

2015 Breeding Bird Habitat Report, Lawton Farm Recreation Area, Scituate Rhode Island



Prepared for: Scituate Conservation Commission

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September 2015

This study was conducted with funding from the Scituate Land Trust.

Suggested citation: Glinka, C., and R. McKinney. 2015. 2015 Breeding Bird Habitat Report, Lawton Farm Recreation Area, Scituate Rhode Island. Kingston, Rhode Island: Department of Natural Resources Science, University of Rhode Island.

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1. Executive Summary

This report describes the results of a series of breeding bird point count surveys conducted at the Lawton Farm Recreation Area in Scituate, Rhode Island between May and June 2015. To identify breeding birds and evaluate habitat preferences of different species, point count surveys were conducted at three sites within Lawton Farm representing shrubland, forest, and field habitats. In general, surveys results in 2015 were similar in species richness and showed a slight increase in overall bird abundance when compared to surveys conducted from 2012 -2014. Highlights of the 2015 survey results are listed below:

- 1) We observed 32 unique bird species in 2015 across the three sites. The five most abundant species were bobolink, American goldfinch, tufted titmouse, indigo bunting, and black-capped chickadee.
- 2) The total species richness recorded this year (32) was slightly less than that recorded in 2014 (35) but larger than both 2012 (28) and 2013 (25).
- 3) Total abundance across all sites in 2015 was 132 individuals, including nine unidentified individuals, and was similar to the abundance recorded in 2014 (133) but greater than that recorded in 2012 (90) and 2013 (93).
- 4) Five species were recorded this year that had not been recorded in previous years: Carolina wren, common grackle, northern mockingbird, veery, and yellow-billed cuckoo.
- 5) Fifteen shrubland species were observed in surveys this year with a total of 21 species over the four consecutive survey years (2012-2015). These findings suggest that Lawton Farm is providing important habitat for shrubland species.
- 6) Current management practices at Lawton appear to be successfully maintaining Field 1 as habitat for bobolink, and there is some anecdotal evidence bobolinks are beginning to use Field 2 since the removal of the hedgerow of mature trees in 2012 in order to connect Fields 1 and 2. Management for eastern meadowlark, another grassland bird target species, has not been as successful; however, that may be a result of the greater area requirements of this species or its overall rarity in the region.

Lawton Farm provides a number of unique habitats to a variety of bird species, and thus contributes to maintaining regional bird diversity within New England. From a conservation point of view this is extremely valuable as this area is helping to maintain and enhance local and regional biodiversity. The property is particularly important to shrubland species and a single grassland species, since both categories of birds have suffered regional declines due to habitat loss and forest succession in recent years. At the conclusion of this report, we provide some suggestions for conservation management actions, including maintaining current practices (e.g., late-season mowing of fields) and some additional actions that could benefit bird species diversity.

2. Introduction

This report describes the results of a series of breeding bird point count surveys conducted at the Lawton Farm Recreation Area in Scituate, Rhode Island between May and June 2015. Lawton Farm is a 54.4 acre parcel consisting primarily of open fields and shrubland, except for approximately 20 acres of forested wetlands and a small stand of upland hardwoods in the southwest corner. The ownership of the property is divided between the Scituate Land Trust, which purchased 39.4 acres (plat 9-1, lot 9) of the property via a conservation easement in 1990 through an Open Space Grant from the Rhode Island Department of Environmental Management (RIDEM), and the Town of Scituate, which purchased the remaining 15 acres (plat 9-1, lot 272) the same year (Town of Scituate, Real Estate Data). The 15 acres owned by the Town does not have a conservation easement or any other type of protection that would prevent development. The Scituate Town Council has assigned the task of managing the Lawton Farm property to the Scituate Conservation Commission (SCC). The SCC is an advisory board that works to promote and develop natural resources, protect watershed resources, and to preserve natural aesthetic areas within the Town of Scituate (Town of Scituate). A property management plan for Lawton Farm was developed in 2009¹ and the SCC continues to implement the conservation and management objectives described within the plan.

An important objective for the property is to maintain grassland habitat for the bobolink (*Dolichonyx oryzivorus*) and eastern meadowlark (*Sturnella magna*). To evaluate the progress of this management objective and to better understand bird use of the valuable shrub and grassland habitat that the property offers, point count surveys have been conducted since 2012. This report provides results of the fourth consecutive year of point count surveys at Lawton Farm.

¹ Tremblay, M. May 2009. Property Management Plan for Lawton Farm. Scituate Conservation Commission, Scituate, Rhode Island.

3. Methods

The 2015 point count surveys were conducted at the same sites used in the 2012-2014 surveys. The three sites were selected based on the different types of shrubland in addition to forest and field habitats (Table 1 and Figure 1).

Table 1. **Lawton Farm Sampling Sites 2015**

Site	Description
Site 1	Field with periodic mowing, forested perimeter
Site 2	Field, shrubland, and forest
Site 3	Shrubland created by irregular mowing of field, meadow, forest



Figure 1. Lawton Farm, Scituate, Rhode Island: 2015 sampling sites

Site 1: The first survey site was located in the central portion of the property on the edge of Field 1 (Figure 1; 41.75792° N, -71.55652° W, Figure 2). The field was bordered by small patches of shrubland to the north and west. This site included a hedgerow of mature trees which was removed in 2012 to connect Fields 1 and 2 to improve habitat for bobolink and other grassland bird species. The eastern portion of the shrubland was dominated by multiflora rose (*Rosa multiflora*) which transitioned into a small herbaceous wetland to the west. To the north of the shrubland was a small area of forest where red maple (*Acer rubrum*) and white ash (*Fraxinus americana*) are the dominant species. To the east and south of the sampling site was Field 1, which is mowed every other year to maintain grassland habitat; mowing occurs in September to prevent disturbance of nesting birds. The hay bales are sold as construction hay.



Figure 2: A view of Site 1 looking southerly with field 1 to the left. In an effort to improve nesting habitat for grassland species, this year some of the walking trails have been closed and allowed to naturally revegetate. The former walking path is just barely evident in the middle of the photo.

Site 2: The second sampling site was located in the western portion of the property on the southwestern edge of Field 3 (41.75715° N, -71.55952° W) adjacent to a patch of shrubland which began management in 2012 for invasive plant removal of species such as autumn olive (*Elaeagnus umbellata*) multiflora rose. Prominent species in this area included saplings of black cherry (*Prunus serotina*), Oriental bittersweet (*Celastrus orbiculatus*), and poison ivy (*Toxicodendron radicans*). The sampling site also included upland forest dominated by white ash and white oak (*Quercus alba*) (Figure 3).



Figure 3. A view of Site 2 looking northwest.

Site 3: The third sampling site was located in the northern boundary of the property on the northern edge of Field 4 (41.75745° N, -71.55952° W). Field 4 included patchy regeneration of saplings of black cherry, American ash, and white oak. This sampling site provided the most heterogeneous vegetation mixture which contained short grasses and forbs interspersed with shrubs that measure up to four feet tall (Figure 4). White oak and American ash were the dominant species within the upland forest located on the northern limits of the survey site.



Figure 4. A south-facing view of the heterogeneous shrub habitat at Site 3. The forested line in the background divides this site from Site 2.

The methodology used in the 2015 point count surveys followed the same protocol used in the 2012-2014 surveys. The purpose of the point count surveys was to identify breeding birds within Lawton Farm and to evaluate habitat preferences of different species. The three selected survey sites were separated by a distance of greater than 100 m to minimize the possibility recording the same bird at more than one site. Point counts were preceded by a five minute wait period in order to minimize the disturbance to birds and to allow them to acclimate to the observers' presence. Point counts were conducted by a primary observer facing north (R. McKinney) and a secondary observer facing south (C. Glinka) in order to achieve a 360° view of the site. Species identification and abundance were recorded based on songs, calls, direct observations, and fly overs within 100 m of the observation site during each ten minute point count. Observers made distinctions between birds present ≤ 50 m from the site and those between 50 and 100 m from the site. Observers communicated to avoid recording the same bird twice and to clarify location and species. Each site was surveyed on three separate occasions on May 26th, June 10th and 29th, 2015 and all were conducted between 0630 and 0830 hours.

4. Results

We observed 32 unique bird species in 2015 across the three sites during the three survey periods (Table 2). The most abundant species were bobolink (15 records), American goldfinch (*Carduelis tristis*; 10 records), tufted titmouse (*Baeolophus bicolor*; 9 records), indigo bunting (*Passerina cyanea*; 9 records), and black-capped chickadee (*Poecile atricapilla*; 6 records). Other prominent species, each with 5 records, included red-winged blackbird (*Agelaius phoeniceus*), American robin (*Turdus migratorius*), and red-eyed vireo (*Vireo olivaceus*). Bobolinks continue to be observed at Lawton Farm in substantial numbers in Field 1 where they nest and use the area for foraging and cover. Like the previous surveys, bobolink were not observed at Sites 2 or 3 which include shrub habitats that are less suitable to the bobolink. American goldfinch showed preferences for Sites 1 and 3. Black-capped chickadee was observed at Sites 2 and 3, and the indigo bunting tufted titmouse were recorded most frequently at Site 3.

Ten species were present at all three sites: American goldfinch, American robin, Baltimore oriole (*Icterus galbula*), common yellowthroat (*Geothlypis trichas*), indigo bunting, northern mockingbird (*Mimus polyglottos*), prairie warbler (*Dendroica discolor*), red-eyed vireo, tufted titmouse, and wood thrush (*Hylocichla mustelina*). This shows a higher degree of species range than in previous years: 2012 had four species at all sites, 2013 had six species at all sites, and 2014 had four species at all sites. The American robin is the only species to consistently occur at all three sites over the four year survey period.

The total species richness recorded this year (32) was slightly less than that recorded in 2014 (35) but larger than both 2012 (28) and 2013 (25). There were five species that were recorded this year that had not been recorded in previous years: Carolina wren (*Thryothorus ludovicianus*), common grackle (*Quiscalus quiscula*), northern mockingbird, veery (*Catharus fuscescens*) and yellow-billed cuckoo (*Coccyzus americanus*).

An additional three species were observed outside of the point count locations but within the property: blue-winged warbler (*Vermivora pinus*), great blue heron (*Ardea herodias*), and ruby-throated hummingbird (*Archilochus colubris*).

There were 20 species that were recorded in previous surveys that were not observed during this year's point counts: American crow (*Corvus brachyrhynchos*), barn swallow (*Hirundo rustica*), black-throated blue warbler (*Dendroica caerulescens*), blue-winged warbler, brown thrasher (*Toxostoma rufum*), Chipping sparrow (*Thryothorus ludovicianus*), downy woodpecker (*Picoides pubescens*), eastern kingbird (*Tyrannus tyrannus*), eastern wood-peewee (*Contopus virens*), hairy woodpecker (*Picoides villosus*), Great crested flycatcher (*Myiarchus crinitus*), house wren (*Carpodacus mexicanus*), magnolia warbler (*Dendroica magnolia*), mallard (*Anas platyrhynchos*), mourning dove (*Zenaidura macroura*), northern flicker (*Colaptes auratus*), palm warbler (*Dendroica palmarum*), ring-necked pheasant (*Phasianus colchicus*), tree swallow (*Tachycineta bicolor*), and willow flycatcher (*Empidonax traillii*).

Over the four consecutive years the surveys have been carried out, a total of 50 unique species have been recorded at Lawton Farm. Total abundance across all sites in 2015 was 132 individuals, including nine unidentified individuals, and was similar to the abundance recorded in 2014 (133) and exceeded abundance recorded in 2012 (90) and 2013 (93).

Table 2. Abundance of bird species observed within 100 m of the point count center during 10 minute counts at three sites within Lawton Farm Recreation Area, Scituate, Rhode Island, in 2012, 2013, 2014, and 2015. Observations were based on singing, calls, visual observation, and fly overs. Those species marked with an asterisk are designated as core shrubland species in New England (Schlossberg and King 2007). Those marked with a double asterisk are designated as grassland species (Natural Resource Conservation Service 1999).

Common name	Scientific name	Shrubland birds	2012			2013			2014			2015		
			Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3
American crow	<i>Corvus brachyrhynchos</i>		0	0	1	0	0	0	0	2	0	0	0	0
American goldfinch*	<i>Carduelis tristis</i>	Yes	0	0	1	0	0	1	3	2	0	4	1	5
American robin	<i>Turdus migratorius</i>		3	3	2	4	2	3	2	3	1	1	2	2
Baltimore oriole	<i>Icterus galbula</i>		0	0	1	0	3	2	0	0	0	1	2	2
Barn swallow	<i>Hirundo rustica</i>		0	0	0	0	0	0	3	0	1	0	0	0
Black-capped chickadee	<i>Poecile atricapilla</i>		0	0	1	0	0	0	0	2	2	0	2	4
Black-throated blue warbler	<i>Dendroica caerulescens</i>		0	0	0	0	0	0	0	0	1	0	0	0
Blue jay	<i>Cyanocitta cristata</i>		0	2	0	0	2	0	1	0	0	1	2	0
Blue-winged warbler*	<i>Vermivora pinus</i>	Yes	1	0	0	0	0	0	0	0	0	0	0	0
Bobolink**	<i>Dilichonyx oryzivorus</i>		3	0	0	16	0	0	16	0	0	15	0	0
Brown thrasher*	<i>Toxostoma rufum</i>	Yes	0	0	0	0	0	0	0	0	1	0	0	0
Carolina wren*	<i>Thryothorus ludovicianus</i>		0	0	0	0	0	0	0	0	0	0	1	1
Cedar waxwing*	<i>Bombycilla cedorum</i>	Yes	3	1	0	2	0	0	0	0	0	0	0	1
Chestnut-sided warbler*	<i>Dendroica pensylvanica</i>	Yes	0	0	0	0	0	0	1	0	0	2	0	0
Chipping sparrow	<i>Spizella passerine</i>		0	0	0	0	1	0	0	0	1	0	0	0
Common grackle	<i>Quiscalus quiscula</i>		0	0	0	0	0	0	0	0	0	0	0	1

Common name	Scientific name	Shrubland birds	2012			2013			2014			2015		
			Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3
Common yellowthroat*	<i>Geothlypis trichas</i>	Yes	2	0	0	0	0	1	4	2	1	2	1	1
Downey woodpecker	<i>Picoides pubescens</i>		0	0	0	1	0	0	0	0	0	0	0	0
Eastern kingbird	<i>Tyrannus tyrannus</i>		0	0	0	1	0	0	0	0	0	0	0	0
Eastern phoebe	<i>Sayornis phoebe</i>		0	0	0	0	0	0	1	1	0	0	1	0
Eastern towhee*	<i>Pipilo erythrophthalmus</i>	Yes	0	2	3	0	2	1	0	0	4	0	2	2
Eastern wood-pewee	<i>Contopus virens</i>		0	1	1	1	0	0	0	0	0	0	0	0
Field sparrow*	<i>Spizella pusilla</i>	Yes	0	0	0	0	0	0	0	0	3	0	1	0
Gray catbird*	<i>Dumetella carolinensis</i>	Yes	2	1	0	3	2	0	1	3	1	1	1	0
Great crested flycatcher	<i>Myiarchus crinitus</i>		0	0	1	0	0	0	0	0	0	0	0	0
Hairy woodpecker	<i>Picoides villosus</i>		0	1	0	0	0	0	0	0	0	0	0	0
House finch	<i>Carpodacus mexicanus</i>		0	0	1	0	0	0	0	0	0	0	0	1
House wren*	<i>Troglodytes aedon</i>	Yes	0	0	0	0	0	2	0	0	2	0	0	0
Indigo bunting*	<i>Passerina cyanea</i>	Yes	0	0	0	0	1	1	0	0	1	2	1	6
Magnolia warbler*	<i>Dendroica magnolia</i>	Yes	0	2	0	0	0	0	0	0	0	0	0	0
Mallard	<i>Anas platyrhynchos</i>		0	0	0	0	3	0	3	2	0	0	0	0
Mourning dove	<i>Zenaida macroura</i>		0	0	0	0	0	0	3	0	0	0	0	0
Northern cardinal*	<i>Cardinalis cardinalis</i>	Yes	0	0	1	1	1	2	1	1	0	0	3	0
Northern flicker	<i>Colaptes auratus</i>		0	0	0	0	0	0	1	0	0	0	0	0
Northern mockingbird*	<i>Mimus polyglottos</i>		0	0	0	0	0	0	0	0	0	1	0	1
Ovenbird	<i>Seiurus aurocapillus</i>		0	0	0	2	1	1	0	0	1	1	1	1

Common name	Scientific name	Shrubland birds	2012			2013			2014			2015		
			Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3
Palm warbler*	<i>Dendroica palmarum</i>		0	0	0	0	0	0	0	1	0	0	0	0
Prairie warbler*	<i>Dendroica discolor</i>	Yes	0	0	0	0	0	0	0	1	1	1	2	1
Red-bellied woodpecker	<i>Melanerpes carolinus</i>		1	0	0	0	0	0	0	2	0	1	1	0
Red-eyed vireo	<i>Vireo olivaceus</i>		0	1	1	1	2	1	0	2	1	1	2	2
Red-winged blackbird	<i>Agelaius phoeniceus</i>		12	4	5	4	2	1	18	1	0	4	0	1
Ring-necked pheasant**	<i>Phasianus colchicus</i>		0	0	1	0	0	0	0	0	1	0	0	0
Scarlet tanager	<i>Piranga olivacea</i>		0	1	0	0	0	0	0	0	0	1	0	1
Song sparrow*	<i>Melospiza melodia</i>	Yes	3	0	3	1	1	1	5	2	5	1	0	0
Tree swallow	<i>Tachycineta bicolor</i>		5	2	1	3	0	0	5	1	0	0	0	0
Tufted titmouse	<i>Baeolophus bicolor</i>		2	3	1	0	2	1	0	1	2	2	3	4
Veery	<i>Catharus fuscescens</i>		0	0	0	0	0	0	0	0	0	0	1	0
White-breasted nuthatch	<i>Sitta carolinensis</i>		0	0	0	0	0	0	1	0	0	0	3	1
Willow flycatcher*	<i>Empidonax traillii</i>	Yes	1	0	0	0	0	0	0	0	0	0	0	0
Wood thrush	<i>Hylocichla mustelina</i>		0	0	0	0	0	1	0	1	1	1	1	2
Yellow warbler*	<i>Dendroica petechia</i>	Yes	2	0	0	6	0	1	3	0	0	2	2	1
Yellow-billed cuckoo*	<i>Coccyzus americanus</i>		0	0	0	0	0	0	0	0	0	0	0	1
Total Abundance			40	26	25	47	26	20	72	30	31	45	36	42

Fifteen of the 32 bird species recorded during the surveys this year are classified as shrubland birds in southern New England (Schlossber and King 2007). Fifteen is the highest number of shrubland species recorded over the four-year survey period, which includes 21 shrubland species in total. Three new shrubland species recorded this year were Carolina wren, northern mockingbird, and yellow-billed cuckoo. Additionally, two of the species observed on the property outside of the survey period, hummingbird and blue-winged warbler, have also been classified as shrubland species. Shrubland birds are defined by Scholssberg and King (2007) as species that would benefit from the creation of new shrubland habitat in New England.

Only one grassland species, the bobolink, was recorded during the 2015 surveys. Bobolinks have consistently been recorded at Site 1, though they have not been observed at Sites 2 or 3 over the four year survey period. The only other grassland species to be recorded at Lawton Farm is the ring-necked pheasant, though it was not observed this year.

In terms of species' preference of the survey locations, they were all relatively similar when considering both abundance and species richness. Sites 2 and 3 had the greatest species richness with a total of 22 species per site. Site 1 was similar with a total of 20 distinct species observed. In terms of abundance and factoring in unidentified species (nine total), Site 1 had the most individuals recorded (46), Site 3 had 45 individuals, and Site 2 had the least with 41 individuals.

5. Discussion

Lawton Farm Recreation Area is a unique property because it combines several different habitat varieties, including grassland, shrubland, and forest, that are suited to a diverse group of bird species. Grassland habitat in the northeast US is shrinking largely due to the decline in the agricultural industry in the northeast (U.S. Department of Agriculture 2010). The abandonment of farms has led to forest succession, varied land use development and fragmentation of grassland (U.S. Department of Agriculture 2010). Additionally, earlier and more frequent hay harvests do not provide sufficient time for grassland birds to complete their nesting cycle (U.S. Department of Agriculture 2010). These declines in grassland habitat have caused declines in bird species that are exclusively dependent on grassland, such as bobolink and eastern meadowlark. Bobolink populations in the northeast are locally common, but their population levels have been in decline since the early 1990s due to the loss of grasslands and agricultural fields (DeGraaf and Yamasaki 2001). Like other grassland birds, bobolink nest on the ground in dense stands of hay and grass and thus it is important that grasslands are not actively managed (e.g. mowed) during their nesting period between early May and late June (DeGraaf and Yamasaki 2001). A key management priority of the Scituate Land Trust is to improve habitat for bobolink and eastern meadowlark, both of which are grassland-dependent species. Bobolinks prefer to nest in large fields with grass heights that range from medium to tall (between 25 and 50 cm) (Herkert 1994, NRCS 1999; USFWS 2001) and Field 1 satisfies this habitat requirement. Survey data from 2012-2015 show that bobolink have been present each year at Site 1 adjacent to Field 1 and that their abundance has been consistent between 2013 and 2015 with 15 to 16 individuals recorded per year. Bobolink have not been observed elsewhere in the property during official point count surveys, although some individuals were observed outside of the survey period in Field 2 in 2014 and 2015. This suggests that management practices designed to enhance grassland bird nesting habitat (i.e., removal of the hedgerow of mature trees in 2012 in order to connect Fields 1 and 2) may be having a positive impact.

In conjunction with creating and preserving breeding habitat for the bobolink, one of the official management goals is to provide breeding habitat the eastern meadowlark, another grassland species with habitat requirements similar to those of the bobolink (NRCS 1999). A bird species inventory was conducted in 2010 and 2011 in Lawton Farm which inventoried the type of species present within the property without regard to abundance or location (SCC 2010, 2011). Eastern meadowlark was recorded in the 2010 inventory, however there have been no records of this species since then. The lack of eastern meadowlark presence at Lawton Farm may be due to habitat area requirements. Grassland species require large areas of land to successfully breed and forage, and research has shown that despite proper management practices, grassland parcels less than 25 acres will have lower grassland species diversity (U.S. Department of Agriculture 2010). The minimum estimated area requirement of eastern meadowlarks is 12 acres (Herkert 1994), although in another study meadowlarks were recorded more than twice as often at sites of 50 to 250 acres than sites that were less than 50 acres (Herkert 1991). Other research studies have suggested that meadowlark occurrence increases with increased area (Vickery et al. 1994). Specific habitat area requirements and the relatively small size of the fields at Lawton Farm are likely factors in the lack of grassland species diversity at Lawton Farm.

In total, Lawton Farm is composed of approximately 55 acres, however, each of the four fields are fragmented by thin strips of forested area or recreational walking paths. Field 1 is the largest at approximately 17 acres. Therefore, while Lawton Farm's individual fields are not large enough to attract a high diversity and abundance of grassland species, certain management practices can be enacted to increase the attractiveness of the property to grassland species. Management practices that have been successful in attracting eastern meadowlarks and other grassland species include: 1) Promoting greater forb density and diversity by interseeding forb species in grassland plantings to improve overall habitat quality and food sources (Hull 1993; Klute 1994; Niesar 1994; Hull et al. 1996; Klute et al. 1997); 2) limiting the encroachment of woody vegetation within and along periphery grassland habitat to discourage predators and enlarge the amount of interior grassland (Herkert 1994; Sample and Hoffman 1989; Winter 1998); and 3) cutting after the breeding seasons (typically mid-August) to maintain the habitat as grassland and allow birds to have sufficient time to complete their nesting cycle (U.S. Department of Agriculture 2010). To maintain optimal conditions, fields should be cut every one to three years with the hay and/or grass removed. This will keep succession of shrubs to a minimum and provide better conditions for spring grass growth (U.S. Department of Agriculture 2010). If hay stubble is not removed then forbs will out-compete grasses and the fields take longer to green up in the spring, making them less attractive to grassland species (U.S. Department of Agriculture 2010).

Currently, SCC enacts some of the above recommended measures, including mowing during or after September on a biennial basis. SCC also has been conducting invasive plant removal during the last four years, including the removal of invasive woody vegetation such as autumn olive and glossy buckthorn (*Rhamnus frangula*). Additionally, as noted in Figure 2, some of the walking trails have been closed and allowed to naturally revegetate to prevent disturbance to nesting habitat.

In contrast to the limited diversity of grassland species that Lawton Farm currently supports, there is a much higher species abundance and richness of shrubland species. Researchers have stressed the importance of creating shrubland habitat in New England (Chandler et al. 2009; DeGraaf and Yamasaki 2003; Schlossberg and King, 2007), because presently shrubland habitats are at or near historic lows in the northeast following an 80-year decline in anthropogenic and natural disturbances that work to sustain shrubland habitat (King and Schlossberg 2012). The decline in shrubland habitat has caused the population levels of shrubland-dependent species to decline (Askins 1993). In New England, 21 shrubland bird species have experienced long- or short-term declines, with the most severe declines occurring in southern New England (King and Schlossberg 2012). Specifically in Rhode Island, shrubland habitat is expected to continue to decrease without more active forest management (Buffum et al. 2011). Shrubland habitats depend on disturbance to maintain their low shrub-dominant characteristics and otherwise revert to conditions unsuitable for shrubland birds within one to two decades due to natural forest succession (King and Schlossberg 2012).

Fifteen shrubland species were observed in surveys this year with a total of 21 shrubland species over the four consecutive survey years (2012-2015). These findings suggest that Lawton Farm is well suited for shrubland species. An important recent management finding regarding the

majority² of shrubland birds is that they do not prefer edge habitat as previously thought (King and Schlossberg 2012). Therefore, small or irregular patches of shrubland habitat with edges typically attract lower abundances of shrubland species than those habitats without edge (King and Schlossberg 2012). Another interesting aspect of shrubland species' habitat selection is the role of invasive plant species. While invasive plant species are typically considered a blight to bird habitat (invasive plant removal is an on-going management strategy at Lawton Farm), several studies have demonstrated either equal nest success of shrubland species between native and non-native plant patches or increased nest success with the prevalence of invasive plant species (King and Schlossberg 2012). The improved nesting success tied to invasive plants may be attributed to the denser cover provided by invasive plants (King and Schlossberg 2012). Therefore, while management actions should favor native plants, the nesting success tied to the substrate function of invasive plants should be considered in management decisions (King and Schlossberg 2012). Additionally, while habitat preferences vary between different shrubland species, they generally require smaller territory ranges than grassland species (King and Schlossberg 2012).

Lawton Farm provides a number of unique habitats to a variety of bird species. From a conservation point of view this is extremely valuable as Lawton Farm is helping to maintain and enhance local and regional biodiversity. The property is particularly important to shrubland species and a single grassland species, with both categories of birds suffering declines due to habitat loss and forest succession in recent years. Bobolinks and shrubland birds have strong site fidelity, meaning they return to the same breeding site year after year. If their nesting sites are destroyed these populations will often decline or die out (Schlossberg 2009). Based on the habitat loss these species are experiencing, it is important to maintain grassland and shrubland habitat. Management strategies that the Scituate Land Trust can employ to maximize the appeal of Lawton Farm to grassland and shrubland species include:

- 1.) Mowing Fields 1 & 2 every one to three years after mid-August to ensure that birds have completed their nesting cycle.
- 2.) Removal of edge habitat; both shrubland and grassland species avoid edges and Lawton Farm's fields are fragmented by thin forest stands.
- 3.) Control the successional growth of woody vegetation; this may be a difficult balance to strike since grassland species decline in areas after woody shrubs have taken hold and shrubland species preferences are wider ranging. Some shrubland species prefer taller vegetation (>1.5 m) with abundant shrub cover while others prefer lower shrubs (<1.5 m) and more abundant forb cover (King and Schlossberg 2012). It will be prudent to decide which tracts of land should be managed for particular species groups and how large they should be, keeping in mind that grassland species require larger areas than shrubland species. Currently Site 1 is best suited for grassland species (e.g. bobolink) and Site 2 and 3 are better suited for shrubland species.

² Note that this does not necessarily apply to all shrubland bird species. Some shrubland species such as the gray catbird and eastern towhee actually prefer habitats with forested edges (Audubon Guide to North American Birds, <https://www.audubon.org/field-guide/bird/eastern-towhee> and <https://www.audubon.org/field-guide/bird/gray-catbird>. Accessed September 20, 2015).

- 4.) Consider the value of invasive plant species to nesting success of shrubland species in future invasive management plans. It may not be necessary to completely replace all invasive plants with native varieties.
- 5.) If feasible, place a conservation easement on the 15 acres of the property owned by the Town of Scituate. A review of the Town of Scituate's 2004 Comprehensive Plan reveals that one of the proposed policies with regard to open space management is to implement the following strategy set forth in the 1990 Recreation, Conservation and Open Space Plan: "It is recommended that the playfield deficiency in the Hope Area [of Scituate] be eliminated through the development of 15 acres at the Lawton Farm site on Seven Mile Road, while maintaining 35 acres for conservation that could be utilized for open space with the introduction of walking trails." The 15 acres discussed in the Open Space Plan represent the only area within the entire property where the bobolink breed. The loss of this habitat to potential development for sports recreation fields would remove a valuable bobolink nesting area in the region.
- 6.) Ensure that people and pets who recreate at Lawton Farm stay on the trails during the spring and summer to avoid disturbing nesting birds. Since most shrubland and grassland birds nest on the ground they are particularly vulnerable to disturbance. Currently signage on the property has mixed messages with a "no dogs allowed sign" and another sign stating that dogs are not allowed between the dates of April 1 through August 31. Additionally, a dog waste bag dispenser is located next to these signs. Applying signage with more direct language may reduce the incidence of dog recreation during the nesting season.

Overall the surveys conducted this year indicate that the diversity and abundance of birds nesting and foraging at Lawton Farm have been maintained at 2014 levels. While this is encouraging, inter-annual differences in birds detected at the sites may result from imperfect detection probabilities (e.g., some species will not be detected during a given survey or series of surveys even if present), or from changes in the habitats (either through ecological succession or management action) during the course of the year. In order to track bird use of the valuable bird habitat at Lawton Farm and bird response to changes in management technique, it is recommended that future annual surveys be conducted at Lawton Farm.

Literature Cited

- Askins, R.A. 1993. Population trends in grassland, shrubland, and forest birds in eastern North America. *Current Ornithology* 11: 1-34.
- Buffum, B., McWilliams, S.M., August, P.V. 2011. A spatial analysis of forest management and its contribution to maintaining the extent of shrubland habitat in southern New England, United States. *Forest Ecology and Management*. 262, 1775-1785.
- Buffum, B., McKinney, R. 2012. Breeding birds and forest management in Lawton farm recreation area, Scituate Rhode Island. Kingston, Rhode Island: Department of Natural Resources Science, University of Rhode Island.
- Chandler, R.B., King, D.I., Chandler, C.C. 2009. Effects of management regime on the abundance and nest survival of shrubland birds in wildlife openings in northern New England, USA. *Forest Ecology and Management*. 258, 1669-1676.
- DeGraaf, R.M., and M. Yamasaki. 2001. New England wildlife: habitat, natural history, and distribution. University Press of New England. 487pp.
- DeGraaf, R.M., Yamasaki, M. 2003. Options for managing early-successional forest and shrubland bird habitats in the northeastern United States. *Forest Ecology and Management*. 185, 179-191.
- Glinka, C., and R. McKinney. 2014. 2014 Breeding Bird Habitat Report, Lawton Farm Recreation Area, Scituate Rhode Island. Kingston, Rhode Island: Department of Natural Resources Science, University of Rhode Island.
- Herkert, J.R. 1991. An ecological study of the breeding birds of grassland habitats within Illinois. Ph.D. thesis. University of Urbana-Champaign, IL.
- Herkert, J.R. 1994. The effects of habitat fragmentation on Midwestern grassland bird communities. *Ecological Society of America*. 4, 461-471.
- Hull, S.D. 1993. Avian, invertebrate and forb abundance in Conservation Reserve Program fields in northeast Kansas, with notes on avian behavior. M.S. thesis. Kansas State University, Manhattan, Kansas. 141 pages.
- Hull, S.D., Robel R.J., Kemp, K.E. 1996. Summer avian abundance, invertebrate biomass, and forbs in Kansas CRP. *Prairie Naturalist* 28: 1-12.
- King, D.I., Schlossberg S.R. 2012. Conservation practices benefit shrubland birds in New England. Conservation Effects Assessment Project, Natural Resources Conservation Service.
- Klute, D.S. 1994. Avian community structure, reproductive successes, vegetative structure, and food availability in burned Conservation Reserve Program fields and grazed pastures in northeastern Kansas. M.S. thesis. Kansas State University, Manhattan, Kansas. 168 pages.
- Klute, D.S., Robel, R.J., Kemp, K.E. 1997. Will conversion of Conservation Reserve Program (CRP) lands to pasture be detrimental for grassland birds in Kansas? *American Midland Naturalist*. 137: 206-212.
- Natural Resource Conservation Service. October 1999. Grassland birds, Fish and Wildlife habitat management leaflet, number 8. Available online at: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_009930.pdf. Accessed September 20, 2015.
- Niesar, S.L. 1994. Vertebrated richness of Waterfowl Production Areas in the Prairie Pothole region of Minnesota. M.S. thesis. South Dakota State University, Brookings, South Dakota. 104 pages.

- Payne, D., McKinney, R., Buffum, B. 2013. 2013 Breeding bird habitat report, Lawton Farm recreation area, Scituate, Rhode Island. Department of Natural Resources Science, University of Rhode Island.
- Sample, D.W., and Hoffman, R.M. 1989. Birds of dry-mesic and dry prairies in Wisconsin. *Passenger Pigeon* 51: 195-208.
- Schlossberg, S. 2009. Site fidelity of shrubland and forest birds. *The Condour*. 111, 238-246.
- Schlossberg, S and King, D. 2007. Ecology and Management of Scrub-shrub Birds in New England: A Comprehensive Review. USDA Natural Resources Conservation Service, Resource Inventory and Assessment Division: Beltsville, Maryland, USA. 120 p.
- Scituate Conservation Commission. 2010 Bird Species Inventory for Lawton Farm. Available online at: <http://www.scituatericonservation.org/publications.htm>. Accessed September 13, 2015.
- Scituate Conservation Commission. 2011 Bird Species Inventory for Lawton Farm. Available online at: <http://www.scituatericonservation.org/publications.htm>. Accessed September 13, 2015.
- State of Rhode Island Division of Planning. 1990. Recreation, Conservation, and Open Space Plan for the Town of Scituate.
- Town of Scituate, Rhode Island. Conservation Commission. <http://www.scituatericonservation.org/index.htm>. Accessed September 13, 2015.
- Town of Scituate, Rhode Island. 2004. Comprehensive Plan.
- Tremblay, M. 2009. Property Management Plan, Lawton Farm, Scituate Conservation Commission, Scituate, Rhode Island.
- United States Department of Agriculture, Natural Resource Conservation Service. 2010. Management considerations for grassland birds in northeastern haylands and pasturelands. *Wildlife Insight*. Washington, DC.
- United States Fish and Wildlife Service. 2001. Eastern meadowlark habitat model. USFWS Gulf of Main Watershed Habitat Analysis. Available at: http://www.fws.gov/r5gomp/gom/habitatstudy/metadata/eastern_meadowlark_model.htm. Accessed September 20, 2015.
- Vickery, P.D., Hunter Jr. M.L., Melvin S.M. 1994. Effects of habitat area on the distribution of grassland birds in Maine. *Conservation Biology*. 8(4): 1087-1097.
- Winter, M. 1998. Effect of habitat fragmentation on grassland-nesting birds in southwestern Missouri. Ph.D. dissertation. University of Missouri, Columbia, Missouri. 215 pages.