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Habitat Assessment for the Charlotte Park and Wildlife Refuge Charlotte, Vermont

Eastern Towhee

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Introduction

The following pages provide a habitat assessment and avian conservation strategies for the Charlotte Park and Wildlife Refuge (CPWR) in Charlotte, Vermont. The assessment is part of Audubon Vermont's Champlain Valley Bird Initiative (CVBI) 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 the Vermont State Wildlife Action Plan (VTWAP) and the North American Bird Conservation Initiative (NABCI), and are the focus of regional conservation efforts (see Appendix 1). Although this report is concerned primarily with habitat management for birds, numerous non-avian species will also benefit from its recommendations.

The CPWR 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).

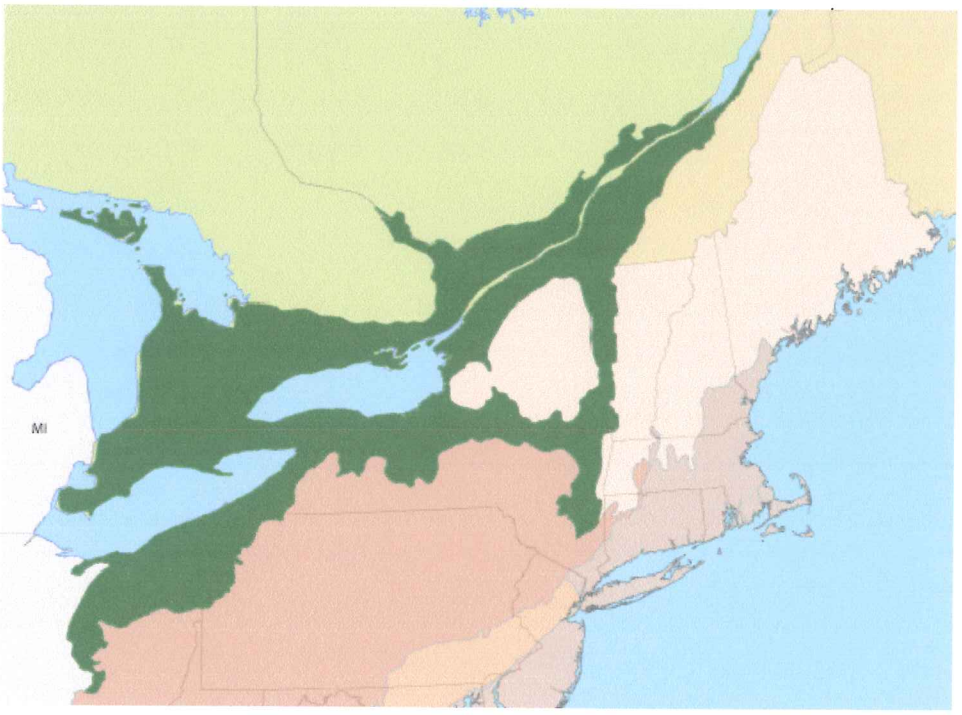


Figure 1. The Lower Great Lakes/St. Lawrence Plain (BCR 13) shown in green.

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 CPWR is located in the north central portion of the town of Charlotte, Vermont. The larger landscape surrounding the property includes a mix of agricultural lands, small to medium-sized forest patches, and residential development. The property comprises approximately 290 acres of fields, early successional shrublands, and both young and mature forest. The fields are managed for agricultural purposes including hay, row crops and pasture. The early successional shrublands, which make up a substantial portion of the property, are comprised of a number of shrubland plant species including native dogwoods and viburnums as well as invasive honeysuckle, European buckthorn and amur maple. Several small drainages run throughout the property, the most significant being Holmes Creek which bisects the southern and western portions of the park. Two small ponds are also located within the CPWR, one in the eastern portion of the property and the other in the west central portion of the property. There are roughly 3.5 miles of maintained trails throughout the park. In addition the Thorpe Barn is located on the eastern edge of the property and a parking area for access to the trails is located on the western end of the property.

The town owned CPWR is managed for wildlife, recreation and agricultural purposes and is governed by the Park Oversight Committee. A detailed description of the goals for the park and its management structure can be found in the Charlotte Park and Wildlife Refuge Comprehensive Management Plan.

Current management activities include managing the agricultural fields for hay, row crops, and pasture. Other areas are managed as old field/meadow and more recently early successional shrubland habitat. An extensive trail system runs throughout the CPWR and includes both gravel and grass/dirt trails. A nature trail is also included in this trail system and some of the trails provide opportunities for horseback riding. Numerous invasive plant species including poison parsnip, European buckthorn, honeysuckle and amur maple are also present due to the past disturbance regime and the strong presence of these species in the Champlain Valley. Aggressive invasive species removal activities are ongoing and an Invasive Weed Management Plan has been developed for the park by The Nature Conservancy.

The habitat types on the CPWR are common in the Champlain Valley and support bird species characteristic of grasslands, early successional habitat types (shrublands, old fields and young forest), wetlands, and mixed forests. Priority Bird Species (as identified by VTWAP, NABCI and Audubon Vermont; Appendix 1) that are well suited to these habitat types include Bobolink, Eastern Meadowlark, American Kestrel, American Woodcock, Golden-winged and Blue-winged Warbler, Eastern Towhee, Brown Thrasher, Ruffed Grouse, Wood Thrush, Chestnut-sided Warbler, Baltimore Oriole, Field Sparrow

and Rose-breasted Grosbeak. A complete list of Priority Bird Species including those that have been located in the CPWR can be found in Appendix 1.

Management Recommendations

The property was visited repeatedly from spring 2009 to fall 2011. Visits included summers of 2009-2011 when avian breeding activity was high and as a result probability of confirming breeding activity was also high. Bird species lists for each management unit include species observed (O) during the visits (including data from volunteer monitors) and are probable breeders as well as some species that may possibly (P) be found there but were not detected. These lists do not comprise all the birds that may be using this habitat unit. Management recommendations are provided for each habitat unit and are designed to provide guidance on activities that would benefit priority bird species.

Some recommendations provided in this document have already being undertaken or are in the process of being undertaken. Several of these recommendations have been outlined in the Parks' Comprehensive Management Plan (CMP) and have been ongoing since the Park's inception (i.e. old field/meadow management). In addition Audubon Vermont received a TogetherGreen Fellowship Grant in the fall of 2009 which allowed Conservation Program Manager Mark LaBarr to work with the Oversight Committee to manage for early successional shrubland habitat while working to eliminate invasive plant species. This work will be discussed in more detail later in the document.

This assessment is not intended to conflict with the relationship or management goals that the Oversight Committee have established with the local farmer who leases and works the fields. Rather it is designed to provide opportunities for bird conservation where they might exist. Audubon Vermont recognizes that the landowner/farmer relationship may take precedence over some of the following recommendations. For the purpose of this report the property has been divided into five broad avian habitat units (AHU), including Agricultural Fields, Overlook, Old Field, Shrubland, Forest (including wetlands) and Residential (Map 1). For this document AHU's are listed first followed by the corresponding management units identified in the CMP (in parentheses).

<u>Agricultural Field Units 1 (K,L,M), 2 (E,F,G), 3 (A,B,C), 4 (H, I) and Overlook</u>

Assessment of Current Habitat Conditions:
These 5 field AHU's are actively managed for hay and row crops. As such they have the potential to support grassland bird species, especially if hay production is the primary goal. Management units outlined in the CMP have been combined to highlight the need for larger and more rectangular shaped fields that are desirable to grassland birds. Several hedgerows bisect the fields and the larger hedgerows have been used to delineate the habitat units. A recently planted riparian buffer divides Field 3 and drains a small pond to the west of Thorpe Barn.

Monitoring during the breeding seasons showed that Bobolinks were present in fields 1, 2 and 3 when the fields were in a hay rotation. Eastern Meadowlarks were also observed in Field 3 in 2010. Neither Bobolinks nor meadowlarks were observed in Field 4 or the Overlook in any of the years even though Field 4 was in hay in all years. This could be due to the extensive forested edges which surround Field 4. As mentioned above consideration must be made for the working relationship with the farmer(s) using the land and the goals of the agricultural activity. That said, all or a portion of fields 1, 2, 3, and potentially the Overlook could be set aside and managed for grassland birds.

Priority Bird Species

Bobolink (O)
Eastern Meadowlark (O)
American Kestrel (O)
Northern Harrier (P)

Other Species Possibly Using This Habitat

Savannah Sparrow
Eastern Kingbird
American Crow
Tree Swallow
Red-winged Blackbird
Song Sparrow
American Goldfinch
Wild Turkey
American Woodcock

Management Recommendations: These recommendations can apply to individual Field AHU's (or portions of these fields) on an annual rotational basis or to specific fields set aside for grassland bird management. Of the 5 fields, Field 1, 2 or 3 would be best suited for this latter practice, especially if a grassland bird demonstration field was desired. Since limited priority grassland bird activity was observed on Field 4, this field could be managed solely for agricultural purposes. The Overlook must meet the requirement of having some recreational use and as such may need to be taken out of agricultural use. Management strategies as described in the 2011 Agricultural Plan are an example of how agriculture and bird conservation can be successfully incorporated into a management plan. Continued efforts similar to these are highly recommended.

- Mow fields after July 15th. If haying is needed prior to this date for agricultural purposes, the cut should be completed after July 4th. Cutting areas to a height greater than 8 inches tall will also benefit grassland bird species. Fields 1, 2, and 3 are likely candidates for this management activity
- Alternatively, mow fields before May 31st (weather and field conditions permitting). Later cuts should be completed after a 65-day waiting period if possible. These recommendations attempt to minimize negative impacts of agricultural activities to nesting birds while providing the farmer with an initial cut of high protein hay in May. Leaving the field uncut for 65 days after an early

cut will allow the birds to re-nest successfully. This cutting regime may be successfully integrated into current agricultural practices benefiting both the birds and the farmer. Again Fields 1, 2, and 3 are likely candidates for this management as they are usually dry enough to get a first cut of hay off before May 31.

- Remove hay after each cutting to provide the best conditions for re-growth of grass. Birds will settle in greener fields in the spring.
- Manage the Overlook as grassland. A late cut of hay after July 15th followed by additional cutting as necessary to meet the requirements of recreational use. A maintained loop trail around the edge of the field would probably not interfere with nesting grassland birds.
- Convert row crops to hay and follow management recommendations above.
- Maintain old fence posts to provide perches for singing male grassland birds and erect and maintain nest boxes to provide possible nesting habitat for cavity nesting species such as Eastern Bluebirds, Tree Swallows and American Kestrels. Boxes should be cleaned every spring.
- If possible, maintain an uncut buffer of shrubby vegetation as the field transitions to the forested portions of the property. Transitioning from field to forest with a "soft" buffer of native early successional shrub species can be a productive area for many bird species.
- Mount an American Kestrel nesting box on the side of Thorpe Barn and maintain annually by cleaning out old nesting material.
- Monitor fields for invasive herbaceous plant species such as poison parsnip. Active management against these species will have both positive agricultural and avian value.

Old Field Units 1 (N) and 2 (D)

Assessment of Current Habitat Conditions:

These two Old Field AHU's lie in the north central and south central portions of the property. Unit 1 is considerably larger than Unit 2 with the majority of this unit having been pastured in recent years. The southern and southeastern portion of Unit 1 is reverting rapidly to early successional shrubland and forest. Several priority bird species were located here including Blue-winged Warbler, Field Sparrow and Bobolink. Unit 2 is brush hogged annually and there are a number of large trees scattered throughout. Its small size and limited understory does not provide much habitat for priority grassland or shrubland species. However its edges if maintained as native shrubland could provide nesting habitat for some species.

Priority Bird Species

Blue-winged Warbler (O)
Field Sparrow (O)
Bobolink (O)
Eastern Towhee (O)
Brown Thrasher (O)
Baltimore Oriole (O)
Golden-winged Warbler (P)

Other Species Possibly Using This Habitat

Savannah Sparrow
Tree Swallow
Yellow Warbler
Red-winged Blackbird
Song Sparrow
American Goldfinch

Management Options: Old Field Unit 1 has the best potential for avian habitat management as there is a diversity of vegetative structural conditions. Management along the southern and southeastern portion of this unit will need to focus on keeping the old field from reverting to forest while the northern portion of the unit could be rotationally pastured. Unit 2 could be enhanced by allowing low shrubby growth to dominate the edges of the fields. Care must be taken to keep poison parsnip from dominating these fields as it can be found in both units.

- Use rotational grazing techniques and/or leave portions of Unit 1 ungrazed to attempt to keep 40% of the vegetative cover at a minimum height of 8 inches. Keeping the grass level at a minimum of 8 inches when grazing or mowing a pasture will reduce the hazard to nesting birds and allow some nests to fledge young successfully. Allow native shrubs to form copses within the pasture by selecting against invasive plant species
- Brush hog portions of the southern and southeastern portions of Unit 1 every 3-5 years after August 1st to maintain shrubland habitat. Target native and non-native shrubs that are greater than 10 feet high for cutting (these will quickly regenerate) while maintaining 1-8 foot native shrubs, some trees, saplings, and snags throughout. The optimal shrub height is 1-8 feet tall for shrubland priority species. Brush hogging will enhance the habitat structure while preventing the encroachment of trees and will benefit several priority shrubland species, such as the Brown Thrasher, American Woodcock, and Eastern Towhee.
- In Unit 1, selectively remove tall trees after August 1st while retaining desirable shrub species. Trees can be cut or girdled outside of the nesting season, which is generally from April 15 – August 1. Girdled trees will become snags which can provide perches and nesting sites for cavity nesters, such as kestrels.
- Aim to maintain at least 70% of Unit 1 in grasses, forbs and shrubs to create a mixture of open field, shrubland and early successional forest. Leaving some areas undisturbed every year (ie brush hogging in thirds) will provide cover and food for species while the disturbed areas regenerate. Shrubland priority species benefit from a mixture of native shrubs, grasses, and forbs, all of which provide nesting habitat and food resources. Light pasturing after July 15 can also help achieve this habitat structure.
- If possible, target non-native shrubs such as buckthorn and honeysuckle for removal. Treat invasives with herbicide to insure they will not re-grow. Retain orchard fruit trees such as apples and pears where applicable. Native shrubs such

as dogwoods and orchard fruit trees provide better quality resources than non-native species. Maintain old fence posts to provide perches for singing birds and erect and maintain nest boxes to provide possible nesting habitat for cavity nesting species such as Eastern Bluebirds and Tree Swallows. Boxes should be cleaned every spring.

- If possible, for both units, maintain an uncut buffer of shrubby vegetation as the field transitions to the forested portions of the property. Transitioning from field to forest with a "soft" buffer of native early successional shrub species can be a productive area for many bird species
- Monitor both units for poison parsnip. Manage against poison parsnip by keeping mower blades at a height of 8 inches or more, and cut areas annually 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 re-flowers. If poison 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).

Shrublands (P, R2)

Assessment of Current Habitat Conditions:
This shrubland AHU is currently a managed mix of early successional shrubland composed of native dogwoods and viburnums with a strong component of invasive honeysuckle, European buckthorn, and amur maple. In fact the invasive species dominate much of the eastern portion of this unit with some areas being almost impenetrable because of their density. Within this shrubland structure are a number of small to medium sized openings that were created in 2010 and 2011 as part of a shrubland habitat management project developed by the Oversight Committee and Audubon Vermont through the TogetherGreen program. This includes the area around the eastern bench on the Roberts Way trail and the western portion of the unit. These areas were brush and bullhogged to create these openings. Invasive plant species were identified and removed (mechanically and manually) while native species were allowed to remain creating a patchwork of shrub copses throughout the area. Larger trees were also removed from this area to limit reforestation of this shrubland unit. The eastern portion of this unit remains a dense thicket of invasive plants although inroads into this area have been made to aid in ongoing efforts to manage against invasive species and for native species. A small pond also lies in this eastern portion of the unit

This mix of vegetation type and openings provides ideal habitat for a suite of bird species dependent on early successional habitat. Efforts to maintain this habitat structure by limiting the amount of reforestation that occurs will benefit numerous priority species.

Priority Bird Species
American Woodcock (O)
Brown Thrasher (O)
Eastern Towhee (O)
Golden-winged Warbler (O)

Blue-winged Warbler (O)
Brewster' Warbler (O)
Eastern Towhee (O)
Willow Flycatcher (O)
Ruffed Grouse (P)

Other Species Possibly Using This Habitat
Downy Woodpecker
Black-capped Chickadee
Gray Catbird
American Robin
Veery
Alder Flycatcher
Yellow Warbler
Common Yellowthroat
Indigo Bunting
Song Sparrow

Management Options: Ongoing management of this area will be needed in order to maintain the early successional shrubland habitat. This includes not only maintaining the current managed areas but expanding the managed areas into the eastern and southeastern portion of the unit where invasive plant species still dominate. In addition the area around the bench on Roberts Way is an idea spot to demonstrate shrubland and invasive species management techniques to the public. Effort should be made to keep this area in native shrubs not only for shrubland habitat but to maintain the view as well.

- Brush/bullhog portions of the shrublands every 3-5 years after August 1st to maintain open areas and manage for shrubland habitat. Target native and non-native shrubs that are greater than 10 feet high for cutting (these will quickly regenerate) while maintaining 1-8 foot native shrubs, some trees, saplings, and snags throughout. The optimal shrub height is 1-8 feet tall for shrubland priority species. Brush hogging will enhance the habitat structure while preventing the encroachment of trees and return of invasives and will benefit several priority shrubland species. Although regular brush/bullhogging will limit invasive species re-growth, herbicide treatment could be attempted to remove these species more completely .
- Manually remove invasive plant species where inaccessible to brush/bullhogging. Treat invasives with herbicide to insure they will not re-grow.
- Selectively remove tall trees after August 1st while retaining desirable shrub species. Trees can be cut or girdled outside of the nesting season, which is generally from April 15 – August 1. Girdled trees will become snags which can provide perches and nesting sites for cavity nesters, such as kestrels.
- Aim to maintain at least 40% of the area in grasses and forbs to create a mixture of open field and shrubland. Leaving some areas undisturbed every year (ie brush hogging in thirds) will provide cover and food for species while the disturbed areas regenerate. Shrubland priority species benefit from a mixture of native

shrubs, grasses, and forbs, all of which provide nesting habitat and food resources. Light pasturing after July 15 can also help achieve this habitat structure.

- If possible, target non-native shrubs such as buckthorn and honeysuckle for removal. Retain orchard fruit trees such as apples and pears where applicable. Native shrubs such as dogwoods and orchard fruit trees provide better quality resources than non-native species. For more information, see Invasive Plant Species section below.
- Monitor both units for poison parsnip. Manage against poison parsnip by keeping mower blades at a height of 8 inches or more, and cut areas annually 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 re-flowers. If poison 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).

Forest/ Wetland Unit (P, R1, Q)

Assessment of Current Habitat Conditions:

The Forest AHU delineated in this document totals approximately 60 acres and is located along the southern boundary and the south western portion of the property. It consists of forested habitat and a wet drainage. Holmes Brook enters this unit from the south in the western portion of the property, moves east through the Shrubland Unit before re-entering the Forest Unit and leaving the property at Greenbush Road. Several tributaries feed the brook including one that runs east/west through the forest unit and connects with Holmes Brook. Beaver have altered the drainage in the western portions of this unit creating open beaver meadows.

The forest portion of this unit is a mostly mature forest of birch, maple, oak, hickory and elm although aspen and other pioneer tree species can be found north of the wetland along the western boundary. The understory is comprised of saplings of the above mentioned species as well as invasive honeysuckle and buckthorn. In addition the forest along the northern boundary of this unit where it abuts the shrubland unit is younger in age and has a stronger invasive plant species understory. The far eastern edge of this unit which abuts the Overlook also has this transitional forest with a strong invasive component. An abandoned apple orchard lies in the eastern portion of this unit.

The wetland is imbedded in the forest portion and is a mixture of grasses, forbes and cattails with a shrub component and creates a sizeable opening (beaver meadow) close to the western boundary. Beaver activity is currently minimal. A parking lot for access to the trail system is located in the southwestern portion of this unit. Some landscaping plantings can be found here.

Priority Bird Species

Wood Thrush (O)
Willow Flycatcher (P)
Chestnut-sided Warbler (O)

Rose-breasted Grosbeak (O)
Scarlet Tanager (O)
Veery (O)
American Woodcock (O)
Northern Flicker (O)
Ruffed Grouse (O)
Black-billed Cuckoo (P)
Whip-poor-will (P)

Other Species Possibly Using This Habitat

Red-tailed Hawk
Blue Jay
Black-capped Chickadee
White-breasted Nuthatch
Eastern Wood Peewee
Red-eyed Vireo
Hermit Thrush
Pileated Woodpecker
American Redstart
Ovenbird
Warbling Vireo
White-throated Sparrow
Wild Turkey
Great-blue Heron

Management Options: These two habitat types have been combined in this document because of the proximity of the two habitats and the similarity of management recommendations. No forest management activities are planned for this unit other than invasive species removal and trail maintenance. The forest will be allowed to continue to mature with those areas along the northern edge abutting the Shrubland Unit developing into mature forest. Invasive species removal has been the primary management activity in this unit. Much of this has been done through The Nature Conservancy's Wise on Weeds program. Areas where this work has focused include the eastern area abutting the Overlook, the junction of the Byington Trail and Roberts Way, and just east of the parking area. Similarly no management is planned for the wet areas and beaver meadows other than to remove invasive species where possible in addition to allowing sporadic beaver activity to continue.

- No forestry management is recommended for this unit and it should be allowed to continue to mature.
- 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.
- If possible, maintain an uncut buffer of early successional vegetation as the forest transitions to the open field/shrubland portions of the property. Areas where this can be undertaken include edges along the Overlook, Fields 3 and 4 and Old Field 2. Transitioning from field to forest with a "soft" buffer of early successional shrub species can be a productive area for many bird species that nest and feed in shrubs. This buffer should be brushhogged every 3-5 years. Caution will need to be taken to keep invasive species from establishing themselves.
- Allow any native shrubs to establish themselves along the edge of the wetlands. Allow shrub copses to grow in size and diameter. Once saplings reach a diameter

of 2-3 inches and shrubs reach 10 feet or more, they can be manually cut. Aim for a minimum of 10-30% shrub cover interspersed with a mosaic of young trees, grasses and forbs. Enhancing the shrubland structure while preventing the encroachment of trees will benefit several priority species. These species benefit from a mixture of native shrubs, grasses, and forbs near wet areas. This habitat structure provides both nesting habitat and food resources.

- Continue to manage against invasive plant species both along the forest edges, in the forest understory and within the Holmes Brook drainage.
- In and around the parking area plant native plants and shrubs that provide nesting habitat, food, and cover for birds. Species such as dogwoods, serviceberry, blueberries, and asters provide good habitat and are also attractive perennials. Planting can be done along lot edge to create a "soft" buffer.

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 poison parsnip, reed canary grass, buckthorn, purple loosestrife and honeysuckle provide suboptimal habitat for many bird species, and are all present on the CPWR property.

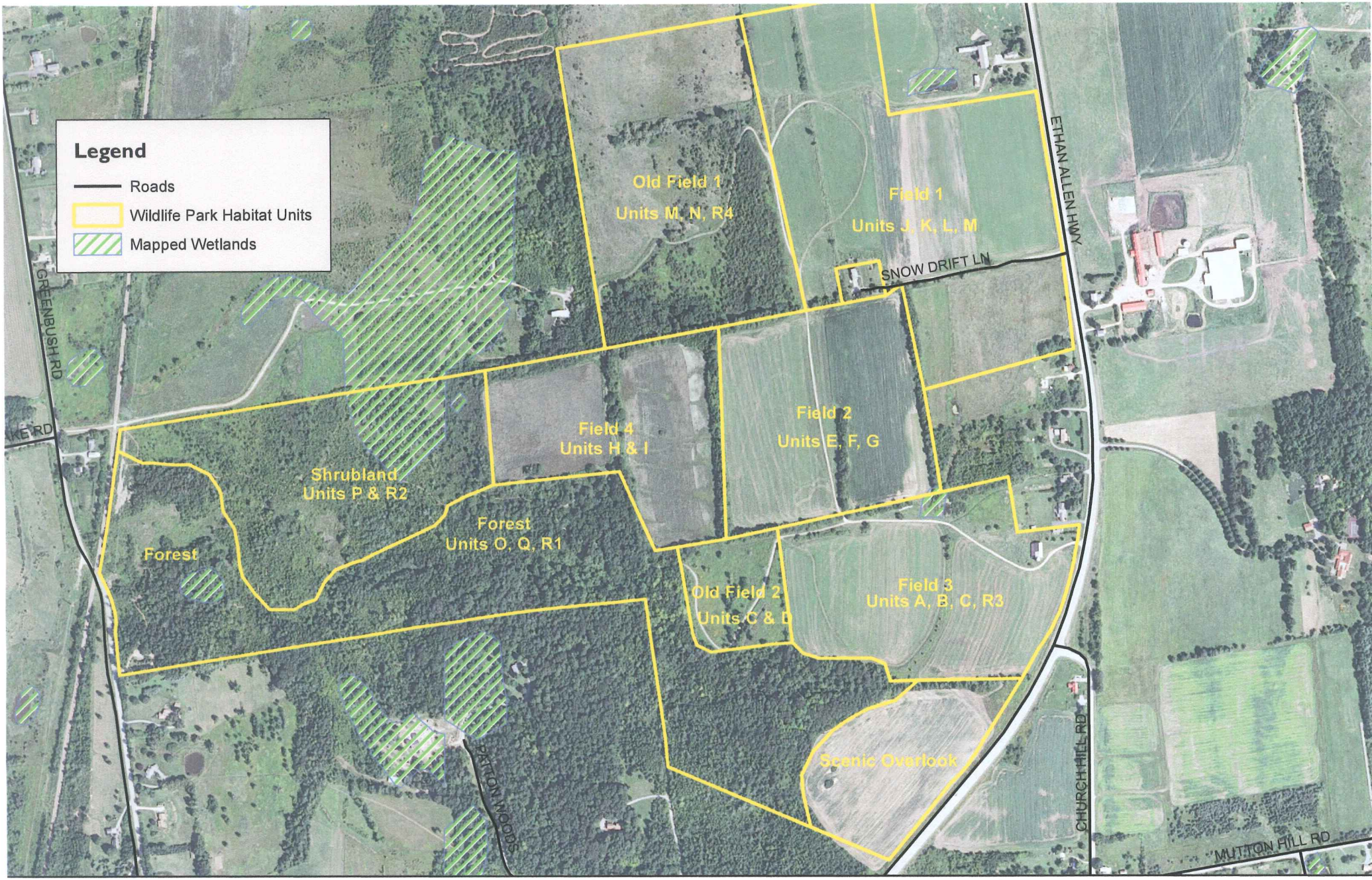
Although removal of invasive species would be optimal, the logistics of accomplishing this task are extremely difficult. This is due in part to the distribution of the plants on the property as well as the presence of seed sources on adjacent properties. Even if the invasive plant populations were to be significantly reduced, a long-term effort would be needed to prevent re-establishment of these species. The CPWR has taken effective initial action managing against invasive plants. This includes an Invasive Weed Management Plan developed by The Nature Conservancy in 2008. Volunteers have been critical to removal efforts within the CPWR and continued efforts will need to be made to maintain past work and to move forward in other portions of the park.

Summary

The CPWR property provides important habitat for grassland, shrubland and forest bird species including a number of priority species identified by Audubon's Champlain Valley Bird Initiative. Its juxtaposition next to other properties with similar grassland and early successional habitat types supports management options that maintain the current habitat structure. These management practices will need to be undertaken at regular intervals to insure the grasslands and shrublands are maintained over the long term. The CPWR also has the opportunity to become a demonstration site for a number of bird friendly management activities. Its location and trails provide access to areas highlighting successful management strategies allowing the general public to get a better understanding of what can be done to support priority birds.

Measurements of Success

Audubon Vermont hopes to be able to develop protocols for landowners to provide feedback to CVBI staff. Understanding the response of bird communities to land management is a critical component of these conservation efforts, and it is important for us to understand how our management activities impact bird populations over time, so that we can adapt practices accordingly. One method of collecting this information is through the establishment of bird monitoring programs. By periodically surveying and recording the bird species present after management activities occur, we can see if and how the composition of the bird community is responding to change. The CPWR is in a unique position in that it is already the destination for many birdwatchers and as such efforts can be made to collect this data. Since monitoring methods vary and are dependent on the amount of time individuals are willing to commit and how experienced they are at detecting birds, we recommend landowners interested in monitoring contact Mark LaBarr at Audubon Vermont (802-434-3068 or mlabarr@audubon.org).



Map 1.
Champlain Valley Bird
Habitat Assessment
Charlotte Wildlife Park Habitat Units

0 360 720 1,440 Feet

Habitat Units
1. Agricultural Field - 127 acres
2. Old Field - 43 acres
3. Forest - 60 acres
4. Shrubland - 32 acres
5. Overlook - 14 acres

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Map created by Margaret Fowle, January 2012
Data provided by NAIP 2009, Chittenden County Regional Planning Commission, and VCGI

Not a survey. All boundaries and acreage figures approximate.

Appendix 1.

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Champlain Valley Priority Bird List

*Priority species observed in the Charlotte Park and Wildlife Refuge

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]
*Chestnut-sided Warbler [1]
*Blk-throated Blue Warbler[1,2]
Cerulean Warbler [1,2]
*Northern Flicker [2]
*Rose-breasted Grosbeak [2]
Peregrine Falcon

[1] Vermont's Species of Greatest Conservation Need 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

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Champlain Valley Bird Initiative Resource List

GRASSLANDS

Conserving Grassland Birds; Managing large grasslands including conservation lands, airports, and landfills over 75 acres for grassland birds. Audubon Society. *A guide to managing large grasslands including agricultural and non agricultural practices as well as large-scale restoration.*
http://www.massaudubon.org/Birds_and_Birding/grassland/small.php

Conserving Grassland Birds; Managing small grasslands including conservation lands, corporate headquarters, recreation fields, and small landfills for grassland birds. Audubon Society. *A guide to land management and conservation, with details about bird species by state.*
http://www.massaudubon.org/Birds_and_Birding/grassland/small.php

NATIVE & INVASIVE PLANTS

Trees, Shrubs, & Vines for Attracting Birds by Richard M. DeGraaf, 2002. A wonderful guide to woody plants that are useful for attracting birds. Helpful tables for each plant species indicating birds that use the plant in terms of food, cover & nesting. $20

Landscape Plants for Vermont by Norman Pellett and Mark C. Starrett, 2002. An incredible reference book for plants that will grow in Vermont; highlights native species. Organized by plant type (i.e., vines, shrubs, trees) and mature height. Lists plants resistant to deer browse and poisonous plants. Order online through UVM Master Gardener Program. $15 *See website list.*

Native Shrubs and Vines for Northern New England Landscapes by Norman Pellett, 2001. Strictly native Vermont plants. Includes plant descriptions and uses in the landscape; appendices list plants suited for wet, dry and woodland sites. Published by Friends of the Horticulture Farm, P. O. Box 64788, Burlington, VT 05406. $7

Native Trees, Shrubs, and Vines: a Guide to Using, Growing, and Propagating North American Woody Plants by William Cullina, 2002. A tremendous reference book with wonderfully written, engaging prose. Species accounts include wildlife uses, cultural and propagation information, native habitats and more. Color photos. $40

Native Plants of the Northeast; A Guide for Gardening and Conservation by Donald J. Leopold, 2005. A book that is specific to our region with a great balance of perennials, annuals, shrubs, trees & vines. $40

Sources of Native Plant Materials in Vermont, Agency of Natural Resources, 2003. An updated publication, listing Vermont nurseries that carry native species and the plant species

available at each nursery. Contact information included. A great resource. http://www.anr.state.vt.us/dec/waterq/wetlands/docs/wl_nativeplants.pdf Available in print or online. Free.

Vermont Invasive Exotic Plant Fact Sheet Series, revised 2003. A collection of black and white fact sheets for 25 invasive species. Identification, habitat and control information. Available online from Vermont Master Gardeners, *see website list.*

Native Alternatives for Invasive Ornamental Plant Species, edited by Timothy M. Abbey for the Connecticut Invasive Plant Working Group. Small booklet; recommends multiple native alternatives for five commonly planted invasive ornamentals – color photos. Available in print or online. http://www.caes.state.ct.us/SpecialFeatures/NativeAlternatives.pdf

FORESTRY & CONSERVATION

Working with Your Woodland: A Landowner's Guide*, revised edition* by Mollie Beattie, Charles Thompson, and Lynn Levine, 1993. Covers a wide spectrum of compatible woodland management objectives – wildlife, recreation, timber and firewood - as well as the technological, environmental, tax and legal concerns. $25.

BIRDS

The Audubon Society Guide to Attracting Birds: Creating Natural Habitats for Properties Large & Small by Stephen W. Kress, 2006. The "everything-you-need-guide!" From specific native plant recommendations to create cover and nesting sites on your property, this book thoroughly covers all the aspects of attracting birds to your yard and beyond. Great designs for nesting platforms, advice for the larger landowner, and a wonderful resource appendix. $24.95

Birdwatching in Vermont by Ted Murin & Bryan Pfeiffer, 2002. Great for finding spots to visit for specific birds in order learn about their habitat requirements. $20

Sibley's Birding Basics by David Allen Sibley, 2002. Learn how to look at and listen to birds. $15.95

Bird Watcher's Digest *magazine,* edited by William Thompson, III. Bird identification tips, landscape and gardening articles, and in-depth exploration of different bird species. *http://birdwatchersdigest.com/* Six issues per year, $20 subscription.

Identify Yourself: The 50 Most Common Birding Identification Challenge by Bill Thompson III, 2005. This is an excellent book for sorting out and identifying those tricky birds that are difficult to distinguish from one another. Aimed at beginners and intermediates. $19.95

WILDLIFE HABITAT

A Landowner's Guide: Wildlife Habitat Management for Vermont Woodlands Ronald J. Regan and Ginger Anderson, publication coordinators. Each creature receives an entire chapter that focuses on its natural history, habitat requirements and management practices or projects. Booklet available through VT Fish & Wildlife Department, Waterbury, (802) 241-3700, free.

Landowner's Guide to Wildlife Habitat; Forest Management for the New England Region by Richard M. DeGraaf, Mariko Yamasaki, William B. Leak, and Anna M. Lester, 2005. An easy-to-use guide for enhancing wildlife habitat quality, timber values and the appearance of forest lands. Explains how to work with professional foresters to meet your goals. Great color photographs. $16.95

Enhancement of Wildlife Habitat on Private Land by Daniel Decker and John Kelley, 1998. A popular 42-page publication with illustrations and instructions for 10 projects designed to provide desirable habitat for wildlife. http://store.cce.cornell.edu/ Order online through Cornell Cooperative Extension Resource Center. Publication #16271

Landscaping for Wildlife by Carrol Henderson, 1987. A landowner's guide to developing backyard, farm, and woodlot habitats for wildlife. http://www.comm.media.state.mn.us/bookstore/bookstore.asp Available online through Minnesota's Bookstore, Department of Natural Resources. $10.95

Backyard Wildlife Habitat in Vermont by Steve Parren, 1993. Provides information on creating habitat for birds and other wildlife, specific to Vermont. Booklet available through VT Fish and Wildlife Department, Waterbury, (802) 241-3700, $3

Noah's Garden: Restoring the Ecology of Our Own Back Yards by Sara Stein, 1995. This author completely breaks through the mysteries of gardening and shows us how we need to simply plant with nature (i.e. plant native plants and plant them where they will thrive) instead of fighting against nature. $13.00

Planting Noah's Garden: Further Adventures in Backyard Ecology by Sara Stein, 1997. Furthers Stein's campaign to make lawns animated, full of disorder, life, and wildness. Packed with practical instructions for planning and maintaining a garden of one's own. Wonderful entertainment for anyone with a green thumb. $35

VERMONT NATURAL HISTORY

Wetland, Woodland, Wildland; A Guide to the Natural Communities of Vermont by Elizabeth H. Thompson & Eric R. Sorenson, 2000. A ground-breaking, comprehensive book on Vermont's natural communities, including descriptions of over 80 community types, their native species and places to visit. $20

The Nature of Vermont; Introduction and Guide to a New England Environment by Charles W. Johnson, 1980. An engaging narrative history. $17

Reading the Forested Landscape by Tom Wessels with Brian Cohen illustrator, 1997. Bill McKibben wrote, "Equal parts Sherlock Holmes and Aldo Leopold, it will help thousands of New Englanders answer the questions that come to mind when they walk this landscape of stone walls, stunted apple trees and towering hemlocks."$19

FIELD GUIDES

The Sibley Field Guide to Birds of Eastern North America by David Allen Sibley, 2003. A portable version of the Sibley guide, limited to Eastern birds; beautiful full-colored drawings and color-coded range maps. $20

A Field Guide to the Birds of Eastern and Central North America, 5th edition (Peterson Field Guides) by Roger Tory Peterson, 2002. A birding classic. Page numbers in *Birding by Ear's* booklet refer to the species descriptions in this book. $20

Birding by Ear: Eastern/Central North America (Peterson Field Guides) by Richard Walton and Robert Lawson, 1990. Teaches a unique system for distinguishing and remembering bird songs, using mnemonics and descriptive words. The authors have created learning groups of similar bird songs and clearly point out distinguishing characteristics. 3 CDs and guide booklet, $30

The Shrub Identification Book by George W. Symonds, 1963. Organized like the Tree Identification Books; a great tool for learning shrubs. $15

Helpful Guide for Identifying Shrubs (and a few trees) in Winter by Matt Tarr, 2003. A 10-page website. Lists diagnostic identification points for over 40 shrubs and some trees. Includes color pictures of twigs and buds.
http://extension.unh.edu/forestry/Docs/ShrubID.pdf

PARTNERS, ASSOCIATIONS & PROGRAMS

Vermont Coverts: Woodlands for Wildlife, Inc. COVERT is an English word dating to the 14th century, and refers to a dense thicket that provides shelter for wildlife.Vermont Covert's mission is to encourage and affect the maintenance, enhancement and/or creation of wildlife habitat on private forestlands in Vermont. Their Cooperator Training Program has trained over 300 volunteers and created an information network between landowners.
http://www.vtcoverts.org/

Natural Resources Conservation Service (NRCS). NRCS' Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat
primarily on private land. Through WHIP USDA's Natural Resources Conservation Service provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from 5 to 10 years from the datethe agreement is signed.
http://www.nrcs.usda.gov/Programs/whip/
Addison County office: George Tucker, 68 Catamount Park, Middlebury, VT (802) 388-6748
Chittenden County office: Danny Peet, 1193 South Brownell Rd, Williston, VT (802) 865-7895

WEB RESOURCES

http://www.audubon.org/bird/at_home/ National Audubon Society's "Audubon At Home"
http://birds.cornell.edu/ Cornell's Ornithology Lab
http://www.birds.cornell.edu/AllAboutBirds/attracting Cornell's Attracting Birds
http://www.anr.state.vt.us/ Vermont Agency of Natural Resources
http://www.vtfishandwildlife.com/index.cfm Vermont Fish and Wildlife Department
http://www.vtfpr.org/htm/forestry.cfm Vermont Division of Forestry - Acceptable Practices
http://www.vtfishandwildlife.com/wildlife_nongame.cfm VermontNongame & Natural Heritage Program
http://www.anr.state.vt.us/dec/dec.htm Vermont Department of Environmental Conservation
http://www.uvm.edu/mastergardener/ Vermont Master Gardeners with links to invasive plant info
http://www.uvm.edu/~ebuford/vtbird.html VTBird - UVM's listserv for VT bird sightings
http://www.ebird.org/VINS/ Vermont eBird - website to record bird sightings
http://www.northernwoodlands.org/ Northern Woodlands Magazine
http://www.newfs.org/index.html New England Wildflower Society
http://plants.usda.gov/ PLANTS Database-USDA & Natural Resources Conservation Service
http://www.nanps.org/index.shtml North American Native Plant Society
http://nature.org/initiatives/invasivespecies/ The Nature Conservancy
http://www.ncfcnfr.net/index.html National Community Forestry Center Northern Forest Region