# Breeding Bird Survey Report Lawton Farm Recreation Area, Scituate, Rhode Island



Prepared for: Scituate Conservation Commission Lincoln Dark August 2023

### 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 during May and June of 2023. To identify breeding bird species and evaluate habitat preferences of these species, point count surveys were conducted at three sites on the property representing shrubland, forest, and field habitats. The results of these surveys showed a decrease of species richness with a total of 39 unique species observed across the 3 sites. Highlights of the 2023 survey results are listed below.

- The total number of species observed this year (39) was lower than observed in 2022 (56). This year, the most abundant species were the Gray Catbird (22), Eastern Towhee (20), Bobolink (16), Yellow Warbler (11), and Brown-headed Cowbird (11).
- 2) Over the 12 consecutive years that these surveys have been conducted on the property, 78 unique species have been observed at Lawton Farm.
- *3)* Bobolink continue to be observed at Lawton Farm in Field 1, and unlike 2022, were seen in Field 3, though only a single individual.
- *4) Total abundance across all sites in 2023 was 194, a 73% decrease compared to the results of the 2022 survey series.*
- 5) Thirteen shrubland species were observed during all surveys in 2023, which is fewer than the eighteen observed in 2022. A total of 20 unique shrubland species have been reported over the past 10 survey years (2012-2022).

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#### 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 in May and June 2023. 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. 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. A property management plan for Lawton Farm was developed in 2009 and the SCC continues to implement the conservation and management objectives described within the plan.

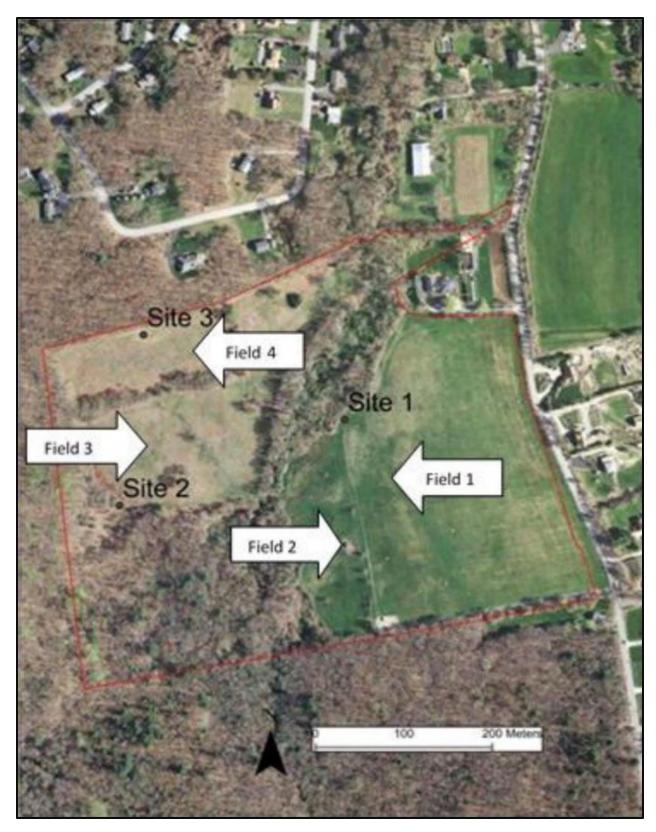
An important objective for the property is to maintain grassland habitat for Bobolink (*Dolichonyx oryzivorous*) and Eastern Meadowlark (*Sturnella magna*). To evaluate the progress of this management objective and to better understand bird use of the valuable shrub and grassland habitat that the property offers, point count surveys have been conducted since 2012. This report provides results of the 12th consecutive year of point count surveys at Lawton Farm.

### 3. Methods

The 2023 point count surveys were conducted at the same sites used in the 2012-2021 surveys. The three sites were originally selected based on the different types of shrubland in addition to forest and field habitats (Table 1 and Figure 1).

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

 Table 1. Lawton Farm point count site habitat descriptions 2023.



*Figure 1.* Point count sampling sites at Lawton Farm, Scituate, Rhode Island in 2020. These sites are the same as the point counts conducted from 2012-2023.

**Site 1:** The first survey site was 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 5 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. Bluebird nesting boxes have been maintained in this field in over the last 4 years.



Figure 2. View from Site 1 facing South.

**Site 2**: The second sampling site was 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 umbellate*) and multiflora rose. Prominent species in this area included saplings of black cherry

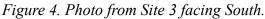
(*Prunus serotina*), Oriental bittersweet (*Celastrus orbiculatus*), and poison ivy (*Toxicodendron radicans*). The sampling site also included upland forest dominated by white ash and white oak (*Quercus alba*) (Figure 3).



Figure 3. Photo of survey site 2.

**Site 3:** The third sampling site was along 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.





The methodology used in the 2023 point count surveys followed the same protocol used in the 2012-2022 surveys, with the exception that they were conducted the last 5 years by one observer instead of two. 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 greater than 100 m to minimize the possibility recording the same bird at more than one site. Point counts were preceded by a three-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 south for half of the time and north for the rest of the time to achieve a  $360^{\circ}$  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. The observer made distinctions between birds present  $\leq 50$  m from the site and those between 50 and 100 m from the site. Each site was surveyed on three separate occasions on May  $25^{\text{th}}$ , June  $12^{\text{th}}$  and June  $25^{\text{th}}$  2023, and all were conducted between 0600 and 0700 hours.

To examine bird species associations with the survey sites, we classified birds into five guilds based on their preferred nesting and foraging habitat. Shrubland birds were those identified as primarily nesting in shrub habitat according to King and Schlossberg (2012). Forest

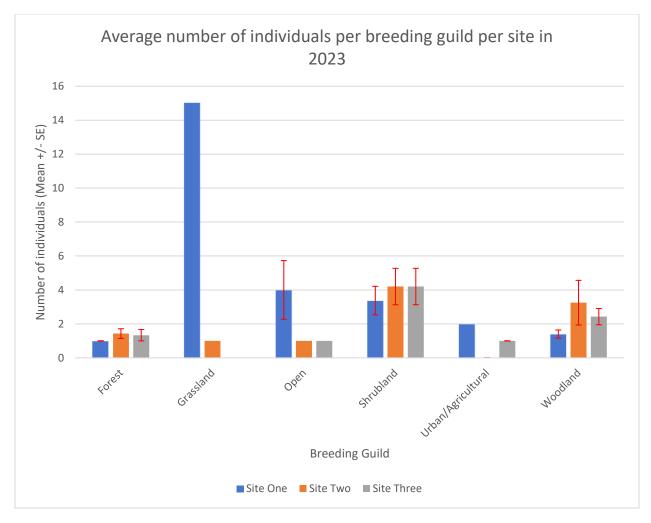
birds were those described as cavity nesting species by Scott et al. (1977). Woodland, grassland, and open habitat birds were classified based on their primary habitat preference listed in Ehrlich et al. (1988).

#### 4. Results

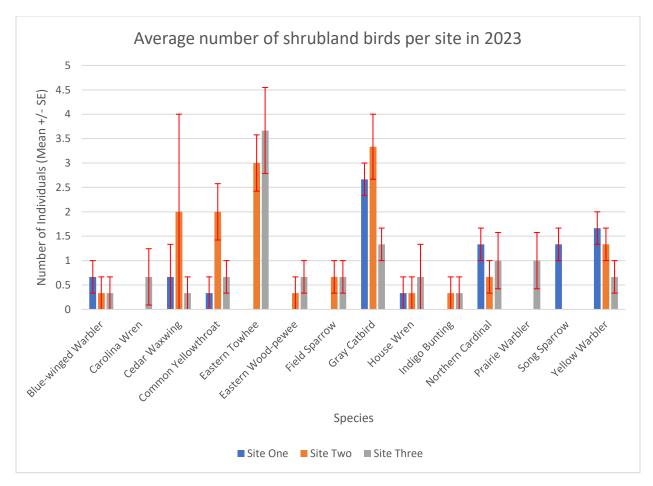
We observed 35 unique bird species within 50 meters in 2023 across the three survey sites during the three survey periods, 21 fewer species than were observed in 2022. An additional 4 species were detected within 50 – 100 meters of each survey site, adding up to a total of 39 unique species. The most abundant species were Gray Catbird (*Dumetella carolinensis*; 22 observed), Eastern Towhee (*Pipilo erythrophthalmus*; 20 observed), Bobolink (*Dolichonyx oryzivorus*; 16 observed), Yellow Warbler (*Setophaga petechia*; 11 observed), and Brown-headed Cowbird (*Molothrus ater*; 11 observed). The Bobolinks were observed in the greatest numbers in Field 1 where they nest and use the area for foraging and cover. However, there was a single observation of one individual in Field 3; nesting was not confirmed. No Bobolinks were detected in Field 2 or 4. Over the 12 consecutive years that this series of surveys has been conducted, a total of 78 unique species have been observed at Lawton Farm. This was the first year where the Blue-gray Gnatcatcher (*Polioptila caerulea*) was recorded during these surveys. Despite being observed in the past, this was also the first year where the Warbling Vireo (*Vireo gilvus*) was observed during the primary breeding season.

9 different species were present at all 3 survey sites, and 20 other species were present at least two sites. Site 1 had 8 unique recorded species (species only recorded at site 1), while site 2 had 5, and site 3 had 6 unique recorded species (Table 3). 21 species were recorded at site 1 over the 3 survey days, 23 species were recorded at site 2, and 25 species at site 3. The guild with the greatest number of individuals detected across all survey sites was the shrubland guild (103 individuals detected), followed by the woodland guild (35 individuals detected), the forest guild (19 individuals detected), the open land guild (18 individuals detected), the grassland guild (16 individuals detected), and finally the urban/agricultural guild (3 individuals detected). Furthermore, the only grassland guild species observed in 2023 was the Bobolink.

Thirteen species of the 39 unique species observed in 2023 were shrubland bird species, a slight decrease from the 18 shrubland species observed in 2022. The most abundant shrubland bird at site 1 were Gray Catbirds (total count=8). At site 2, Gray Catbirds (total count=10) were also the most abundant shrubland species. At site 3, Eastern Towhees (total count=11) were most abundant. Site 3 had the highest number of shrubland species (n=12), followed by site 2 (n=10), then site 1 (n=7). Despite being observed in the past, neither Palm Warblers (*Setophaga palmarum*) or Willow Flycatchers (*Empidonax traillii*) were observed in 2023.



*Figure 5.* The number of individuals (mean +/- standard error) in the forest, grassland, open, shrubland, urban/agricultural, and woodland breeding guilds observed at each point count location (Site One, Site Two, and Site Three) in 2023.



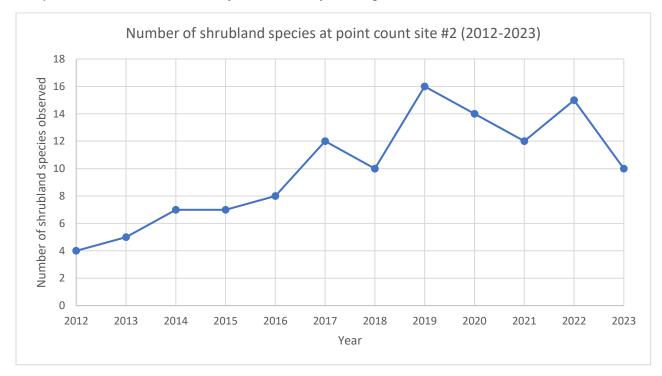
*Figure 6.* The number of individuals (mean +/- standard error) of each present shrubland species over the three point count days at each site in 2023.

Date	Number of Individuals	Number of Species
05/25/2023	57	26
06/12/2023	66	26
06/25/2023	71	22

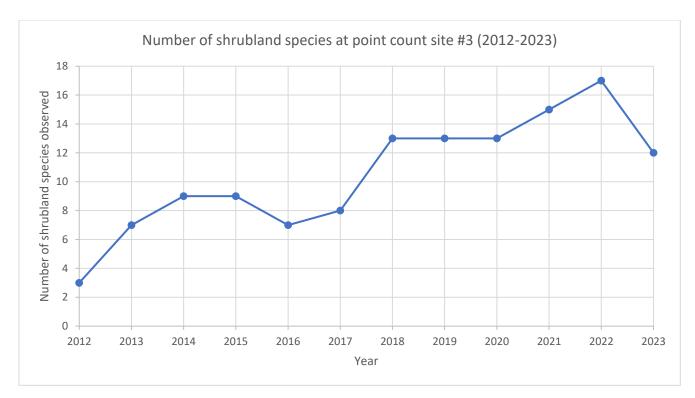
**Table 2.** Number of individual birds and the number of individuals counted at the 3 Lawton Farm point count sites during the survey events in May and June 2023. Species reported are not unique species and may reflect species counted at more than one site during a survey event.

Species	Number of Individuals in 2022	Number of Individuals in 2023
Tree Swallow	68	4
Bobolink	52	16
Red-winged Blackbird	44	9
American Goldfinch	32	0
Red-eyed Vireo	28	3

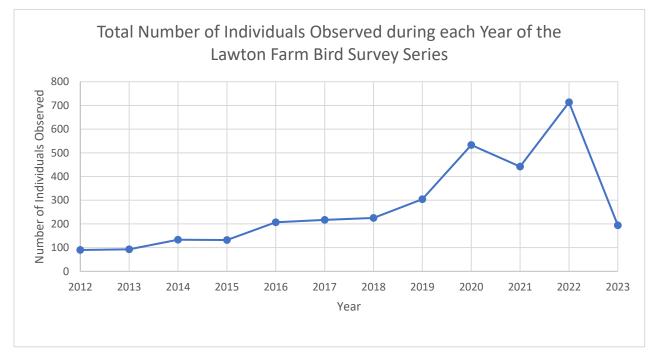
**Table 3.** This table shows the number of individuals of the most abundant species in 2022 during that year, as well as the number of individuals of those species observed in 2023.



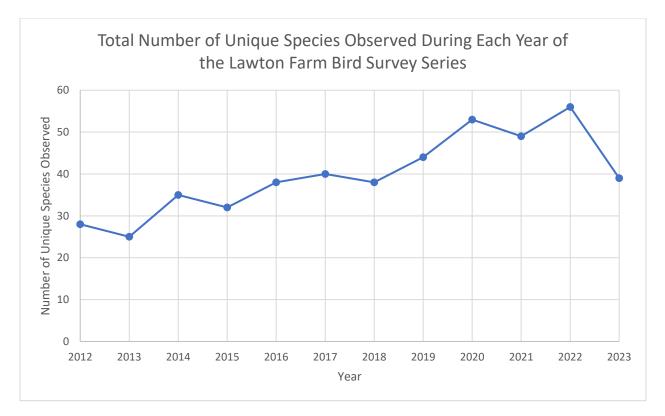
*Figure 7. The number of shrubland species observed at point count site #2 at Lawton Farm from 2012-2023.* 



*Figure 8. The number of shrubland species observed at point count site #3 at Lawton Farm from 2012-2023.* 



*Figure 9.* The total number of individuals observed at all survey sites during all surveys at Lawton Farm in each year from 2012-2023.



*Figure 10.* The total number of unique species observed at all survey sites during all surveys at Lawton Farm from each year from 2012-2013. These species are not unique to a year, but rather are unique during each year. Many of these unique species were seen during multiple years.

## 5. Discussion

The number of species and individuals observed this year at Lawton Farm have both declined this year compared to 2022. This was unexpected, given the upward trend in both of these fields over the past few years. For comparison, from 2021 to 2022, there was a 35% increase in the number of individuals observed at Lawton Farm and a 14% increase in the number of species observed. While year to year fluctuations in bird populations are normal, the 73% decrease in the number of individuals observed and 30% decrease in the number of species observed may indicate other factors influencing these populations.

One glaring difference between the 2023 point count series data and those of last year is the decrease in the most abundant birds observed (Table 3). Last year, Tree Swallows were the most abundant species; however, only 4 individuals were observed in 2023. Aerial insectivores, such as Tree Swallows, are facing some of the worst population declines, compared to birds of other groups (Cox et al, 2018). Moreover, aerial insectivore populations have decreased in the Northeastern United States more than any other area (Cox et al, 2020). This can be attributed to two primary factors: 1) changes in weather patterns due to climate change (Cox et al, 2018; Cox et al, 2020; Winkler et al, 2020) and 2) reduced prey availability (Cox et al, 2020; Tallamy & Shriver, 2021). This being said, Tree Swallow survival, and in turn abundance, can vary from year to year across their range, and cannot be predicted by weather patterns (Cox et al, 2020). However, these populations due tend to follow the patterns of their insect prey populations (Cox

et al, 2020). Knowing this, there are multiple conservation approaches that can be used to make Lawton Farm more accessibly for Tree Swallows and other aerial insectivores. First, abundances of non-native plants can cause a decline in the prey species of these birds that rely on native plants (Cox et al, 2020). Targeted invasive plant species removal can lead to an increase in native flora, thus increased prey availability for Tree Swallows and other aerial insectivores. Another conservation approach that can be implemented is the use of nest boxes. Although Lawton Farm does have some boxes on the property, increasing the number of boxes can provide nesting habitat for Tree Swallows and other cavity nesting birds, such as Eastern Bluebirds. Not only do these boxes provide more individual nesting areas, but nest boxes are also larger than a typical tree cavity that a Tree Swallow would nest in, which has been found to increase the overall reproductive output of these birds (Norris et al, 2018). I recommend installing additional boxes in field 3, by the Survey Site 2, as this will provide the open space habitat that Tree Swallows prefer without encroaching on the Bobolink nesting area in fields 1 & 2. However, the impacts of proximity to nest boxes on Bobolinks has not been observed. Furthermore, the population benefits of installing nesting boxes may not be immediately apparent, as it can take multiple years for a box to begin to be used by the birds.

The second most abundant bird species last year, the Bobolink, is also the species of the greatest conservation concern on the property; the number of observations of this species had also declined from last year to this year (Table 3). Out of concern for this species due to the low number of observations, I conducted a Bobolink-specific survey after conducting the third series of point counts on June 25<sup>th</sup>. In this survey, I walked the perimeter of field 1 from 06:49 AM – 07:04 AM and counted each individual that I observed. During this survey, I counted 26 individuals. However, this does not account for any individuals that were not visible because of shrub cover, or individuals that were not vocalizing. Using the same formula as in previous years for estimating the number of breeding pairs of Bobolinks throughout the entirety of field 1, we calculate that because there were an average of 5 Bobolinks observed at this site per survey over 3 surveys, and  $\sim$ 30% of the individuals observed were singing males (singing males are assumed to be defending nesting territory and can be considered a surrogate for a breeding pair), there were 1.65 breeding pairs in the survey area. Then, knowing that there is a 0.9ha area of field 1 within our survey area, and that that is  $\sim 10\%$  of the total field, we could estimate 16.5 breeding pairs of Bobolinks in field 1. However, this model assumes that this species is evenly distributed throughout the field, which is not true to reality. Furthermore, of the 26 individuals counted during the 15-minute perimeter survey of Bobolinks, the majority of these birds were male birds. To have a much more accurate estimate of the Bobolink population size at Lawton Farm, moving forward, I recommend surveyors conduct separate Bobolink surveys around the perimeter of field 1. This will help us understand 1) the true number of breeding pairs of Bobolinks, 2) the distribution of these breeding pairs throughout the field, 3) and understand if this is a continual decline in the population at Lawton Farm or just a yearly fluctuation. A single female Bobolink was observed this year in field 3, which may indicate possible nesting in this area as well.

The Red-winged Blackbird (*Agelaius phoeniceus*) was the third most abundant species observed on the property last year, but few individuals were observed this year (Table 3). According to breeding bird survey data from 1966-2015, this species has been declining at an

average rate of 0.93% per year across their entire range, with the greatest rates of decline in the eastern US and Canada (Yasukawa & Searcy, 2020). This species primarily feeds on insects during the breeding season (Yasukawa & Searcy, 2020), so along with Tree Swallows, they are also impacted by declining insect populations (Tallamy & Shriver, 2021). Native plant focused conservation methods may also serve to help this population. Furthermore, as this species and the Bobolink share many life history characteristics, their population trends at Lawton Farm may be quite similar. Continual monitoring of this species will help us understand the trends of this local population and how conservation should be approached.

The cases of the American Goldfinch (*Spinus tristis*) and the Red-eyed Vireo (*Vireo olivaceus*) are odd. Despite the overall American Goldfinch population declining, the population in Southern New England has been steadily increasing (McGraw & Middleton, 2020). The Redeyed Vireo population is actually increasing across its range at a rate of 0.75% per year, only declining in the southernmost and westernmost regions of their range (Cimprich et al, 2020). Given the long-term positive trends in the populations of these species, the lack of detections this year may be caused by year-to-year fluctuations in local populations and may not be caused by decreasing population sizes; that being said, continued monitoring will confirm if this is true or if there is a start to a negative trend in the local abundance of these birds.

Despite the incredible decrease in species richness and abundance observed during the 2023 surveys compared to those of the past few years (Figure 9 & Figure 10), this year's values are far from being the record low values observed at Lawton Farm. Figure 9 illustrates an incredible rise in the species abundance observed in the 2020-2022 surveys compared to that of the 2012-2019 surveys. The species abundance observed this year is actually quite similar to that observed in the 2012-2019 surveys. There is only a difference of 101 between this year's species abundance and the lowest observed abundance, but there is a difference of 519 between this year's species abundance this trend as well; there was a great increase in species richness during the 2020-2022 surveys, but this year's species richness value is much closer to those of the 2012-2019 surveys.

While many of the results of this study may look grim, it is important to note that yearly fluctuations in population sizes and bird abundance do occur. Furthermore, the detectability of different bird species in a dynamic ecosystem, such as Lawton Farm, can also vary on a yearly basis (Sanz-Perez et al, 2020). Earlier, we discussed the impacts of climate change on bird prey species, and in turn, the birds themselves. Climate change has other impacts on local bird populations, such as changing the timing in which they migrate and breed (Horton et al, 2019; Horton et al, 2020). This can cause changes in the number of species and individuals detected during the annual survey series at Lawton Farm, as the timing of bird activity is changing but the survey dates stay the same. Despite all of these factors impacting population sizes and detection probabilities, the most important course of action is to continue this annual survey series. Lawton Farm is fortunate to have set up a long running survey series using the same survey techniques each year, resulting in a study with easily comparable data from one year to the next. Continued surveying, possibly with a separate Bobolink survey, will reveal if the observations from this

year are attributable to yearly fluctuations, or the beginning of a trend, whether that be short-term or long-term.

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Species	Banding Code	Guild	Lawton #1	Lawton #2	Lawton #3
American Crow	AMCR	W	0	1	0
American Goldfinch	AMGO	S	0	0	0
American Redstart	AMRE	W	0	1	0
American Robin	AMRO	W	1	0	1
Baltimore Oriole	BAOR	W	1	0	0
Barn Swallows	BASW	0	0	0	0
Black-and-white Warbler	BAWW	F	0	0	0
Black-capped Chickadee	BCCH	F	0	1	0
Black-throated Blue Warbler	BTBW	F	0	0	0
Black-throated Green Warbler	BTGW	F	0	0	0
Blue-gray Gnatcatcher	BGGN	W	0	0	1
Blue Jay	BLJA	W	1	0	1
Blue-winged Warbler	BWWA	S	1	1	1
Bobolink	вово	G	1	1	0
Brown-headed Cowbird	BHCO	W	1	1	1
Brown Thrasher	BRTH	S	0	0	0
Canada Goose	CAGO	0	0	0	0
Carolina Wren	CARW	S	0	0	1
Cedar Waxwing	CEDW	S	1	1	1
Chipping Sparrow	CHSP	W	0	0	1
Common Grackle	COGR	0	0	0	0
Common Yellowthroat	COYE	S	1	1	1
Chimney Swift	CHSW	U	0	0	1
Chestnut-sided Warbler	CSWA	W	0	0	0
Double-crested Cormorant	DCCO	0	0	0	0
Downy Woodpecker	DOWO	F	0	0	0
Eastern Bluebird	EABL	0	0	0	0
Eastern Kingbird	EAKI	0	1	0	0
Eastern Phoebe	EAPH	W	0	0	0
Eastern Towhee	EATO	S	0	1	1

Eastern Wood-pewee	EAWP	F	0	1	1
European Starling	EUST	U	1	0	0
Field Sparrow	FISP	S	0	1	1
Gray Catbird	GRCA	S	1	1	1
Great Crested Flycatcher	GCFL	F	0	1	0
Hairy Woodpecker	HAWO	F	0	0	1
House Finch	HOFI	0	0	0	0
House Sparrow	HOSP	U	0	0	0
House Wren	HOWR	S	1	1	1
Indigo Bunting	INBU	S	0	1	1
Least Flycatcher	LEFL	W	0	0	0
Magnolia Warbler	MAWA	F	0	0	0
Mourning Dove	MODO	0	1	0	1
Northern Cardinal	NOCA	S	1	1	1
Northern Flicker	NOFL	F	1	0	0
Northern Mockingbird	NOMA	S	0	0	0
Northern Rough-winged Swallow	NRWS	0	0	0	0
Ovenbird	OVEN	F	0	1	0
Palm Warbler	PAWA	S	0	0	0
Pine Warbler	PIWA	F	0	0	0
Prairie Warbler	PRWA	S	0	0	1
Red-bellied Woodpecker	RBWO	F	0	0	0
Red-eyed Vireo	REVI	F	1	1	1
Red-winged Blackbird	RWBL	0	1	0	0
Rose-breasted Grosbreak	RBGR	F	0	0	0
Red-tailed Hawk	RTHA	W	0	0	0
Ring-necked Pheasant	RNPH	G	0	0	0
Ruby-throated Hummingbird	RTHU	S	0	0	0
Scarlet Tanager	SCTA	F	0	0	0
Song Sparrow	SOSP	S	1	0	0
Tree Swallow	TRSW	0	1	1	0
Tufted Titmouse	TUTI	F	1	1	0
Turkey Vulture	τυνυ	F	0	0	0
Veery	VEER	F	0	0	0
Vesper Sparrow	VESP	G	0	0	0
Warbling Vireo	WAVI	W	1	0	0
White-eyed Vireo	WEVI	S	0	0	0
White-breasted Nuthatch	WBNU	F	0	0	0
White-throated Sparrow	WTSP	F	0	0	0
Wild Turkey	WITU	G	0	0	0
Willow Flycatcher	WIFL	S	0	0	0
Wood Thrush	WOTH	F	0	1	1
Yellow Warbler	YEWA	S	1	1	1

Yellow-rumped Warbler YRWA F 0 0	0
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**Table 4.** Bird species observed within 100 m of the point count center during three survey events consisting of 10 minute counts at three sites within Lawton Farm Recreation Area, Scituate, Rhode Island, in 2023. Observations were based on singing, calls, visual observation, and fly overs. Guilds were assigned based on preferred breeding habitat; S =shrubland, F =forest, W =woodland, G =grassland, O =open land, U =urban/agricultural, M =marshland/riparian areas. Presence of a species was indicated by a "1" in the presence / absence columns, absence was indicated by a "0".