

Mast Production Areas (SN9)

Description

Mast production areas are areas of forest where the component trees or shrubs provide mast. Mast is the seeds of shrubs and trees that are eaten by wildlife. Hard mast refers to nuts (especially those of beech and oak trees), whereas soft mast refers to berries and fruits of a number of species (such as black cherry, raspberry, blackberry, and apple). Significant mast production areas are discrete habitat features on the landscape that can be delineated on the ground and represented as a polygon on a map. As an example, although American beech is a common tree associated with Northern Hardwood Forest and other forested natural communities, concentrated areas of beech that are used by black bears are not common. In general, hard mast production areas of beech and oak that are used by wildlife represent a small fraction of the landscape. Beech and oak production areas representing necessary black bear habitat are defined as those areas that exhibit bear scarring on the tree trunk within the past 10 years and that include at least 15 to 25 scarred beech trees within the overall concentration area.

Ecological Importance

Significant mast production areas are generally recognized as a very important wildlife food source, both because of the concentrated nature of the available food in these areas and because of the high energy content of the food, especially for beech nuts and acorns. Mast production areas are used by at least 170 species of wildlife in Vermont, including deer, black bear, turkey, blue jays, and cedar waxwings. Hard mast production areas of beech and oak are absolutely essential for the survival and reproduction of black bear in Vermont. Studies have documented that the availability of hard mast in the fall affects the minimum reproductive age of bears, productivity rates, and cub survival, and that female bears may “skip” reproduction after poor mast years. (Elowe and Rogers 1989)

Mast Production Areas Conservation Goal

To conserve high quality, functioning mast production areas across Vermont, representing the variety of forest types and regions of the state. Effective conservation should strive to maintain mast production areas in unfragmented forest habitat where development and other human activities are least likely to adversely affect wildlife use and would provide a network of connected lands, waters, and riparian areas to allow movement of wildlife species between mast production areas and other necessary habitats and to allow for ecological exchange between unfragmented habitat blocks.

Component Mapping Goal

To map documented hard mast production areas using the best data currently available.

Source Data and Selection Criteria

Mast Production Areas database, Vermont Fish and Wildlife Department

Description

Hard mast production areas mapped by Vermont Fish and Wildlife Department includes 277 mast production areas as of May 2012. Mast production areas are mapped as points, but the size of the habitat is included in the attribute data for 193 of the 277 mapped stands. The average

size of these 193 areas is 65 acres and for consistency all 277 mast production areas are mapped in BioFinder as circles with area of 65 acres.

Selection Criteria: All mast production areas in the database

Component Strengths

Hard mast production areas are known to be very important food sources for many species of wildlife. The mast stand data provides some information on associated forest type and species providing hard mast (primarily beech).

Component Limitations

There has not been a statewide inventory of functioning mast production areas, so the data represents a subset of actual mast production areas. The attribute data includes estimates of acreage for about 70 percent of the mapped mast production areas but these areas are mapped as points not delineations of the functioning mast production areas. The current condition and wildlife use of mapped mast production areas is not known as they are not periodically monitored.

Component Weight and Justification

Mast production areas were assigned a weight of 4 out of 10. This low weighting was based on the importance of mast for many species of wildlife but reflects the incomplete nature of the data. It also puts this habitat type into relative importance to other components of the analysis. Therefore, it is a critical habitat condition for many species of wildlife, but was ranked lower than some other components in the analysis to depict the relative contribution to biological diversity in this type of analysis.

Summary Statistics for Mast Production Areas

Table 1. BioFinder component datasets, component weights, and the distribution (%) of components across tiers

Data #	Weight	Component	Tier 1 Greatest	Tier 2 Very High	Tier 3 High	Tier 4 Moderate	Tier 5 Low
Landscapes							
L1	7	Habitat Blocks	12.7%	18.1%	30.1%	39.1%	0.0%
L2	3	Grasslands & Shrublands	4.3%	20.8%	22.7%	10.9%	41.3%
L3	9	Rare Physical Landscape	15.7%	53.9%	11.0%	19.4%	0.0%
L4	4	Representative Physical Landscape	17.2%	19.1%	43.4%	13.7%	6.6%
L5	7	Connecting Lands (<2000ac)	10.1%	23.4%	19.1%	47.4%	0.0%
L6	4	Connecting Blocks	9.2%	12.2%	24.0%	51.8%	2.7%
L7	3	Anchor Blocks	12.1%	19.7%	35.3%	32.7%	0.1%
L8	8	Riparian Connectivity	36.4%	52.9%	10.8%	0.0%	0.0%
L9	4	Wildlife Road Crossings	12.8%	28.1%	20.9%	26.8%	11.4%
Aquatics							
A1	6	Surface Waters & Riparian Areas	31.1%	48.6%	12.9%	7.4%	0.0%
A2	4	Representative Lakes	10.3%	84.5%	5.3%	0.0%	0.0%
A3	8	Important Aquatic Habitats & Species Assemblages	19.9%	75.2%	4.9%	0.0%	0.0%
Species & Natural Communities							
SN1	Tier 1	Rare Species	100.0%	0.0%	0.0%	0.0%	0.0%
SN2	6	Uncommon Species	62.1%	21.7%	10.0%	6.1%	0.0%
SN3	Tier 1	Rare Natural Communities	100.0%	0.0%	0.0%	0.0%	0.0%
SN4	6	Uncommon Natural Communities	57.4%	31.0%	11.4%	0.2%	0.0%
SN5	3	Common Natural Communities	9.8%	52.9%	37.1%	0.2%	0.0%
SN6	7	Vernal Pools (Confirmed)	20.5%	57.0%	8.3%	14.1%	0.0%
SN7	5	Vernal Pools (Potential)	6.0%	30.1%	52.3%	2.4%	9.2%
SN8	8	Wetlands	60.9%	31.0%	5.1%	3.0%	0.0%
SN9	4	Mast production areas	10.3%	49.3%	35.2%	4.0%	1.2%

The sum of percentages for each component is 100.

For more information

A complete report on BioFinder development, methods and findings, including all 21 component abstracts can be found at www.BioFinder.vt.us. For more information specific to this component, contact John Austin, Vermont Fish & Wildlife Department, 802-476-0197, johnM.austin@state.vt.us.