



Audubon VERMONT

Forest Bird Habitat Assessment

Fairlee Town Forest
Fairlee, VT

Prepared by: Steve Hagenbuch
1/3/2014



View north from Bald Top

Forest Bird Habitat Assessment

Prepared for the Town of Fairlee, VT - Fairlee Town Forest
By Steve Hagenbuch, Conservation Biologist, Audubon Vermont
Assessment Date: May 13, 2013; Report Date: January 3, 2014

Property Information

Town where land is located: Fairlee, Vermont Acres: 1,418 GIS acres
Forester: Redstart Forestry
Enrolled in Current Use: No
Forest Management Plan: In development

Introduction

Breeding bird surveys have shown that the forests of Vermont and Northern New England are globally important for birds throughout the hemisphere. **Our forests are home to the highest concentration of bird species breeding in the continental United States;** they are a "veritable breeding factory" for hundreds of neo-tropical migratory birds.

Unfortunately – even though they are still common in our area - **many of these birds are experiencing long-term population declines.** Audubon Vermont’s Forest Bird Initiative focuses its conservation efforts on 40 of these forest bird species, known as **responsibility species** (Appendix I). These birds have a high proportion of their global populations breeding in our region, so we have the responsibility – and opportunity – to keep them common before they become threatened or endangered.

Since roughly 80% of our region’s forests are privately-owned, even the smallest properties can be critical parts of large forest blocks that provide high-quality habitat for breeding birds. **Small actions by individual forest landowners can have a global impact.** Audubon Vermont is partnering with foresters and other stewardship and conservation organizations to provide **technical assistance to and educational opportunities for landowners** who want to make a difference for birds in their forests. Habitat assessments and reports are provided to landowners free of charge due to generous support from grant funding and individual donations.



Meet some of the responsibility species that are likely nesting the forest (left to right): chestnut-sided warbler, Canada warbler, scarlet tanager, blackburnian warbler.

How to use this report

This assessment was conducted by an Audubon biologist in order to (1) describe current forest bird habitat conditions on the property, (2) identify specific opportunities for protecting and/or enhancing habitat, and (3) suggest management options and/or considerations for improving bird habitat. Here are some suggestions for what to do with this report after you look it over:

Share and discuss this report with your forester. Tell your consulting and/or county forester that birds are important to you and that you want to prioritize protection of their habitat on your property. Ask your forester if s/he is already working with Audubon through the *Foresters for the Birds* project. If not, suggest that s/he join.

Include information and recommendations in this report in your forest management plan or attach the report as an appendix. This report is designed to supplement and inform a full forest management plan created by your forester in order to maximize positive impacts on breeding forest birds. If you request it, we hope that much of the information in this report could easily be inserted into a new plan or update.

List protection and enhancement of forest bird habit as a management objective in your forest management plan. Make your interest in birds clear and state it right up front. Example: *Protect and enhance habitat for breeding birds of conservation concern.*

Share this report with neighbors, family, and friends. You can help spread the word about the importance of our forests for responsibility species and let others know about the services that Audubon provides for landowners interested in making a difference for birds on their properties. When neighbors keep in touch about planning management activities across property boundaries they can maximize the benefits of their actions for birds and forest health.

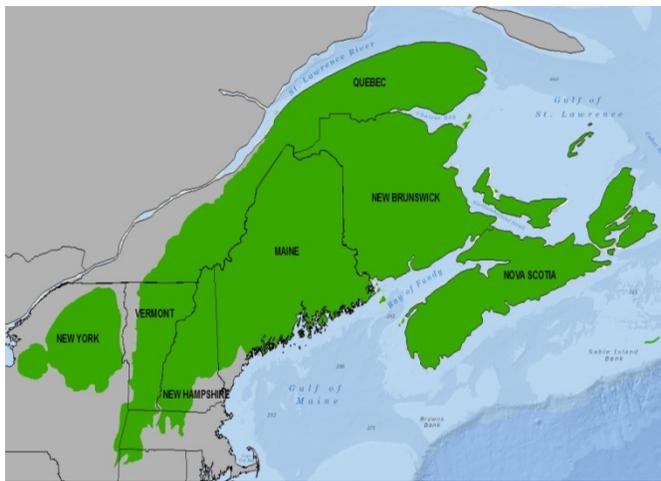
Learn more about birds and habitat on your property. Whether you are a seasoned birder or only recognize a couple of songs, we hope that this report will show you something new about your property and leave you wanting to learn more. You can add to the information about birds on your land by learning to identify the *Birder's Dozen* if you don't know them already and noting when and where you hear birds in your woods. If you are interested in doing some simple monitoring on your property, let us know and we can help get you started. We'll also keep you posted about workshops and other learning opportunities at the Green Mountain Audubon Center in Huntington, Vermont or elsewhere in the region.

Contact us and/or your county forester with any questions or when you're planning management activities. We'll be happy to follow up with you and provide additional assistance if and when you implement any of our recommendations.

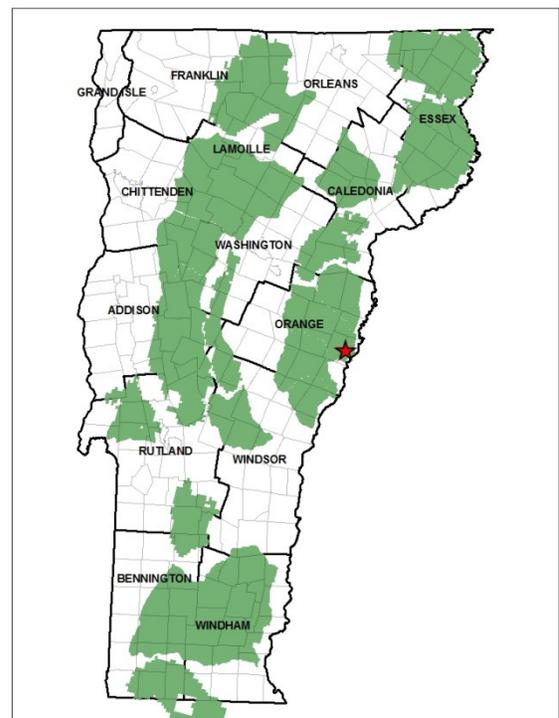
Regional Context

The Fairlee Town Forest, and most of Vermont, is part of the Atlantic Northern Forest Bird Conservation Region as delineated by the North American Bird Conservation Initiative. **These forests and associated habitats are globally-significant breeding grounds for a high diversity of birds** and also contain critical migration and wintering habitat as part of the Atlantic Flyway.

Audubon Vermont has delineated a series of priority blocks which have particularly high value for breeding forest responsibility birds in Vermont and along the Atlantic Flyway because they are large, contiguous forests with suitable breeding habitat for all or most of this suite of species. The Fairlee Town Forest falls within the Orange County Priority Block.

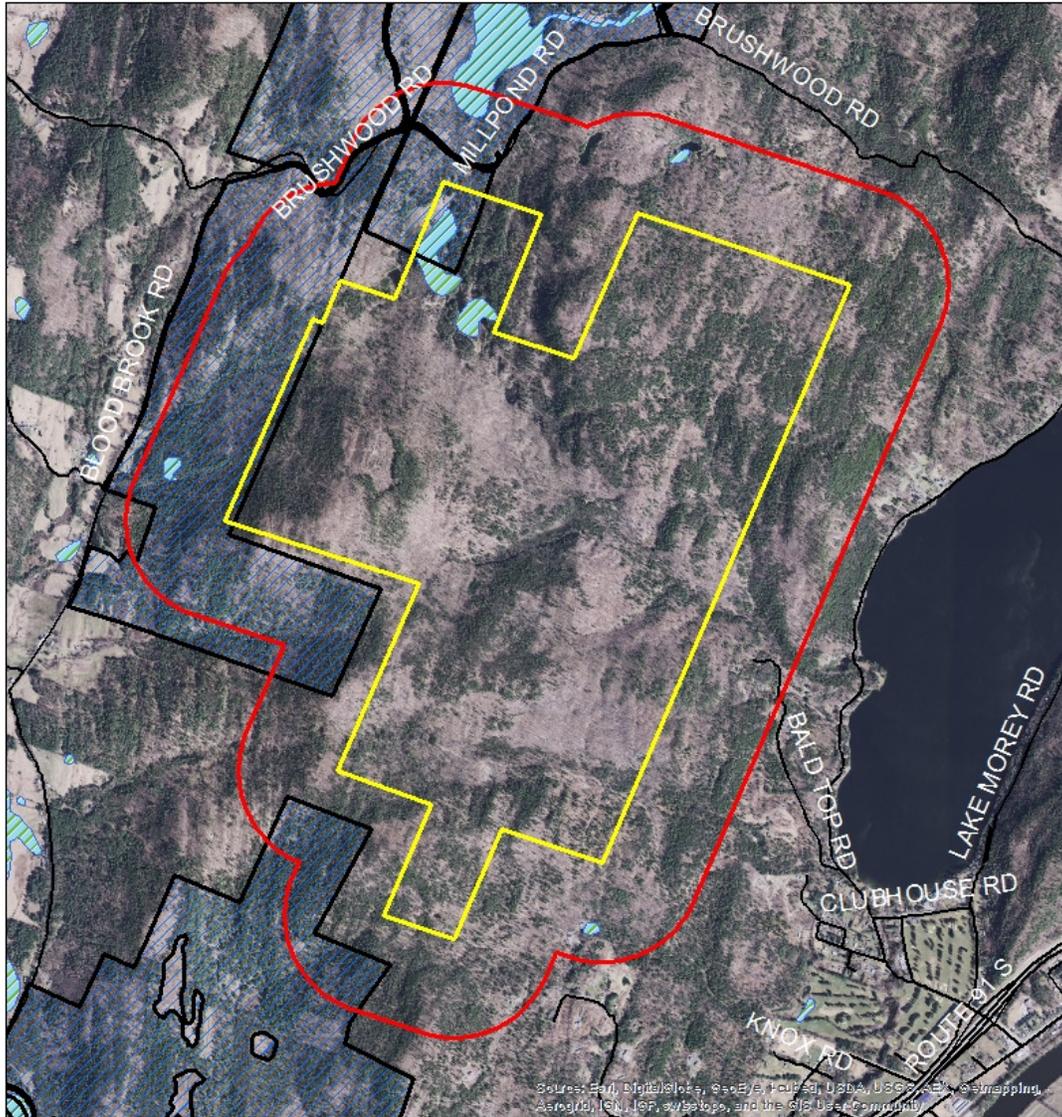


Atlantic Northern Forest Bird Conservation Region (top) and Audubon Vermont priority forest blocks (right). Red star marks location of the property.



Landscape Context

The composition and structure of the 2,500 landscape that immediately includes and surrounds the Fairlee Town Forest affects how wildlife will use the property and the quality of the habitat they find there. Understanding the landscape context can also help inform management decisions on the property.



Legend

-  Fairlee Town Forest
-  2,500 Acre Landscape
-  Additional Assessed Property
-  Wetland
-  Road

0 0.175 0.35 0.7 1.05 1.4 Miles



The following table summarizes the condition of the landscape and its value for the suite of forest responsibility birds:

		Current Condition	Value for Forest Birds
% Forest Cover	<ul style="list-style-type: none"> • ~98% Forest • ~2% Wetlands and waterways 		Extremely High - Heavily forested landscapes (80+% forest cover) provide the greatest quantity, diversity, and quality of habitat for responsibility birds compared to fragmented and/or developed landscapes.
% Young Forest	<3-5%		Limited – 1+ acre patches of young forest are important breeding habitat for several responsibility birds including chestnut-sided warbler as well as post-breeding habitat for additional species. The only sizable amount of this condition appears to be on Bald Top. Audubon Vermont recommends that 3-5% of a forested landscape be in this condition at any point in time.
Forest patch size	>2,500 acres Patch extends to the north and south of the Fairlee Town Forest		High – Large (>2500 acres) patches of contiguous forest provide higher quality habitat for interior-nesting birds like wood thrush that reproduce more successfully away from edges and development. These large forest patches also provide habitat for source populations of birds that may recolonize smaller forest patches if/when they lose their original populations. Additional values within the landscape are the area of additional land that has had an Audubon assessment conducted on it including the Brushwood Community Forest and its conserved status.
Unique Features	Wetlands		The southern section of the Great Fairlee Wetlands and a great blue heron rookery lie within the northern boundary of the property. These wetlands add greatly to the habitat diversity on this landscape.

Recommendations

- **Keep forest on the property as forest.** The greatest threat to habitat for forest nesting birds is the conversion of it to a non-forested condition. Long-term conservation strategies can minimize the potential for this to occur.
- **Protect interior forest conditions.** Avoid creating new permanent openings or wide (> 20 feet wide), linear roads.

- **Maintain Bald Top in its current early-successional habitat condition. Consider creating 1-2 additional areas of young forest early-successional habitat.** Maintaining Bald Top in a brushy condition will provide this under-represented habitat type and help maintain long-range views. Consider creating additional areas of young forest through application of appropriate silviculture. Total area of young forest habitat on the Fairlee Town Forest property is suggested to be 14-28 acres (1-2% of total property acreage).

Habitats

For the purposes of this report, a **habitat unit** is an easily defined area that is relatively uniform in general cover type (e.g. hardwood, softwood, or mixed forest), canopy height, and closure, and supports a particular suite of breeding birds. See Appendix 2 for additional explanations on habitat types in general and Map 1 for locations and arrangements of the following habitat types on this property.

1. Mature Forest

Estimated acres: 1,375

Percent of property: 97%

Description: This is the matrix habitat type on the property which is generally characterized by a combination of hardwood, mixedwood, and softwood stands with a high, closed (>70% cover) canopy. Red oak, sugar maple, yellow birch, white birch, and red maple are among the common hardwoods in the overstory while eastern hemlock and white pine provide the softwood component. American beech and striped maple are common in the understory and midstory. The full suite of responsibility birds associated with mature hardwood/mixed forests are likely to find habitat here (Appendix 1). Hemlock and white pine dominated stands are likely to provide higher quality habitat for *black-throated green warbler*, *blackburnian warbler*, and *blue-headed vireo*. Streams running throughout the habitat unit may provide habitat for *Louisiana waterthrush*. A number of smaller stepped beaver impoundments work their way down from the outflow of the wetlands (habitat unit #3). These provide great habitat for *common mergansers*, which were observed here, as well as other cavity nesting waterfowl, including *wood ducks*.



Common conditions in hardwood stands,

and softwood stands,

with embedded streams.

Desired Condition	Satisfactory	Needs work	Birds that may benefit	Notes
Generally closed canopy (>70% cover on average)	X		Black-throated green warbler, Blue-headed vireo, Ovenbird, Wood thrush	
Abundant small canopy gaps (≤ ¼ acre each)		x	American redstart, Eastern wood-pewee	No significant recent natural disturbance or timber harvesting to create gaps
Moderate to high understory and midstory density		x	American redstart, Black-throated blue warbler, Veery, Wood thrush	Both layers variable in density but overall low; midstory generally more developed than understory
Abundant current and future snags and cavity trees (6 per acre with 3 larger than 16 inches DBH)		X	Northern flicker, Yellow-bellied sapsucker	Smaller diameter snags abundant but of lower habitat value; good future potential with large diameter white birch
Abundant downed dead wood including large logs and branches, as well as tree tops and brush piles		X	Ruffed grouse, White-throated sparrow, Ovenbird	Coarse woody material more abundant than fine woody material
Vigorous canopy trees	X		Scarlet tanager	
Diversity of native plants; lack of invasive, non-native plants	X		All	

Recommendations

- A structurally diverse forest is the key to providing high-quality habitat for birds that nest in mature forest. When planning for timber harvests consider implementing one of these options from *Silviculture with Birds in Mind: Options for Integrating Timber and Songbird Habitat Management in Northern Hardwood Stands in Vermont* (attached):
 - 1A – Crop Tree Release with Canopy Gap Formation
 - 1B – Variable Retention (Density) Thinning
 - 2A – Expanding Gap Group Shelterwood

- 2B – Single Tree and Small Group Selection (groups <1/2 acre preferable to larger openings)

The most appropriate option and timing of implementation is dependent upon pre-existing stand conditions primarily as they relate to developmental stage and acceptable and unacceptable growing stock. This information should come from the detailed forest inventory under the direction of the consulting forester.

- Consider creating a 1-2 acre of early-successional habitat by cutting back a stand of aspen saplings (see Map 1 for location). The resultant regeneration of young aspen should be dense and provide ideal early-successional habitat conditions for up to 10 years post harvest. Winter is the preferred time for this harvesting to occur as it will result in greatest root sprouting.
- Retain existing large-diameter snags during harvest and consider marking additional trees to be girdled or retained to grow into large-diameter cavity trees that eventually will naturally become snags. Aspen and white birch are good candidates for recruitment.
- Mark some low-value trees 10+ DBH to be cut and left on site to increase the amount of coarse woody material in the area (e.g. mark 1 cut-and-leave tree per acre). Leave all tops in the woods and do not lop slash.
- Maintain appropriate protective strips along streams, wetlands, and beaver impoundments in accordance with VT Acceptable Management Practices during harvesting operations.
- When possible minimize harvesting during the breeding season (May – mid-July)

Birds Observed During Assessment

x denotes responsibility bird species

Blue-headed Vireo*

Black-throated Green Warbler*

Red-eyed Vireo

Ovenbird*

Yellow-rumped Warbler

Brown Creeper

Black-throated Blue Warbler*

Yellow-bellied Sapsucker*

2. Early-Successional

Estimated acres: 13

% of property: 1%

Description: This habitat type is located on the top of Bald Top. The overall acreage is the combination of current functional early-successional habitat (ESH) conditions, characterized by an open canopy and dense shrub layer, and opportunities to increase that area through active management. The current area of ESH covers approximately 6-7 acres of the western half of the habitat unit and is comprised primarily of *Spirea* spp., raspberry, blackberry, apple trees, and pin cherry and red maple saplings. Non-native, invasive *honeysuckle* spp. is also found here. Given the slow growth of vegetation here and the current condition of that vegetation it is estimated that it will continue to function as ESH until at least 2025-2030. An additional adjoining 6-7 acres to the east is currently past the stage of functioning as ESH habitat but is still a sapling young forest stand that could be actively managed and returned to an earlier successional stage. Unfortunately the non-native, invasive *buckthorn* is located in this area. Any management to revert this area to a younger successional stage should be dependent upon resources to control invasive species.



Current area of early-successional habitat.



Opportunity for ESH management.

Desired Condition	Satisfactory	Needs work	Birds that may benefit	Notes
Dense shrubs and regeneration of tree species	X	X	Canada warbler, White-throated sparrow, Chestnut-sided warbler, Mourning warbler	Approximately ½ (6-7 acres) of the habitat unit currently provides this condition. The other ½ has matured beyond ESH

Desired Condition	Satisfactory	Needs work	Birds that may benefit	Notes
Abundance and diversity of fruit-producing trees and/or shrubs; lack of invasive, non-native plants	X	X	All	Particularly valuable post-breeding, pre-migration food source; non-native invasive plants are a concern and should be addressed
Scattered perch trees, snags and brush piles in and along edges of openings	X	X	Yellow-bellied sapsucker, Northern flicker, White-throated sparrow, Veery	Brush piles are lacking

Recommendations

- In the western half of the habitat unit no active management is required to maintain ESH conditions during the next 10 year planning period. It is suggested however that an invasive species management plan be developed in order to monitor and control the non-native plants that currently occur here.
- The eastern half of the habitat unit presents an opportunity to expand the amount of ESH to an additional 6-7 acres maximum. Consider ESH management over as much of this area as resources allow for. This includes a plan and resources for invasive species monitoring and control.
 - Cut back all stems > 1 inch diameter with the exception of native fruit producing trees and shrubs. Cut material can be left where it lies. Although more labor intensive hand felling is more suitable to this work than mechanized equipment.
 - Create 4-8 brush piles in order to provide cover for wildlife. Brush piles may be 4-5 ft. in height and 10-12 ft. in diameter. Space the piles 100-150 ft. apart.
 - Minimize management activity during the bird breeding season (May – mid-July)

Birds Observed During Assessment

x denotes responsibility bird species

Ruffed Grouse*

3. Wetland

Estimated acres: 30

% of property: 2%

Description: This habitat unit is made up of two wetland complexes in the northwest corner of the property. The western complex includes the southern extent of the “Great Fairlee Wetlands”. This ecological treasure includes shrubby areas (primarily alder), clusters of softwoods, sedges, standing dead trees (snags), and open water providing very complex habitat structure. To the east is an active great blue heron rookery at the north end. This drains south through a series of stepped beaver flowages and these extend out of this mapped habitat unit. The entirety of this unique complex contributes to horizontal diversity on the property and within the greater landscape.



Canada warbler were observed in this structurally diverse area of the South Wetland



Great blue heron rookery with at least 10 nests in 2013

Desired Condition	Satisfactory	Needs work	Birds that may benefit	Notes
Hydrologic process unimpeded by human activity	X		Canada warbler, veery, olive-sided flycatcher, swamp sparrow, great blue heron, wood duck, common merganser	Long-term protection (e.g. conservation easement) will help ensure this condition is maintained
Complex vegetative structure	X		Canada warbler, alder flycatcher	
Abundance of standing snags and cavity trees	X		Olive-sided flycatcher, wood duck, great blue heron	

Recommendations

- Passive management is encouraged for the entire wetland complex and in a forested buffer surrounding it. Extent of buffer is left to the discretion of the county forester with a minimum of 100 ft encouraged. To maintain the long-term integrity of the wetland the possibility of a conservation easement may be explored.
- Although no non-native, invasive plants were discovered here a monitoring plan should be put in place to allow for rapid response should encroachment occur.

Birds Observed During Assessment

x denotes responsibility bird species

Canada Warbler*

Veery*

Red-winged Blackbird

Barn Swallow

Olive-sided Flycatcher*

Common Grackle

Great-crested Flycatcher

Great blue Heron

Tree Swallow