Principles, Criteria or Indicators are documented and referred to the CB.

C1.5 Forest management areas should be protected from illegal harvesting, settlement and other unauthorized activities.

Intent: “Unauthorized activities” may include: hunting; fishing; collecting; theft; dumping; and, prohibited recreational use, including motorized vehicle use on closed roads, closed trails and closed off-trail areas.

Indicator 1.5.a The forest owner or manager supports or implements measures intended to prevent illegal and unauthorized activities on the *Forest Management Unit* (FMU).

Applicability: The forest owner or manager is not expected to play a law enforcement role, but is expected to not ignore illegal activities on the FMU.

Guidance: Measures to prevent illegal and unauthorized activities may include, but are not limited to: clear marking of boundaries; appropriate signage and gates; communications with forest users, local community members, and other stakeholders; reporting suspected illegal or unauthorized activities to the proper authorities.

Monitoring and preventative actions should be proportionate to and guided by the nature of the property and risk of specific types of activities.

Indicator 1.5.b If illegal or unauthorized activities occur, the forest owner or manager implements actions designed to curtail such activities and correct the situation to the extent possible for meeting all land management objectives with consideration of available resources.

Guidance: Efforts to stop illegal or unauthorized activities may include but are not limited to: cooperating with the appropriate authorities; notifying perpetrators and stakeholders; posting boundary notices; using gates; making periodic inspections; and reporting suspected illegal or unauthorized activities to the proper authorities.

No legal action may be appropriate if the proper authorities have been notified and the landowner or manager demonstrates that legal action may have negative consequences that outweigh its benefit, or if legal action is not possible.

C1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

Indicator 1.6.a The forest owner or manager demonstrates a long-term commitment to adhere to the FSC Principles and Criteria and FSC and FSC-US policies, including the FSC-US Land Sales Policy, *FSC-US Forest Management Standard Page 9 of 122* and has a publicly available statement of commitment to manage the FMU in conformance with FSC standards and policies.

Indicator 1.6.b If the certificate holder does not certify their entire holdings, then they document, in brief, the reasons for seeking partial certification referencing FSC-POL-20-002 (or subsequent policy revisions), the location of other managed forest units, the natural resources found on the holdings being excluded from certification, and the management activities planned for the holdings being excluded from certification.

Applicability: All landowners are encouraged to certify all their holdings. Certificate holders who are not **members** of FSC are encouraged to certify all their holdings, however they are not required to do so.

Certificate holders who are members of FSC are eligible for partial certification on condition that they have formally applied for certification assessments for the entire operation, and have also formally committed to make a strong effort to achieve certification for the entire operation within a reasonable time frame. The time frame will not normally exceed two years. The commitment applies to the entire forestry or forest management operation owned or fully controlled by the member or applicant for membership.

See FSC-POL-20-003, FSC-POL-20-002 and other FSC policy documents for additional guidelines for partial certification.

Indicator 1.6.c The forest owner or manager notifies the Certifying Body of significant changes in ownership and/or significant changes in management planning within 90 days of such change.

FF Indicator 1.6.c The forest owner, manager or group manager notifies the Certifying Body of significant changes in ownership, the certified land base and/or significant changes in management planning prior to the next scheduled annual audit, or within one year of such change, whichever comes first.

Intent: The purpose of the Indicator is to ensure that changes to the land area that are included in the certificate are communicated to the CB. This includes changes in group membership as well as additions or excisions within individual ownerships.

Guidance: The determination of what is a significant change is to be verified by the CB.

PRINCIPLE 2: TENURE AND USE RIGHTS AND RESPONSIBILITIES Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

C2.1 Clear evidence of long-term forest use rights to the land (e.g. land title, customary rights, or lease agreements) shall be demonstrated.

Indicator 2.1.a The forest owner or manager provides clear evidence of *long-term* rights to use and manage the FMU for the purposes described in the management plan.

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Guidance: “Evidence of long-term rights” may include but is not limited to: deeds; long-term lease agreements; evidence of fee ownership; or a contractual agreement to manage the forest.

Documents do not have to be made publicly available.

Indicator 2.1.b The forest owner or manager identifies and documents legally established use and access rights associated with the FMU that are held by other parties.

FF Applicability: Documentation must be provided only in cases where there is concern about infringing on legally established use and access rights.

Guidance: “Use and access rights held by other parties” may include: deed restrictions; long term leases; timber rights; mineral rights; rights to harvest; conservation easements rights-of-way; *non timber forest products* (NTFP); hunting and fishing rights; and recreational uses.

Indicator 2.1.c Boundaries of land ownership and use rights are clearly identified on the ground and on maps prior to commencing management activities in the vicinity of the boundaries.

Intent: This Indicator is not intended to evaluate measures taken to prevent trespass (e.g., marking property boundaries), which are addressed in Criterion 1.5.

Guidance: Boundary designations do not necessarily have to be comprehensive, but must be

adequate to assure that management activities are implemented where intended. If the boundary cannot be established, then the manager shall postpone management until the boundaries are established and marked either by legal survey or by mutual agreement with the adjacent property owner (see also Criterion 1.5).

C2.2 Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

Intent: This Criterion addresses non-tribal rights (tribal rights are covered in Principle 3). Tenure and use rights considered under this Criterion are those substantiated by judicial rulings or otherwise expressly identified in deeds, other legal instruments or laws.

Indicator 2.2.a The forest owner or manager allows the exercise of *tenure* and *use rights* established by law or regulation.

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Guidance: Tenure and use rights may include, but are not limited to: long-term leases; easements; timber and mineral rights; rights-of-way; access to water supplies, NTFPs, recreational use, hiking, hunting and fishing; and visiting ancestral grave sites if such permitted access meets the legal definition of a prescriptive easement. Off-highway Vehicle (OHV) use is not considered a customary right; however, it may be a privilege granted by the forest owner or manager.

In cases where a conflict exists between tenure/use rights and the conservation of forest resources, the forest owner/manager brings these conflicts to the attention of the CB.

Indicator 2.2.b In FMUs where tenure or use rights held by others exist, the forest owner or manager consults with groups that hold such rights so that management activities do not significantly impact the uses or benefits of such rights.

C2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.

Guidance: Dispute resolution requires a good faith effort of all parties in order to succeed. Conformance with this Criterion requires the forest owner or manager to make earnest efforts to resolve disputes, but recognizes that other parties may choose not to respond to opportunities provided.

The management plan should include written protocol for the dispute resolution process.

Indicator 2.3.a If *disputes* arise regarding tenure claims or use rights then the forest owner or manager initially attempts to resolve them through open communication, negotiation, and/or mediation. If these good-faith efforts fail, then federal, state, and/or local laws are employed to resolve such disputes.

FF Indicator 2.3.a Low risk of negative social or environmental impact.

Indicator 2.3.b The forest owner or manager documents any significant disputes over tenure and use rights.

FF Indicator 2.3.b Low risk of negative social or environmental impact.

Intent: Information about tenure or use rights disputes does not need to be made public. CBs shall respect the confidentiality of such information. This information also does not include stakeholder complaints, which are covered elsewhere in this Standard.

PRINCIPLE 3: INDIGENOUS PEOPLES' RIGHTS

The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

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Intent: This Principle focuses on *Indigenous peoples'* rights on their lands and to their resources. Its focus is generally on collectively held (i.e. tribal) rights and resources; however, individual persons who demonstrate legal rights to indigenous lands and resources are also included under this Principle.

C3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

Applicability: Criterion 3.1 only applies to legally designated lands owned by or held in trust for American Indians. FMUs that are not on American Indian lands are addressed in Criteria 3.2, 3.3 and 3.4.

Guidance: “free and informed consent” refers to written agreement following adequate, culturally appropriate consultation.

Indicator 3.1.a Tribal forest management planning and implementation are carried out by authorized tribal representatives in accordance with tribal laws and customs and relevant federal laws.

Guidance: Legal delegations of authority may include but are not limited to: a tribal body that is elected or appointed through hereditary and that authorizes forest management operations; documents to verify the authority of the tribal body.

Compliance may be evaluated through a signed letter stating compliance from an authorized tribal representative.

Indicator 3.1.b The manager of a tribal forest secures, in writing, informed consent regarding forest management activities from the tribe or individual forest owner prior to commencement of those activities.

C3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

Guidance: Evaluation of forest management to this Criterion is based on the scope, scale and size of forest management operation.

Indicator 3.2.a During management planning, the forest owner or manager consults with American Indian groups that have legal rights or other binding agreements to the FMU to avoid harming their resources or rights.

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Guidance: “Tribal resources” may include but are not limited to: subsistence hunting and gathering areas, fisheries, cultural sites, and other resources on or off the FMU that may be adversely affected by management activities.

Consultation entails active, culturally-appropriate outreach to tribes or designated tribal representatives. It is recognized that actual consultation is out of the control of the forest owner or manager, but that attempts must be made to invite such consultation.

A review of title may be sufficient to demonstrate the existence of current legal rights or other binding agreements to the FMU.

FF Guidance: For family forests that meet the eligibility requirements of having a small forest, direct consultation between small private landowners and tribal representatives is encouraged but may not be feasible. Instead, small landowners may rely on consultation between appropriate state and federal agencies and tribes and then abide by the outcome of those government to government negotiations or settlements. For family forests that are larger in size but meet the eligibility requirements due to the low intensity of operations, direct consultation must be attempted.

Indicator 3.2.b Demonstrable actions are taken so that forest management does not adversely affect tribal resources. When applicable, evidence of, and measures for, protecting tribal resources are

incorporated in the management plan.

Intent: This Indicator pertains to tribal resources that may be located either within or off the FMU, but are affected by management operations within the FMU (for example, effects on fish and game populations).

C3.3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

Guidance: It is recognized that actual cooperation and consultation is out of the control of the forest owner or manager, but that attempts must be made to invite such cooperation and consultation.

Indicator 3.3.a The forest owner or manager invites consultation with tribal representatives in identifying sites of current or traditional cultural, archeological, ecological, economic or religious significance.

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Applicability: In regions where there are no established tribal representatives, this Criterion may be inapplicable and the landowner or manager should provide documentation to this effect.

Guidance: Examples of “sites of current or traditional cultural, archeological, ecological, economic or religious significance” may include but are not limited to: ceremonial, burial, or village sites; areas used for hunting, fishing, or trapping; current areas for gathering culturally important materials (e.g. ingredients for baskets, medicinal plants, or plant materials used in dances or other ceremonies); current areas for gathering subsistence materials (e.g. mushrooms, berries, acorns, etc.).

Direct, culturally-appropriate consultation with tribal representatives is the first preferred method of consultation. If this is not possible then regional databases or references that contain relevant data may be used to compile this information.

FF Indicator 3.3.a The forest owner or manager maintains a list of sites of current or traditional cultural, archeological, ecological, economic or religious significance that have been identified by state conservation agencies and tribal governments on the FMU or that could be impacted by management activities.

Applicability: Where state conservation agencies and tribal governments are not able to provide a list

of sites, the landowner may not be able to maintain this list.

Guidance: Direct consultation with tribal representatives is not required in order to identify or develop the list of sites of current or traditional cultural, archeological, ecological, economic or religious significance. However, if these sites do exist on the FMU then the forest owner or manager must consult with the appropriate state, federal or tribal representatives as per the requirements in Indicator 3.3.b.

Indicator 3.3.b In consultation with tribal representatives, the forest owner or manager develops measures to protect or enhance areas of special significance (see also Criterion 9.1).

Applicability: this Indicator is only applicable if areas of special significance have been identified.

Guidance: Compliance with cultural resource BMPs that have been developed at a state or regional scale with tribal consultation may be adequate to meet this Indicator in most instances.

The confidentiality of sensitive tribal knowledge is maintained in keeping with applicable laws and at the behest of tribal representatives. If necessary, public summaries of forest management plans may omit detailed location and identification data pertaining to sensitive resources.

C3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

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Applicability: This Criterion is only applicable where traditional knowledge is requested and used in forest management.

Indicator 3.4.a The forest owner or manager identifies whether *traditional knowledge* in forest management is being used.

Indicator 3.4.b When traditional knowledge is used, written protocols are jointly developed prior to such use and signed by local tribes or tribal members to protect and fairly compensate them for such use.

Indicator 3.4.c The forest owner or manager respects the confidentiality of tribal traditional knowledge and assists in the protection of such knowledge.

PRINCIPLE 4: COMMUNITY RELATIONS AND WORKER'S RIGHTS Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

Intent: This Principle addresses the need for the forest owner or manager to consider the social and economic consequences of the practices they undertake. Social and economic responsibilities are recognized by FSC as key components in FSC-certified forestry.

See Glossary for the definition of *local communities*.

Requirements applied to a contractor or sub-contractor apply only to the extent allowed by US federal and state law. In many situations, the landowner or manager may address the requirements of this Principle through the use of contract language.

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

Indicator 4.1.a Employee compensation and hiring practices meet or exceed the prevailing *local* norms within the forestry industry.

FF Indicator 4.1.a Low risk of negative social or environmental impact.

Intent: “Compensation” includes salary or wages, and benefits.

Indicator 4.1.b Forest work is offered in ways that create high quality job opportunities for employees.

FF Indicator 4.1.b Low risk of negative social or environmental impact.

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Intent: “high quality job opportunities” refer to the way in which work is packaged and the capacity for growth and development.

Guidance: Depending on the operation, high quality job opportunities may include or are indicated by: employee relationships are long term and stable; forest owners or managers package work in ways that support stable employment; jobs include a mixture of diverse tasks that require varying levels of skill; training opportunities are in place for employees to improve their skills; opportunities for advancement are available; a comprehensive package of benefits is offered; opportunities are provided for employee participation in management decision-making; employees are satisfied, within reason, with the quality of their work environment.

Indicator 4.1.c Forest workers are provided with fair wages.

FF Indicator 4.1.c Low risk of negative social or environmental impact.

Indicator 4.1.d Hiring practices and conditions of employment are non-discriminatory and follow applicable federal, state and local regulations.

FF Indicator 4.1.d Low risk of negative social or environmental impact.

Guidance: “Conditions of employment” may refer to: remuneration, benefits, safety equipment, safety of work environment, training, and worker’s compensation.

Indicator 4.1.e The forest owner or manager provides work opportunities to qualified local applicants and seeks opportunities for purchasing local goods and services of equal price and quality.

Intent: Companies should make consistent efforts to source goods and services from local communities to the extent that they are available and reasonably cost competitive.

Guidance: Efforts to source locally may include, among others: local residents and businesses are included on a list, maintained by the forest owner or manager, of potential contractors and service providers (e.g., foresters, loggers); work opportunities are advertised in area newspapers.

FF Indicator 4.1.e The forest owner or manager, as feasible, contributes to the local community.

Guidance: Examples for contributing to the local community include but are not limited to: providing employment opportunities; purchasing local goods and services; providing forest product sales opportunities to local harvesters and value-added manufacturers; and, supporting learning opportunities about forest management.

Indicator 4.1.f Commensurate with the size and scale of operation, the forest owner or manager provides and/or supports learning opportunities to improve public understanding of forests and forest management.

FF Indicator 4.1.f Inapplicable (pertinent requirements incorporated into Indicator 4.1.e)

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Indicator 4.1.g The forest owner or manager participates in local economic development and/or civic activities, based on scale of operation and where such opportunities are available.

FF Indicator 4.1.g Inapplicable (pertinent requirements incorporated into Indicator 4.1.e)

C4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

Indicator 4.2.a The forest owner or manager meets or exceeds all applicable laws and/or regulations covering health and safety of employees and their families (also see Criterion 1.1).

FF Indicator 4.2.a Low risk of negative social or environmental impact.

Indicator 4.2.b The forest owner or manager and their employees and contractors demonstrate a safe

work environment. Contracts or other written agreements include safety requirements.

Guidance: Evaluation of conformance to this Indicator may be through interviews and observations and may be demonstrated by: operations have consistently low accident rates; training sessions are offered/attended; safety procedures and documentation are posted in the workplace; inexperienced field workers are given adequate instructions and supervision; workers utilize personal protective equipment; landowners, managers or operators maintain safety-training records; machinery and equipment is well-maintained and in safe working order.

Indicator 4.2.c The forest owner or manager hires well-qualified service providers to safely implement the management plan.

FF Indicator 4.2.c Low risk of negative social or environmental impact.

Intent: “Service providers” refer to both contract and directly employed staff who implement the management plan.

Guidance: “Well-qualified” may refer to certified loggers, certified or registered foresters, service providers who have undergone training programs in their field, or other credentialed professionals. Service providers do not need degrees in their fields.

C4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labor Organization (ILO).

Indicator 4.3.a Forest workers are free to associate with other workers for the purpose of advocating for their own employment interests.

FF Indicator 4.3.a Low risk of negative social or environmental impact.

Intent: this Indicator covers rights guaranteed under ILO Conventions 87 and 98.

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Indicator 4.3.b The forest owner or manager has effective and culturally sensitive mechanisms to resolve disputes between workers and management.

FF Indicator 4.3.b Low risk of negative social or environmental impact.

C4.4 Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations.

Intent: People “directly affected by management operations” may include: employees and contractors of the landowner; community members; neighboring landowners; anglers and hunters; recreationists; local water users; harvesters and processors of forest products; and others identified to be affected by management operations. People consulted include men and women, ethnic groups and minorities, and

all other stakeholders directly affected by management operations.

The Indicators in this Criterion address the need to include meaningful public participation in forest management. Public involvement is required in all forests under FSC-certification, including both the provision of public involvement opportunities as well as the provision of adequate information and communication. Depending on the nature of the issue, consultation may be required prior to an activity taking place or on a regularly-scheduled ongoing basis (e.g., annual meetings).

FF Supplementary Intent: “directly affected by management operations” should also include the landowner and landowner families.

Guidance: Evaluations of social impact are based on the scale and intensity of forest operation.

FF Supplementary Guidance: For family forests with limited capacity to influence local communities, evaluations may be brief and non-technical.

Indicator 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.

FF Indicator 4.4.a The forest owner of manager understands the likely social impacts of management activities, and incorporates this understanding into management planning and operations.

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Intent: This Indicator focuses on utilizing an evaluation of social impact to guide management decisions. These evaluations analyze, monitor, and manage the social consequences of a project for the dual purpose of identifying and improving the negative or unintended consequences of forest management as well as maximizing the positive outcomes for stakeholders.

Management activities that may have social impacts include but are not limited to: employment opportunities, harvest, access to land, fire, noise, traffic, and spraying.

Guidance: Social impact evaluations generally include the following three components: a) Assessment of **baseline conditions** of identified affected resources and social values; b) Identification and description of the activities which are likely to cause impact; c) Identification of the impacts, and how they will be perceived by different stakeholders.

Information may be gathered through the following means: Local community members and groups such as watershed protection groups, BMP committees, fire councils, outdoor clubs; consultation with archeological offices, tribes, universities; consultation with other affected groups; field inventories; municipal and regional plans, landscape biodiversity conservation plans; and cultural plans.

FF Supplementary Guidance: Family forest owners or managers may utilize social impact evaluations conducted by state conservation agencies (such as Statewide Forest Assessments required under the US Federal Farm Bill) or other organizations as a resource. These, and other resources, should be valid and credible, as evaluated by the CB. Social impact considerations are incorporated appropriate to the scale and intensity of their operations, unique characteristics of the property, and the individual family's needs or objectives. Related evaluations may be brief and informal.

Indicator 4.4.b The forest owner or manager seeks and considers input in management planning from people who would likely be affected by management activities.

FF Indicator 4.4.b Low risk of negative social or environmental impact.

Indicator 4.4.c People who are subject to direct adverse effects of management operations are apprised of relevant activities in advance of the action so that they may express concern.

Intent: This Indicator focuses on stakeholder consultation in operations that may directly and negatively affect stakeholders, such as logging, burning, spraying or traffic.

Guidance: To apprise likely affected neighbors and other stakeholders of specific management operations, the landowner or manager may post signs or other measures that are readily noticeable by likely affected stakeholders but that do not necessarily require direct communication. Some situations may warrant direct communication.

Advance notice should be within a time frame appropriate to the situation.

Indicator 4.4.d For *public forests*, consultation includes the following components: 1. Clearly defined and accessible methods for public participation are provided in both long and short-term planning processes, including harvest plans and operational plans;

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2. Public notification is sufficient to allow interested stakeholders the chance to learn of upcoming opportunities for public review and/or comment on the proposed management; 3. An accessible and affordable appeals process to planning decisions is available. Planning decisions incorporate the results of public consultation. All draft and final planning documents, and their supporting data, are made readily available to the public.

Applicability: This Indicator only applies to public lands.

Intent: FSC certification does not preclude any individual or group from seeking legislative or judicial relief.

C4.5 Appropriate mechanisms shall be employed for resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihoods of local peoples. Measures shall be taken to avoid such loss or damage.

Indicator 4.5.a The forest owner or manager does not engage in negligent activities that cause damage to other people.

Guidance: Examples of actions taken to protect others from damage include but are not limited to: management areas likely to be accessed by recreational users or travelers are signed with precautions; high use areas such as campgrounds and nature trails are inspected for hazard tree removal; roads to open pits or other hazards are gated; wells are properly closed; equipment used in commercial operations is inspected regularly and maintenance is documented; reported hazards are dealt with in a reasonable time period.

Indicator 4.5.b The forest owner or manager provides a known and accessible means for interested stakeholders to voice grievances and have them resolved. If significant disputes arise related to resolving grievances and/or providing fair compensation, the forest owner or manager follows appropriate dispute resolution procedures. At a minimum, the forest owner or manager maintains open communications, responds to grievances in a timely manner, demonstrates ongoing good faith efforts to resolve the grievances, and maintains records of legal suites and claims.

Intent: Methods to comply with this Indicator may be informal or formal depending on the nature of the grievance.

Guidance: Examples of “appropriate dispute resolution procedures” may include but are not limited to: developing liaison roles with critical stakeholder groups; program enforcement policies that emphasize use of appropriate notices or warnings before penalties are applied; hosting open houses or informal listening opportunities where people are welcomed to express concerns; participating in local government or on advisory boards and other civic involvement that encourages communication.

FF guidance: Family Forest landowners/managers can be considered compliant through informal communications with neighbors and in the absence of disputes.

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Indicator 4.5.c Fair compensation or reasonable mitigation is provided to local people, communities or adjacent landowners for substantiated damage or loss of income caused by the landowner or manager.

FF Indicator 4.5.c Low risk of negative social or environmental impact.

Intent: Damage may be to crops, game, trees, land, other managed resources, and impairment of essential environmental functions (for example, water quality).

The intent of this Indicator is not to provide compensation for a justified business decision, such as selling product for a higher value or purchasing goods and services at a better price, given relative equal quality.

PRINCIPLE 5: BENEFITS FROM THE FOREST

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

Intent: Principle 5 primarily focuses on making the most efficient use of harvested resources, including commercially harvested NTFPs, and maintaining the capacity of both the FMU and the forest operation to provide long-term economic, environmental, and social benefits. Principle 5 is intended to promote full-cost accounting but does not require it.

This Principle does not require a financial audit. Rather, it focuses on various indicators of efficiency and financial viability, such as profit (or loss), financial reserves, trends in market share, price per unit output, and revenue earned. Much of this information will be highly confidential to the public; confidentiality is respected.

C5.1 Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest.

Intent: Criterion 5.1 evaluates the ability of forest management operations to be economically viable while meeting the other Criteria of this Standard.

The forest owner or manager accounts for environmental and social costs by conforming to the Criteria and Indicators of the other Principles of this Standard.

The following excerpt from the Forest Stewardship Council A.C. By-laws (Revised June 2006) Mission Statement is included to clarify the relationship between profitability and the full environmental, social, and economic costs of production:

“Economically viable forest management means that forest operations are structured and managed so as to be sufficiently profitable, without generating financial profit at the expense of the forest resource, the ecosystem, or affected communities. The tension between the need to generate adequate financial returns and the principles of responsible forest operations can be reduced through efforts to market forest products for their best value.”

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Indicator 5.1.a The forest owner or manager is financially able to implement core management activities, including all those environmental, social and operating costs, required to meet this Standard, and investment and reinvestment in forest management.

Guidance: Investment and re-investment activities may include, but are not limited to: planning; inventory; resource monitoring and protection; post-harvest treatments; capital improvements;

maintenance; and any necessary ecosystem enhancement and restoration measures, over both the short-term (quarter years and years) and long-term (decades).

Indicator 5.1.b Responses to short-term financial factors are limited to levels that are consistent with fulfillment of this Standard.

Intent: Short-term financial factors may include but are not limited to: fluctuations in the market; requirements for cash flow; and, the need for sawmill equipment and log supplies.

Guidance: “Responses to short-term financial factors” may include but are not limited to: increases in harvests or debt load; deferred maintenance of roads; and, staff reductions.

C5.2 Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.

Intent: The intent of this Criterion is to maximize forest value by pursuing optimal use (marketing harvested wood for its highest value) and local processing.

Indicator 5.2.a Where forest products are harvested or sold, opportunities for forest product sales and services are given to local harvesters, value-added processing and manufacturing facilities, and other operations that are able to offer services at competitive rates and levels of service.

FF Indicator 5.2.a Low risk of negative social or environmental impact.

Indicator 5.2.b The forest owner or manager takes measures to optimize the use of harvested forest products and explores product diversification where appropriate and consistent with management objectives.

Indicator 5.2.c On public lands where forest products are harvested and sold, some sales of forest products or contracts are scaled or structured to allow small business to bid competitively.

Applicability: this Indicator is only applicable to public lands.

Intent: This Indicator focuses on the ability of small businesses to bid competitively, and does not assume that the bid will be awarded. Factors such as price, equivalent skills, experience, and abilities to perform the required tasks must be taken into account in awarding sales and contracts.

C5.3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

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Indicator 5.3.a Management practices are employed to minimize the loss and/or waste of harvested forest products.

Guidance: “Waste” consists of damage or underutilization of harvested products, except where

portions of harvested material need to be left on site to maintain *woody debris*, nutrient cycling, or other ecological functions (see Criterion 6.3).

Indicator 5.3.b Harvest practices are managed to protect residual trees and other forest resources, including:

- soil compaction, *rutting* and erosion are minimized;
- residual trees are not significantly damaged to the extent that health, growth, or values are noticeably affected;
- damage to NTFPs is minimized during management activities; and
- techniques and equipment that minimize impacts to vegetation, soil, and water are used whenever feasible.

C5.4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

Applicability: The capacity of forest management to affect the local economy is dependent on the scope and scale of operation. Large, highly productive ownerships have a greater capacity to affect the local economy and should thus explore more thoroughly the range of diversification opportunities than should a smaller, less productive operation. In public forests, where diversification represents an important public interest, the forest manager should manage for the broader public interest. Publicly owned forests also have different mandates, some of which may require management goals involving no conventional forest “products” at all.

Intent: It is expected that the landowner/manager will explore a range of products, or act in cooperation with others in pursuing niche markets, if feasible. However, an actual diversified or value added operation is not required, especially if it is financially infeasible.

FF Guidance: The capacity of forest management to affect the local economy is dependent on the scope and scale of operation. Large, highly productive ownerships as well as groups with landowners operating within proximity of one another may have a greater capacity to affect the local economy and should thus explore more thoroughly the range of diversification opportunities than should a smaller, less intensive operation.

Indicator 5.4.a The forest owner or manager demonstrates knowledge of their operation’s effect on the local economy as it relates to existing and potential markets for a wide variety of timber and non timber forest products and services.

Indicator 5.4.b The forest owner or manager strives to diversify the economic use of the forest according to Indicator 5.4.a.

Applicability: For public lands, diversification of the economic use of the forest is a requirement.

Intent: Economic diversification shall be evaluated in terms of its ecological impacts and shall not impede maintaining forest composition, structure, function, and other requirements present in this

Standard. Developing new markets shall also be consistent with management objectives.

Guidance: Diversification of economic uses may include but is not limited to: recreation; ecotourism; hunting; fishing; specialty products and lesser-used species of trees, grades of logs, and lumber; NTFPs; and emerging markets in new commodities such as water in its value to provide in-stream water flows.

FF Supplementary Guidance: This indicator can be assessed during the interview process with the CB

C5.5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.

Indicator 5.5.a In developing activities on the FMU, the forest owner or manager identifies and defines appropriate measures for maintaining and/or enhancing forest services and resources that serve public values, including municipal watersheds, fisheries, carbon storage and sequestration, recreation and tourism.

Intent: This Indicator is intended to address forest services and resources that are associated with public values and not those addressed in Principles 6 and 9. Forest management operations should not have significant, long term negative impact on these forest services and resources.

If past management has resulted in adverse impacts to forest services and resources, then the forest owner or manager should identify measures to restore them.

Forest services and resources may vary with ownership type (e.g., public vs. private), size, and region, and may include but are not limited to watersheds, fisheries, and other non-timber forest values and services such as recreation, aesthetics, and carbon storage and sequestration.

The reference to carbon storage and sequestration is to have forest managers recognize carbon storage as an important forest service and public value. It is not intended to preclude harvest that is consistent with other parts of this Standard, nor is a forest owner/manager required to quantify carbon storage and sequestration. The forest owner/manager should consider the values associated with carbon and integrate it into management decisions as done with watersheds, fisheries, and recreation.

FF guidance: Compliance with this Indicator is scale-dependent. Large groups of family forests might have a greater impact in impacting and affecting these issues.

Indicator 5.5.b The forest owner or manager uses the information from Indicator 5.5.a to implement appropriate measures for maintaining and/or enhancing these services and resources.

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

Indicator 5.6.a In FMUs where products are being harvested, the landowner or manager calculates the sustained yield harvest level for each sustained yield planning unit, and provides clear rationale for determining the size and layout of the planning unit. The sustained yield harvest level calculation is documented in the Management Plan.

The sustained yield harvest level calculation for each planning unit is based on:

- documented growth rates for particular sites, and/or acreage of forest types, age-classes and species distributions;

- mortality and decay and other factors that affect net growth;
- areas reserved from harvest or subject to harvest restrictions to meet other management goals;
- silvicultural practices that will be employed on the FMU;
- management objectives and desired future conditions.

The calculation is made by considering the effects of repeated prescribed harvests on the product/species and its ecosystem, as well as planned management treatments and projections of subsequent regrowth beyond single rotation and multiple re-entries.

Intent: The term “sustained yield harvest” refers to 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 method used to calculate the sustained yield harvest level for timber products is commensurate with the size and intensity of the forest management operation.

For FMUs in which harvesting occurs infrequently, harvest levels and/or re-entry frequencies are set consistent with achieving and/or maintaining desired future conditions.

FF Indicator 5.6.a On family forests, a sustained yield harvest level analysis shall be completed. Data used in the analysis may include but is not limited to:

- regional growth data;
- age-class and species distributions;
- stocking rates required to meet management objectives;
- ecological and legal constraints;
- empirical growth and regeneration data; and,
- validated forest productivity models.

Guidance: Compliance with this Indicator is scale-dependent. For instance, a 1,600-acre FMU would typically need to provide more information in terms of stocking and growth rates than a 40-acre FMU. Likewise, a demonstrably well-stocked forest utilizing single-tree selection silviculture might require a lower burden of proof of sustainability than an FMU utilizing even-aged silviculture in a timber type where competing vegetation predictably poses difficulties for establishment of regeneration.

Large family forest FMUs and groups may calculate discrete sustained yield harvest levels using conventional area and/or volume control methods if the acreage and forest cover types lend themselves to those techniques. In situations where the calculation of a sustained yield harvest level is impractical due to size or scale of operations, harvest levels may be based on maintaining or attaining desired forest conditions, such as stocking, species composition, and age and /or development classes of stands, and wildlife habitat.

Indicator 5.6.b Average annual harvest levels, over rolling periods of no more than 10 years, do not exceed the calculated sustained yield harvest level.

Guidance: If the intent is to change the species balance in a stand or planning unit, or to achieve a desired age class structure, or to manage a catastrophic or natural event such as fire or pest outbreak, a particular species might be harvested at a higher-than-sustainable rate until its optimal stand occupancy could be achieved (e.g., by restocking via planting, etc).

FF Indicator 5.6.b On family forests, harvest levels and rates do not exceed growth rates over successive harvests, contribute directly to achieving desired future conditions as defined in the forest management plans, and do not diminish the long term ecological integrity and productivity of the site.

Applicability: This is applied at the FMU level.

Guidance: In cases where owners or managers harvest timber at intervals longer than ten years, the allowable harvest is determined by the target stocking levels and the volume of re-growth since the previous harvest. In large groups that can have significant cumulative effects, harvest levels and spatial distribution of harvests are designed to take into consideration potential cumulative effects on social and environmental values (e.g., water quality, wildlife habitat, road use, etc.).

Overstocked stands and stands that have been depleted or rendered to be below productive potential due to natural events, past management, or lack of management, are returned to desired stocking levels and composition at the earliest practicable time as justified in management objectives.

In cases where owners or managers harvest timber at intervals longer than ten years, the allowable harvest is determined by the target stocking levels and the volume of re-growth since the previous harvest. In large groups that can have significant cumulative effects, harvest levels and spatial distribution of harvests are designed to take into consideration potential cumulative effects on social and environmental values (e.g., water quality, wildlife habitat, road use, etc.).

If the intent is to change the species balance in a stand or planning unit, or to achieve a desired age class structure, or to manage a catastrophic or natural event such as fire or pest outbreak, the family forest utilizes the same approach as defined in C5.6 for non-Family Forest FMUs.

Indicator 5.6.c Rates and methods of timber harvest lead to achieving desired conditions, and improve or maintain health and quality across the FMU. Overstocked stands and stands that have been depleted or rendered to be below productive potential due to natural events, past management, or lack of management, are returned to desired stocking levels and composition at the earliest practicable time as justified in management objectives.

Indicator 5.6.d For NTFPs, calculation of quantitative sustained yield harvest levels is required only in cases where products are harvested in significant commercial operations or where traditional or customary use rights may be impacted by such harvests. In other situations, the forest owner or manager utilizes available information, and new information that can be reasonably gathered, to set harvesting levels that will not result in a depletion of the non-timber growing stocks or other adverse effects to the forest ecosystem.

PRINCIPLE 6: ENVIRONMENTAL IMPACT

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

Intent: Principle 6 focuses on maximizing positive environmental impacts and minimizing adverse environmental impacts from forest management operations: assessment of impacts, protection of species and communities, maintenance of ecological functions, the use of pesticides and forest conversion.

Within the scope of Principle 6 are issues and concepts about which there remains considerable uncertainty; in cases of uncertainty, the use of a *precautionary approach* is present both implicitly and explicitly in several aspects of the Principle because mitigation, repair and restoration is often difficult, more costly, and sometimes impossible.

See Glossary for definition of *biological diversity*.

C6.1 Assessment of environmental impacts shall be completed -- appropriate to the scale, intensity of forest management and the uniqueness of the affected resources -- and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

Intent: The primary intent of Criterion 6.1 is to avoid creating significant negative environmental impact by conducting baseline assessments of resource attributes, assessing the potential environmental impact of proposed management activities, and then incorporating the results of these assessments into management planning.

Indicators 6.1.a through 6.1.c follow a logical sequence in which an assessment of current conditions is completed and compared to historic conditions in order to understand the effects of the short and long term impacts of management and to determine where restoration may be warranted, and then management approaches are developed and implemented that minimize and mitigate for these impacts.

Assessments include all aspects of site-disturbing operations for which the landowner/manager has direct control, such as: activities associated with timber management, recreational uses, transportation, on-site wood processing facilities, grazing, mineral extraction, transmission line siting, and other activities conducted in the FMU.

FF Guidance: The expectations for meeting this Criterion are scale-dependent and the rigor of the assessment is commensurate to the level of disturbance. Less-extensive and less-technical assessments (e.g., a summary of findings from a consultation with a forestry or natural resource professional and/or available databases) may be adequate for individual and small group family forests to demonstrate

compliance.

Indicator 6.1.a Using the results of *credible scientific analysis, best available information* (including relevant databases), and local knowledge and experience, an assessment of conditions on the FMU is completed and includes:

1) Forest community types and development, size class and/or successional stages, and associated *natural disturbance regimes*;

2) *Rare, Threatened and Endangered (RTE) species* and *rare ecological communities* (including

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plant communities);

3) Other habitats and species of management concern;

4) Water resources and associated riparian habitats and hydrologic functions;

5) *Soil resources*; and

6) *Historic conditions* on the FMU related to forest community types and development, size class and/or successional stages, and a broad comparison of historic and current conditions.

Intent: Indicator 6.1.a establishes current and historic conditions for assessing environmental impacts. The purpose of establishing historic conditions is to facilitate creating a baseline for assessing environmental impacts of operations, to facilitate establishing desired future conditions, and to determine when restoration may be needed. When historic conditions are not available, best estimates from available sources may be used. Historic conditions should be used as guidelines for estimating ecological components of naturally occurring conditions.

The assessment for RTE species and communities includes G1-G3, S1-S2, and some S3 species. The assessment includes an assessment to determine which S3-ranked species and communities warrant recognition as RTE, and is based on the following: S3 species/communities that are candidates for federal or state listing shall be considered RTE species/communities. S3 species/communities that have been proposed for federal or state listing are also given priority in the assessment. The assessment shall be designed to identify and recognize as RTE those S3 species/communities that are more imperiled across their natural ranges, and that are more sensitive and vulnerable to impact from the types of forest management practices that will occur on the FMU.

Guidance: The forest community and development stage classification system may be based on regional norms or a landowner-specific system (e.g. the FMO's stand classification system). At minimum, the classification must include sufficient specificity and differentiation to account for forest sites' natural diversity and tree species, habitat types, stand structures, and their distribution (or lack thereof) including all development stages from regeneration through old growth characteristic of regional forest dynamics (see also Indicator 6.3.b).

The above element of the assessment process will also generate information that is relevant to the assessments required for **Representative Sample Areas** (Criterion 6.4) and **High Conservation Value Forests** (HCVF, Principle 9).

Primary sources of information include state Natural Heritage Programs, NatureServe, LANDFIRE, state wildlife agencies, US Fish and Wildlife Service and the National Marine Fisheries Service. Depending on the scale and intensity of operations and potential for risk as indicated by consultation with conservation agencies, on-site searches for RTE species may be applicable.

In states where S1, S2, S3 or G3 species and communities are not mapped by the Natural Heritage Program, or where rare species information is incomplete, the best available data for S1-3 and G3 species and communities' occurrences and finest resolution of classification commonly available in that state should be used.

"Other habitats and species of management concern" may include a) Species of Greatest Conservation Need and priority habitats identified in state "Wildlife Action Plans" and priorities identified by state and federal conservation agencies; b) areas identified in science-based conservation plans developed by other conservation organizations (e.g., The Nature Conservancy or NatureServe); and c) habitats for other species potentially at risk due to management. See also Indicators 6.3.c and 6.3.e.

FF Supplementary Guidance: At minimum, an informal evaluation is conducted that includes: (1) consultation of available natural heritage databases and (2) an evaluation of unique, vulnerable, rare, and threatened communities; (3) all state and federally listed sensitive, rare, threatened, and endangered species and their habitats; (4) water resources and riparian habitats; and (5) soil resources. (see also 7.1.a and b). The forest owner or manager of private land is encouraged to report the location of new element occurrences of sensitive, rare, threatened, and endangered species to natural heritage database manager or appropriate public agency; public forest managers are required to report such occurrences.

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Indicator 6.1.b Prior to commencing site-disturbing activities, the forest owner or manager assesses and documents the potential short and long-term impacts of planned management activities on

elements 1-5 listed in Criterion 6.1.a.

The assessment must incorporate the **best available information**, drawing from scientific literature and experts. The impact assessment will at minimum include identifying resources that may be impacted by management (e.g., streams, habitats of management concern, soil nutrients). Additional detail (i.e., detailed description or quantification of impacts) will vary depending on the uniqueness of the resource, potential risks, and steps that will be taken to avoid and minimize risks.

Intent: This Indicator focuses on assessing potential impacts to forest resources identified in 6.1.a.

“Short-term impacts” are those that can be measured during or within a short-period of the management activity (e.g., within one year). “Long-term impacts” are those that persist for longer periods and include **cumulative impacts** (e.g., cumulative habitat changes or cumulative impacts to soils from whole tree harvesting). Cumulative impacts may occur over time at one site (e.g., depletion of soil nutrients) or at the landscape or ownership scale (e.g., the cumulative impact of many harvests on wildlife habitat).

“Assessments of environmental impacts” do not require a formal ‘Environmental Impact Assessment’ as defined under federal and state laws and regulations.

Guidance: Potential impacts to site-specific features (e.g., unique habitats, water bodies, identification of sensitive soils) are typically addressed in operations plans and/or prescriptions. Long-term and cumulative impacts are addressed in the management plan, while short-term impacts may be addressed in harvest plans or in separate management guidelines that describe potential risks. While not all impacts can be easily distinguished as ‘long term’ or ‘short term’ it is important that they are included in either the management plan or the harvest plan.

FF Supplementary Guidance: For family forests, assessment and documentation of long-term impacts are not always necessary or appropriate. Harvest prescriptions, techniques, site preparation, timing, and equipment used should be included in considerations, as well as the size and configuration of the group certificate as per the group’s risk assessment, of the necessity to assess for long-term impacts.

Indicator 6.1.c Using the findings of the impact assessment (Indicator 6.1.b), management approaches and field prescriptions are developed and implemented that: 1) avoid or minimize negative short-term and long-term impacts; and, 2) maintain and/or enhance the long-term ecological viability of the forest.

Intent: This Indicator focuses on developing/implementing management measures to avoid or

minimize impacts identified in 6.1.b. Emphasis should be placed first on avoidance and then on minimizing and mitigating negative impacts.

Guidance: Management approaches to address potential long-term impacts, including cumulative impacts, will typically be addressed in the management plan. They should also be addressed in operational plans.

Management approaches and field prescriptions to address short-term impacts from management activities that recur throughout the implementation of the plan may be addressed in the management plan or in separate management guidelines that are designed to avoid potential risks (for example, these may be the guidelines required for Criteria 6.3, 6.5, 6.6, 6.8, and 6.9).

Prescriptions to site-specific features (e.g., unique habitats, water bodies, identification of sensitive soils) are typically addressed in operations plans and/or prescriptions.

Indicator 6.1.d On public lands, assessments developed in Indicator 6.1.a and management approaches developed in Indicator 6.1.c are made available to the public in draft form for review and comment prior to finalization. Final assessments are also made available.

Applicability note: This Indicator is only applicable for public lands.

Guidance: Information that the manager and CB deem necessary to keep confidential (e.g., location of RTE species) may be kept confidential.

C6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

Intent: This Criterion establishes safeguards for RTE species that were identified in Criterion 6.1. Safeguards for RTE communities identified in Criterion 6.1 are addressed in Criterion 6.3.

The landowner has the discretion to keep the specific location of rare populations confidential.

Indicators 6.2.a through 6.2.c follow a logical sequence in which applicants are required to develop a list of RTE species present in the forest, modify management plans accordingly, and implement management activities to maintain or enhance habitats for the species. Where adequate plans or information do not exist and the likely presence of RTE species is indicated, the forest owner or manager is required to follow a precautionary management approach and manage as though they are present.

Indicator 6.2.a If there is a likely presence of RTE species as identified in Indicator 6.1.a then either a field survey to verify the species' presence or absence is conducted prior to site-disturbing management activities, or management occurs with the assumption that potential RTE species are present.

Surveys are conducted by biologists with the appropriate expertise in the species of interest and with appropriate qualifications to conduct the surveys. If a species is determined to be present, its location should be reported to the manager of the appropriate database.

FF Indicator 6.2.a If there is a likely presence of RTE species as identified in Indicator 6.1.a then either a field survey to verify the species' presence or absence is conducted prior to site-disturbing management activities, or management occurs with the assumption that potential RTE species are present. Surveys are conducted by biologists with the appropriate expertise in the species of interest and with appropriate qualifications to conduct the surveys. A secondary review of the survey does not need to be included in the process. If a species is determined to be present, its location should be reported to the manager of the appropriate database.

Intent: “Likely” is a judgment decision by the landowner/manager, in consultation with experts (and verification by the Certifying Body), and is determined by occurrences in the area (e.g., county) of harvest and/or the similarity of habitat as indicated by input from appropriate natural resource agencies such as state wildlife agencies, the Natural Heritage programs, NatureServe, the National Marine Fisheries Service, and knowledge of historic conditions.

Guidance: Depending on the type of FMU (e.g., scale, scope, degree of risks) the landowner/manager may be required to have surveys conducted by independent experts representing no conflict of interest. It may also include a secondary review.

FF Supplementary Guidance: For family forests, a secondary review of the survey does not need to be included in the process.

Indicator 6.2.b When RTE species are present or assumed to be present, modifications in management are made in order to maintain, restore or enhance the extent, quality and viability of the species and their habitats. *Conservation zones* and/or *protected areas* are established for RTE species, including those S3 species that are considered rare, where they are necessary to maintain or improve the short and long-term viability of the species. Conservation measures are based on relevant science, guidelines and/or consultation with relevant, independent experts as necessary to achieve the conservation goal of the Indicator.

Intent: The goal of this Indicator is to be aware of RTE species and to manage appropriately in situations where they are present. This may require establishing conservation zones or protected areas where warranted. Conservation zones are not considered ‘set asides’ and active management within these areas is allowed where appropriate.

Guidance: In states where S1, S2, S3, or G3 species are not mapped by the local Natural Heritage Program or where rare species information is incomplete, the best available data should be used.

Indicator 6.2.c For medium and large public forests (e.g. state forests), forest management plans and operations are designed to meet species’ recovery goals, as well as landscape level biodiversity conservation goals.

Applicability note: This Indicator is only applicable for public lands.

Indicator 6.2.d Within the capacity of the forest owner or manager, hunting, fishing, trapping, collecting and other activities are controlled to avoid the risk of impacts to vulnerable species and communities (See Criterion 1.5).

Intent: The intent of this Indicator is to apply the precautionary approach in order to avoid irreversible negative consequences to RTE species and their habitats from extractive and recreational activities.

C6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including:

- a) Forest regeneration and succession.**
- b) Genetic, species, and ecosystem diversity.**
- c) Natural cycles that affect the productivity of the forest ecosystem.**

Intent: Criterion 6.3 addresses the full range of biodiversity attributes in general management zones and in special management zones that are not specifically addressed in other Criteria. Each of the following Indicators is intended to address a specific attribute of biodiversity, and as a whole the Indicators represent an integrated approach to managing biological diversity.

Outline for Criterion 6.3:

Landscape-Scale Indicators

- 6.3.a.1 Successional stages
- 6.3.a.2 Rare ecological communities
- 6.3.a.3 Old growth
- 6.3.b Animal species and habitat diversity
- 6.3.c Riparian Management Zones

Stand- or Site-Scale Indicators

- 6.3.d Plant species diversity
- 6.3.e Local seed sources
- 6.3.f Full range of tree sizes / Declining trees, snags, and coarse debris
- 6.3.g Even-aged retention
- 6.3.h Invasive species control
- 6.3.i Fuels management

Whole tree and biomass harvests: This Criterion does not include an Indicator specific to biomass harvests or other forms of whole tree harvesting. Rather, biomass and whole tree harvests are addressed along with other types of removals.

Landscape-scale indicators

Intent: The manner in which management addresses the landscape scale Indicators will vary greatly with FMU size. On smaller FMUs, it is generally expected that the landscape-scale Indicators be considered as property-wide diversity Indicators and that management further considers the context and characteristics of the surrounding landscape in making management decisions. More detailed FFFMU size guidance is included with the Indicators below.

Indicator 6.3.a.1 The forest owner or manager maintains, enhances, and/or restores under-represented *successional* stages in the FMU that would naturally occur on the types of sites found on the FMU. Where old growth of different community types that would naturally occur on the forest are under represented in the landscape relative to natural conditions, a portion of the forest is managed to enhance and/or restore old growth characteristics.

FF Applicability: The ability to address the intent of this Indicator is based on size of ownership. The landowner or manager shall assess whether or not under-representative successional stages can be maintained, enhanced and/or restored.

Intent: The goal of this Indicator is to maintain, enhance, or restore the biological diversity associated with the mix of successional stages by forest type that would occur across the FMU under natural conditions. This goal includes plants, vertebrates, invertebrates, fungi, lichens, and other organisms associated with those plant community types and other elements of site diversity. The goal is not to maximize diversity through management, create “museum forests,” explicitly mimic natural disturbance regimes, or to re-create pre-European-settlement conditions. Non-catastrophic disturbance should be the focus of analyzing for natural disturbance.

Guidance: The landowner or manager should consider and apply the best available science and resources when determining natural disturbance and successional processes. The number of potential plant communities that can be represented, as well as the number of successional stages at any one time, will vary greatly with ownership size and forest site. Landscape context, including local and regional landscape needs and opportunities as well as current and ***desired future ecological conditions*** should also be considered in developing diversity goals. While managing for the range of plant communities and stages or ***age classes*** appropriate to the forest size and sites, the land owner/manager may consider operational and financial feasibility and landowner objectives in deciding their location, amount, and distribution.

The plant community type and development stage data generated in Indicator 6.1.a (for example, a community/development stage matrix table) and baseline information from Indicator 6.1.b may be used as the basic measurement for this Indicator. The level of detail and quantification may vary with the scale and intensity of management, and is based on the best available data available. This information should also be used in determining where restoration is needed.

While all forests must meet the requirements of this Indicator, the methods used to meet the Indicator (e.g., location and extent of communities and age classes) may be influenced by other ownership objectives if the ecological objectives of this Indicator are met.

The size and conditions of stands should be sufficient to maintain ecological conditions (e.g., light, humidity, structure) required by species characteristic of the development stage.

Ownership Size Considerations: There is no expectation to manage for a particular development stage in situations where the range of natural disturbances is such that there would be a very low probability of that stage occurring on a small parcel. For example, on small parcels there is not an expectation to create even-aged patches in forest types that do not typically experience stand-replacing disturbances. As ownership size increases the probability of any one development stage occurring would increase, and hence the expectation that these stages would be represented in the managed forest at one or a number of locations (increasing with forest size).

Indicator 6.3.a.2 When a ***rare ecological community*** is present, modifications are made in both the management plan and its implementation in order to maintain, restore or enhance the viability of the community. Based on the vulnerability of the existing community, ***conservation zones*** and/or ***protected areas*** are established where warranted.

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Applicability: This Indicator applies to occurrences of rare communities known to state natural heritage programs and occurrences identified in planning or implementing forest operations.

In states where S1, S2 or S3 communities are not mapped by the Natural Heritage Program, the best available data for S1-3 communities' occurrences and finest resolution of classification commonly available in that state should be used. See Guidance and Intent in Criterion 6.1 for information on S1-S3 classifications as well as the Glossary listing for Rare, threatened, and endangered species.

Rare communities include some S3 communities. Indicator 6.1.a outlines the process for identifying

which S3 communities must be protected and managed as a rare community.

Guidance: Conservation measures shall be based on relevant science, guidelines and/or consultation with relevant experts as necessary to achieve the conservation goal of the Indicator.

Field foresters should have an understanding of rare forest communities that may be encountered during forest operations. At minimum, this generally includes classification at the Alliance or Natural Community levels, although a more coarse classification may be appropriate in cases where community types are highly diverse and difficult to classify.

Indicator 6.3.a.3 When they are present, management maintains the area, structure, composition, and processes of all *Type 1* and *Type 2 old growth*. Type 1 and 2 old growth are also protected and buffered as necessary with conservation zones, unless an alternative plan is developed that provides greater overall protection of old growth values.

Type 1 Old Growth is protected from harvesting and road construction. Type 1 old growth is also protected from other timber management activities, except as needed to maintain the ecological values associated with the stand, including old growth attributes (e.g., remove exotic species, conduct controlled burning, and thinning from below in dry forest types when and where restoration is appropriate).

Type 2 Old Growth is protected from harvesting to the extent necessary to maintain the area, structures, and functions of the stand. Timber harvest in Type 2 old growth must maintain old growth structures, functions, and components including individual trees that function as refugia (see Indicator 6.3.g).

On public lands, old growth is protected from harvesting, as well as from other timber management activities, except if needed to maintain the values associated with the stand (e.g., remove exotic species, conduct controlled burning, and thinning from below in forest types when and where restoration is appropriate).

On American Indian lands, timber harvest may be permitted in Type 1 and Type 2 old growth in recognition of their sovereignty and unique ownership. Timber harvest is permitted in situations where:

1. Old growth forests comprise a significant portion of the tribal ownership.
2. A history of forest stewardship by the tribe exists.
3. High Conservation Value Forest attributes are maintained.
4. Old-growth structures are maintained.
5. Conservation zones representative of old growth stands are established.

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6. Landscape level considerations are addressed.
7. Rare species are protected.

Indicator 6.3.b To the extent feasible within the size of the ownership, particularly on larger ownerships, management maintains, enhances, or restores habitat conditions suitable for well distributed populations of animal species that are characteristic of forest ecosystems within the landscape.

Applicability: This Indicator addresses habitats required by species that are not explicitly covered by Criterion 6.2 and Indicator 6.3.a, with particular consideration of animal species or species guilds whose populations are influenced by forest management at the multi-stand scale.

FF Supplementary Applicability: The ability to address the intent of this Indicator is based on size of ownership. The landowner or manager shall assess whether or not these habitat conditions can be maintained, enhanced and/or restored.

Intent: This Indicator is intended to cover habitat diversity of species not specifically associated with riparian or aquatic habitats, which are addressed in Indicator 6.3.c and Criterion 6.5.

This Indicator addresses management for elements of habitat diversity across the FMU, and includes consideration of diversity at the landscape-scale. Habitat connectivity at the multi-stand scale is also considered and is based on the habitat needs of species that are vulnerable to habitat fragmentation.

Guidance: Species that are characteristic of forests within the landscape may include: forest interior specialists; early successional forest specialists; mature forest specialists; forest understory species; species with large territories or home ranges whose populations may be dependent on specific habitat conditions; species at risk from habitat fragmentation; and, species with very restricted ranges limited by specific habitat conditions.

It is not expected that all species be identified and considered individually. Rather, management may be based on broad habitat conditions used by a wide range of species (for example, early successional deciduous forests or large patches of relatively mature coniferous forests) as indicated by the forest types and other ecosystems found on the forest. Consideration of individual species may be warranted in the case of listed species or other species of management concern, and for unique population occurrences, concentrations, remnants or use areas. Examples include habitat for declining neotropical migrant warblers, nesting areas, *refugia*, and deer wintering areas.

The level of detail in management and quantification of habitat conditions may vary with the scale and intensity of management, and as appropriate to ownership size, landscape context, forest community type, and natural disturbance regimes across the FMU. Greater consideration of the area, location, and type of habitat is expected when species or species guilds associated with particular habitat conditions (e.g., large blocks of mature forests, or forest understory species) are adversely affected by management. At minimum, the forest owner/manager is expected to be able to use cover type maps as a habitat assessment tool. The plant community type and development stage or age class data generated in Indicator 6.1.a and 6.2.b (for example, a community/development stage matrix table) may be used as a basic measurement for this Indicator.

“Well-distributed” means that the population is viable. As feasible considering the forest size, sites and ecosystems found on the forest, management provides conditions for the population to occur in multiple locations across the FMU to enhance its viability rather than limiting the occurrence to one or very few locations.

Ownership size considerations: the range of species and habitat conditions that can be accommodated at any one time will vary by ownership size. On smaller ownerships (generally, tens to thousands of acres), management should meet the requirements of this Indicator by managing for habitat diversity for the entire forest and consider the role of the ownership within the surrounding landscape. However, ownership size will limit the type and amount of diversity that can be provided. See

Intent/Guidance for Indicator 6.3.a regarding the expectation of providing development stage diversity on smaller ownerships.

Very large ownerships address this Indicator on appropriately scaled landscape planning units. These units may be based on forest boundaries or landscape features and will generally be scaled to accommodate all but extreme large-scale natural disturbances and the habitat requirements of animals with large home ranges (or seasonal habitats in the case of migratory animals). Depending on the ecosystem and regions, a landscape-planning unit might be thousands or tens of thousands of acres in size.

Indicator 6.3.c Management maintains, enhances and/or restores the plant and wildlife habitat of **Riparian Management Zones (RMZs)** to provide:

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

Intent: This Indicator is intended to cover the habitat and functions of riparian zones around rivers, perennial and *intermittent streams*, ponds, lakes, *wetlands*, *vernal pools* and tidal waters.

Guidance: Depending on the ecosystem and region, *riparian zones* frequently extend beyond, and may have different management guidelines than, those required by Criterion 6.5. Management activities in the RMZ are acceptable as long as ecological objectives are met.

Aquatic species that breed in surrounding uplands include turtles and cavity-nesting ducks; terrestrial species that breed in aquatic habitats include some amphibians; species that use riparian areas for feeding, cover and travel include some birds, mammals, reptiles, amphibians and insects.

In general, it is expected that RMZs for habitat management will vary in width with ecological importance and with the intensity of timber harvest adjacent to the RMZ. The forest owner/manager may use ecologically appropriate guidelines such as those that are available in some states or regions, or other approaches (e.g., focal species) to determine RMZ width and characteristics. Flexibility rather than uniform RMZ widths is appropriate if based on scientifically based outcomes that maintain or restore ecological function.

Stand-scale Indicators

Intent: These Indicators cover elements that are generally considered in harvest plans and other operations.

Indicator 6.3.d Management practices maintain or enhance plant species composition, distribution and frequency of occurrence similar to those that would naturally occur on the site.

Intent: This Indicator addresses species diversity broadly, not simply commercial species. The assumption is that maintaining species diversity in conformance with this Indicator will conserve genetic diversity as well, which is a requirement of Criterion 6.3.

Guidance: While some site-specific treatments that simplify diversity may be necessary for specific objectives (e.g., planting and control of competing vegetation), in general management should strive to maintain a diversity of native species within stands.

Management practices that address maintenance of natural species diversity include, but are not limited to: use of natural regeneration methods; intermediate treatments that retain and encourage a diversity of species; use of site preparation; control of competing vegetation; type and number of species selected for tree planting; conservation of species at the edge of their ranges; conservation of representative disease-resistant pockets in areas where plant species are being impacted by disease; diversified planting schemes; and, creating conditions for understory plants and other biota.

Indicator 6.3.e When planting is required, a local source of known provenance is used when available and when the local source is equivalent in terms of quality, price and productivity. The use of non local sources are justified, such as in situations where other management objectives (e.g. disease resistance or adapting to climate change) are best served by non-local sources. *Native species* suited to the site are normally selected for regeneration.

Intent: The goal of this Indicator is to maintain local genetic diversity.

Indicator 6.3.f Management maintains, enhances, or restores habitat components and associated stand structures, in abundance and distribution that could be expected from naturally occurring processes. These components include:

- a) large live trees, live trees with decay or declining health, *snags*, and well-distributed coarse down and dead woody material. *Legacy trees* where present are not harvested; and
- b) vertical and horizontal complexity.

Trees selected for *retention* are generally representative of the dominant species naturally found on the site.

Intent: The intent of this Indicator is to ensure that the forest owner/manager provides adequate habitat for species associated with large and/or decaying trees and dead wood. This Indicator applies to all stands, silvicultural systems, and harvest objectives, including normal operations, salvage harvests,

intermediate, and final harvests and stands regenerated by natural means or by planting.

Some stands may take some time to develop these structural elements. Evidence of conformance may include measurable goals (e.g., numbers and sizes of trees), and application of silviculture systems and harvesting practices that develop and maintain these structures over time. Long-term passive approaches may be used to develop snags and coarse down and dead woody material by allowing retention trees (e.g., large live decay trees) to die naturally, rather than girdling and/or felling trees specifically for that purpose.

Trees with decay or declining health include but are not limited to cavity trees.

While species selected for retention should be generally representative of the species found on the site, flexibility in the proportions of species retained may be based on ecological and financial objectives.

Indicator 6.3.g.1 In the Southeast, Appalachia, Ozark-Ouachita, Mississippi Alluvial Valley, and Pacific Coast Regions, when *even-aged systems* are employed, and during salvage harvests, live trees and other native vegetation are retained within the harvest unit as described in Appendix C for the applicable region.

In the Lake States Northeast, Rocky Mountain and Southwest Regions, when even-aged silvicultural systems are employed, and during salvage harvests, live trees and other native vegetation are retained within the harvest unit in a proportion and configuration that is consistent with the characteristic natural disturbance regime unless retention at a lower level is necessary for the purposes of restoration or rehabilitation. See Appendix C for additional regional requirements and guidance.

Intent: This Indicator is intended to apply to the regeneration phase of even-aged silvicultural systems in both natural regeneration and planted stands. This Indicator is not meant to preclude even-aged

management in forest types that are typically characterized by gap disturbances. Rather, it is meant to ensure that biological legacies are retained at the time when even-aged management is used. These legacies provide plant species diversity, refugia for understory, soil, and leaf-litter species, retention of wildlife habitat structural elements (e.g., snags, downed logs, etc.), and vertical and horizontal complexity in developing stands.

Guidance: The method of retention, especially patch size and location, should generally reflect the type of live vegetation that would be found given natural disturbance regimes and should be sufficient to provide a variety of “lifeboat” conditions for sensitive understory plant species, fungi, and lichens and habitat elements for animals. When feasible, retained vegetation should be located to protect snags, down woody debris, and other retention components from wind throw, and to maintain their micro-climate and desired function.

Retention objectives and requirements will vary with harvest unit size, the condition of surrounding stands and silvicultural systems applied to those stands and relative rarity of the plant community. For example, no retention may be needed if the harvest unit is small and the adjacent stand will be managed with an uneven-aged system.

It is generally expected that the level of retention will exceed that the minimum requirements of this Indicator and will include trees of all sizes as well as understory plants.

Indicator 6.3.g.2 Under very limited situations, the landowner or manager has the option to develop a qualified plan to allow minor departure from the opening size limits described in Indicator 6.3.g.1. A qualified plan:

1. Is developed by qualified experts in ecological and/or related fields (wildlife biology, hydrology, landscape ecology, forestry/silviculture).
2. Is based on the totality of the **best available information** including peer-reviewed science regarding natural disturbance regimes for the FMU.
3. Is spatially and temporally explicit and includes maps of proposed openings or areas.
4. Demonstrates that the variations will result in equal or greater benefit to wildlife, water quality, and other values compared to the normal opening size limits, including for sensitive and rare species.
5. Is reviewed by independent experts in wildlife biology, hydrology, and landscape ecology, to confirm the preceding findings.

Applicability: This Indicator is applicable only under limited situations where landowners have opted to conduct site-specific assessments to develop opening sizes that depart from explicit regional limits set forth in Indicator 6.3.g.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*, 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.

Applicability: This Indicator is only applicable where invasive species are present.

Intent: The intent of this Indicator is to minimize the risk of invasive species to native ecosystems on the FMU.

Guidance: A combination of assessment methods may be appropriate, such as including invasive species in periodic forest inventories, mapping their location and extent, screening sites during harvest planning, and informal observations by forest managers in the field.

Practices that minimize the risk of establishment and growth of invasive species include: washing equipment prior to moving on site; avoiding seed mixes that contain potential invasive species; using weed-free mulch during erosion control operations; seeding landings and other disturbed areas with native species; altering silvicultural treatments; and effective forest monitoring and early detection.

In prioritizing invasive species control, the forest owner/manager should consider the relative risk of invasive species infestations relative to other threats to the forest (e.g., fire, insects, disease, etc.). Control measures should match the scale of the infestation and the potential risks and/or actual impacts to native species and ecosystems.

Feasibility and consistency with Criterion 6.1 may be considered when developing the invasive species control plan.

State listings of invasive species are recommended as sources of information.

FF Supplementary Guidance: Monitoring of control measures can be brief yet sufficient to inform management.

Indicator 6.3.i In applicable situations, the forest owner or manager identifies and applies site-specific fuels management practices, based on: (1) natural fire regimes, (2) risk of wildfire, (3) potential economic losses, (4) public safety, and (5) applicable laws and regulations.

Intent: This Indicator only applies to forest types that are fire-adapted at risk of wildfire.

C6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

Intent: **Representative Sample Areas (RSAs)** are ecologically viable representative samples designated to serve one or more of three purposes:

- 1) To establish and/or maintain an ecological reference condition; or
- 2) To create or maintain an under-represented ecological condition (i.e., includes samples of successional phases, forest types, ecosystems, and/or ecological communities); or
- 3) To serve as a set of protected areas or refugia for species, communities and community types not captured in other Criteria of this Standard (e.g., to prevent common ecosystems or components from becoming rare).

RSAs serving purposes 1 and 3 will generally be fixed in location. RSAs serving purpose 2 may move across the landscape as under-represented conditions change or may be fixed in area and manipulated to maintain the desired conditions.

For the purposes of this Criterion, **ecosystem** (or ecological system) refers to mid-level classification level (i.e., a group of plant communities) or an approximately equivalent level of classification (i.e., forest type).

Protection of High Conservation Value Forests, rare species, communities, and ecosystems with special ecological values are also addressed and protected in other parts of this Standard (see Criteria 6.2, 6.3, and Principle 9). One of the primary provisions in Criterion 6.4 is to ensure that examples of ecosystem types that are not protected elsewhere in this Standard are protected in their natural state within the landscape.

The ecosystems that are not sufficiently represented and protected off-property will be protected within the FMU in a system of RSAs.

Guidance: There is no set appropriate acreage for an RSA; the size can range from a few acres to hundreds of acres depending on the ecosystem type and purpose. Generally the size should be representative of the range typical for that ecosystem type and large enough to be viable.

Indicator 6.4.a The forest owner or manager documents the ecosystems that would naturally exist on the FMU, and assesses the adequacy of their representation and protection in the **landscape** (see Criterion 7.1). The assessment for medium and large forests include some or all of the following: a) **GAP analyses**; b) collaboration with state natural heritage programs and other public agencies; c) regional, landscape, and watershed planning efforts; d) collaboration with universities and/or local conservation groups.

For an area that is not located on the FMU to qualify as a Representative Sample Area (RSA), it should be under permanent protection in its natural state.

FF Indicator 6.4.a For family forests, the forest owner or manager documents the ecosystems that would naturally exist on the FMU, and assesses the adequacy of their representation and protection in the landscape (see Criterion 7.1). The consultation and assessment process may be more informal; however, on all FMUs, outstanding examples of common community types (e.g., common types with Natural Heritage viability rankings of A and B) are identified in the assessment to be protected or managed to maintain their conservation value.

Intent: “Permanent protection” refers to protection levels that are equivalent to **GAP Status 1** and **GAP Status 2**. In cases where off-FMU **GAP Status 3** lands are under management goals and activities that support the RSA purposes, these lands may be considered. For GAP Status 3, the landowner/manager must demonstrate how the off-FMU land is being protected to meet its specified RSA purpose at present and in the long-term, must demonstrate how the off-FMU RSA meets the other Indicators in this Criterion, and must provide an annual summary to the CB of the status of the RSA.

Guidance: Assessments for adequacy of representation should generally be in writing. The landowner should describe the rationale for how determinations of representativeness and uniqueness and level of existing protection has been made.

Guidance on scaling for Assessments of RSA presence: the forest owner/manager of small and medium FMUs may comply with this Indicator through more informal consultation. However, on all FMUs, outstanding examples of common community types (e.g., common types with Natural Heritage viability rankings of A and B) should be protected or managed to maintain their conservation value.

Guidance on adequacy of representation and protection of RSAs in the landscape: As a general guideline, if at least five (5) multiple samples of a specific ecosystem type are protected in a landscape (e.g., ecological section) then no additional samples for that RSA purpose need to be protected on the FMU. Five is not to be considered an absolute number; fewer or more might be appropriate in some cases.

Indicator 6.4.b Where existing areas within the landscape, but external to the FMU, are not of adequate protection, size, and configuration to serve as representative samples of existing ecosystems, forest owners or managers, whose properties are conducive to the establishment of such areas, designate ecologically viable RSAs to serve these purposes.

Large FMUs are generally expected to establish RSAs of purpose 2 and 3 within the FMU.

FF Indicator 6.4.b: Low risk of negative social or environmental impact. However, on all FMUs where outstanding examples of common community types exist (see Guidance for 6.4.a.), they should be protected or managed to maintain their conservation value.

Indicator 6.4.c Management activities within RSAs are limited to low impact activities compatible with the protected RSA objectives, except under the following circumstances:

- a) harvesting activities only where they are necessary to restore or create conditions to meet the objectives of the protected RSA, or to mitigate conditions that interfere with achieving the RSA objectives; or
- b) road-building only where it is documented that it will contribute to minimizing the overall environmental impacts within the FMU and will not jeopardize the purpose for which the RSA was designated.

Guidance: When forest management activities (including timber harvest) create and maintain conditions that emulate an intact, mature forest or other successional phases that may be under represented in the landscape, the management system that created those conditions may be used to maintain them, and the area may be considered as a representative sample for the purposes of meeting this Criterion. RSAs serving as ecological reference areas will generally not be managed for timber harvest. Threats such as fire, natural pests or pathogens may warrant management measures.

Indicator 6.4.d The RSA assessment (Indicator 6.4.a) is periodically reviewed and if necessary updated (at a minimum every 10 years) in order to determine if the need for RSAs has changed; the designation of RSAs (Indicator 6.4.b) is revised accordingly.

Guidance: If a re-evaluation reveals that off-FMU examples of an ecosystem have been reduced in extent or viability, are experiencing increased threat, or their management has significantly changed or is likely to significantly change, then the landowner or manager is expected to make appropriate and compensatory adjustments to on-FMU RSA designations. Conversely, changes in off-FMU protection of RSAs may also include an increase in the number of protected ecosystems and hence a reduced need for protection on the FMU.

Indicator 6.4.e Managers of large, contiguous public forests establish and maintain a network of representative protected areas sufficient in size to maintain species dependent on interior core habitats.

Applicability: this Indicator only pertains to large, contiguous public forests.

C6.5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

Indicator 6.5.a The forest owner or manager has written guidelines outlining conformance with the Indicators of this Criterion.

Guidance: Written guidelines may include published guidelines (e.g., BMPs and other guidelines) or guidelines developed by the forest owner/manager that are supported by scientific literature, published guidelines, and/or consultation with experts. Where appropriate, guidelines should be measurable.

Indicator 6.5.b Forest operations meet or exceed Best Management Practices (BMPs) that address components of the Criterion where the operation takes place.

Intent: BMPs for water quality, erosion control, protection of forest resources during harvesting, road construction, and all other mechanical disturbances provide a foundational minimum for compliance with this Criterion.

BMPs include both voluntary and mandatory state and regional BMPs, as well as analogous terms used in certain states (e.g., Site Level Guidelines).

Isolated and minor situations of non-compliance with BMPs may or may not result in a finding of nonconformance with the Indicator.

Indicator 6.5.c Management activities including site preparation, harvest prescriptions, techniques, timing, and equipment are selected and used to protect soil and water resources and to avoid erosion, landslides, and significant soil disturbance. Logging and other activities that significantly increase the risk of landslides are excluded in areas where risk of landslides is high. The following actions are addressed:

- 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.
- Disturbance of topsoil is limited to the minimum necessary to achieve successful regeneration of species native to the site.
- Rutting and compaction is minimized.
- Soil erosion is not accelerated.
- Burning is only done when consistent with natural disturbance regimes.
- Natural ground cover disturbance is minimized to the extent necessary to achieve regeneration objectives.
- Whole tree harvesting on any site over multiple rotations is only done when research indicates soil productivity will not be harmed.
- Low impact equipment and technologies is used where appropriate.

Intent: This Indicator includes soil productivity, function, and habitat (including the leaf litter layer and fine woody debris) in all stands, management systems, and harvest objectives.

Guidance: Attention to this Indicator is expected to increase with the amount and frequency of woody material removed from the site (e.g., biomass removals and whole tree harvests).

Decisions are made based on objective data regarding **slope**, erosion-hazard rating, potential for soil compaction, rutting, and risk of landslides.

To protect soils in areas having a high risk of landslides, logging plans should include tree retention critical for slope stability, and low-impact harvesting systems such as skyline cable or helicopter.

Clearcutting and other activities that significantly increase the risk of failure should not be conducted on unstable slopes.

All soil disturbing activities, including road and trail construction, are conducted only during periods of weather when soil compaction, rutting, surface erosion, or sediment transport into streams and other bodies of water can be adequately controlled. Soils should be dry enough or frozen to minimize disturbance and compaction.

In addition, the following guidance is region-specific:

Pacific Coast (PC):

- On slopes greater than 30%, ground-based yarding should be used only when it is possible to do so without exacerbating soil erosion;

• On slopes greater than 50%, cable or helicopter logging should be used if it is technically feasible and will not result in adverse environmental effects due to the management operation. Ozark Ouachita Region (OO):

- Deepening and scouring of existing drainages due to silvicultural or logging operations should be absent.

Indicator 6.5.d The transportation system, including design and placement of permanent and temporary haul roads, skid trails, recreational trails, water crossings and landings, is designed, constructed, maintained, and/or reconstructed to reduce short and long-term environmental impacts, habitat fragmentation, soil and water disturbance and cumulative adverse effects, while allowing for customary uses and use rights. This includes:

- access to all roads and trails (temporary and permanent), including recreational trails, and off road travel, is controlled, as possible, to minimize ecological impacts;
- road density is minimized;
- erosion is minimized;
- sediment discharge to streams is minimized;
- there is free upstream and downstream passage for aquatic organisms;
- impacts of transportation systems on wildlife habitat and migration corridors are minimized;
- area converted to roads, landings and skid trails is minimized;
- habitat fragmentation is minimized;
- unneeded roads are closed and rehabilitated.

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Guidance: Control measures that reduces ecological impacts may include but are not limited to: roads without a weather resistant surface are used only during periods of weather when conditions are favorable to minimize road damage, surface erosion, and sediment transport; if necessary to minimize ecological impacts, access is restricted on roads not immediately necessary for management purposes; posted or monitored enforcement.

Examples for evaluating adequacy of the transportation system may include but are not limited to: roads constructed on slopes in excess of 60% are made with full bench cuts or minimal side cast; for decommissioned roads, bridges and culverts are removed, water bars are installed; slopes are recontoured or revegetated, and ecologically functional drainage patterns are established; landings are located on ecologically suitable sites and the size is minimized and the number of landings is optimized to minimize overall disturbance to the site; landings are seeded, mulched, or covered with slash after use; Riparian Management Zone crossings are kept to a minimum; stream crossings are installed at an angle that causes least ecological disturbance; water diversion structures are used according to locally applicable guidelines.

As part of watershed assessments, habitats for salmonids and other threatened and endangered aquatic species are identified. If shown to be necessary, road density is reduced in such habitats and/or mitigated within the watershed.

Cooperative transportation planning with agencies, such as watershed management councils, is used to minimize negative cumulative impacts across the landscape.

The forest owner or manager should design culverts and take other steps to ensure fish passage in order to maintain or enhance the biodiversity of the stream, although it is understood that there may be some situations where free upstream and downstream passage is not possible.

Indicator 6.5.e.1 In consultation with appropriate expertise, the forest owner or manager implements written ***Streamside Management Zone (SMZ) buffer*** management guidelines that are adequate for preventing environmental impact, and include protecting and restoring water quality, hydrologic conditions in rivers and stream corridors, wetlands, vernal pools, seeps and springs, lake and pond shorelines, and other hydrologically sensitive areas. The guidelines include vegetative buffer widths and protection measures that are acceptable within those buffers.

In the Appalachia, Ozark-Ouachita, Southeast, Mississippi Alluvial Valley, Southwest, Rocky Mountain, and Pacific Coast regions, there are requirements for minimum SMZ widths and explicit limitations on the activities that can occur within those SMZs. These are outlined as requirements in Appendix E.

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Intent: The focus of this Indicator is on stream and water quality protection, and also involves riparian management zones and stream management zones. See Indicator 6.3.d for requirements addressing plant and wildlife habitat values adjacent to water bodies.

Guidance: Guidelines should meet or exceed regional recommendations (e.g., water quality BMPs) as necessary to meet the objective of water quality protection and restoration measures. Measures for all stream segments include, but are not limited to:

- developing buffer widths sufficient to protect and restore water quality, considering: temperature, sedimentation, chemical runoff, recruitment of woody debris and stream structure, and the timing of water flows sufficient to meet water quality standards for both humans and aquatic species, including invertebrates, fish, and amphibians;
- providing filter strips that vary with slope and soils that are sufficient to trap sediment from upslope sites;
- minimizing soil disturbance;
- providing adequate shade to protect water temperature;
- minimizing or precluding harvest within core portions of buffer strips;
- protecting stream banks;
- maintaining tree cover and minimizing disturbance of floodplain areas to ensure that proper aquatic function will be provided when channels shift;
- ensuring recruitment of coarse woody debris where needed for aquatic habitats; • regulating harvest and road construction on upslope areas to ensure proper hydrological function, including the timing, intensity, and location of water delivery.

Indicator 6.5.e.2 Minor variations from the stated minimum SMZ widths and layout for specific

stream segments, wetlands and other water bodies are permitted in limited circumstances, provided the forest owner or manager demonstrates that the alternative configuration maintains the overall extent of the buffers and provides equivalent or greater environmental protection than FSC-US regional requirements for those stream segments, water quality, and aquatic species, based on site-specific conditions and the best available information. The forest owner or manager develops a written set of supporting information including a description of the riparian habitats and species addressed in the alternative configuration. The CB must verify that the variations meet these requirements, based on the input of an independent expert in aquatic ecology or closely related field.

Intent: This Indicator allows for minor variations in the physical layout of the buffers for specific stream segments in cases where the landowner/manager must also comply with legal requirements that compel layouts different than those specified in the Standard, without reducing the overall extent of the buffer and quality of management within the buffer for those stream segments.

Indicator 6.5.f Stream and wetland crossings are avoided when possible. Unavoidable crossings are located and constructed to minimize impacts on water quality, hydrology, and fragmentation of *aquatic habitat*. Crossings do not impede the movement of aquatic species. Temporary crossings are restored to original hydrological conditions when operations are finished.

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Guidance: For the Pacific Coast (PC) region, stream crossings should be designed to accommodate a 100 year peak flood event or to limit the consequences of an unavoidable failure.

Crossing structures should be designed to match the natural stream width, depth, velocities and substrate through the crossing structure.

Indicator 6.5.g Recreation use on the FMU is managed to avoid negative impacts to soils, water, plants, wildlife and wildlife habitats.

Intent: This Indicator focuses on recreation use and not recreation trails, which is covered in Indicator 6.5.e. Unauthorized use of vehicles on the FMU is considered trespassing, which is an illegal activity and should be addressed accordingly.

Guidance: This includes on-trail and off-trail recreation use. Recreation use includes but is not limited to: motorized and non-motorized vehicles, horses, hiking, and mountain biking.

Indicator 6.5.h Grazing by domesticated animals is controlled to protect in-stream habitats and water quality, the species composition and viability of the riparian vegetation, and the banks of the stream channel from erosion.

Guidance: The location and intensity of grazing (livestock numbers) and/or season of use (grazing

duration) should be managed to avoid adverse impacts. Unauthorized grazing should be treated as any other illegal activity on the forest and addressed accordingly.

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.

Intent: This Criterion is guided by *FSC POL 30 001 EN FSC Pesticides policy 2005 and related documents*. In addition, 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, and any pesticides banned by international agreement, shall be prohibited.

This Criterion and its Indicators also require that the forest owner/manager strive to reduce the use of other **chemical pesticides** and biocides, and work towards their eventual phase-out whenever feasible, consistent with the FSC policy on the use of chemical pesticides.

Indicator 6.6.a No products on the FSC list of Highly Hazardous Pesticides are used (see FSC-POL 30-001 EN FSC Pesticides policy 2005 and associated documents).

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Applicability: This restriction applies only to pesticides used on the FMU and not on nursery operations.

Indicator 6.6.b All toxicants used to control pests and competing vegetation, including rodenticides, insecticides, herbicides, and fungicides are used only when and where non-chemical management practices are: a) not available; b) prohibitively expensive, taking into account overall environmental and social costs, risks and benefits; c) the only effective means for controlling invasive and exotic species; or d) result in less environmental damage than non-chemical alternatives (e.g., top soil disturbance, loss of soil litter and down wood debris). If chemicals are used, the forest owner or manager uses the least environmentally damaging formulation and application method practical.

Written strategies are developed and implemented that justify the use of chemical pesticides. Whenever feasible, an eventual phase-out of chemical use is included in the strategy. The written strategy includes an analysis of options for, and the effects of, various chemical and non-chemical pest control strategies, with the goal of reducing or eliminating chemical use.

FF Indicator 6.6.b All toxicants used to control pests and competing vegetation, including rodenticides, insecticides, herbicides, and fungicides are used only when and where non-chemical management practices are: a) not available; b) prohibitively expensive, taking into account overall environmental and social costs, risks and benefits; c) the only effective means for controlling invasive and exotic species; or d) result in less environmental damage than non-chemical alternatives (e.g., top soil

disturbance, loss of soil litter and down wood debris). If chemicals are used, the forest owner or manager uses the least environmentally damaging formulation and application method practical.

Written strategies are developed and implemented that justify the use of chemical pesticides. Family forest owners/managers may use brief and less technical written procedures for applying common over-the-counter products. Any observed misuse of these chemicals may be considered as violation of requirements in this Indicator. Whenever feasible, an eventual phase-out of chemical use is included in the strategy.

Intent: Minimization is a stepwise process that includes: 1) silviculture and other management activities that avoid the need for chemical pesticides; and then, 2) activities that minimize the use of pesticides that cannot be avoided.

Guidance: The forest owner/manager should employ silvicultural systems, *integrated pest management*, and strategies for controlling vegetation that minimize negative environmental effects. This may include: creation and maintenance of habitat that discourages pest outbreak; creation and maintenance of habitat that encourages natural predators; evaluation of pest populations and establishment of action thresholds; diversification of species composition and structure; use of low impact mechanical methods; use of prescribed fire; use of longer rotations or selection harvest; use of uneven-age management.

Indicator 6.6.c Chemicals and application methods are selected to minimize risk to non-target species and sites. When considering the choice between aerial and ground application, the forest owner or manager evaluates the comparative risk to non-target species and sites, the comparative risk of worker exposure, and the overall amount and type of chemicals required.

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Intent: Non-target species and sites include but are not limited to: water courses and buffer zones; rare, threatened or endangered plant and animal species and their habitats; RSAs and HCVF areas; vegetation selected for within-stand retention; adjacent stands; and, human use areas.

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. 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.

FF Applicability: Use of 'Restricted Use Pesticides' as listed by the US Environmental Protection Agency, must follow all the precautions in the Indicator. Consistent with Indicator 6.6.b, family forest owners/managers may follow brief and less technical procedures with respect to written prescriptions for application and monitoring for common over-the-counter products. Any observed misuse of these chemicals may be considered a violation of the requirements of this Indicator.

Guidance: Restricted Use Pesticides may only be purchased and applied by licensed applicators with current safety and training certificates. In respect to US EPA rated General Use pesticides, training

may be informal but application procedures must otherwise be consistent with pesticide label requirements. Regardless of US EPA hazard ratings, pesticide use must be consistent with Indicator 6.6.a.

Indicator 6.6.e 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.

FF Guidance: Monitoring and recordkeeping may be brief and less technical for family forests, such as keeping a log or list of chemical use and application dates, rates, methods of application, the application area and effectiveness.

C6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

Indicator 6.7.a The forest owner or manager, and employees and contractors, have the equipment and training necessary to respond to hazardous spills.

Guidance: “Equipment and training” may include but is not limited to: spill kits, plans, and knowledge of qualified personnel to call on in an event of a hazardous spill.

Indicator 6.7.b In the event of a hazardous material spill, the forest owner or manager immediately contains the material and engages qualified personnel to perform the appropriate removal and remediation, as required by applicable law and regulations.

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Guidance: “Hazardous materials” include: lubricants, anti-freeze, hydraulic fluids, containers, pesticides, herbicides, paints, etc.

Indicator 6.7.c Hazardous materials and fuels are stored in leak-proof containers in designated storage areas, that are outside of riparian management zones and away from other ecological sensitive features, until they are used or transported to an approved off-site location for disposal. There is no evidence of persistent fluid leaks from equipment or of recent groundwater or surface water contamination.

Intent: “off-site” refers to a designated disposal location formally recognized and/or designated by a local government authority.

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.

Intent: FSC-POL-30-602 *Genetically Modified Organisms* provides a definition and guidance on the

interpretation of Criterion 6.8.

Genetically improved organisms (e.g., Mendelian crossed) are not considered to be genetically modified organisms (GMOs) (i.e., results of genetic engineering), and may be used. The prohibition of genetically modified organisms applies to all organisms including trees.

Indicator 6.8.a *Biological control agents* are used only as part of a pest management strategy for the control of invasive plants, *pathogens*, insects, or other animals when other pest control methods are ineffective, or are expected to be ineffective. Such use is contingent upon peer-reviewed scientific evidence that the agents in question are non-invasive and are safe for native species.

Indicator 6.8.b If biological control agents are used, they are applied by trained workers using proper equipment.

Indicator 6.8.c If biological control agents are used, their use is documented, monitored and strictly controlled in accordance with state and national laws and internationally accepted scientific protocols. A written plan will be developed and implemented justifying such use, describing the risks, specifying the precautions workers will employ to avoid or minimize such risks, and describing how potential impacts will be monitored.

Indicator 6.8.d Genetically Modified Organisms (GMOs) are not used for any purpose.

C6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

Intent: This Criterion applies to how exotic species are controlled and monitored when they are utilized, and includes all exotic species, including trees and other plants (e.g., herbaceous erosion control mixes or plants used for wildlife food and cover) and animals used in forest management.

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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.

Intent: This Indicator also covers seed mixed and species used for erosion control.

Guidance: State lists of invasive/exotic plant species should generally be used as the basis for determining if a species is invasive. New cultivars, hybrids, and uncommon plants (e.g., some of those promoted for use on wildlife food plots) may not have been evaluated by state invasive plant councils. If such species and/or varieties are being used, then the forest owner/manager is expected to consult with a state expert in invasive plants.

Unless evidence suggests otherwise, a species that is not identified as being invasive is assumed to not pose a risk to native biodiversity.

Indicator 6.9.b If exotic species are used, their provenance and the location of their use are

documented, and their ecological effects are actively monitored.

Guidance: Monitoring intensity reflects the persistence and risk posed by the species and may be justified by consultation with regional experts or literature.

Indicator 6.9.c The forest owner or manager takes timely action to curtail or significantly reduce any adverse impacts resulting from their use of exotic species.

Applicability: If the forest owner or manager is compliant with Indicator 6.9.a, and an outbreak of an exotic species occurs, then the outbreak of exotic species does not constitute non-compliance with Indicator 6.9.b.

Intent: this Criterion is specifically for cases that involve the intentional use of exotic species - it does not address invasive exotic plants or animals (this is addressed in Criterion 6.3).

C6.10 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

- a) entails a very limited portion of the forest management unit; and**
- b) does not occur on high conservation value forest areas; and**
- c) will enable clear, substantial, additional, secure, long term conservation benefits across the forest management unit.**

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Intent: All three circumstances must be met in order for conversion to be allowed.

Guidance on “conversion”: In general, improvements to land (including provision of utilities, improved roads, and surveyed blocks) that are likely to result in development, are considered precursors to conversion. Advanced cases of improvements are considered conversion. For example, surveying and demarcating the land in and of itself does not constitute conversion, but installation of roads to each parcel is considered conversion. Although it may be difficult to distinguish some management activities that are geared toward development from acceptable silvicultural prescriptions (e.g., “real estate cuts” versus “shelterwood cuts”) it is the responsibility of the certificate holder to disclose the future goals for that management to the CB.

Definition of “non-forest land”: Non-forest land consists of land that is managed for reasons other than the production of forest products, values, or amenities. Non-forest land includes land that does not classify as a forest ecosystem (including old agricultural fields, grasslands). “Non-forest land uses” include land that is forested, but current zoning and/or conditional use permits present intentions

for future conditions of the land that will result in the loss of, or degradation of, production of forest products, values or amenities (e.g., commercial or industrial development, residential use).

Indicator 6.10.a Forest *conversion* to non-forest land uses does not occur, except in circumstances where conversion entails a very limited portion of the forest management unit (note that Indicators 6.10.a, b, and c are related and all need to be conformed with for conversion to be allowed).

Definition of “very limited portion”: less than 2% of the certified forest area on the FMU over a rolling five-year period. Lands that are converted for forest management purposes (e.g. roads, landings, management buildings) are not included in calculations of this limit.

Plantations can be established on forest sites that lack the vast majority of the native forest ecosystem components (see Indicator 10.2.b).

Indicator 6.10.b Forest *conversion* to non-forest land uses does not occur on high conservation value forest areas (note that Indicators 6.10.a, b, and c are related and all need to be conformed with for conversion to be allowed).

Indicator 6.10.c Forest *conversion* to non-forest land uses does not occur, except in circumstances where conversion will enable clear, substantial, additional, secure, long term conservation benefits across the forest management unit (note that Indicators 6.10.a, b, and c are related and all need to be conformed with for conversion to be allowed).

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Intent of “clear, substantial, additional, secure, long term conservation benefits across the forest management unit”: Conditions that enable these conservation benefits are limited by the following:

- The forest owner or manager provides documentation that any conversion to non-forest uses will result in additional conservation and/or restoration of natural forest, particularly HC VF and/or imperiled (or “rare”) species’ habitats, at levels above and beyond those otherwise required by the FSC-US FM Standard, and carries out that increased conservation and restoration.
- Negative environmental impacts of conversion to non-forest uses may be offset through compensatory management activities. The conservation benefits used to offset conversion to non-forest use must lead to equal or greater conservation values than those lost by the conversion. The compensatory activities may include establishment of conservation easements, contributions to local land trusts, transfer of lands to land trusts or public ownership, etc.
- In general, maintenance of an FSC certificate for the remainder of forest lands does not constitute sufficient conservation benefit.

Indicator 6.10.d Natural or semi-natural stands are not converted to plantations. Degraded, semi natural stands may be converted to restoration plantations.

Indicator 6.10.e Justification for land-use and stand-type conversions is fully described in the long term management plan, and meets the biodiversity conservation requirements of Criterion 6.3 (see also Criterion 7.1.1.)

Indicator 6.10.f Areas converted to *non-forest use* for facilities associated with subsurface mineral and gas rights transferred by prior owners, or other conversion outside the control of the certificate holder, are identified on maps. The forest owner or manager consults with the CB to determine if removal of these areas from the scope of the certificate is warranted. To the extent allowed by these transferred rights, the forest owner or manager exercises control over the location of surface disturbances in a manner that minimizes adverse environmental and social impacts.

If the certificate holder at one point held these rights, and then sold them, then subsequent conversion of forest to non-forest use would be subject to Indicator 6.10.a-d

Guidance: If the conversion will result in significant loss of forest resources, and where financially feasible, then the forest owner or manager should make a good faith effort to buy the rights before conversion occurs.

PRINCIPLE 7: MANAGEMENT PLAN

A management plan -- appropriate to the scale and intensity of the operations -- shall be written, implemented, and kept up to date. The long term objectives of management, and the means of achieving them, shall be clearly stated.

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Intent: This Principle is intended to ensure that management of the FMU is described in a comprehensive management plan. The plan should be developed with expertise and public input appropriate to the scale of the operation. The management plan, and the process of its development, should embody and consider all of the Principles and Criteria in this Standard.

The management plan may consist of a variety of documents or an umbrella document that describes how a collection of management documents relate to an integrated strategy for managing the forest. This may include a combination of ownership level plans, unit plans, site level plans (e.g., harvest plans), GIS, published guidelines (e.g., regional silviculture or BMP guides), landowner policies, and other information.

Guidance on scale and intensity of operations: All management plans regardless of the scale and intensity of operations must address the Indicators of Criterion 7.1 unless otherwise noted in the guidance below.

C7.1 The management plan and supporting documents shall provide:

- a) Management objectives.**
- b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands.**
- c) Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories.**
- d) Rationale for rate of annual harvest and species selection.**
- e) Provisions for monitoring of forest growth and dynamics.**
- f) Environmental safeguards based on environmental assessments.**
- g) Plans for the identification and protection of rare, threatened and endangered species.**
- h) Maps describing the forest resource base including protected areas, planned management activities and land ownership.**
- i) Description and justification of harvesting techniques and equipment to be used.**

Intent: Criterion 7.1 ensures that a written management plan, as described in the Principle-level intent and guidance above, exists for the property within the scope of the certificate. The actions and objectives detailed in the plan are specific, achievable, measurable and adaptive. They are also sufficient to meet the requirements of this Standard.

Whenever the term “management plan” is used, it refers to any combination of documents and systems that meet the intent of the Indicator.

FF Supplemental Guidance: The management plan needs only to be as complex as the forest and activities to which it applies. It must include all components (a-i) listed in the Criterion, but some components may be addressed briefly and without reference to technical documents. It should be the judgment of the CB if the management plan is sufficient to capture decisions and activities in a manner consistent with FSC certification. A group of independent documents (multi-part plans) that addresses components listed In the Criterion (a-i) can serve as the management plan.

Indicator 7.1.a The management plan identifies the ownership and legal status of the FMU and its resources, including rights held by the owner and rights held by others.

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Guidance: Legal status information may be summarized in the plan as appropriate to the scale and complexity of the ownership and the relevance of applicable legal constraints on management activities.

Ownership status includes ownership type (e.g., fee, easement, lease).

Rights held by others may include: customary uses and use rights; indigenous peoples' rights; conservation easements, deed restrictions, and other easements or rights held by others; and leasing arrangements.

FF Indicator 7.1.a A written management plan exists for the property or properties for which certification is being sought. The management plan includes the following components: i. Management

objectives (ecological, silvicultural, social, and economic) and duration of the plan. Guidance: Objectives relate to the goals expressed by the landowner within the constraints of site capability and the best available data on ecological, silvicultural, social and economic conditions.

ii. Quantitative and qualitative description of the forest resources to be managed, including at minimum stand-level descriptions of the land cover, including species and size/age class and referencing inventory information.

Guidance: In addition to stand-level descriptions of the land cover, information in site-level plans may include: landscape within which the forest is located; landscape-level considerations; past land uses of the forest; legal history and current status; socio-economic conditions; cultural, tribal and customary use issues and other relevant details that explain or justify management prescriptions.

iii. Description of silvicultural and/or other management system, prescriptions, rationale, and typical harvest systems (if applicable) that will be used.

iv. Description of harvest limits (consistent with Criterion 5.6) and species selection. Also, description of the documentation considered from the options listed in Criterion 5.6 if the FMU does not have a calculated annual harvest rate.

v. Description of environmental assessment and safeguards based on the assessment, including approaches to: (1) pest and weed management, (2) fire management, and (3) protection of riparian management zones; (4) protection of representative samples of existing ecosystems (see Criterion 6.4) and management of High Conservation Value Forests (see Principle 9).

Guidance: Regional environmental assessments and safeguards or strategies to address pest and weed management, fire management, protection of rare, threatened, and endangered species and plant community types, protection of riparian management zones, and protecting representative samples of ecosystems and High Conservation Value Forests may be developed by state conservation agencies. Site specific plans for family forests should be consistent with such guidance and may reference those works for clarity.

vi. Description of location and protection of rare, threatened, and endangered species and plant community types.

vii. Description of procedures to monitor the forest, including forest growth and dynamics, and other components as outlined in Principle 8.

viii. Maps represent property boundaries, use rights, land cover types, significant hydrologic features, roads, adjoining land use, and protected areas in a manner that clearly relates to the forest description and management prescriptions.

Guidance: Property level maps for family forests may be simple and efficient to produce, and may cover only the necessary information needed for management to the FSC-US Family

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Forest Standard. At the group level, if GIS is used coverage should include protected areas, planned management activities, land ownership, property boundaries, roads, timber production areas, forest types by age class, topography, soils, cultural and customary use areas, locations of natural communities, habitats of species referred to in Criterion 6.2, riparian zones and analysis capabilities to help identify High Conservation Value Forests. Group managers may rely on state conservation agencies for complex GIS services.

Indicator 7.1.b The management plan describes the history of land use and past management, current forest types and associated development, size class and/or successional stages, and natural disturbance regimes that affect the FMU (see Indicator 6.1.a).

Guidance: This Indicator refers to information already compiled in Indicator 6.1.a

Natural disturbance regimes include wind, fire, insects, and pathogens. Typical disturbance events in terms of opening size, intensity disturbance, range, and frequency of disturbance are described to the extent they are known.

FF Indicator 7.1.b Actions undertaken on the FMU are consistent with the management plan and help to achieve the stated goals and objectives of the plan.

Indicator 7.1.c The management plan describes:

a) current conditions of the timber and non-timber forest resources being managed; b) desired future conditions; c) historical ecological conditions; and d) applicable management objectives and activities to move the FMU toward desired future conditions.

FF Indicator 7.1.c Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Guidance: “Current conditions” are based on forest inventories or other information sources, as applicable. The level of detail in the plan may be a summary of the inventory data, or more general in nature as indicated by the resource and is commensurate with the resource and intensity of management (e.g., general descriptions of water body or wetland types and extent may suffice).

“Desired future conditions” are the characteristics that describe the long-term (e.g., 30-50 years) vision of the FMU, such as the amount and age or development class distribution of forest types, species composition, products, habitats and values, and other resources. Desired future conditions must be consistent with the requirements of this Standard.

The purpose of establishing historic conditions is to facilitate creating a baseline for assessing environmental impacts of operations, to facilitate establishing desired future conditions, and to determine when restoration may be needed. When historic conditions are not available, best estimates from available sources may be used. Historic conditions should be used as guidelines for estimating ecological components of naturally occurring conditions.

“Management objectives” are typically time specific, measurable results that correspond to the goals.

Forest resources include timber, fish and wildlife, and NTFPs.

Indicator 7.1.d The management plan includes a description of the landscape within which the FMU is located and describes how landscape-scale habitat elements described in Criterion 6.3 will be addressed.

FF Indicator 7.1.d Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Guidance: The landscape description and landscape management objectives consider elements such as:

- land uses and trends in the surrounding landscape;
- a general description of forest ownership types and parcel sizes in the landscape; • forest types, type of management, and general condition of forests within the landscape; • significant water bodies and other features that cross the FMU boundary;
- diversity of habitats across the ownership, as indicated by forest type;
- species or species groups that may be significantly affected by habitat loss or fragmentation on the FMU.

Indicator 7.1.e The management plan includes a description of the following resources and outlines activities to conserve and/or protect:

- rare, threatened, or endangered species and natural communities (see Criterion 6.2); • plant species and community diversity and wildlife habitats (see Criterion 6.3); • water resources (see Criterion 6.5);
- soil resources (see Criterion 6.3);
- Representative Sample Areas (see Criterion 6.4);
- High Conservation Value Forests (see Principle 9);
- Other special management areas.

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Guidance: The management plan should have sufficient detail to describe the current resources and how the landowner/manager complies with Criteria 6.2, 6.3, 6.4, 6.5, and Principle 9.

The plan may reference supporting guidelines and policies that describe specific management practices. Site-specific information and practices may be included in operational plans.

FF Indicator 7.1.e Inapplicable. All requirements have been incorporated into Family Forest Indicator

7.1.a.

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 (see Indicator 6.3.j).

FF Indicator 7.1.f Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Guidance: The plan may reference supporting guidelines and policies that describe specific management practices.

Indicator 7.1.g The management plan describes insects and diseases, current or anticipated outbreaks on forest conditions and management goals, and how insects and diseases will be managed (see Criteria 6.6 and 6.8).

FF Indicator 7.1.g Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Intent: Disease may include biotic factors (e.g., fungi and other pathogens) and abiotic factors (e.g., acidic deposition).

Guidance: Potential impacts on stocking or harvest are described.

The management plan may reference supporting guidelines and policies that describe specific management practices.

This description is commensurate with the likelihood of outbreaks or infestations.

Indicator 7.1.h If chemicals are used, the plan describes what is being used, applications, and how the management system conforms with Criterion 6.6.

FF Indicator 7.1.h Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.i If biological controls are used, the management plan describes what is being used, applications, and how the management system conforms with Criterion 6.8.

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FF Indicator 7.1.i Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.j The management plan incorporates the results of the evaluation of social impacts, including:

- traditional cultural resources and rights of use (see Criterion 2.1);
- potential conflicts with customary uses and use rights (see Criteria 2.2, 2.3, 3.2);
- management of ceremonial, archeological, and historic sites (see Criteria 3.3 and 4.5);
-

management of aesthetic values (see Indicator 4.4.a);

- public access to and use of the forest, and other recreation issues;
- local and regional socioeconomic conditions and economic opportunities, including creation and/or maintenance of quality jobs (see Indicators 4.1.b and 4.4.a), local purchasing opportunities (see Indicator 4.1.e), and participation in local development opportunities (see Indicator 4.1.g).

FF Indicator 7.1.j Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.k The management plan describes the general purpose, condition and maintenance needs of the transportation network (see Indicator 6.5.e).

FF Indicator 7.1.k Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Intent: The transportation network includes roads, skid trails, landings, and stream crossings. Management needs include maintenance, upgrades, closures, etc.

Indicator 7.1.l The management plan describes the silvicultural and other management systems used and how they will sustain, over the long term, forest ecosystems present on the FMU.

FF Indicator 7.1.l Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.m The management plan describes how species selection and harvest rate calculations were developed to meet the requirements of Criterion 5.6.

FF Indicator 7.1.m Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Intent: “species selection” refers to species selected to harvest, retain, and promote regeneration.

Guidance: The plan describes the methods used to calculate the harvest level, and describes how that level is consistent with the composition, structures, and functions of the FMU in accordance with Criterion 6.3 and other applicable Criteria.

Indicator 7.1.n The management plan includes a description of monitoring procedures necessary to address the requirements of Criterion 8.2.

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FF Indicator 7.1.n Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.o The management plan includes maps describing the resource base, the characteristics of general management zones, special management areas, and protected areas at a level of detail to

achieve management objectives and protect sensitive sites.

Guidance: Depending on the map scale (e.g. forest level vs. stand level) and purpose and intensity of management, maps should include:

- property boundaries and ownership;
- roads and trails;
- planned management activities including forest product harvest areas;
- forest types by age class;
- topography, soils, water courses and water bodies;
- wetlands and riparian zones;
- archeological and cultural sites and customary use areas;
- locations of unique and sensitive natural communities, habitats and features; • rare, threatened and endangered species;
- Representative Sample Areas, and
- designated protected areas and High Conservation Value Forests.

The location of sensitive sites (e.g. rare plants or archaeological sites) need not be made publicly available to protect the resource.

FF Indicator 7.1.o Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.p The management plan describes and justifies the types and sizes of harvesting machinery and techniques employed on the FMU to minimize or limit impacts to the resource.

Guidance: The landowner or manager provides rationale for the types of equipment used in different situations. Where they are not legally allowed to restrict the type of equipment (e.g., some state harvesting contracting requirements), the plan describes how different types of equipment are selected.

FF Indicator 7.1.p Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.q Plans for harvesting and other significant site-disturbing management activities required to carry out the management plan are prepared prior to implementation. Plans clearly describe the activity, the relationship to objectives, outcomes, any necessary environmental safeguards, health and safety measures, and include maps of adequate detail.

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Intent: This Indicator ensures that potential impacts and outcomes of site specific activities are addressed in a way that reflects the intent of a more general (not site-specific) management plan.

Desired outcomes include both the immediate post-activity condition (e.g., stocking and composition) and desired longer-term outcomes (e.g., regeneration).

Other significant site disturbing management activities may include, but are not limited to: site preparation, prescribed burns, use of chemicals or biological control agents, and road building or significant road maintenance.

Guidance: Operation plans may be integrated into the management plan (more likely on small ownerships) or be a separate document prior to the activity (e.g., a form or narrative, with associated map).

Harvest activity descriptions include the silvicultural system and specific practice, and desired post harvest condition and other outcomes (e.g. regeneration).

This Indicator may be addressed with a combination of documents, such as contracts, maps, BMPs, and pre-harvest checklists.

For public lands, plans should be made available to the public prior to commencement of significant operations. The land manager should address public comments as part of the process of revising the plans.

FF Indicator 7.1.q Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

Indicator 7.1.r The management plan describes the stakeholder consultation process.

FF Indicator 7.1.r Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.

C7.2 The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

Intent: Elements of Criterion 7.2 are elaborated upon more fully under the related Indicators of Principle 8. This Criterion is closely related to Criterion 8.4 which requires that monitoring results be incorporated into the management plan.

Indicator 7.2.a The management plan is kept up to date. It is reviewed on an ongoing basis and is updated whenever necessary to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances. At a minimum, a full revision occurs every 10 years.

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Intent: The rigor of the review and update is contingent upon scale and intensity of management, and updates should focus on those aspects of the plan where changes are necessary.

It is not the intent that a hard-copy management plan is re-written every time there is a harvest or a

natural disturbance (wildfire or pest infestation) on some part of the FMU. When the impact is large enough to require changes in management strategy, it may require revision of specific parts of the management plan.

Reasons for modifying the management plan may include but are not limited to: (1) in response to, and to incorporate, the results of monitoring as outlined in Principle 8; (2) whenever changes are proposed to the plan's primary objectives or management system; (3) whenever a significant environmental impact, threat or natural disturbance occurs; (4) whenever significant changes in uses of the FMU occur; (5) when there are significant changes in socio-economic circumstances.

The management system may incorporate ongoing and dynamic processes or data such as GIS.

C7.3 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

Indicator 7.3.a Workers are qualified to properly implement the management plan; all forest workers are provided with sufficient guidance and supervision to adequately implement their respective components of the plan.

Guidance: Adequate training and supervision measures may include but are not limited to: employers actively train employees in the goals and requirements of this and other applicable FSC standards; loggers and other operators participate in informal and formal training, such as Forest Industry Safety Training Alliance, Game of Logging and similar programs; professional foresters and resource managers meet continuing education standards, such as Society of American Foresters 'Certified Forester' program; foresters, loggers, and other relevant employees are trained to understand SMZ, RMZ, rare species, and HCVF forest protection requirements for the forest, as well as safeguards relating to chemical applications; field personnel are provided with written harvest plans and/or maps that clearly guide actions required to implement the management plan; and meetings occur as needed to review operations and make any necessary adjustments.

C7.4 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

Intent: The owner or manager of a private forest may withhold proprietary information (e.g., timber volumes by size and age class, marketing strategies, and other financial information, see Criterion 8.5) but is required to share information from the plan that informs stakeholders of management activities and implementation of the Principles, Criteria and Indicators found in this Standard.

Indicator 7.4.a While respecting landowner confidentiality, the management plan or a management plan summary that outlines the elements of the plan described in Criterion 7.1 is available to the public either at no charge or a nominal fee.

Guidance: See Criterion 8.5 for more information on respecting landowner confidentiality and what is

acceptable to provide in a public summary. Limited elements of the plan may be excluded to protect the security of environmentally sensitive and/or proprietary information.

When possible, the forest owner/manager should post a summary of the management plan on their website, but at a minimum this summary is made available upon request.

Indicator 7.4.b Managers of public forests make draft management plans, revisions and supporting documentation easily accessible for public review and comment prior to their implementation. Managers address public comments and modify the plans to ensure compliance with this Standard.

Applicability: this Indicator is applicable only to public forests.

PRINCIPLE 8: MONITORING AND ASSESSMENT

Monitoring shall be conducted -- appropriate to the scale and intensity of forest management -- to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

Intent: A key aspect of forest management is monitoring to ensure that current conditions are known and can be compared with desired future conditions and management objectives, and as necessary to adjust management techniques to address social, economic or environmental effects. Monitoring ensures that forest management, conservation, and restoration objectives continue to be met as effectively as possible, even given unanticipated outcomes and/or changing conditions. Principle 8 is concerned with design and implementation of the monitoring program. Principle 8 also identifies requirements that enable an FSC chain-of-custody to operate.

Monitoring programs shall be designed appropriate to the scale and intensity of forest management.

FF Guidance: On family forests, for certain elements of the monitoring plan, a brief, non-technical and qualitative monitoring approach might be adequate to ensure compliance. Attributes such as harvest volume, and stand stocking, will require quantitative monitoring. Any approach pursued must assure that regular monitoring of the condition of the forest is occurring.

C8.1 The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

Indicator 8.1.a Consistent with the scale and intensity of management, the forest owner or manager develops and consistently implements a regular, comprehensive, and replicable written monitoring protocol.

conditions, the effects of management on economic, environmental, and social resources of the FMU, and to track progress towards desired future conditions and management objectives.

The monitoring program should describe procedures and their frequency, and be sufficient to ensure that current conditions are known and can be compared with desired future conditions and management objectives.

Scale of operations: Medium and large ownerships are expected to have systematic and robust data collections for resources that are affected by management, while smaller operations may have informal and qualitative requirements for data collection.

Intensity and frequency of operations: More and/or better data are needed for resources that are significantly or frequently altered (e.g., timber stocking composition, and stand structure) than for those that are minimally impacted (e.g., protected areas where there are no operations).

FF Indicator 8.1.a For Family Forests, the forest owner or manager develops and consistently implements a regular, comprehensive, and replicable written monitoring protocol. Monitoring may be scaled to the size and intensity of the management operations that affect the resources identified in C8.2.

C8.2 Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:

- a) Yield of all forest products harvested.**
- b) Growth rates, regeneration and condition of the forest.**
- c) Composition and observed changes in the flora and fauna.**
- d) Environmental and social impacts of harvesting and other operations.**
- e) Costs, productivity, and efficiency of forest management.**

FF Applicability: The requirements of the Indicators associated with this Criterion are FMU-specific and might not all be applicable for all family forests. The certifying body and landowner/manager shall determine which components are applicable based on the management plan and operations. For example, Indicators 8.2.d.3, 8.2.d.4, and 8.2.d.5 are generally not applicable to family forests. An inventory system (Indicator 8.2.a.1) must be maintained.

Indicator 8.2.a.1 For all commercially harvested products, an inventory system is maintained. The inventory system includes at a minimum: a) species, b) volumes, c) stocking, d) regeneration, and e) stand and forest composition and structure; and f) timber quality.

Guidance: Information gathered and maintained as part of the inventory system is dependent on the scale and intensity of the management objectives.

Indicator 8.2.a.2 Significant, unanticipated removal or loss or increased vulnerability of forest resources is monitored and recorded. Recorded information includes date and location of occurrence, description of disturbance, extent and severity of loss, and may be both quantitative and qualitative.

Guidance: Removal, loss or increased vulnerability of forest products may result from poaching, fire, pests, disease, storm, over-browsing or other depredation, infestation by invasive species or other disturbances.

Indicator 8.2.b The forest owner or manager maintains records of harvested timber and NTFPs (volume and product and/or grade). Records must adequately ensure that the requirements under Criterion 5.6 are met.

Indicator 8.2.c The forest owner or manager periodically obtains data needed to monitor presence on the FMU of:

- 1) Rare, threatened and endangered species and/or their *habitats*;
- 2) Common and rare plant communities and/or habitat;
- 3) Location, presence and abundance of invasive species;
- 4) Condition of protected areas, set-asides and buffer zones;
- 5) High Conservation Value Forests (see Criterion 9.4).

Intent: It is not the intent of Indicator 8.2.c to require that all species be monitored, but rather to focus on monitoring of habitat conditions (as indicated by Criterion 6.2 and Criterion 6.3).

Guidance: Monitoring should be adequate to address the habitat conditions required by Criteria 6.2, 6.3, 6.4, and Principle 9.

The intensity of monitoring required to address habitats protected by Criteria 6.2, 6.4, and Principle 9 is relative to the degree of protection and allowed management activities. For protected areas, informal monitoring may be sufficient. However, if management may have adverse impacts on a species (for example, intensive harvesting in a small watershed with endangered fish), then population monitoring may be necessary. Wherever RTE species are involved, more intense evaluation and protection actions are likely required. Consultation with conservation agencies responsible for the species or habitat type may be used to determine the level of monitoring.

Common plant and wildlife species habitat is primarily addressed by monitoring the abundance and distribution of plant communities and/or habitat types and their associated development, size class and/or successional stages. Approaches to classifying plant communities and development stages are described in the guidance to Indicator 6.1.a.

The intensity of monitoring for other elements of Criterion 6.3 is dependent on the scale and intensity of the operations. Elements monitored may include: analysis of habitat connectivity as landscape-scale habitat features as indicated by forest inventory, cover type data, and aerial imagery; condition of riparian zones and other important habitats; and the size and abundance of snags and live decay trees.

Informal approaches to monitoring invasive species (e.g., pre-harvest site inspections) may be adequate if the observations are routinely made and adequate to identify invasive species in early stages.

Indicator 8.2.d.1 Monitoring is conducted to ensure that site specific plans and operations are

properly implemented, environmental impacts of site disturbing operations are minimized, and that harvest prescriptions and guidelines are effective.

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Guidance: This includes evidence of potential impacts to soil and water quality, wetlands and riparian zones, and instances of erosion or damage to non-target species.

Short-term impacts are monitored during and at the close of operations.

Long-term impacts are monitored at an appropriate length of time after the operation to ensure that protection measures (e.g., water bars) are stable and functioning. Once protection measures are determined to be stable and effective, additional long-term monitoring may not be required.

Indicator 8.2.d.2 A monitoring program is in place to assess the condition and environmental impacts of the forest-road system.

Intent: The forest-road system includes trails used for motorized recreation.

Guidance: Road system monitoring may include but is not limited to: potential slope failures, erosion and water quality impacts, aquatic species' passage, overall road extent and density, and impacts of skid trails and other non-permanent roads.

Monitoring requirements may be minimized in areas where there is no management activity and/or on non-active roads.

Indicator 8.2.d.3 The landowner or manager monitors relevant socio-economic issues (see Indicator 4.4.a), including the social impacts of harvesting, participation in local economic opportunities (see Indicator 4.1.g), the creation and/or maintenance of quality job opportunities (see Indicator 4.1.b), and local purchasing opportunities (see Indicator 4.1.e).

Indicator 8.2.d.4 Stakeholder responses to management activities are monitored and recorded as necessary.

Indicator 8.2.d.5 Where sites of cultural significance exist, the opportunity to jointly monitor sites of cultural significance is offered to tribal representatives (see Principle 3).

Indicator 8.2.e The forest owner or manager monitors the costs and revenues of management in order to assess productivity and efficiency.

Intent: This Indicator is closely related to Criterion 5.1, which identifies that economic viability should take into account environmental, social and operational costs of production.

Revenues include income from timber and non-timber resources, recreational leases, payments for *ecosystem services*, and other forest uses within the FMU.

C8.3 Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain of custody."

Intent: *Chain-of-custody* (CoC) is an important aspect of the FSC system. For products claimed to be sourced from FSC-certified forests, CoC tracks certified products from the forest of origin throughout the supply chain. The critical first link in the supply chain, and the focus of this Criterion, is from the point of harvest to the transfer of ownership, and it is the responsibility of the forest owner/manager of a FSC-certified forest to maintain the integrity of certified products within this first link in the supply chain.

Indicator 8.3.a When forest products are being sold as FSC-certified, the forest owner or manager has a system that prevents mixing of FSC-certified and non-certified forest products prior to the point of sale.

Indicator 8.3.b The forest owner or manager maintains documentation to enable the tracing of the harvested material from each harvested product from its origin to the point of sale.

Intent: This Indicator does not require the landowner or manager to maintain a Chain-of-Custody certificate, but rather to be able to sell an FSC-certified product as certified to a Chain-of-Custody business.

C8.4 The results of monitoring shall be incorporated into the implementation and revision of the management plan.

Indicator 8.4.a The forest owner or manager monitors and documents the degree to which the objectives stated in the management plan are being fulfilled, as well as significant deviations from the plan.

Indicator 8.4.b Where monitoring indicates that management objectives and guidelines, including those necessary for conformance with this Standard, are not being met or if changing conditions indicate that a change in management strategy is necessary, the management plan, operational plans, and/or other plan implementation measures are revised to ensure the objectives and guidelines will be met. If monitoring shows that the management objectives and guidelines themselves are not sufficient to ensure conformance with this Standard, then the objectives and guidelines are modified.

Intent: This Indicator requires that the results of monitoring be reflected in the implementation of the management plan. Revisions to the management plan as a result of monitoring are also addressed in Criterion 7.2.

C8.5 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

Indicator 8.5.a While protecting landowner confidentiality, either full monitoring results or an up-to-date summary of the most recent monitoring information is maintained, covering the Indicators listed in Criterion 8.2, and is available to the public, free or at a nominal price, upon request.

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FF Applicability: Only those elements determined to be applicable to Criterion 8.2 need to be included in the monitoring results and/or summary.

Guidance: Information that is considered confidential can be presented in such a way as to protect its confidentiality, including data on production, inventory, growth and costs of operation, and other information deemed to provide a competitive advantage or proprietary in nature. This information can be represented in the public summary as trends, percentages, or in terms of their relation to the goals and limits outlined in the management plan.

PRINCIPLE 9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

Intent: High Conservation Value Forests are managed to protect and maintain their identified high conservation value attributes. In some cases, active management is consistent with these attributes, and in other cases (e.g., most old growth forests), active management is specifically precluded.

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), including RTE species and their habitats;
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).

The FSC-US National HCVF Assessment Framework may be used as a resource for assessing the presence of HCVs on the FMU, and includes definitions, data resources, and guiding questions. This Framework is currently available in the Standards section of the FSC-US website, www.fscus.org.

See Appendix F 'High Conservation Value Forests' for definitions and guidance on the terms listed above.

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C9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

Applicability: All forest operations, regardless of size and scale, must adequately meet the intent of this Criterion; the complexity of the assessment is based on the scale and intensity of the operation.

FF Guidance: the complexity of the assessment is to be based on the scale and intensity of the operation as well as the likelihood of HCV presence and the potential of risk to HCVs. For example, operations located in areas known for a higher likelihood of occurrence of HCVs are expected to undergo a more thorough assessment.

Indicator 9.1.a The forest owner or manager identifies and maps the presence of High Conservation Value Forests (HCVF) within the FMU and, to the extent that data are available, adjacent to their FMU, in a manner consistent with the assessment process, definitions, data sources, and other guidance described in Appendix F.

Given the relative rarity of old growth forests in the contiguous United States, these areas are normally designated as HCVF, and all old growth must be managed in conformance with Indicator 6.3.a.3 and requirements for legacy trees in Indicator 6.3.f.

Intent: A High Conservation Value Forest is an area with one or more of the attributes listed in the Principle-level Intent statement and further defined in Appendix F.

Data resources for HCV 1-4: The rigor of the assessment, including choices of data sources consulted, is based on the likelihood of, and the occurrence of, HCVs on the FMU and the risk of negative impacts to the HCVs. Data sources include:

- State Natural Heritage Programs
- State conservation, fish and wildlife Agencies
- State Wildlife Action Plan
- US Fish and Wildlife Service
- National Marine Fisheries Service
- Local or regional water management districts
- Nature Serve
- Conservation groups whose primary mission is science-based biodiversity protection and management (e.g., The Nature Conservancy, Audubon)
- Local experts (e.g., hydrologists, soil scientists, tribal experts)
- Forest Management Unit (FMU) cover type maps and forest inventory data •
- US Forest Service (USFS) Ecoregions (See Appendix D)
- Rare ecosystem information gathered as per Criteria 6.1, 6.2 and 6.4
- For old growth, stand-level assessments

- Soil, watershed and aquifer maps

Data resources for HCV 5-6: In most cases, assessments of local community rights (i.e., legal or customary tenure or use rights) and tribal rights consistent with Criterion 2.2, Principle 3, and Criterion 4.4 will be sufficient to determine if there is potential for this HCV to occur on the FMU.

Additional information sources may include but are not limited to:

- Native American tribes, bands, and organizations
- Community groups dependent upon the forest for basic needs as identified
- Federal and state government agencies with responsibilities to Native American groups and local communities
- Anthropologists or social scientists with local forest expertise
- State cultural heritage list

Guidance: The HCVF Assessment Framework may be used as a resource for determining the presence of HCVFs, and can be found at: www.fscus.org.

Indicator 9.1.b In developing the assessment, the forest owner or manager consults with qualified specialists, independent experts, and local community members who may have knowledge of areas that meet the definition of HCVs.

Guidance: Dependent on the potential for negatively impacting HCVs, a credible outside review of the assessment may be required.

FF Indicator 9.1.b In developing the assessment, the forest owner or manager consults with databases, qualified experts, and/or best available research and literature.

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Indicator 9.1.c A summary of the assessment results and management strategies (see Criterion 9.3) is included in the management plan summary that is made available to the public.

C9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

Intent: This Criterion is focused on the landowner or manager engaging in a consultation process and not the CBs certification process. FSC-ADV-30-901 Interpretation of Criterion 9.2 clarifies the meaning of this Criterion. The FSC Board of Directors agreed that the Criterion requires that forest managers should consult with stakeholders to identify presence of, and management options for, High Conservation Values. Further background information is available in the FSC Board paper BM28-17 FSC Criterion 9.2.

Indicator 9.2.a The forest owner or manager holds consultations with stakeholders and experts to confirm that proposed HCVF locations and their attributes have been accurately identified, and that appropriate options for the maintenance of their HCV attributes have been adopted.

Guidance: Experts may include employees of the forest owner/manager who possess the requisite expertise, but external stakeholders with experience pertinent to the HCVF attribute must always be consulted.

FF Guidance: The level of consultation is based on the scale and intensity of operation, and size and impact of the group, as well as the likelihood of HCV presence and the potential of risk to HCVs; if the family forest is part of a group certificate, this information should be gathered during the risk assessment. Large ownerships that harvest at a low intensity will more likely require that more in depth stakeholder and expert consultation be done.

Indicator 9.2.b On public forests, a transparent and accessible public review of proposed HCV attributes and HCVF areas and management is carried out. Information from stakeholder consultations and other public review is integrated into HCVF descriptions, delineations and management.

Applicability: this Indicator only applies to public lands.

C9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

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Applicability: If no HCVs are present on the FMU, then the forest owner/manager does not need to include these measures in the management plan.

Intent: The conservation attribute is the HCVF attribute.

Additional information on the precautionary approach can be found in FSC-DIS-01-008.

Indicator 9.3.a The management plan and relevant operational plans describe the measures necessary to ensure the maintenance and/or enhancement of all high conservation values present in all identified HCVF areas, including the precautions required to avoid risks or impacts to such values (see Principle 7). These measures are implemented.

Indicator 9.3.b All management activities in HCVFs must maintain or enhance the high conservation values and the extent of the HCVF.

Indicator 9.3.c If HCVF attributes cross ownership boundaries and where maintenance of the HCV attributes would be improved by coordinated management, then the forest owner or manager attempts

to coordinate conservation efforts with adjacent landowners.

C9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

Applicability: If no HCVs are present on the FMU, then the forest owner/manager does not need to conduct this monitoring.

Indicator 9.4.a The forest owner or manager monitors, or participates in a program to annually monitor, the status of the specific HCV attributes, including the effectiveness of the measures employed for their maintenance or enhancement. The monitoring program is designed and implemented consistent with the requirements of Principle 8.

Intent: Except where HCV attributes change rapidly or demonstrate ecological instability, or where site disturbing management activities occur, annual monitoring of all HCVFs may not be necessary and/or may be combined with other field activities.

Guidance: HCVFs that are not managed and/or are not easily accessible may have a basic form of monitoring, but the monitoring needs to adequately allow the forest owner/manager to be able to evaluate whether conservation attributes are being impacted.

FF Indicator 9.4.a Low risk of negative social or environmental impact for private family forests. Public lands must follow the requirements in Indicator 9.4.a.

Indicator 9.4.b When monitoring results indicate increasing risk to a specific HCV attribute, the forest owner/manager re-evaluates the measures taken to maintain or enhance that attribute, and adjusts the management measures in an effort to reverse the trend.

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Intent: Management measures are adjusted to the extent allowed by law.

Where risks to HCV attributes are beyond the control of the forest owner/manager, (e.g., acid deposition, invasive species that are impractical to control), the rationale for lack of action to address those risks is documented.

PRINCIPLE 10: PLANTATION MANAGEMENT

Plantations shall be planned and managed in accordance with Principles and Criteria 1- 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Applicability: On sites that historically were natural forest ecosystems and are capable of supporting natural forests, within the portion of the FMU being managed as plantations, the following indicators do not apply: 6.3.d, 6.3.e, 6.3.g.1, and 6.3.g.2. On sites that historically were non-forest and those sites

that are not capable of supporting natural forests, within the portion of the FMU being managed as plantations, the following indicators do not apply: 6.3.b, 6.3.d, 6.3.e, 6.3.f, and 6.3.g.1.

All other indicators are pertinent. These indicators are implemented in the plantation portions of the FMU devoted to restoration (as covered by Criterion 10.5).

C10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

Indicator 10.1.a Consistent with all the indicators within Principle 10 and requirements of Principle 7, the management plan contains clear descriptions of the management goals and prescriptions for plantations on the FMU, of the rationale for plantation management within the FMU, and the relationship between the plantations and natural forest conservation and restoration objectives within the unit.

Indicator 10.1.b The forest owner or manager demonstrates clear progress in implementation of the components of the management plan addressing natural forest conservation and restoration objectives as they pertain to plantation management.

C10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

Indicator 10.2.a For plantations established on soils capable of supporting natural forests, harvest units shall be arranged to provide or maintain areas of vegetative cover that allows populations of mid to late successional and sedentary native plant and animal species to survive or be reestablished within the plantation.

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Applicability: this Indicator only applies to plantations established on soils capable of supporting natural forests.

Guidance: Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods are addressed in the layout of harvest units and may be used to achieve this Indicator or parts of this Indicator. This Indicator addresses the FMU in its entirety and the arrangement of plantations and natural ecosystems within the FMU.

Indicator 10.2.b New plantation establishment does not replace, endanger, or otherwise diminish the ecological integrity of any existing natural ecosystems on the FMU, including primary, natural, or semi-natural forests on the FMU. Note that *restoration plantations* may be established on *degraded, semi-natural forests* (see Criterion 6.10). Plantations can be established on the following sites: former plantations; agricultural lands; and non-forested lands that were historically naturally forested but have

been used for non-forest purposes since before 1994 (see additional conditions in Criterion 10.9). New plantations are not established on rare or threatened non-forest habitats or ecosystems.

Guidance: Refer to Criterion 6.10 for all restrictions regarding conversion of FSC-certified lands. Conversion of natural and semi-natural forests to plantations is prohibited in all regions of the US. Conversion of *degraded, semi-natural stands* to *restoration plantings* is acceptable.

Indicator 10.2.c In all regions except the Pacific Coast, openings lacking within-stand retention are limited to a 40 acre average and an 80 acre maximum. Harvest openings larger than 80 acres must have retention as required in Indicator 10.2.d and be justified by *credible scientific analysis*. The average for all openings (with and without retention) does not exceed 100 acres. Departures from these limits for restoration purposes are permissible but also must be justified by *credible scientific analysis*.

In the Pacific Coast region, on plantations established on soils capable of supporting natural forests, a minimum average of four dominant and/or co-dominant trees and two snags per acre are retained in all openings. Where sufficient snags do not exist, they are recruited. Harvest openings larger than 80 acres must have retention as required in Indicator 10.2.d and be justified by *credible scientific analysis*. The average for all openings (with and without retention) does not exceed 100 acres. Departures from these limits for restoration purposes are permissible but also must be justified by *credible scientific analysis*.

Applicability: The entire first paragraph applies to all regions except the Pacific Coast region and the entire second paragraph applies only to the Pacific Coast region.

Intent: the goal of the language pertaining to restoration is to allow silvicultural treatments, including openings greater than the limits described above, that are important to forest health and restoration as long as they are justified by *credible scientific analysis*. The existence of plant pests and pathogens as well as other restoration efforts may lead to conditions that warrant departures from these limits.

Indicator 10.2.d On openings larger than 80 acres that are justified by *credible scientific analysis*, live trees and native vegetation are retained in a proportion and configuration that are consistent with

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