

# MORE THAN SYRUP

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## Sugarbush Biodiversity Field Guide



VERMONT  
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**Vermont Organic Farmers** (VOF) and **Audubon Vermont** have created these reference cards to help sugar makers assess biodiversity within their woods. They are intended to supplement our sugarbush biodiversity best practices document and can be used as a field guide. Biodiversity benchmarks are listed within this pocket-sized resource and can be carried as you walk your woods to evaluate current conditions and consider opportunities for improvement.



**To reference the full  
sugarbush biodiversity best  
practices resource, go to**

**[vermontorganic.org/morethansyrup](http://vermontorganic.org/morethansyrup)**



*Funding for this project was made possible by a grant from the U.S. Department of Agriculture (USDA) Agricultural Marketing Service and the Vermont Agency of Natural Resources (ANR) Department of Forests, Parks and Recreation. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA or ANR.*



Photos: Steve Hagenbuch, Nick Sibley, Sam Blair

# Key to Best Practices



**Control interfering  
vegetation**



**Regenerate the  
future forest**



**Carefully lay out woods  
roads and trails**



**Support vegetative  
diversity in all  
forest layers**



**Maintain current  
and recruit future  
deadwood**



# Diverse Plant Community

The combinations and proportions of native trees and other plant species in a particular area of forest.



## IMPORTANCE TO BIODIVERSITY

Different tree species provide different types of habitat for other plant, animal, and fungal species and influence other trees in the area. Maintaining a diversity of native trees has the potential to reduce susceptibility to forest stressors such as insects and disease given the likelihood that some species are not vulnerable to those impacts.

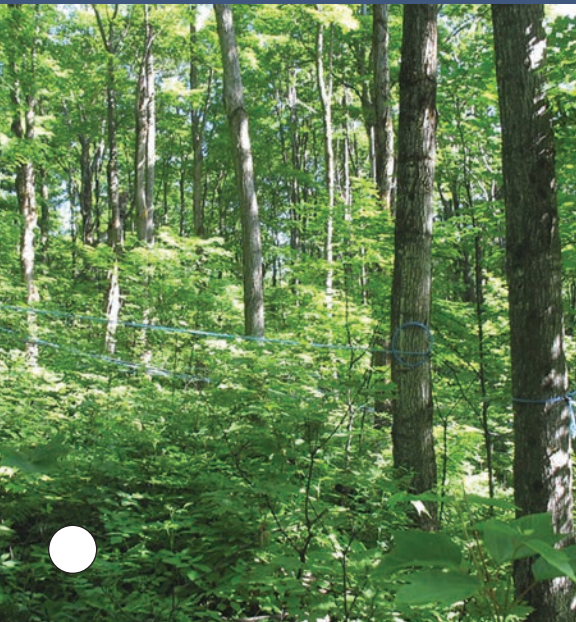
**WHAT TO LOOK FOR**  $\geq 25\%$  of the sugarbush is maintained as non-sugar maple as measured by basal area, a common forestry measurement.

## BEST PRACTICES



# Structural Complexity

The extent to which vegetation is layered within a given area of the forest.



## **IMPORTANCE TO BIODIVERSITY**

Structural complexity provides a range of habitats used by different organisms. Sugarbushes with greater structural complexity will generally support a greater array of plant and animal species compared to forests in which most of the vegetation is concentrated in one layer.

**WHAT TO LOOK FOR** Vegetation growing within three distinct layers; understory (0–6 ft. in height), midstory (6–30 ft. in height), and overstory (>30 ft. in height). What not to look for? A “park-like” sugarbush.

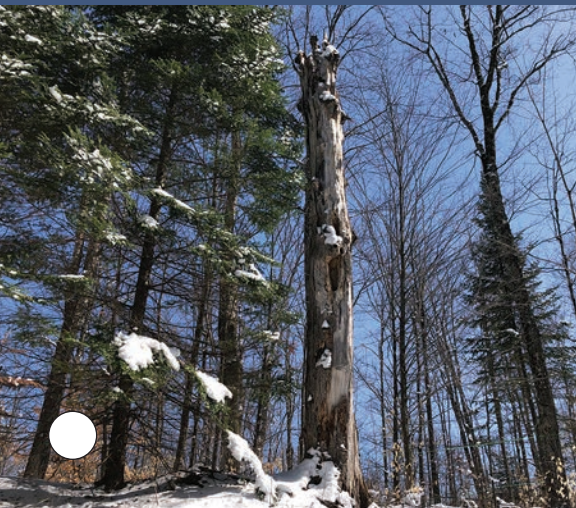
## **BEST PRACTICES**





# Standing Dead Trees (Snags) & Cavity Trees

Snags are standing dead trees and cavity trees are live or dead trees with hollow areas, such as decayed spots or holes excavated by birds.



## **IMPORTANCE TO BIODIVERSITY**

Snags and cavity trees provide habitat for microorganisms, fungi, insects, and a large variety of birds and other wildlife. Larger diameter trees (>20" diameter at breast height [dbh]) provide greater biodiversity values than smaller diameter (<10" dbh) trees. The bigger the tree, the larger the cavities that can be formed and subsequently the larger the wildlife species that can use them.

**WHAT TO LOOK FOR** At least six snag and/or cavity trees per acre, with one tree >18" dbh and two >16" dbh.

## **BEST PRACTICES**



# Coarse & Fine Woody Material

Logs (coarse material) and  
branches/limbs (fine material) on  
the forest floor in all stages of decay.



**IMPORTANCE TO BIODIVERSITY** Downed woody material on the forest floor provides important shelter, foraging, perching, and displaying sites for a wide variety of wildlife. It can also create a uniquely valuable germination site for trees and other plants as well as supporting fungi. Fine woody material can also help prevent deer from browsing tree seedlings and small saplings. Over time downed woody material contributes nutrients back into forest soils and increases the ability of soils to absorb and retain moisture.

**WHAT TO LOOK FOR** 8–10 trees >20” dbh per acre for coarse woody material; all tops (material <4” diameter) of harvested trees left in the forest.

**BEST PRACTICES**



# Well-Developed Leaf Litter & Soil Structure

Dead plant material (leaves, needles, and twigs) on the forest floor. Soils are a mixture of sediment, organic material, water, and air which is constantly forming from the weathering of rock and the accumulation of leaf litter.



**IMPORTANCE TO BIODIVERSITY** Leaf litter and soils are fundamental to healthy, functioning forest ecosystems. They provide critical habitat characteristics for ground-nesting birds, insects, amphibians, and fungi, and support soil stability for retention of nutrients and water. Healthy and well-developed soils are essential for the development of all forest vegetation.

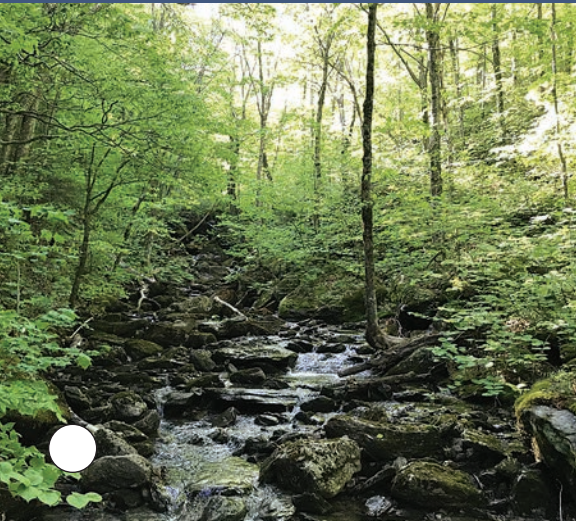
**WHAT TO LOOK FOR** Deep leaf litter and soil layers that are not compacted and/or eroded and without signs of rutting. Signs of compacted soils may include slow water infiltration, ponding of water, and high levels of surface runoff leading to erosion.

**BEST PRACTICES**



# Functional Hydrology

The distribution, movement, and storage of water on and below the forest floor. It may include features such as temporary and permanent streams, rivers, wetlands, vernal pools, and seeps and springs.



## **IMPORTANCE TO BIODIVERSITY**

Hydrologic features provide unique habitat to a diversity of species, from aquatic organisms to birds that may nest along their edges. Wellfunctioning hydrologic features can help to slow down the flow of water leading to better absorption into the soil, improve water quality by filtering runoff, and reduce downstream impacts.

**WHAT TO LOOK FOR** Streams are able to move within their floodplain unimpeded by human activities. Fallen trees and other vegetation are present within stream channels. There is little to no evidence of equipment (tractor, ATV, etc.) traveling through hydrologic features.

When unavoidable, appropriate structures and precautions are in place to minimize disturbance.

## **BEST PRACTICES**





# Habitat Connectivity

Areas of suitable connected habitat that allow movement and dispersal of wildlife, plants, fungi, and microorganisms at multiple scales.



**IMPORTANCE TO BIODIVERSITY** Habitat connectivity allows species to move around to locate suitable habitat as environmental conditions change. Connectivity supports the ability of individuals of the same species to interact across the landscape, preventing fragmented, possibly less viable, populations and even local extinctions.

**WHAT TO LOOK FOR** Signs of heavily used wildlife travel corridors, such as abundant tracks and scat (droppings) as well as worn paths. In mixed forested and open landscapes, hedgerows and other tree cover is maintained between forest blocks. In all landscapes, riparian corridors exist in their natural condition.

### **BEST PRACTICES**

