Recommendations to Assist Federal Regulatory Agencies in the Determination of Ongoing Silviculture In Bottomland Hardwood and Cypress Swamps

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Proposed Recommendations for Determining Ongoing Silviculture for Bottomland Hardwood and Cypress Swamps

Silviculture is defined by the Society of American Foresters as “the art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis”. This longstanding definition provided by the professional forestry society contains some key principles: establishment (by either natural or artificial means) of trees, management of their health and quality to meet landowner objectives, and sustainability or continuity of the forest condition over time.

Actions necessary to establish and manage forests on a sustainable basis are necessarily as diverse as the species and forest types being managed. Individual species vary widely in such areas as light, moisture and soil conditions necessary for establishment and growth. Practices such as prescribed burning, and harvesting methods such as selection, seed tree or clear cutting are more suitable for some species than others. Even with this diversity, however, there are certain silviculture principles that apply, and can be identified for specific forest types. Evidence of these principles being applied provides observable indicators of ongoing silviculture.

Bottomland hardwood and cypress swamps are normally managed as “natural forests” and are typically established by natural seeding of trees or coppice (stump sprouting). This may include long-term, low intensity management of natural regeneration with minimal or no intermediate treatments. These forests can be found in a variety of physiographic areas, are characteristically high in tree species richness, and may include a component of southern pine. In such forests, tree spacing and stand density is not necessarily optimized for growth, and size and age-classes may vary widely among species and forest type. Management activities between the establishment of the forest and the eventual harvest may be minimal, and timber harvesting occurs less frequently and unpredictably, often driven more by markets, hydrologic conditions and landowner objectives than by a planned harvest age or “rotation”, as in the case of typical pine management.

Prescribed burning is not common, as fire can damage or kill species common to these forest types. However, timber stand improvement activities such as thinning, and control of invasive or undesired species are sometimes employed. Ongoing silviculture for bottomland hardwood and cypress swamps can often include extended periods where harvests do not occur, and where natural regeneration may be sparse and somewhat delayed. The delay comes from the necessity for these sites to become dry enough for natural seeds to germinate, and for coppicing to occur. Depending on weather and hydrology, the timing of this “dry down” condition may or may not be immediately coincident with a given growing season. Consequently, managers may supplement natural regeneration

by artificially establishing seedlings if natural processes do not provide sufficient stocking and vigor of desired species within their desired time frame. Reforestation by artificial methods may involve some level of minimal site preparation and competition control to ensure adequate survival and growth of outplanted seedlings.

Relative to management of other forest types, bottomland hardwood and cypress swamps are largely “left alone” to grow and develop naturally over long periods of time. Consequently, periods of non-harvesting that may result in an “old growth” stand, or a “cut-over”, non-planted site, do in fact represent a continuing silviculture use - assuming that future plans include commercial harvests at some point followed by reforestation as appropriate.

Though specific landowner objectives can sometimes be difficult to ascertain, there are usually some indicators of ongoing silviculture in bottomland hardwood and cypress swamps. Such indicators may be identified in a forest management plan (not necessarily a written plan) that addresses elements of silviculture such as timber harvesting and reforestation – an example would be a Forest Stewardship Plan. Other indicators include but are not limited to the following:

1. The property is occupied by a predominance of bottomland hardwood and or cypress trees (except for recently harvested parcels).

2. The landowner is engaged in some type of forest management activity(s) such as boundary maintenance, firebreak construction and maintenance, invasive plant, insect or disease control, and/or TSI.

3. The forest management plan includes timber harvesting and reforestation (either by natural or artificial means), and is being implemented.

4. The forest in question is enrolled in a third party certification program, i.e. Tree Farm, Forest Stewardship Council, Sustainable Forestry Initiative, etc., or is enrolled in agricultural-use tax status.

5. Where harvesting has recently occurred, the tree stumps are left in place (to provide coppice sprouts).

6. Intensive mechanical site preparation such as shearing and root raking have not been employed in the reforestation effort – except on sites where afforestation or restoration of bottomland hardwood or cypress swamps is being conducted.

7. Low ground-pressure equipment or mat logging techniques have been used on especially wet sites to minimize ground disturbance and soil compaction and to facilitate natural regeneration.

a. Mat logging should incorporate acceptable techniques that maximize the facilitation of natural regeneration (e.g., attachment).

b. Skid trails should be minimized and follow applicable state approved BMPs for logging operations.

8. Evidence of prior management activities, such as stumps from earlier harvests, or aerial photos indicating past activity and/or other such records of past tree establishment, cultivation or utilization.

9. Forest roads serving the forest management purposes should be constructed in accordance with state approved road BMPs, road BMPs listed in Section 404 of the CWA, and be consistent with the practice and purpose of forestry.
    a. Forest roads are typically narrow, low-cost, and minimally spaced as to be practical and economically feasible.

Prior to an intended change in use, some practices may appear similar to those that are part of an ongoing silviculture activity. Indicators of such change in use or a non-silviculture use for bottomland hardwood and cypress swamps may include, but are not limited to the following:

1. The presence of intensive mechanical site preparation such as shearing, root raking, windrowing debris or “stumping” of the site.

2. Road construction that is not consistent with the practice and purpose of forestry and that is not in compliance with silviculture BMPs for forest roads, i.e. road placement, road construction materials and features, utility of roads with respect to customary forestry operations.
    a. Roads are wider than necessary for transport of typical forest products during the logging process, or for access for eventual management activities.
    b. Road spacing, placement and construction standards, and cost can not be supported by harvest or other forest management revenues.

3. The presence of surveyed lot lines, utility easements, or similar indicators of planned development activities.

4. Lack of a forest management plan by the landowner, i.e., no written or stated intention of future timber harvesting and/or reforestation.

5. Recently dug drainage ditches or old drainage ditches that have been recently maintained (this does not include typical roadside ditches associated with forest road construction or maintenance).

While all of the above indicators provide information about the nature, purpose and future use of a bottomland hardwood or cypress swamp, it is not necessary for all of the indicators to be present to make an ongoing silviculture determination. Likewise, under special or unique circumstances, the indicators provided here may not reflect the actual intent of the landowner to carryout ongoing silviculture or initiate a change in use. However, the indicators should generally provide for a reasonable "weight of the evidence" approach to making consistent, repeatable decisions in the field.

In addition, the indicators presented here are not intended to supersede or replace regulatory authority or exemptions such as those associated with site preparation and minor drainage, but rather to assist in making field level distinctions between ongoing silviculture for bottomland hardwood and cypress swamps, and other land uses that may have similar operational aspects. The ultimate determination of ongoing silviculture should be based on these indicators, but should also account for other relevant information as appropriate.

Roads vs. Skid Trails

The issue of roads vs. skid trails emerged from discussions about mat logging operations in bottomland hardwood and cypress swamps, and the applicability of the "federal road BMPs" to log-mat skid trails. In that regard, it seems clear that "federal road BMPs" were intended specifically for roads and not skid trials, and especially not for log-mat skid trails, where BMPs are functionally inapplicable, and physically impossible to construct. To that end, the following observations are offered:

- Under 323.4 (6)(i), the "federal BMPs" make reference to permanent roads, temporary access roads, and skid trails – clearly differentiating between roads (even temporary ones) and skid trails.
- No further reference to skid trails is made under Part (6), only references to roads in the context of road fill, road location, road crossing, etc., strongly suggesting that the criteria associated with this section applies specifically to roads.
- State BMP Manuals also differentiate between roads and skid trails, recognizing that these two forestry based features are fundamentally different. Specific BMPs for roads and skid trails differ substantially in terms of structures, location, and construction techniques.
- Roads are designed to facilitate log-truck and conventional vehicular traffic, whereas skid trails are designed to accommodate rubber-tired skidders or tracked machines.
- Typical forest road BMPs such as broad-based dips, turnouts, and basic road design such as surface crowning, are not suitable for skid trails because skid trails are constructed at grade, and skidders drag logs along the trail itself. Such BMPs are especially unsuitable for log-mat skid trails since these trails are constructed from logs, and the travel surface cannot be shaped, sloped or crowned like conventional forest roads.

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Attachment: Florida BMPs for Mat Logging

- Minimize the width of skid trail mats – mats should not exceed 20 feet in width, on the average, except for sections of the trail where it is necessary for equipment to pass – in these sections the minimum width may be doubled.

- Minimize the number of skid trail mats – typically, trails should not be spaced closer than 200 feet, on the average. Where conditions prohibit tracked machines from operating off the mat, spacing may be reduced to 50 feet in order to minimize site disturbance. However, under no conditions should skid trail mats exceed 25% of the harvest area.

- Timber for skid trail mats should be laid down in the direction of the trail under normal conditions.

- Use only one layer of timber for skid trial mats, except where multiple layers are necessary to prevent site disturbance.

- Where multiple layers of timber are necessary to construct the skid trail mat, the bottom layer may be laid down perpendicular to the trail, and may exceed 20 feet in width to maximize weight distribution.

- Merchantable material in skid trail mats should be removed after logging operation is complete.

- For stream crossings with skid trail mats, refer to the stream crossing section of the BMP Manual.