

The Identification and Timber Management of Mesophytic Cove Sites for FSC Controlled Wood

Location and Description

Mesophytic Cove Sites (MCS) are highly diverse hardwood dominated stands that occur in sheltered and highly productive landscape positions such as concave sloped headwaters (coves) with steep slope gradients at low to moderate elevations (1000-3600 ft). Typically, they are found in the Central and Southern Appalachians and northern reaches of the Cumberland Plateau physiographic region. While the word "Site" is used as a term in MCS technically it is a stand that occurs on a particular site, in this case a mesophytic cove. While there are many cove sites in the physiographic region, very few still hold the species diversity required to be classified as an MCS. To be classified as MCS, stands require a preponderance of overstory (dominant and co-dominant) species including: yellow buckeye, basswood, American beech, northern red oak, white oak, white ash, yellow-poplar, sugar maple, black walnut, hickories and potentially eastern hemlock. The majority of these stands were logged in the 1800s and early to mid-1900s resulting in a loss of diversity. This species loss was compounded by farming and other disturbances which further eroded diversity. Many cove sites that originally held an MCS are now skewed to relatively early successional and/or seed-originated species like yellow-poplar or cucumber magnolia, resulting in the loss of the species mix that is required for an MCS.

Protection of High Conservation Value (HCV) Attributes

MCSs that are remaining are a rare ecosystem that is at risk in the region. As indicated above these stands are functionally old growth with little disturbance. Disturbance, specifically harvesting conducted in a manner that increases within-stand light levels and generates significant duff layer and soil disturbance can cause the loss of diversity that is the primary attribute of this HVC that must be protected. If they are also classified as old growth, then attributes associated with this HVC also must be maintained.

The steep topography, restricted entry points, and network of ephemeral and headwater streams present are operationally challenging and make active management of these stands difficult. Management, particularly plans that include harvesting, must maintain the MCS diversity attribute. Given the limited disturbance that can be tolerated, along with the complex topography and hydrologic features present, significant planning and operational sophistication are required to successfully conduct harvesting in MCS's.

Sub-stands Aligned with MCS

Areas that have several of the species characteristics of the MCS can be found in the region, often outside of cove sites. For example, second-growth stands on north-facing concave slopes with northern red oak, yellow-poplar and walnut. These stands do not constitute an MCS because of the lack of holistic attributes associated with the particular HCV. There also may be areas that contain a few of the rarer species such as yellow buckeye; typically, these are small in size and do not constitute a homogenous area that could be classified as a stand.

Identification Key:

1. Harvest area contains a cove (concave sloped, headwater drainage) greater than 2 acres? If Yes go to #2. If No stop, MCS doesn't exist
2. Cove is located low to mid-slope? If yes go to #3. If No stop, upper slope too dry for MCS.
3. Cove is located predominately on a North or East facing slope? If Yes got to #5. If No, go to #4.
4. Cove is on lower slope of predominately South or West facing slope? If Yes go to #5. If No stop, mid to upper south and west facing slopes too dry for MCS to exist.
5. Cove site shows signs of farming or extensive logging such as fencing, rock piles, outbuildings, or numerous stumps? If Yes stop, recent past land use would prohibit the stand diversity needed to be an MCS. If No, go to #6.
6. Dominant or co-dominant overstory trees are made up of at least 4 of the following indicator tree species: American beech, northern red oak, yellow-poplar, sugar maple, American basswood, yellow buckeye, white oak, white ash, black walnut, cucumber magnolia, bitternut hickory or eastern hemlock. If Yes go to #7. If No stop, overstory lacks the diversity to be a MSC.
7. Yellow-poplar makes up less than 33% (1 out of 3) of the dominant or co-dominant overstory trees. If Yes go to #8. If No stop, the stand is too dominated by yellow-poplar and/or maple and therefore lacks the diversity to be MCS.
8. Cove has a high potential to be a MCS. See Recommendations

Recommendations:

1. Advise control wood user of the MCS existence. Control wood user, landowner and conservation agency could explore the possibility of compensating the landowner to protect this area in perpetuity.
2. MCS is selectively harvested, leaving approximately 75% of the dominant overstory trees evenly distributed across the cove. Four out of the 5 trees (80%) harvested should consist of yellow-poplar or cucumber magnolia.
3. Harvest MCS but do not claim controlled wood credits for the site.

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