



# The Forest Stewardship Management Plan

**CLEMSON**  
COOPERATIVE EXTENSION

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FNR 113

Forestry and Natural Resources

April 2016

The Forest Stewardship Program was authorized by the 1990 Farm Bill and began in 1991. It was intended to address the management of the forty-five percent of all forest land in the United States under nonindustrial private forest (NIPF) ownership by providing technical assistance, through state forestry agency partners, to encourage and enable active long-term management. A primary focus is the development of comprehensive, multi-resource management plans that provide forest owners with the information they need to manage their forests for a variety of products and services. It has provided more than 350,000 comprehensive management plans covering more than 40 million acres nationwide.

Forest Stewardship management plans lay out strategies for achieving unique landowner objectives and sustaining forest health and vigor. These plans motivate forest owners to become more active in planning for and managing their forests, greatly increasing the chances that their forests will remain intact, productive, healthy, and that the social, economic, and environmental benefits of these forests will be sustained for future generations. Participation is open to any NIPF owner who will commit to active forest management and stewardship over a ten year period. Forest Stewardship is not a cost-share program; however, it is a component of the USDA Forest Service's cost-share programs. Other USDA Forest Service cost-share programs are available to help implement the Forest Stewardship management plan.

Forest Stewardship management planning represents a point in American forest management planning where multiple-use forest owner management objectives were recognized as fundamental to the planning process. Prior to this, multiple-use management objectives were expected in a forest management plan, but were not seen as absolutely mandatory. From this point on, a single objective management plan, especially one that considers solely timber production, would be considered unusual. Forest Stewardship is forest sustainability-based, but its main thrust is consideration of multiple forest resources. However, if Forest Stewardship requirements are compared with any of the major forest certification system guidelines and requirements, the various elements that require management, protection, and enhancement of the resources would be quite similar.



## Natural Resources Elements Addressed

The Forest Stewardship Program requires that 13 natural resource elements be addressed in all Forest Stewardship management plans when they are present and applicable to the forest owner and the management of the property. Management of each of these resource elements should also be considered in the context of the broader landscape as described by the "landscape stewardship" approach. This approach increases the ability of a forest property to sustain the benefits that both society and individuals derive from privately-owned forest land by engaging forest owners and their communities in its management.

National Forest Stewardship standards require that: "The plan preparer will consider, describe, and evaluate resource elements present and their importance in the ownership." The extent to which management plans address these elements will depend upon their prevalence on the property and importance relative to the forest owner's management objectives. These plans are required to be multi-resource in scope and adequately comprehensive with respect to forest ecosystem management. The thirteen Forest Stewardship Program resource elements are:

**1. Soil and Water.** Practices are required that promote soil stability and water quality. Soil and water should be discussed in relation to the forest owner's management objectives. Diverse conditions and cover types may require different descriptions over the property. Soil type maps should be consulted. All forestry activities must protect water quality and comply with Best Management Practices, if they exist in the state. Bodies of water requiring protection during management activities should be identified. Streamside management zones are used to prevent

sedimentation and maintain healthy water temperatures for aquatic life in the streams. Proper pre-harvest activities will consider soil and water protection.

**2. Biological Diversity.** Biodiversity is the variety of life (including diversity of species, genetic diversity, and diversity of ecosystems) and the processes that support it. Diverse habitats support biodiversity. Forest owners are encouraged to select management options that offer the greatest opportunities for promoting wildlife habitats and conserving biodiversity, while fulfilling other forest owner objectives. Some of these options include, but are not limited to, the conservation of wildlife habitats and biodiversity by: (1) managing stand-level habitat features, (2) promoting aquatic and riparian areas, (3) managing landscape features, (4) conserving rare species and communities, (5) protecting special features, and (6) developing partnerships with natural resource agencies and conservation organizations.

**3. Aesthetic Quality.** Measures to enhance natural aesthetics include converting agricultural field to hardwood or pine forests, creating wooded buffer zones to protect riparian areas, and enhancing wildlife suitability. Visual impacts of various forest management practices can also increase or decrease forest aesthetics. For example, negative visual impacts from forestry operations are often minimized. There are numerous proven forest management techniques that improve forest aesthetic quality.

**4. Recreation.** Management practices to enhance recreation opportunities may be easy to implement depending on the type of forest-oriented recreational activities valued by the forest owner, including birding, hiking trails, hunting, fishing, and camping.

**5. Timber.** Sustainable forest management does include timber harvesting. Forests should be productive, vigorous, and healthy; and timber harvesting can help achieve or maintain these forest attributes. Detailed timber management information is expected. The type of management required on forest stands is based on the management recommendations of the forester, the forest owner's management objectives, and the current condition of the stands. The plans should identify and recommend sound silvicultural practices designed to help establish a new forest stand (regeneration), manage the existing trees (intermediate stand management), or implement timber harvest activity to reach desired future stand conditions based on management objectives.

**6. Fish and Wildlife.** Fish and other aquatic life depend on healthy water quality and quantity. Best Management Practices, if available in the state, will include establishing streamside management zones to increase or create fish habitats and wildlife diversity. Bodies of water on the forest property require technical expertise to improve or maintain aquatic and fish habitat conservation. Wildlife is an important element of the plan and steps should be taken into account to conserve wildlife and its habitat before it becomes rare and more costly to protect. This means conservation of natural lands that provide clean water and habitat for wildlife. The plan may include ways to educate the public and other forest owners on the benefits for animals and people. The plan preparer must consider the natural relationships that impact wildlife habitat.

**7. Threatened and Endangered Species.** Federally protected species are required to be protected under a forest management plan. The U.S. Fish and Wildlife Service provides information on state and federal threatened and endangered species.

**8. Forest Health.** A healthy forest is one that possesses the ability to sustain the unique species composition and processes that exist within it. Active management of the forest helps to maintain and improve its productive capacity. Silviculture, harvest practices, and the use of prescribed fire as a tool can reduce risk from wildfire, pests, and invasive species, and ensure long-term forest health and vigor. Yearly forest health inspections of the forest are encouraged.

**9. Archeological, Cultural, and Historic Sites.** Cultural resources are landscapes, structures, archeological artifacts, and vegetation that represent a culture of society of historic value. Federal and state laws protect archeological, cultural, and historic sites from disturbance, destruction, or removal. These include cemeteries. Forest owners need to be aware of relevant federal and state laws related to these resources. Financial and technical assistance related to these resources are available from the Natural Resources Conservation Service.

**10. Wetlands.** Wetlands include areas where water covers the soil or is present either at or near the surface all year or for varying periods of time during the year. They generally include swamps, marshes, bogs, and fens. Wetlands are highly productive and diverse ecosystems which support multiple resources. Federal and state laws regulate practices on wetlands and the forest owner is responsible to know them.

**11. Fire.** Prescribed burning (controlled burning) is a controlled application of fire by a forester under specified weather conditions that helps restore health to fire-adapted environments to obtain specific management objectives. It is also used to reduce fuel loads, wildfires, and potential damage. Prescribed burning is a critical management tool that enhances and benefits forests, grasslands, and wildlife habitat. Trained personnel are required to conduct a prescribed burn. Prescribed burning is especially important in areas lying in the Wildland Urban Interface in terms of hazard reduction.

**12. Carbon Cycle.** All forest plants and soil store carbon, so forest management influences the natural cycles of that storage in both living and dead plant material. The removal of carbon from the atmosphere is the process called carbon sequestration. Carbon sequestration is the process by which atmospheric carbon dioxide is consumed by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils. Sustainable forest management increases the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run. Harvesting and regenerating forests can also result in net carbon sequestration in wood products and new forest growth.

**13. Range/Agroforestry/Silvopasture.** Rangelands are lands on which the natural vegetation is predominately grasses, grass-like plants, forbs, and possibly shrubs or dispersed trees. It includes both native and introduced plant communities. Also included are disturbed lands that have been re-vegetated naturally or artificially. Rangelands provide significant and diverse ecosystem services and economic benefits, especially in terms of livestock production and wildlife habitat. Other benefits are tourism, recreation, minerals, energy, and other natural resources. Agroforestry intentionally combines agriculture and forestry to create integrated and sustainable land use systems. It takes advantage of the interactive benefits of combining trees and shrubs with crops and/or livestock. Agroforestry includes windbreaks, alley cropping, silvopasture, riparian forest buffers, and forest farming. Silvopasture combines trees with forage and livestock production. The trees are managed for high-valued sawtimber, while providing shade and shelter for livestock and forage, reducing soil stress and sometimes increasing forage production.

### **Forest Stewardship Management Plans**

A Forest Stewardship management plan is a special type of forest resource management plan. The standards have become so generally accepted that the format and requirements now produce one of the most common frameworks for forest management planning in the United States. The national standards and guidelines state that “management recommendations and alternative strategies, consistent with landowner objectives, will be provided to protect or enhance all plan elements present.” The program is administered and approved by the state forestry agency. There is no uniform format for a Forest Stewardship management plan, as each state retains much discretion in identifying the needs of its forest owners. Needs in the northeastern U.S. can be very different from those in the southeastern or western U.S. So guidelines are somewhat general and this is intentional.

Forest Stewardship is intended to assist forest owners who are actively managing their lands and to help them maintain these lands in a productive and healthy condition for themselves and future generations. Economic and environmental benefits should increase on forest lands managed under the program. Participation is voluntary and the forest owner only commits to a good faith effort to implement management strategies. The basic requirements of a Forest Stewardship management plan are to (1) identify the plan, (2) present management objectives, (3) describe baseline forest conditions, (4) present management recommendations, and (5) include supplemental information as needed.

#### *Identify the Plan*

All it takes to identify is a form cover page, or cover section that identifies the plan and provides the information about the forest owner, forest land, and surrounding property. Minimum requirements are the forest owner’s and preparer’s name, ad-

dress, telephone number, and e-mail address; plus the acreage under stewardship, the preparer’s signature, and date. Organizations will often have a standard fill-in-the-blank form cover section. This section should include (in a succinct, clear style) the following supplemental data: forest owner’s management objective, general property description, list of known threatened or endangered species, and soils information. In addition, the following information might be included: the legal description or other information for locating the property, interaction of the subject property with surrounding properties, and a list of federal or state financial cost-share programs that are relevant to the plan.

#### *Present Forest Owner’s Management Objectives*

This is potentially the single most important part of the management plan. Obtaining the forest owner’s management goals and objectives is the foundation of a successful plan. Clear goals suggest straight-forward actionable strategies. Getting a forest owner to articulate his or her goals can be one of the hardest parts of the planning process. Many owners will claim not to have goals or to “have never thought about it.” A forest management plan needs to be “personal” for the forest owner; goals and objectives need to be his or hers, and every forest owners knows these goals if they think hard enough.

Many states have developed simple forms or questionnaires to aid forest owners in developing goals and objectives. The forester may have to provide assistance in formulating goals and objectives. The forester helps the forest owner define and clarify. Also, property deeds should be inspected for restrictive covenants and easements. Laws and regulations that impact management should be identified. These are constraints to management that will impact options within the plan. The forest owner’s interests, preferences, priorities, knowledge about natural resources, and financial and philosophical commitment to forest stewardship must be determined. Knowing the forest owner’s expectations and abilities will enable the forester to set priorities for forest management and tailor management alternatives. This information will also help set priorities for field assessments.

Sometimes the forester uses a simple exercise to assist in developing goals and objectives. The forest owner might be asked to rank various forest values (for example, timber, wildlife, aesthetics, soil, water), then to translate those priorities into specific objectives, and to suggest how those objectives can be evaluated (measured). The forest owner must specify a time-frame for results and define his or her financial expectations. There must be consistent with the expected results.

The forester assists the forest owner in developing goals and objectives by helping him or her weigh all of the factors that will impact the plan. The forester can help by identifying viable alternatives, their associated outputs, and financial results, explaining the interaction of alternatives (some complement each other and some are mutually exclusive), and by pointing out interacting constraints and restrictions. The forester may need to explain the social and ecological value of each property in relation to its surrounding landscape and suggest goals that will

have a positive impact not only within the plan's boundaries, but also beyond them.

The objectives must be written in clear, concrete, and concise language. They should be achievable and written in terms that are easily measurable. Consider the following goal and five objectives. Notice short phrases are used, with the forest owner's own words, if possible. Technical terminology can be added after the objective in parentheses if necessary. Notice these objectives are concise, measurable, and achievable. Notice the objectives are listed in rank and order and include management recommendations.

**Goal:** Improve the upland hardwood forest management and expand area of upland hardwood forest.

- Increase the timber volume in stand 3 by 30% in the next five years, with all of the volume increase occurring in the sawtimber product class.
- Increase overall timber volume in all hardwood stands by 35% over the next five years.
- Increase the volume of red oak in stands 3 and 4 by at least 15% over the next five years.
- Perpetuate red oak species in all hardwood stands.
- Restore at least 50 acres of fallow fields to hardwood forest, with a species composition of at least 10% oak.

#### *Describe Baseline Forest Conditions*

Baseline forest conditions start with an overview of the forest, including access, significant features, history of past use, current use, cover types, soils, topographical features, and cultural or natural heritage resources. The Forest Stewardship management plan has required elements: field inspection, maps, cover type/stand description, soils information, wildlife and fish, water quality, recreation, aesthetics, wetlands, and heritage resources.

A thorough field inspection or examination of the forest resources is the required starting point for any management planning exercise. If possible, the forest owner should accompany the examination team on the first inspection of the property. Supplemental materials, like maps, aerial photographs, published soil surveys, and cultural resource maps will aid the examination team. Relevant timber and other resource data are developed during the examination. Forest conditions are determined (based on cover type, size class, age, stocking, origin, stand condition, and site capacity). The forest is divided into stands, tracts, or compartments as necessary and practical for making management recommendations. Stand boundaries must reflect the forest owner's objectives, multiple-use considerations, environmental protection factors, prevailing timber markets, and operability requirements.

Maps are crucial to a management plan. Maps should show property boundaries, management units, water, trails, roads, and other significant features. Sometimes a location map is necessary. All maps should be labeled as to scale and direction (north arrow). Important features on a neighboring property that impact the subject plan should be noted on a map. Management units

and other special sites referred to in the plan should be clearly labeled.

One of the most important technical aspects of the management plan is the cover type/stand description; this is a description of existing forest resources in detail. The potential for timber production is discussed, even if this is not a priority for the forest owner. The economic potential of the land should be documented as crucial to the plan. Forest stand characteristics relative to forest owner's objectives and timber production should be discussed.

All stewardship values should be discussed in the management plan, even those that are not present. That is, for example, if historical resources are not present, then this should be stated. Photographs can add much to a management plan. The description can include objectives for the desired future vegetative community. Outcomes from implementing recommendations can be discussed (that is, what the stand will look like after the management recommendations are implemented). Current stand conditions should be contrasted with future stand conditions.

A description of forested areas is usually emphasized in most management plans, including an accurate assessment of forest resources (especially standing timber volumes). The following data are often included in stand descriptions, depending on the forest owner's objectives: timber type classification, timber volume, timber density, timber growth, age, species composition, size class distribution, stocking, stand history, stand significance due to location or other attributes, stand health, wildfire hazard, insects and diseases, other wildlife specific criteria, snags, den trees, edge, mast trees, browse, ground cover, canopy cover, canopy layers, stand diversity, and invasive species.

A discussion of soil features relative to the forest owner's objectives should be included. Related issues like drainage, topography, and site productivity are also discussed. Wildlife and fish are part of any Forest Stewardship management plan. Threatened or endangered species must be addressed. If timber is the major objective, wildlife may be addressed in terms of impact of timber management on wildlife populations. If wildlife is the major objective, the plan might focus on wildlife habitat conditions, rather than timber stands. Watershed and water quality issues must also be addressed. All forest management activities must protect water quality.

Managing for recreation and aesthetics is usually not difficult. The forester will consider the types of forest-oriented recreational activities valued by the forest owner, the diversity of habitat, the visual impact of various forest management activities, plant species favored in the area (because of color, flower, or other characteristic), key access routes and areas commonly viewed, objects and areas of special value to the forest owner, streams and other waterways, hiking trails, and picnic areas. Broad recreational measures include the conversion of agricultural fields to hardwood forests, favoring large-sized hardwood stems, and creating wooded buffer zones to protect riparian areas. Wetlands must be considered and evaluated in all

Forest Stewardship management plans. Usually restrictions are necessary in the plan to protect wetlands. Likewise, heritage and cultural resources must be identified and protected.

#### *Present Management Recommendations*

This section of the Forest Stewardship management plan contains the essential strategy for achieving the forest owner's management objectives. It represents the implementation phase and should be operational and action-oriented. This will be the forest owner's road map to achieving the management goals and objectives through active forest management. Recommendations should be at the stand level or management unit level. They should be concrete, not suggestive. Future needs are considered, along with future support. Cash flow is usually important to the forest owner, so estimates of revenues and costs over time are important. Alternative management strategies, and their environmental and economic consequences, should be discussed with the forest owner during the planning process; the final plan will include only the selected management alternative.

The plan will include a brief summary of management recommendations that support stewardship objectives. Anticipated benefits of active forest management to the forest owner, the forest, and society are summarized. Timelines are established, especially for review and updating of the plan. One summary document that many forest owners find most useful is a schedule of all forest management activities, along with expected cash flow (cost or revenue) from each activity. This can be a one-page summary of all planned activities and all cash flows; this is the single page that usually ends up on the forest owner's refrigerator door.

#### *Supplemental Recommendations*

Supplemental information is usually included in a Forest Stewardship management plan. These could be a publication on Best Management Practices, developing wildlife habitat, or the state's threatened or endangered species.

#### **Forest Stewardship Management Plan Outline**

The earlier discussion noted there is no exact uniform Forest Stewardship management plan template or outline. The format varies state-by-state, as forest conditions vary across the country. An outline of a Forest Stewardship management plan is presented in Table 1. It is one of many possible outlines, allowing the reader to contrast it with the traditional timber management plan.

**Table 1. Components of a Forest Stewardship forest resource management plan.**

- I. Multiple-resource management objectives.
- II. Stand descriptions and recommendations.
  - A. Tract history.
  - B. Past land use practices.
  - C. Wildlife habitat and conditions.
  - D. General timber conditions.
  - E. Stand-by-stand descriptions.
    1. Timber conditions.
    2. Wildlife and fish conditions.
    3. Soils and water quality conditions.
    4. Biodiversity and endangered species issues.
    5. Recreation and aesthetics.
    6. Forest health and invasive species.
    7. Special sites.
  - F. Recommendations.
    1. Management practices needed.
    2. General timber harvest and other activities.
    3. Wildlife/fish habitat improvements needed.
    4. Soil and water protection.
    5. Afforestation and reforestation plans.
- III. Management of related resources.
  - A. Endangered species, biodiversity, invasive species.
  - B. Cultural resources and special sites.
- IV. Wildlife food plots, if necessary.
- V. Threatened and endangered species.
- VI. Soil, water, and air issues.
  - A. Forest land erosion control issues.
  - B. Streamside and shoreline protection.
- VII. General recommendations.
  - A. Best management practices.
  - B. Forest practices guidelines (sustainability).
  - C. Smoke management guidelines, prescribed burning.
- VIII. Suggested management schedule.
  - A. Schedule of management activities.
  - B. Schedule of costs and revenues by year.
  - C. Schedule of timber and nontimber outputs.
- IX. Maps and aerial photographs.
- X. List of organizations providing natural resource advice.
- XI. Glossary.

In general, there are four main differences between the broader stewardship or sustainable forest management plan and the traditional timber management plan. First, the management objectives will address multiple forest resources, not just timber resources. Granted, a timber management plan often addresses multiple resources, but the objectives are usually focused on the timber resource. The stewardship forest management plan always takes the broader focus.

Second, the stewardship/sustainability-type forest management plan will emphasize natural resources enhancement and protection. This means protection of special sites and a broader consideration of social factors, like adjacent owner concerns, recreation, and access. Soil, air, and water protection will be a major concern, including roads, streams, wetlands, ponds, lakeshore, effects of natural disasters, and even carbon sequestration. Fish, wildlife, and biodiversity must be protected. Wildlife is certainly a component of many timber management plans, but this level of broad protection would be unusual for such a plan. Endangered or threatened species protection is emphasized. Sustainability-type plans are subject to a wider range of forest management constraints.

Third, management of all forest resources, not just timber resources, is stressed. This goes beyond management objectives to a requirement that the interaction of resources be considered. For example, the relation of pastures and hayfields to wildlife habitat, maintenance of wildlife habitat and food plots for wildlife, would be addressed.

Fourth, there is an expectation of a broader set of general recommendations and guidelines in the stewardship/sustainability-type plan. Usually the plan covers aspects like best management practices, forest practice guidelines, and smoke management guidelines for prescribed burning.

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