



Former Lyon Property Bird Habitat Management Recommendations



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Background Information

The following pages provide a habitat assessment and bird-friendly management recommendations for the Former Lyon Property, owned and managed by the Town of Williston, Vermont. The assessment is part of Audubon Vermont's Champlain Valley Bird Initiative, which works with landowners to promote effective avian habitat management in the Champlain Valley. These recommendations are based on habitat requirements of priority bird species that have been identified by Vermont State Wildlife Action Plan (VSWAP) and the North American Bird Conservation Initiative (NABCI), and are the focus of regional conservation efforts (see Appendix 1). Recommendations are based on those identified by the Golden-winged Warbler Working Group, Natural Resources Conservation Service (NRCS), and Audubon Vermont. Although this report is concerned primarily with habitat management for birds, numerous non-avian species will also benefit from its recommendations.

Many birds that depend on early successional shrubland habitat (ESH) are declining due to the loss of this ephemeral habitat type. For example, the Golden-winged Warbler (GWWA) has declined 70% across its range, with a 7% decline per year over the past 25 years in Vermont. American Kestrels and American Woodcock have also experienced declines in portions of their ranges, and kestrels are on the State's list of species of Special Concern (Vermont Breeding Bird Atlas, 2013).

The Former Lyon Property is located in Lower Great Lakes/St. Lawrence Plain Bird Conservation Region (BCR 13) as delineated by NABCI. The Lower Great Lakes/St. Lawrence Plain encompasses a narrow, low-lying plain stretching from the Champlain Valley west to Northeastern Ohio and surrounds the St. Lawrence River, and lakes Erie, Ontario and Champlain (Figure 1).

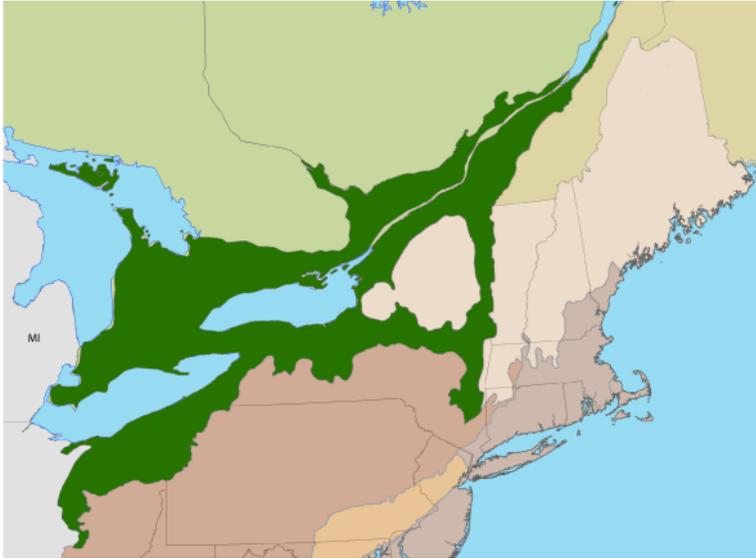


Figure 1. The Lower Great Lakes/St. Lawrence Plain (BCR 13) shown in green.

This BCR is comprised of extensive wetland ecosystems, accompanied by a mosaic of forests, agricultural fields and early-successional habitat (abandoned fields reverting to shrubland or young forests). The Champlain Valley of Vermont and New York has been identified as a Focus Area within BCR 13 because its mixed habitat types and open water are home to a number of BCR13's priority bird species.

The Lyon property comprises approximately 24 acres of open field, wet meadow, forest, pond, and solar arrays. The open areas cover approximately 15 acres, two of which have solar panels. This field is heavily infested by wild parsnip and spotted knapweed. The wet meadow comprises approximately 3 acres and contains a mix of shrubs, emergent vegetation, forbs, and grasses. The forested area comprises a total of 4 acres, and is dominated by mixed hardwood species in addition to invasives such as honeysuckle and buckthorn. The pond is small with a forested buffer.

Current management activities include annual cutting of the open fields and solar arrays. There is a tentative plan to place storm water ponds on the southern edge of the property to accommodate run-off from nearby Interstate 89.

The habitat types on the Lyon property are common in the Lake Champlain Basin and support bird species characteristic of early successional habitat types, mixed forests, and wetlands. Priority Bird Species (as identified by VWAP, NABCI and Audubon Vermont; Appendix 1) that are particularly well suited to these habitat types include American Woodcock, American Kestrel, and Rose-breasted Grosbeak.

This assessment is not intended to conflict with any agreements the Town of Williston may have with town departments, local farmers, or existing habitat management plans and conservation easements. Audubon Vermont recognizes that these relationships and strategies may take precedence over some of the following recommendations.

Recommendations

Guidelines for Open Field Management:

Assessment of Current Habitat Conditions:

The open field is currently dominated by several invasive species such as wild parsnip and spotted knapweed, and is therefore unsafe for the public and likely providing marginal bird and pollinator habitat. Management recommendations attempt to address this issue.

General recommendations for irregular-shaped fields

- 1) Cutting Regime
 - a. Prioritize for early cut (before plants go to seed) for 2-4 consecutive years so as to remove invasive wild parsnip and spotted knapweed, **then**
 - b. Delay cut (after August 1, and the later the better) so as to provide food resources for birds and pollinators, or allow to grow into new shrubland habitat by cutting around native shrubs that are emerging in the field (dogwoods, viburnums, etc).
- 2) Nest Box Placement
 - a. Follow guidelines for Eastern Bluebird Nest Boxes to erect boxes for bluebirds and swallows: <http://www.nabluebirdsociety.org/nestbox-plans/>
 - b. Follow guidelines for American Kestrel to erect box(es): <https://nestwatch.org/learn/all-about-birdhouses/birds/american-kestrel/>
- 3) Habitat components to achieve for Open Field habitat unit
 - a. 50-75% grasses, with the remainder forbs such as goldenrod, asters and milkweed
 - b. Minimal (<10%) reed canary grass, where possible
 - c. No wild parsnip or spotted knapweed where feasible

General goals for creating a Shrubland in Open Field habitat, if desired/feasible

- 1) 30-70% native shrubs and saplings, 3-13 feet high, unevenly distributed as clumps
- 2) Shrub and sapling clumps interspersed with small herbaceous openings, mainly of native forbs and grasses
- 3) Infrequent and widely spaced overstory trees throughout the patch, with 10-30% canopy cover and at least 50% deciduous overstory trees

Guidelines for Solar Arrays:

Assessment of Current Habitat Conditions and General Recommendations:

The 25 solar panels in the open field habitat are currently managed at the same time as the rest of the open field. These arrays and the surrounding area have the potential to provide

pollinator friendly solar habitat. Currently there is a voluntary program to establish pollinator habitat in and around solar arrays, including planting native perennial plants and shrubs that attract pollinators. For more information on this project, see:

<https://www.uvm.edu/extension/agriculture/pollinator-friendly-solar>. There may also be an opportunity to apply for funding to support plantings under and around the arrays. Audubon Vermont would be happy to work with and provide guidance for the Town of Williston in this effort.

Guidelines for Wet Meadow:

Assessment of Current Habitat Conditions

The easternmost area of the property is a wet meadow with a few shrubs, some emergent vegetation, and forbs. This area does not get cut on a regular basis and has the potential to become a small shrubland that could provide foraging habitat for American Woodcock and nesting habitat for shrubland birds such as Willow Flycatcher and Eastern Towhee.

- 1) Continue to limit cutting unless managing for invasive species such as honeysuckle, buckthorn, and wild parsnip. When cutting, cut around thickets of small saplings and native shrubs such as dogwood, elm and alder after August 1st.
 - a) Allow shrubs to grow in size and diameter. If saplings reach a diameter of 2-3 inches and shrubs reach 10 feet or more, they can be manually removed or cut.
 - b) Aim for a minimum of 10-30% shrub and young tree cover interspersed with a mosaic of grasses, emergent vegetation and forbs. Enhancing the shrubland structure while preventing the encroachment of trees will benefit several priority species that benefit from a mixture of native shrubs, grasses, and forbs near wet areas. This habitat structure provides both nesting habitat and food resources.
- 2) If possible, target non-native shrubs such as buckthorn and honeysuckle and invasive forbs such as wild parsnip and spotted knapweed for removal.
 - a) Retain orchard fruit trees such as apples and pears where applicable.
 - b) Native shrubs such as dogwoods and orchard fruit trees provide better quality resources than non-native species.
 - c) For more information, see Invasive Plant Species section below.

Guidelines for Pond:

Assessment of Current Habitat Conditions

The small pond is well protected by a buffer of vegetation, most of which is invasive shrubs like honeysuckle and buckthorn. In general this pond could provide nesting habitat for secretive waterfowl such as Wood Ducks.

General Recommendations for Ponds:

- 1) If possible, promote native shrubs and trees along the edge of the pond. Cut around thickets of small saplings and native shrubs such as dogwood, elm and alder after August 1st.
- 2) If possible, target non-native shrubs such as buckthorn and honeysuckle for removal.
 - a) Retain orchard fruit trees such as apples and pears where applicable.
 - b) Native shrubs such as dogwoods and orchard fruit trees provide better quality resources than non-native species.
 - c) For more information, see Invasive Plant Species section below.
- 3) Erect and maintain a waterfowl nest box in the wetland. Wood Ducks are cavity nesters and will use a box if placed near or over open water.

Guidelines for Forest:

Assessment of Current Habitat Conditions:

The primary focus of Audubon Vermont's visit was to assess the open portions of the property, but we did observe the forest edge, which is heavily invaded by buckthorn and honeysuckle. There are many native dogwood shrubs interspersed along the edge, however. These shrubby areas could be expanded to provide habitat as well as food resources for nesting birds.

General Goals for Forested Areas:

- 1) Retain approximately 4 snags per acre to support cavity nesting birds, such as woodpeckers and owls. Trees can be girdled if there are no existing snags.
- 2) Maintain an uncut buffer of shrubby vegetation as the forest transitions to the open portions of the property. Transitions along forest edges with a "soft" buffer of early successional shrub species can be a productive area for many bird species that nest and feed in shrubs.
- 3) If possible, control invasive species such as buckthorn and honeysuckle to limit their presence along the forest edge and in recently disturbed areas. Invasive species can spread into and dominate a forest where there has been recent disturbance, creating unsuitable habitat for birds and other wildlife. See Invasive Plant Species section below.

Invasive Plant Species

As with many properties within the Champlain Valley, especially those currently in agriculture and with past agricultural activity, invasive plant species present a unique challenge. Invasive species, such as wild parsnip, reed canary grass, buckthorn, and honeysuckle provide suboptimal habitat for many bird species, and are all present on the Lyons property. Specifically, wild parsnip and reed canary grass pose a threat to grassland birds, and will make a field inhospitable to grassland species if not controlled. In addition, wild parsnip is toxic to humans and other domestic animals and therefore is worthwhile to control.

Although removal of invasive species would be optimal, the logistics of accomplishing this task are extremely difficult. This is due in part to the extensive distribution of the plants on the

property as well as the presence of seed sources on adjacent properties. Even if the invasive plants were to be eradicated, a long-term effort would be needed to prevent re-establishment of these species. As a result a much more intensive work plan, separate from this document, would need to be created if invasive plant removal is to be undertaken. In general, however, we recommend that invasive species are removed from areas where they are manageable, accessible, near non-infested areas, or near unique natural communities.

Some general guidelines for invasive plant removal are listed below:

- *Wild parsnip*: manage the invasion of wild parsnip by keeping mower blades at a height of 8 inches or more, and cut areas where parsnip is found before the plants go to seed (usually first or second week of July). A second cut may be needed if the plant reflowers. If wild parsnip invasion is minimal, it may be possible to remove individual plants by slicing the taproot and removing the top portion by hand (gloves are required to avoid the blister producing sap). A sharpened spade can be placed near the plant and angled so the blade slices the root a couple of inches below ground. The severed root stub can be pulled up by the stem. The root fragment left behind will die later since it lacks mass and crown buds to re-sprout.
- *Buckthorn and honeysuckle*: manage further invasion of these species when brush hogging early successional areas. Annual brush hogging or manual removal of these shrubs can help the establishment of native shrubs such as dogwoods, serviceberry, and blackberries. Maintaining native shrubs along forest edges can also help prevent invasive species from establishing themselves in the forest understory.

Habitat Incentive Programs

The Town of Williston may be eligible for funding through the US Fish and Wildlife Service (USFWS) Partners Program. More information on the work this program funds can be found at: <https://www.fws.gov/lcwfro/habitat/partners.html> . Audubon Vermont can collaborate with the Town and USFWS if there is interest in pursuing this option.

Summary and Next Steps

The Former Lyon Property has the potential to provide habitat for a number of priority species identified by Audubon's Champlain Valley Bird Initiative. Many of its current management techniques are likely supporting priority bird species such as American Woodcock, Rose Breasted Grosbeak, and Chestnut-sided Warbler. Future management work can enhance and increase the potential for these habitats to support additional species long-term, and have a positive impact on the populations of these birds in Vermont.

Audubon Vermont biologists recommend prioritizing areas for management according to need, ease of access, and potential benefit vs. cost. In general, removing and controlling the invasive plants in the open field portion of the property and creating a soft forest edge in the transition zone between forest and open field should be the highest priorities.

References

Grassland Bird Management Guide, NRCS:

<https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=27175.wba>

Shrubland Bird Management Guide, NRCS:

<https://efotg.sc.egov.usda.gov/references/public/VT/VT647.pdf>

Invasive Plant Control Guide, NRCS:

https://efotg.sc.egov.usda.gov/references/public/VT/315_InvPlantControlGenInfo.pdf

Vermont Breeding Bird Atlas: <http://val.vtecostudies.org/projects/vermont-breeding-bird-atlas/>



**Map 1. Champlain Valley Bird Initiative
Habitat Assessment, Former Lyon Property**

Map created by Margaret Fowle, August 2018
Data provided by Audubon VT, ESRI and VCGI

Not a survey. All boundaries and acreage figures approximate.



Audubon VERMONT

Champlain Valley Priority Bird List

Wetlands

Pied-billed Grebe ^{1,2}
American Bittern ^{1,2}
Least Bittern ^{1,2}
Wood Duck ²
Common Goldeneye ²
American Black Duck ^{1,2}
Sora ¹
Blue-winged Teal ¹
Bald Eagle ¹
Osprey ¹
Black Tern ¹

Agricultural Grasslands

American Kestrel ¹
Northern Harrier ^{1,2}
Short-eared Owl ^{1,2}
Upland Sandpiper ^{1,2}
Sedge Wren ¹
Vesper Sparrow ¹
Grasshopper Sparrow ^{1,2}
Bobolink ^{1,2}
Eastern Meadowlark ^{1,2}

Islands

Great Blue Heron ¹
Black-crowned Night Heron ^{1,2}
Common Tern ^{1,2}

Shrub/Early Successional

American Woodcock ^{1,2}
Brown Thrasher ^{1,2}
Eastern Towhee ¹
Willow Flycatcher ²
Golden-winged Warbler ^{1,2}
Blue-winged Warbler ^{1,2}
Field sparrow ^{1,2}
Baltimore Oriole ²

Deciduous/Mixed Forest

Scarlet Tanager ¹
Black-billed Cuckoo ^{1,2}
Whip-poor-will ¹
Veery ¹
Wood Thrush ^{1,2}
Canada Warbler ^{1,2}
Ruffed Grouse ¹
Peregrine Falcon ¹
Chestnut-sided Warbler ¹
Black-throated Blue Warbler ^{1,2}
Cerulean Warbler ^{1,2}
Northern Flicker ²
Rose-breasted Grosbeak ²

¹ Vermont's Species of Greatest Conservation Concern from the Vermont Wildlife Action Plan

² Bird Conservation Region 13 (Lower Great Lakes/St. Lawrence Plain) Priority Bird Species from the North American Bird Conservation Initiative