

A Comparison of Bird Communities Between Years on the Shores of Bone Lake, Polk County, Wisconsin

Changes and Resilience in Bird Communities from 2011 to 2022



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Forward

This is both a scientific report and a teaching moment. Some of you may be reading this as ecologists and scientists. Others of you may be reading this with many questions about biology, ecology, and the practices of biologists in the field. My intention in this report is to summarize my findings on Bone Lake in 2022, explain how things have changed (and stayed the same) since my last surveys in 2011, and to help explain the reasoning and methods behind the gathering of data and interpretation of results. Our modern human world moves quickly in information, technology, and change. But it does so within a world of complex, age old natural beauty that pre-dates all of the modern world. All of the natural things you appreciate have been here longer than you. Their histories run deeply and richly in this landscape, in everything they are and everything they do. Still, with all the power we now wield with our gadgets and machines, many beloved species have become more vulnerable to extirpation and extinction. Indeed, some are gone forever. To save something, we must act. But to act, we must first love what we wish to save. Two of the most powerful tools in conservation are awareness of the natural world and love of the natural world. Sharing those two tools with younger generations is a high priority, especially in sharing the joy for what we still have and the beauty it brings. The younger generations need our optimism, and they need to be involved directly as participants in natural landscapes.

The ecological landscape of Northern Wisconsin is a mosaic of unique intersections, an uncertainty of tension between the cool boreal forests of the far north, rainy and warm deciduous forests of the south, and the hot, arid influence of the Great Plains. This tension zone brings tremendous biological diversity to Polk County, and it places Bone Lake squarely in the middle of a landscape rich in natural history. Many species exist here at the northern and southern extents of their natural ranges. The result is seen in Polk County's biological communities being punctuated by neighborly associations that are the exception rather than the rule. It is not commonplace in North America to hear a yodeling loon and a thundering wild turkey from the same vantage, yet, for those of us here, it is part of our usual morning chorus.

Our forests here are dominated by sugar maple, American basswood, white pine, red maple, ash trees, paper birch and yellow birch. They are characteristically mixed deciduous and coniferous forests that support rich diversity and high densities of birds. In lowlands, we find black ash, red maple, tamarack and yellow birch, forests that provide even higher densities of birds. This far north, our shrub wetlands are dominated by alder, but some willow shrub wetlands join the mix. The characteristics of the forests in our region play an important role in which bird communities are present, and those avian assemblages are as much dependent upon the physical structures of the habitat as on the life cycles of the different species of trees and shrubs present.

Perhaps the most common birds within the landscape of Wisconsin's northern forests, Red-eyed Vireos and Ovenbirds are to Wisconsin's forests what the endless and distant stars are to the Milky Way galaxy. In Northern Mesic Forest stands, two or three individuals of these species may be detected on each and every fifty-meter standardized bird survey, forming a continuous constellation of territories spreading from the St. Croix River to Lake Michigan, from the northern reaches of Bayfield County to the wooded river bluffs of La Crosse. Such abundance of insect-eating, tropical birds is testimony to the importance of functioning ecosystems at the landscape level. It should serve to remind us of our own importance in maintaining a high standard of quality in our surroundings as we lend to the rich continuity in the web of life and promise it to our great grandchildren.

This paper is a scientific report, but it is also a treasure map. May it serve as a tool for education and inspiration. Enjoy the birds!

---Brian M. Collins

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Yellow Warbler, the 10th most abundant bird on Bone Lake with 78 Detections on 54 Surveys

Abstract

Fifty-four permanent bird survey locations have been established on Bone Lake, Polk County, Wisconsin, by GPS coordinates. All 54 locations were visited during the June breeding season between the hours of 5:00 AM and 10:00 AM to conduct point count surveys for birds in the years 2011 and 2022. Bird communities were summarized in total and more specifically by habitat type association. Detected bird communities were compared between survey years, analyzing for consistency and changes in species richness, relative abundance, and detection trend (population index). In 2011, a total of 1707 individuals of 85 species were detected. In 2022, a total of 2690 individuals of 92 species were detected, a significant increase. Bone Lake's most regular 76 breeding bird species were detected in both years, and their trends tended to remain the same or to increase significantly. Only a few species decreased. An additional 25 species were detected in only one of the two survey years, 7 species being migrant or transient and 18 of them being uncommon breeding birds that were not detected in both years. In total, 94 species used Bone Lake's ecological landscape for breeding between the two survey years. Significant increases in Purple Martin detections and Red-headed Woodpecker detections highlighted conservation successes and Bone Lake's value as an ecological landscape. Further emphasizing Bone Lake's importance in the ecological landscape, many Neotropical migrant songbirds such as Baltimore Oriole, Red-eyed Vireo, Veery, Great-crested Flycatcher, American Redstart, Common Yellowthroat, Yellow-throated Vireo, Yellow Warbler, Eastern Kingbird, and Gray Catbird demonstrated population stability or population increases over the decade. A few species showed significant declines, including Eastern Bluebird, Eastern Phoebe, Alder Flycatcher, and Barn Swallow. Birds of conservation priority are present and breeding on Bone Lake. Conservation priority species that were detected in both 2011 and 2022 included Golden-winged Warbler, Red-shouldered Hawk, Trumpeter Swan, Common Loon, and Bald Eagle. All species of conservation concern occurred with similar numbers and detections in both years, pointing to overall conservation success and quality habitats on the shores of Bone Lake. Further, anecdotal observations of bird foraging behavior added water quality to the list of important ecological factors positively influencing bird conservation on Bone Lake. Through the production of strong populations of aquatic insects, Bone Lake's aquatic insect resource is used directly and importantly as food by most species of breeding birds. These aquatic insects also greatly support fisheries which in turn support fish-eating birds such as loons, eagles, herons, and kingfishers. Bone Lake remains an increasingly important source of ecological integrity within Polk County.

Introduction – Birds and the Habitat Connection

The purpose of this study is to identify and quantify Bone Lake's breeding bird communities, to differentiate between different communities of birds using different habitat types, and to locate areas of exceptional value to birds. Further, this study aims to create a historical record of birds using Bone Lake and to track changes and resilience occurring in bird communities over time.

Why study birds? Birds are some of the most valuable ecological indicators on Planet Earth. Birds respond quickly to habitat changes. Bird species are often very closely associated with specific habitat types, habitat conditions, and feeding and reproductive niches. Further, birds are easily detectable with a minimum of cost, time, and equipment. Consecutive bird surveys can use detection data as a sort of "catch per unit effort" population index, and those population changes can be tied to specific knowledge about food webs, landscape level habitats, microhabitats, and known susceptibilities. A bird survey isn't just a survey of the birds. It results in a complex and comprehensive evaluation of environmental quality, ecological integrity, and ecological change over time. Bone Lake's birds are a window into the quality of life along the shores of Bone Lake and the quality of the water and aquatic communities that tie together the life of the water and the terrestrial life around Bone Lake. Bird communities lend insight into forest age, tree species composition, forest strata and structure such as subcanopy and shrub layer, levels of habitat fragmentation, and many other measures of wildlife habitat and ecological health.

Bone Lake's Birds, Habitats, and Survey Points: An Overview

The general geographic area surrounding and including Bone Lake is a biologically diverse, valuable mosaic of high-quality terrestrial and aquatic habitats. Extremely bird-rich, a total of 101 species of birds have been detected during the June breeding season surveys of 2011 and 2022, of which 94 species are breeding bird species and 7 species are transient or migrant. This is especially impressive in the context of the Wisconsin Breeding Bird Atlas II conducted between 2015 and 2019 in which the Luck Center East USGS quad (including northern Bone Lake) revealed 100 breeding species. Bone Lake's shores represent 94% of the region's breeding bird diversity.

An average of just over 49 individual birds were detected from each ten-minute watercraft bird survey in 2022. This was an increase of 18 birds per survey over the 31 birds per survey in 2011. A total of 2690 individuals were detected on 54 survey points, significantly higher than the 1707 individuals detected in 2011. The surveys covering all of Bone Lake's shorelines revealed stability and resilience over the years, some exciting conservation successes, and a few "canaries in the coal mine" with potential human solutions. Comparing Bone Lake's bird communities to other regions of the state is an exercise in optimism and joy. Surveys of Northern Mesic Forest habitats in other parts of Wisconsin average just over 20 birds per survey, and the bird-rich trout stream and perched aquifer seep habitats of Northern Wisconsin average between 28 and 32 birds per survey. Some of the "birdiest" wetland/shrubland/young forest ecosystems in Wisconsin may boast upwards of 60 birds per survey. With 49 birds per survey, Bone Lake's size, habitat complexity, citizen stewardship, and landscape ecology lend to exceptional biological diversity and continued potential as a bird haven.

The forested look of Bone Lake's well-populated shoreline is as appealing to birds as it is to people. Bone Lake's areas of residential development are very beneficial to a variety of wildlife species in that large trees remain healthy and standing. Significant verge vegetation and buffer plantings prevent damage to the quality of the lake. Areas of verge vegetation and the quality, age, and continuous canopies of older trees are of great importance to many forest species of birds and birds of thickets and edges. Many acres of second growth mixed deciduous forests, free of residential development, provide additional habitats required by more sensitive species. An exceptional example of northern lowland habitats occurs in the northwestern section of Bone Lake and includes northern wet sedge meadow, alder swamp, and tamarack swamp. These wetland habitats contribute to the occurrence of unique and rare bird species on Bone Lake, especially the Golden-winged Warbler. Mature white pine and eastern cottonwood trees are of great importance to nesting and roosting Bald Eagles and are key to the abundance of eagles enjoyed by Bone Lake residents and visitors. Bone Lake residents clearly take pride in the quality of the lake's terrestrial habitats and the birds that rely on them.

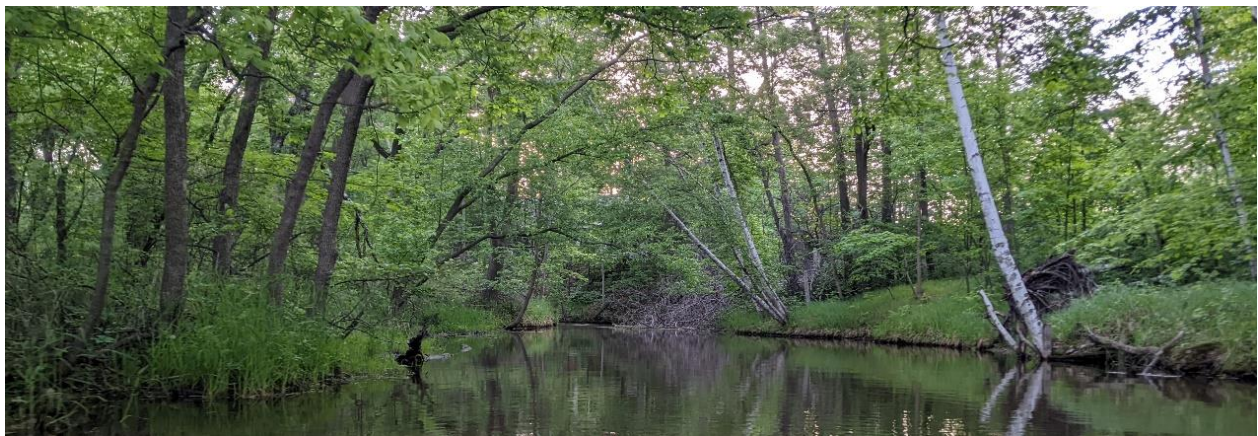
For the purposes of this study, habitats were broadly classified. The major classifications include Residential Woodlot, Second Growth Deciduous Forest, Tamarack Lowland, and Transitional Habitats/Thickets.

Most of the survey sites (36 of 54, 67% of area surveyed) occurred in "**Residential Woodlot.**" Residential Woodlot refers to habitats that have a home, cabin, or other living structure, some degree of mowing, landscaping, or other continuous human effect on the habitat, and the presence of large trees in sufficient numbers or biological mass to create arboreal habitats for birds. Bone Lake's residential woodlots are of terrific ecological value to many species, and the stewardship, aesthetics, and appreciation for nature among Bone Lake's residents has resulted in a landscape rich in large, old white pine, red pine, eastern cottonwood, ash, and maple. The complexity of arboreal habitats generated by the old trees, the proximity to clean water, and the relatively open understory makes this habitat nearly ideal for a variety of pine forest, old growth forest, and savanna birds, especially a variety of woodpeckers and flycatchers as well as Pine Warbler, Bald Eagle, and Merlin (a forest falcon species).



An example of habitat classified as “Residential Woodlot”

Second Growth Deciduous Forest sites changed somewhat between 2011 and 2022. Still, they were the second most common habitat surveyed, gaining one point count location, from 13 sites in 2011 to 14 of the 54 survey sites, 26% of area surveyed. This 14th survey point changed in habitat status through natural succession, as younger vegetation reached sufficient height and complexity to be classified as forest. **“Second Growth Deciduous Forest”** refers to sites that are composed largely of trees less than 80 years of age, dominated by deciduous species such as ash, maple, basswood, and oak, a continuous area of forest with minimal human disturbance (no buildings, roads, etc.), and a continuous canopy of large trees. Additionally, two new housing sites were detected on survey points identified as Second Growth Deciduous Forest. The classifications remained the same, however, as much of the forested habitat remained proximally intact at the landscape level. This habitat class is ideally suited to forest species requiring structural complexity for foraging and nesting such as American Redstart, Red-eyed Vireo, Scarlet Tanager, as well as ground-nesting species that require areas free from fragmentation such as Ovenbird and Black-and-white Warbler.



An example of a habitat classified as “Second Growth Deciduous Forest”

Tamarack Lowland sites (2 of 54 survey sites, 3.5% of area surveyed) were representative of a large, contiguous block of high-quality wetland habitat. This area is owned by the State of Wisconsin and managed by the Wisconsin Department of Natural Resources. Tamarack Lowland sites were characterized by a base of sedges, bur reeds, cattails, and other marshy, emergent plants. Further in from the emergent edge and following a classic line of lake succession, a large patch of alders formed the shrub layer. Younger tamaracks contributed to the shrub layer, and an overstory of tamarack formed an isolated canopy. This habitat was unique in that it also was continuous with the lake itself,

supporting the nesting activities of aquatic birds such as Trumpeter Swan in 2022 and Common Loon in previous years.



An example of a habitat classified as “Tamarack Lowland”

Methodology: Standardized Point Count Bird Surveys and Mathematical Analysis

Capturing the Community Data Through Point Counts

I conducted standard, ten-minute, passive listening point count bird surveys from a solo canoe over the course of approximately five fair-weather days during the June breeding season, when winds and skies were calm, between the hours of 5:00 AM and 10:00 AM. I conducted point count bird surveys on a total of 54 GPS-marked waypoints in 2011, and I returned to successfully survey and include all 54 waypoints in 2022. Each point count bird survey was conducted 300 meters from all other counts to avoid re-counting birds, and each survey’s detection data was divided between birds detected within 50 meters of my location and birds detected outside of the 50 meter “count circle”. Point count bird detection was by passive observation only, and approximately 90% of the survey data was compiled based on bird song recognition, while the remaining 10% was compiled on visual observation and birds’ contact calls.

Point counts work, essentially, on the premise that a breeding bird will establish a small territory and will then defend that territory vigorously with song. Once the May migration has passed, bird song serves to attract a mate and to warn off other male birds. The presence of a singing male of any species in the month of June is evidence that the bird is at least attempting to breed there if not already successful in doing so. The choice of breeding habitat by a bird can be generalized to the singing location. Thus, a singing male effectively defines the habitat preference of a breeding bird and lends more data as to what the species prefers. Given that a species of bird has a strong interest in breeding in the best habitat from year to year, a member of the species should reliably return to occupy the same parcel if the habitat hasn’t changed much from year to year and if the population is robust, healthy, and not in any state of population decline.

Point counts are very effective at generating a general overview of the bird community, including information about which bird species are more common and dominate in the community structure, which bird species are less common, and which birds occur in which habitats. Further, point counts provide specific geographic data regarding the presence of birds and provide statistical scaffolding for analysis of bird community structure. Unfortunately, some evidence points to biases in detectability for some species of birds as well as differing detectability with breeding status and timing of the nest cycle. Overall, the technique is widely accepted and heavily relied upon as a means of generating standardized, repeatable bird community data sets.

Data can be compiled and analyzed for the number of bird species, the relative abundance of each species within the community, and the relative density of breeding birds in birds per survey. Further, because counts are standardized, sites can be compared to one another statistically, as can the resilience and changes in community from year to year. While point count data cannot be used to reliably estimate populations of birds, the results can generate comparative indices between habitats, geographic locations, and time (time of day, time of year, and between years). Point count data is of exceptional value in helping to understand overall ecosystem structure, health, and function.

Analysis of relative abundance speaks volumes about what an ecosystem provides in terms of ecological complexity. Available bird niches are often reflected through successes of bird populations and certain bird species. Abundance of a bird species, availability of suitable habitat, availability of other important resources, territoriality and home range requirements, and a species' dominance in the overall community can be seen in the data sets.

Relative abundance is simply derived by dividing the total number of Individuals of ONE species by the total number of Individuals of ALL species in a certain scenario. For example, the relative abundance of Baltimore Orioles in all habitats on Bone Lake within a 50-meter detection radius is 3.91%. This is derived by dividing the 49 Baltimore Orioles detected on all surveys within 50 meters by the 1253 birds of all species detected within 50 meters. ($49/1253 = 0.0391$). Similarly, in Second Growth Forest, Baltimore Orioles comprised 4.28% of the community ($27/631 = .0428$). For the purposes of larger ecological analysis, I have included all species that occurred at abundances in excess of 1.5% of the community. Rarer species must be considered separately.



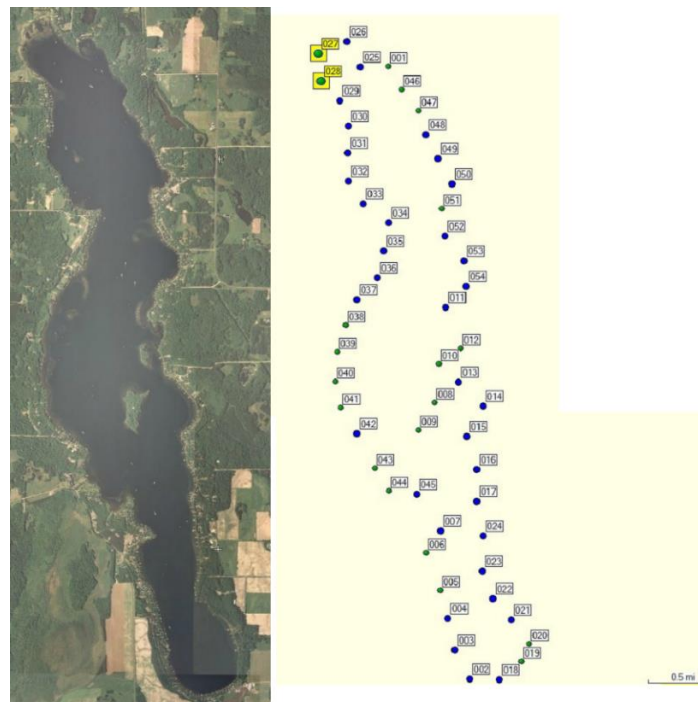
Point Count Survey-- Data sheet and data collector, Brian Collins, afloat in a solo canoe. The ears and ability to recognize birds by song and call are the most important tools in collecting 90% of point count data. Visual identification aids in the collection of about 10% of the data. Bone Lake surveys were conducted along the shoreline using a solo canoe, the perfect floating field office.

Using Point Count Data to Analyze Population Trends Between 2011 and 2022

To better understand consistency and change between 2011 and 2022, I turned to a more tightly standardized data set within the larger data set. Using only bird detections within **50 meters** of my location provided a data set that was less susceptible to wind variation and other variations in listening conditions such as lawn mowers, wake wash, construction, and tree trimming. Using only this data set for between-years comparison provided a window into mainly “easy” detections and precise location detections. This greatly streamlined consistency of methodology. Still, each individual point was somewhat susceptible to minute changes in the seasonal growth, nest timing, and specific microhabitat conditions of the site as well as the myriad events that may result in the presence, absence, or detectability of a bird. Thus, it was the combined result of a sufficient sample size, multiple surveys analyzed within the 50-Meter radius, that provided the real meaning in analysis.

Analysis of bird communities must consider habitat at the landscape level and stand level, but the analysis must also consider the complexity of microhabitat and niche. **Niche** is often described as an organism’s way of life or role that contributes to ecosystem function. **Microhabitat** refers to structural and living components of habitat that birds gravitate toward in daily life. Examples of this could be the presence or absence of dead tree snags, plantings of shrubs, conditions of tall grasses, water immersion in wetlands, flexibility of bending branches, and even age of trees as they grow larger and change in overall structural characteristics. Baltimore Orioles, for example, famously glean insects from the underside of leaves on drooping branches of older trees, especially those with supple, flexible branches such as maple, cottonwood, and willow. Similarly, they weave their nests into these same tree features. By contrast, Red-eyed Vireos search for and glean insects from the upper surfaces of horizontal branches and build their nests in the horizontal forks of younger trees. Niche is tightly tied to microhabitat in the bird world. Changes in microhabitat structures nearer to a GPS waypoint can significantly change the presence or absence of different bird species within 50 meters of that waypoint as the bird species respond to those changes. When the habitat on a survey point changes, so does the community of birds. Still, if the larger landscape ecology remains resilient, many species should occur with similar densities and detection rates in the finished dataset. This is both a test for the ecosystem and the survey method.

It is entirely possible that a resilient parcel of habitat could maintain a nearly identical community of birds each and every year, barring population declines or population increases at the landscape level. Still, in the absence of multiple site visits each field season, specific near-to-point analysis simply cannot be used to determine if the same bird species or numbers are present in the same locations a decade later. This data set from 54 Points, analyzed within 50 meters of the observer, provides a broad community analysis free from condition bias. It looks at the identifiable trends of bird species around Bone Lake, and it allows for inferences to be made about conservation successes and potential trouble.



Point Count Locations on Bone Lake --Blue markers indicate Residential Woodlot habitats. Small green markers indicate 2nd Growth Forest and grown-over, wild areas. Large green markers highlighted in yellow indicate the Tamarack Lowland and Northern Sedge Meadow. Waypoints 008,009, and 010 are survey points located along the shores of the Bone Lake’s islands.

The analysis comparing detections between 2011 and 2022 is done using **Chi Squared**. The Chi Squared Statistic -- $\text{Sum of } (\text{Observed} - \text{Expected})^2 / \text{Expected}$ -- is a very useful tool in biology, generating a number that identifies the *importance of the difference between two numeric samples* when compared to existing statistical probability distributions in the **Critical Values of the Chi Square Distribution** tables. These statistical probability tables are widely available in any statistics texts or online statistics sites. When analyzing two years of bird data, it is easy to compare the first year to the second. With two years (two categories analyzed at $P < 0.95$, 1 degree of freedom), we compare any Chi Square value for a bird species to the Critical Value of 3.84 (from the Critical Values of the Chi Square Distribution table). In short, Chi Square values less than 3.84 show no important difference between years. Numbers greater than 3.84 show importance in the difference between years. Thus, Chi Square values of greater than 3.84 show statistical significance in either increases or decreases in detections of birds. It should be mentioned that some bird species are generating a valid and measurable statistical response, while others occur with too few detections to generate truly valid results. Ideally, a sample size of greater than 30 should exist for the analysis of any the population trend of any species on Bone Lake, but many bird species fall short of this sample size.

Data Analysis and Results

Analysis of Site Detections Occurring within 50 Meters between Years (2011 and 2022)

The total number of birds detected at all distances during 54 standardized 10-minute point counts was significantly different between 2011 and 2022. In total 1,707 birds were detected in 2011, and 2,690 birds were detected in 2022 while conducting 54 standardized 10-minute point counts from the same GPS coordinates. This increase of 983 birds (an increase of 18 birds per point count) was so dramatic that I read through the 2011 publication of methods to be sure I had conducted 10-minute point counts. Indeed, I had standardized the counts correctly, and an increase of this many birds reflects the true ecological realities on Bone Lake. The birds are thriving on Bone Lake.

Significant Increases in Detections

Significant increases in detections occurred for fourteen species, with eleven of those species demonstrating increase by Chi Square significance from small sample sizes and five of those species demonstrating increase by Chi Square values from a statistically significant sample size. Overall bird detections within fifty meters increased from 904 detections in 2011 to 1166 detections in 2022, a strongly significant ($\text{Chi Squared} = 33.16$) increase in bird densities along the shores of Bone Lake. Species contributing most greatly to this increase included Common Grackle, Purple Martin, Red-winged Blackbird, American Robin, European Starling, Gray Catbird, Veery, Hairy Woodpecker, Ruby-throated Hummingbird, House Sparrow, and Red-headed Woodpecker. Indigo Bunting, Pine Warbler and Yellow-throated Vireo all showed notable increases in detections but increases occurred just below statistically significant thresholds for these three species.

SPECIES Detected < 50 Meters	Total 2011	Total 2022	Chi Square (<i>Critical Value 3.84, P<.95</i>)	Trend	% Change	Change (Individuals) Between Years
Common Grackle	36	108	36.00	Significant Increase	200	72
Purple Martin	42	117	35.38	Significant Increase	179	75
Red-winged Blackbird	27	88	32.36	Significant Increase	226	61
Red-headed Woodpecker	2	13	8.07	Significant Increase	550	11
House Sparrow	1	10	7.36	Significant Increase	900	9
European Starling	12	28	6.40	Significant Increase	133	16
American Robin	31	53	5.76	Significant Increase	71	22
Veery	4	14	5.56	Significant Increase	250	10
Gray Catbird	7	19	5.54	Significant Increase	171	12
Ruby-throated Hummingbird	4	12	4.00	Significant Increase	200	8
Hairy Woodpecker	6	15	3.86	Significant Increase	150	9

Table 1: While sample sizes were sometimes low, statistically significant increases in Bird Detections within 50 Meters of the point count circle occurred among eleven species.

Analyses of species that occur in much smaller populations are not as reliable, but there may be some value in looking at these smaller numbers, especially for rarer species of conservation concern. Golden-winged Warblers, specific to the Wisconsin DNR lands and to some private lands along the west shore, are a species of greatest conservation concern. Golden-winged Warblers showed no significant change between 2011 and 2022, increasing from 3 to 4 detections. Common associates of Golden-winged Warbler also showed no significant change. Black-and-white Warbler increased from 4 to 5 detections, and the Chestnut-sided Warbler decreased from 4 detections to 3 detections. Overall, the site availability and ecological context of the Golden-winged Warbler is stable along the shores of Bone Lake, and this species occupied most or all available habitat in both survey years.

Of the 11 bird species that showed significant increases, four species were long-distance migrants breeding in Wisconsin but overwintering in Central and South America. Four species were short-distance, continental migrants, breeding in Wisconsin but overwintering in the southern United States. Three species were permanent residents of Wisconsin, carrying out all aspects of their lives within a few square miles. Ten of the eleven species were insect-eating birds, regardless of migration and overwintering strategy, giving some evidence toward a hypothesis that increases in bird abundance might reflect long-term improvements in aquatic ecology and increasing insect diversity, abundance, and availability through the breeding season.

One introduced species, the House Sparrow, showed significant increases in detections. House Sparrow increases may follow Purple Martin increases, since one main driver of population increase is very likely in the availability of nesting structures. House Sparrows often take residence in martin houses, bluebird houses, and other human-made nesting structures.



Purple Martin, a long-distance tropical migrant and aerial insectivore, increased in detections by 179%, indicating an increase in nesting success, likely thanks to the efforts of people building and maintaining proper nest boxes and the continued good health of Bone Lake's aquatic ecosystems..

Significant Decreases in Detections

Significant decreases in detections occurred for five species, with all five of those species demonstrating decrease by Chi Square significance and two of those species demonstrating decreases by Chi Square values from a statistically significant sample size. Of greatest concern, Barn Swallows decreased by 44% and Eastern Phoebe by 58%. These represent large decreases by birds with large population sample sizes and likely represent actual population declines. Alder Flycatchers decreased by 91%, and, while they were low in population around Bone Lake, the level of decrease

is of note. Alder Flycatcher numbers were comparable outside of 50 meters, so the perceived decline may be somewhat exaggerated by small population sample size and bird locations in 2022. Eastern Bluebirds, also of small sample size, disappeared from detection altogether. While it is doubtful that they did disappear from Bone Lake’s landscape, the lack of detections may point to collapse of population, perhaps implicating a loss of bluebird boxes and nesting habitat.

SPECIES Detected < 50 Meters	Total 2011	Total 2022	Chi Square (<i>Critical Value 3.84, P<.95</i>)	Trend	% Change	Change (Individuals) Between Years
Barn Swallow	91	51	11.27	Significant Decrease	-44	-40
Alder Flycatcher	11	1	8.33	Significant Decrease	-91	-10
Eastern Bluebird	8	0	8.00	Significant Decrease	-100	-8
Eastern Phoebe	24	10	5.76	Significant Decrease	-58	-14
Chimney Swift	9	2	4.45	Significant Decrease	-78	-7

Table 2: While sample sizes were sometimes low, statistically significant decreases in Bird Detections within 50 Meters of the point count circle occurred among five species. Note that Eastern Bluebird was not detected in 2022.

Barn Swallow, Chimney Swift, and Alder Flycatcher all overwinter deep into South America, while Eastern Bluebird and Eastern Phoebe are continental migrants, overwintering in the southern United States. Declines for all of these species may be explained in part by events occurring on the wintering grounds. Loss and fragmentation of tropical wintering habitat has been a hot topic in bird conservation for more than 40 years. Among ornithologists, it is well-known that continental migrants such as Eastern Bluebirds and Eastern Phoebes suffered greatly on their wintering grounds during the Texas deep freeze that occurred between February 10 and February 27, 2021. Population recoveries from this event may take many years. It is also possible that population declines are related to events on Bone Lake. Bluebirds and phoebes both rely on human-made structures. Perhaps fewer nesting boxes are available for bluebirds. With only conjecture, solutions may be elusive. Still, Bone Lake residents can lend a helping hand.



Population declines of Eastern Phoebe and Barn Swallow were of true statistical significance. Eastern Bluebird declines were marked by a shift from 8 detections on 54 surveys (14.8% detection rate) to 0 detections, pointing to an important decline. Bone Lake residents may choose to build nesting platforms under the eaves of homes and sheds for phoebes and swallows or merely allow nests to remain through the breeding season until young birds fledge. Further, placing bluebird houses in wide open, sunny areas of the yard may encourage the return of these beneficial birds.

No Significant Change in Detections – Ecological Resilience

Twenty-four species of small birds demonstrated no significant change in Detection within 50 meters of the 54 standardized point counts. Among these species, eighteen occurred in sample sizes sufficient for statistical significance, and twenty-three occurred well below the Critical Value of Chi Squared. Among stable species, only the Indigo Bunting approached the critical value of 3.84. Of note, Pine Warbler, Yellow-throated Vireo, Warbling Vireo, and Eastern Kingbird all showed appreciable increases in detections, even though the change was not statistically significant. Baltimore Oriole and Red-eyed Vireo, both long-distance tropical migrant birds, occurred in high numbers

in both 2011 and 2022 and showed almost no change in detections. It is possible that this result points to the exceptional habitat quality and exceptional stability of habitat characteristics that Bone Lake offers these two species on the Wisconsin breeding ground. Stability in detection among common species also boasts the effectiveness of survey methods.

SPECIES Detected < 50 Meters	Total 2011	Total 2022	Chi Square (<i>Critical Value 3.84, P<.95</i>)	Trend	% Change	Change (Individuals) Between Years
Indigo Bunting	2	8	3.60	No Significant Change	300	6
Pine Warbler	9	18	3.00	No Significant Change	100	9
Yellow-throated Vireo	6	12	2.00	No Significant Change	100	6
Warbling Vireo	13	22	2.31	No Significant Change	69	9
Eastern Kingbird	12	19	1.58	No Significant Change	58	7
American Goldfinch	20	28	1.33	No Significant Change	40	8
Common Yellowthroat	15	21	1.00	No Significant Change	40	6
White-breasted Nuthatch	16	21	0.68	No Significant Change	31	5
Red-bellied Woodpecker	10	13	0.39	No Significant Change	30	3
Cedar Waxwing	26	32	0.62	No Significant Change	23	6
Song Sparrow	30	33	0.14	No Significant Change	10	3
Red-eyed Vireo	41	45	0.19	No Significant Change	10	4
Blue Jay	21	23	0.09	No Significant Change	10	2
American Crow	20	21	0.02	No Significant Change	5	1
American Redstart	20	21	0.02	No Significant Change	5	1
Black-capped Chickadee	23	23	0.00	No Significant Change	0	0
Yellow Warbler	29	28	0.02	No Significant Change	-3	-1
Baltimore Oriole	51	49	0.04	No Significant Change	-4	-2
Brown-headed Cowbird	11	10	0.05	No Significant Change	-9	-1
House Wren	22	19	0.22	No Significant Change	-14	-3
Tree Swallow	67	57	0.81	No Significant Change	-15	-10
Eastern Wood Pewee	9	7	0.25	No Significant Change	-22	-2
Chipping Sparrow	30	21	1.59	No Significant Change	-30	-9
Great Crested Flycatcher	19	12	1.58	No Significant Change	-37	-7

Table 3: With the landscape and habitats largely unchanged, no significant change in detections for a particular species may point to overall stability. It may also reflect the density- effects of bird territory size and the saturation of available habitat by a population at maximum carrying capacity. Loons, eagles and waterfowl, all of which showed no significant change, were excluded from this analysis. In total, twenty-four species of smaller bird species (forest birds) showed no significant change between years. Baltimore Oriole and Red-eyed Vireo were among the Neotropical Migrant species showing no significant change in detections.



The Common Yellowthroat is a common species that showed population stability on the shores of Bone Lake.

Bird Community Quantitative Descriptions

Bird community descriptions aid biologists in understanding ecosystem components and ecosystem complexity, since most bird habitat needs, from the landscape level to the microhabitat niche, are well understood. Bird community descriptions in this report include relative abundance (the percentage of the bird community occupied by each species), ranked from highest to lowest, total number of species, and number of individuals per survey as a measure of density. In this analysis, birds detected outside of the 50-meter count circle are included to provide ecological context of the site. It is also well understood that some less-common species may evade detection. Further, these less-common species, sometimes occurring at numbers of fewer than 2 individuals in the local ecosystem, may be present in some years and absent in other years. Detections of migrant birds also create differences in species detected, as bird migrations of one species or another are nearly constant over the course of a year. For this reason, the number of species detected will change from year to year.

In 2011, a total of 1,707 individuals of 85 species were detected. In 2022, a total of 2,690 individuals of 92 species were detected, a significant increase. Bone Lake's most regular 76 breeding bird species were detected in both years. An additional 25 species were detected in only one of the two survey years, 7 species being migrant or transient (*Ring-billed Gull*, *Caspian Tern*, *American White Pelican*, *Blackpoll Warbler*, *Tennessee Warbler*, *Bay-breasted Warbler*, and *Magnolia Warbler*) and 18 of them being breeding birds uncommon to Bone Lake's landscape ecology, not detected in both years (*Osprey*, *Turkey Vulture*, *Killdeer*, *Great Horned Owl*, *Yellow-billed Cuckoo*, *Ruffed Grouse*, *Broad-winged Hawk*, *Red-breasted Nuthatch*, *Sedge Wren*, *Northern Mockingbird*, *Brown Thrasher*, *Eastern Bluebird*, *Northern Waterthrush*, *Blue-winged Warbler*, *Mourning Warbler*, *Bobolink*, *House Finch*, *Pine Siskin*). The failure to detect Eastern Bluebird in 2022 (8 in 2011, 0 in 2022) may point to the decline or disappearance of some species from the landscape as well. In total, 94 species of birds used Bone Lake's ecological landscape for breeding between the two survey years.

For the purpose of ecological analysis, I included all species that occurred at abundances in excess of 1.5% of the community. Further analysis and finer dissection for rare specialist species, especially where the habitat provides necessary and unique resources in support of a specialist's ecological niche, will be included in the Discussion Section, beginning on page 18.



Sedge Wren and Golden-winged Warbler are uncommon species indicative of choice habitat within Bone Lake's designated sensitive areas. They are not included in the main community analysis due to low numbers.

Bone Lake Bird Species Occurrence in All Habitats and at All Detection Distances

A Community Overview

Species, Year 2022	Total	Percent %	Per Survey
Canada Goose	220	8.18	4.07
Purple Martin	170	6.32	3.15
Common Grackle	165	6.13	3.06
Red-winged Blackbird	164	6.10	3.04
Red-eyed Vireo	124	4.61	2.30
American Robin	109	4.05	2.02
Tree Swallow	109	4.05	2.02
Baltimore Oriole	105	3.90	1.94
American Crow	89	3.31	1.65
Yellow Warbler	78	2.90	1.44
Barn Swallow	71	2.64	1.31
Song Sparrow	59	2.19	1.09
Mourning Dove	57	2.12	1.06
Chipping Sparrow	54	2.01	1.00
House Wren	52	1.93	0.96
Blue Jay	50	1.86	0.93
Warbling Vireo	50	1.86	0.93
American Redstart	42	1.56	0.78
Pine Warbler	41	1.52	0.76
Red-bellied Woodpecker	41	1.52	0.76

Table 4: Bone Lake's overall Bird Community in 2022 at greater than 1.5% occurrence—This analysis is from all 54 points, all habitats and at all detection distances.



Neotropical migrant birds do exceptionally well on Bone Lake as breeding birds. Purple Martins, Tree Swallows and Barn Swallows dominated the aerial Insectivore Niche, while Red-eyed Vireos, Baltimore Orioles and Yellow Warblers dominated the gleaning insectivore niche. All of these insectivores overwinter in the Central American and South American tropics. A total of 92 bird species were detected in all habitats in the 2022 surveys..

Bone Lake Bird Species Occurrence in Residential Woodlot Habitats

Detection Distances Inside of 50 Meters

Species, Residential Woodlot <50 M	Total	%Percent	per Survey
Purple Martin	84	10.05	2.3
Common Grackle	78	9.33	2.2
Red-winged Blackbird	56	6.70	1.6
American Robin	47	5.62	1.3
Barn Swallow	36	4.31	1.0
Tree Swallow	36	4.31	1.0
Baltimore Oriole	34	4.07	0.9
Red-eyed Vireo	27	3.23	0.8
European Starling	23	2.75	0.6
Black-capped Chickadee	19	2.27	0.5
Blue Jay	19	2.27	0.5
Chipping Sparrow	18	2.15	0.5
American Crow	17	2.03	0.5
Cedar Waxwing	17	2.03	0.5
Pine Warbler	17	2.03	0.5
White-breasted Nuthatch	17	2.03	0.5
Mourning Dove	16	1.91	0.4
Song Sparrow	16	1.91	0.4
American Goldfinch	15	1.79	0.4
House Wren	14	1.67	0.4
Warbling Vireo	14	1.67	0.4
Gray Catbird	13	1.56	0.4
Eastern Kingbird	12	1.44	0.3
Red-headed Woodpecker	12	1.44	0.3

Table 5: Bird Communities of Residential Woodlots in 2022 at greater than 1.4% occurrence – This analysis is from the 36 survey points in Residential Woodlot detection distances within 50 Meters. 146 Canada Geese were removed from this analysis, as they were detected flying over or in the water and not directly utilizing this habitat.



Residential Woodlots, with their older growth pine and more savanna-like characteristics, supported 77 species of breeding birds. These habitats are important to Red-headed Woodpeckers, Pine Warblers, Bald Eagles, and Pileated Woodpeckers. Maintaining old stands of pine, cottonwood, oak, maple, and other large trees, including allowing dead snags to remain uncut and in place, benefits many forest bird species in Second Growth Forests and Residential Woodlots alike.

Bone Lake Bird Species Occurrence in Second Growth Forests

Detection Distances Inside of 50 Meters

Species in 2022, Second Growth Forest	Total	%Percent	per Survey
Purple Martin	29	8.31	2.1
Common Grackle	24	6.88	1.7
Tree Swallow	20	5.73	1.4
Red-winged Blackbird	19	5.44	1.4
Red-eyed Vireo	18	5.16	1.3
Song Sparrow	17	4.87	1.2
Baltimore Oriole	15	4.30	1.1
Yellow Warbler	15	4.30	1.1
Barn Swallow	14	4.01	1.0
American Redstart	14	4.01	1.0
American Goldfinch	13	3.72	0.9
Cedar Waxwing	13	3.72	0.9
Common Yellowthroat	10	2.87	0.7
Veery	9	2.58	0.6
Gray Catbird	6	1.72	0.4
Warbling Vireo	6	1.72	0.4
Yellow-throated Vireo	6	1.72	0.4
European Starling	5	1.43	0.4
House Wren	5	1.43	0.4
American Robin	5	1.43	0.4

Table 6: Bird Communities of Forests and Thickets in 2022 at greater than 1.4% occurrence – This analysis is from the 14 Second Growth Forest Sites and 3 remaining Lowland Thicket and Edge Thicket habitats. 74 Canada Geese were removed from this analysis, as they were detected flying over or in the water and not directly utilizing this habitat.



Second Growth Forest habitats, with their lack of fragmentation and complexity of forest habitat structure, supported 64 species of breeding birds in 2022. Some bird species are highly dependent upon this habitat. These forests are of great importance to the State Threatened Red-shouldered Hawk, as well as to forest birds such as the American Redstart, Ovenbird, and Yellow-throated Vireo.

Bone Lake Bird Species Occurrence in Lowland Tamarack, Alder Swamp, and Northern Sedge Meadow at All Detection Distances

Species, Year 2022	Total	Percent %	per Survey
Red-winged Blackbird	33	22.45	16.5
Common Grackle	9	6.12	4.5
Yellow Warbler	9	6.12	4.5
Trumpeter Swan	7	4.76	3.5
Veery	6	4.08	3
Alder Flycatcher	5	3.40	2.5
Common Yellowthroat	5	3.40	2.5
Eastern Kingbird	5	3.40	2.5
Swamp Sparrow	5	3.40	2.5
Cedar Waxwing	4	2.72	2
Great Crested Flycatcher	4	2.72	2
Purple Martin	4	2.72	2
Wood Duck	4	2.72	2
American Crow	3	2.04	1.5
Golden-winged Warbler	3	2.04	1.5
Mourning Dove	3	2.04	1.5
Rose-breasted Grosbeak	3	2.04	1.5
Warbling Vireo	3	2.04	1.5

Table 7: Bird Communities of the Tamarack Lowland at greater than 2% occurrence—This analysis is from the two Tamarack Lowland, Alder Swamp, Northern Wet Sedge Meadow sites in WI DNR holdings.



Red-winged Blackbirds, a common generalist species, dominated the Tamarack and Alder Swamp Northern Wet Sedge Meadow habitats, but these habitats are also of critical importance to the Golden-winged Warbler, Alder Flycatcher, and Veery. 39 species were detected in just two surveys of the tamarack lowlands in 2022.

Discussion

Understanding Bird Communities: Habitat and Niche Perspectives

Bone Lake's overall conservation picture is bright and promising, and the home and cabin owners of Bone Lake are collectively working as positive environmental stewards. Bird populations are thriving amid robust forested habitats, clean water, healthy aquatic ecosystems, and mosaics of biological complexity. Professional ornithologists have abundant, continent-wide evidence spanning more than five decades demonstrating that long-distance Neotropical migrant birds are in a large-scale decline. The number of birds migrating and breeding across the North American continent is estimated to be only 29% of what it was in 1970, a decline of more than 3 billion birds (Roseberg 2019). Birds are imperiled due to habitat loss and habitat fragmentation in the United States on the breeding grounds and in the tropics on the wintering grounds. In between, birds face many human-made perils during migration. Despite all of this, most Neotropical migrant bird species using Bone Lake are showing clear evidence for population increases and thriving life cycles. Human appreciation for natural beauty and the continuity of Bone Lake's ecological landscape is very good for birds and other wildlife.

Links to Habitat Through Niche – Birds as Indicators and Ecological Descriptors

All species considered together, birds represent flexibility, adaptation, and resilience. They are clever, tough, and are usually able to travel great distances to find what they need. At the same time, each individual species of bird has a set of more refined adaptations, usual ecological niches, and, with that, accompanying vulnerabilities. Birds of any particular species occur where habitat conditions are favorable and their specific niches are provided for. A whole community of many bird species represents the intricacies and overlap of habitat provisions and available niches. It is through the lens of bird communities that habitats can quickly be identified, evaluated, and accounted for.



Baltimore Oriole drinking water along the shore of Bone Lake, a species that overwinters in Costa Rica, C.A.

Addressing Declines of Barn Swallows, Eastern Phoebes, and Eastern Bluebirds

Some people view phoebes as pests when they nest on home structures, and removal of phoebe nests from downspouts, window ledges, and door ledges may be in part to blame. With the number of insectivorous species thriving on Bone Lake, it does not seem likely that these few declines would be related to pesticides, declines in insect populations or other problems in the local food web. On the other hand, four of the species tend to forage in close or immediate proximity to human dwellings as a rule more than an exception. Bone Lake residents may choose to partner up with Eastern Phoebe conservation efforts, leaving the large, luxurious moss-lined nests undisturbed when phoebes build them on home structures and under the eaves of sheds. Similarly, Bone Lake residents may wish to Bone Lake residents may also choose to build and place bluebird houses in wide-open, sunny parts of the yard. Reduction in use of locally applied pesticides and organic gardening and landscaping practices may also help these species.

Bird Communities and Habitat Connections

Bird communities associated with **Residential Woodlot** were composed largely of edge and generalist species, though most of these species shared one or more important niche requirements that are accommodated by human landscape alterations and older trees in open, park-like settings. Within the 50-meter count circles for the 36 Residential Woodlot surveys, a total of 66 species were detected in 2011, and 65 species were detected in 2022. This is a very strong representation of Wisconsin's avian biodiversity, partly due to the number of ecological niches provided for but also due to the vast acreage of Bone Lake's landscape covered by this habitat.

Bird communities of Residential Woodlots remained relatively constant. While Purple Martin, Barn Swallow and Tree Swallow remained more common over water, shifts in community structure were detected amid terrestrial habitats between 2011 and 2022. Baltimore Oriole was the most abundant bird detected within the forested portions of the Residential Woodlot habitats in 2011, and, despite stable numbers, Common Grackle, Red-winged Blackbird, and American Robin moved ahead of Baltimore Oriole in relative abundance in 2022. Sharing fairly even ranks with 2011, American Robin, Baltimore Oriole, Red-eyed Vireo and Chipping Sparrow were the most common forest canopy birds in 2022, with Red-eyed Vireo increasing in abundance rank and Chipping Sparrow falling. Chipping Sparrow fell from 4th to 13th in abundance rank from 2011, dropping from 31 detections to 18 detections. Eastern Phoebe declined significantly in detections, and the species abundance rank fell from 10th to 27th.

Bird niches common to Bone Lake's residential woodlot habitats included obligate cavity nesting birds, insect-eating birds of mature forest, and aerial insectivores that thrive in areas with open, orchard-like subcanopy and understory. Birds common to spruce plantings and other ornamental/landscaping trees and shrubs were also very important in the bird community associated with residential woodlots. Obligate cavity nesting species such as nuthatches, chickadees, woodpeckers, wrens, martins, Tree Swallows, and Great Crested Flycatchers continued to hold a strong presence in Bone Lake's bird community. All of these species are dependent upon standing dead trees, dead branches on live trees, cavities in live trees, and nest boxes provided by bird enthusiasts. Insect and fruit eating birds of the upper canopy were strongly represented by the Baltimore Oriole. Red-eyed Vireos were abundant, and Yellow-throated Vireos (0.72%) and Pine Warblers (2.03%) were common. Aerial insectivores, birds that take insects on the wing, often thrive where insect-rich environments such as lakes and rivers intersect forests with open, cathedral-like subcanopy and understory layers. In this environment, birds are able to perch high above the ground and sally out towards insect prey with an abundance of open airspace. Purple Martin, Barn Swallow, Tree Swallow, Eastern Wood Pewees, American Redstarts, and Eastern Phoebes are examples of the aerial insectivores common to Bone Lake. While pewees and redstarts build nests in trees, the Eastern Phoebe is a cliff-nesting species that has adjusted nesting habits to utilize roof overhangs and downspouts wherever human habitation provides the opportunity. Similarly, Purple Martins, Barn Swallows, and Tree Swallows have become very dependent upon human-made structures. Common Grackles and Chipping Sparrows were abundant and ranked high in the bird community, most likely owing to their use of ornamental conifers such as spruce and cedar as nesting substrate. Red-headed Woodpeckers were detected even more frequently in 2022 along Bone Lake's shores, and they expanded greatly both in number of locations present and total numbers detected. Their growing presence correlates to open environments with evenly spaced, mature shade trees and represents an exciting local conservation success story.

Bird communities associated with the **Second Growth Deciduous Forest** were similar to those of the residential woodlots in that the most abundant species of birds were typically generalist birds of fragment and edge habitats. This is in large part due to landscape level influences and makes sense when one considers that the forests here are highly fragmented and that the residential woodlots were largely carved from this second growth forest as well. Similar to the Residential Woodlot habitats, Baltimore Orioles and Red-eyed vireos were the most abundant forest songbirds of the Second Growth Forest. In 2022, their relative abundance rank fell somewhat due to increases in Common Grackle and Red-winged Blackbird, a situation similar to that of the Residential Woodlot habitat class. In 2022, Residential Woodlot and Second Growth Forest shared a total of 12 common species of birds occurring at 1.5% or greater of the total bird community. Five species appeared largely dependent upon the Second Growth Deciduous Forest, including Yellow Warbler, American Redstart, Common Yellowthroat, Veery, and Yellow-throated Vireo. While most birds

that could be found in second growth forest were also present in residential woodlots, forest species that were largely absent from residential development included Least Flycatcher, Rose-breasted Grosbeak, Scarlet Tanager, and a Wisconsin Threatened Species, the Red-shouldered Hawk. Further, Second Growth Forest habitats had a greater density of Veery, American Redstart, Yellow Warbler and Yellow-throated Vireo than adjacent areas of residential development, all four of which are long-distance migratory birds and three of which rely on quality forest, often near water. Baltimore Oriole, Red-eyed Vireo, American Redstart, Yellow Warbler, and Common Yellowthroat, all insectivorous birds, were abundant in second growth forests, with each species present at greater than 2.8% of the total community. This assemblage of birds represents insect control at the canopy, subcanopy, and brushy understory levels of the forest. Patrolling the open subcanopy as aerial insectivores, American Redstarts were present at 4% of the total bird community.

Bird communities associated with the **Lowland Tamarack** sites were vastly different from those of other habitats and were most important in their support of the Golden-winged Warbler, a bird of global and state conservation concern. In 2022, Sedge Wren and Alder Flycatcher used the site as did many common ecological associates to the Golden-winged Warbler in Wisconsin's lowland alder thickets-- the Veery, Yellow Warbler, Black-and-white Warbler, Chestnut-sided Warbler, Swamp Sparrow, Common Yellowthroat, and Rose-breasted Grosbeak. Alder wetland and tamarack-northern wet meadow bird communities meet the needs of a variety of birds that nest in wetland edges, marshy thickets, and shrub wetlands. Most of these birds are insectivorous, and many are tropical species. Great Blue Herons and Green Herons utilized this site extensively. Sandhill Cranes have showed tantalizing evidence of a strong pair bond, strong site fidelity and probable breeding in past years. A pair of Common Loons has also used this area as a breeding site in past years. This year (2022) the site was used by Trumpeter Swans to successfully hatch and rear cygnets.

Bone Lake's Species of Conservation Concern

Bone Lake's spectacular bird diversity and rich habitats support and include a few species that are recognized as Threatened or of Special Concern at the State and/or Federal level. A number of species are also of high conservation priority and have been recognized by the International Union for the Conservation of Nature (IUCN) as "Near Threatened." Almost *all* of the remaining bird species using Bone Lake are protected by the International Migratory Bird Treaty Act as well as state and federal law. Additional laws exist to protect Bald Eagles (Bald Eagle Protection Act of 1940), and local ordinances and state law provide additional protections to loons and other species susceptible to wildlife harassment. In addition to the rare, uncommon, or high-profile species of birds living on Bone Lake, many common species here are long-distance migrants and spend as many 7 months per year wintering in the tropical Americas, presenting us with a responsibility in International conservation partnerships and exciting opportunities and challenges in bird conservation.

The Wisconsin DNR's Natural Heritage Conservation Bureau maintains a list of conservation species priorities. You can access the Wisconsin DNR's working list here:

<https://dnr.wisconsin.gov/topic/NHI/WList>

Trumpeter Swan

Protected; Approximately 5,000 Statewide (WI DNR); Removed from ESA in 2009

Trumpeter Swans were observed rearing young on the north end of the lake. Trumpeter Swans are listed by the Wisconsin DNR as a species of Special Concern, having only recently risen above an Endangered or Threatened status. In 1910, there were only about 75 Trumpeter Swans remaining in the wild in all of North America. They were victims of unregulated market hunting in the 1800s and early 1900s, and they were reintroduced to Wisconsin from an Alaskan population through intensive efforts in the late 1980s and early 1990s. By the year 2000, Trumpeter Swans were becoming well established as a wild population and breeding species in the state. Wisconsin's Trumpeter Swan population is thriving, the result of legal protection, early reintroduction efforts, and an abundance of favorable habitat.

Younger generations may not realize how perilously close to extinction this species came, and the story of Trumpeter Swan recovery should be shared for the sake of perspective and for the sake of optimism in conservation. Lead poisoning is still a common problem, owing at least in part to lead fishing sinkers ingested while swans are gathering gizzard gravel. Use of non-toxic fishing sinkers on Bone Lake would be beneficial to Trumpeter Swans. Avoidance of swans with cygnets and maintaining low boat wake or no wake near active swan nests may increase reproductive success for Trumpeter Swans.



A pair of Trumpeter Swans with cygnets on Bone Lake, June 2022

Swan populations are tracked using neck collars and leg bands, and swans with collars can be reported to the USGS. Many of those swans banded by the Wisconsin DNR have yellow bands with black letters and numbers (examples: P 38, 86K, 00C, 50J). Because of the success in the recovery of this species, banding and collaring efforts have slowed dramatically. The percentage of birds carrying bands or collars is now miniscule, as most birds on the landscape were hatched after the years of intensive banding. To see a banded or collared swan carries a bonus experience. When you report a swan's collar color and number, it gives you access to the age of the bird. For example, a yellow neck collar with black lettering "29K" is a Wisconsin-banded bird, banded the year it hatched in 2005. If you happen to see a swan with a collar, you can report the location of your sighting and the swan's collar number here:

<https://www.pwrc.usgs.gov/bbl/bblretrv/>

or here...

<https://www.trumpeterswansociety.org/what-we-do/trumpeter-watch/report-a-swan.html>

Bald Eagle

Protected Species, Bald Eagle and Golden Eagle Protection Act of 1940 – Recovered and Delisted from ESA



In the wake of DDT, Bald Eagles suffered a precipitous decline through the second half of the 20th Century. This once critically endangered species has seen a tremendous recovery both in population numbers and population health over the last four decades. Since the late 1980s, Bald Eagles have become increasingly common and more tolerant of human activities. They are now a common sight on Bone Lake. Currently, the Bald Eagle has been de-listed (2007) from the Endangered Species Act but is still federally protected as a migratory bird and under the Bald Eagle and Golden Eagle Protection Act of 1940.

The Wisconsin status of the Bald Eagle is that of a Special Concern species. Bald Eagles are currently monitored for environmental chemicals in Wisconsin, and nearly 80,000 chemical compounds, many from industry, are readily detected in eagle blood. Threats to Bald Eagle health include fishing tackle, especially items left in fish during line cuts or deep hook releases, and fragments of lead bullets ingested by eagles when feeding on animal carcasses and gut piles. Use of correct test weights in fishing lines, nontoxic fishing tackle, and correct catch-and-release practices is beneficial to Bald Eagle health, as aquatic raptors are susceptible to accumulation of hooked lures within their digestive tracts. Use of nontoxic ammunition during deer hunting seasons prevents lead poisoning in eagles as they scavenge gut piles.

Bone Lake's contribution to the success of the Bald Eagle includes an abundance of large pine and cottonwood trees, used as roosts, fishing perches, and nest trees. The quality of the lake, including clean water, a diverse fishery and healthy fish nurseries within diverse, native aquatic plant communities, plays a key role in the Bald Eagle's presence on Bone Lake. While it is likely that Highly Pathogenic Avian Influenza took a toll on this year's hatchlings, the population age structure on Bone Lake is very healthy with many immature birds observed as well as paired adult birds.



Red-shouldered Hawk

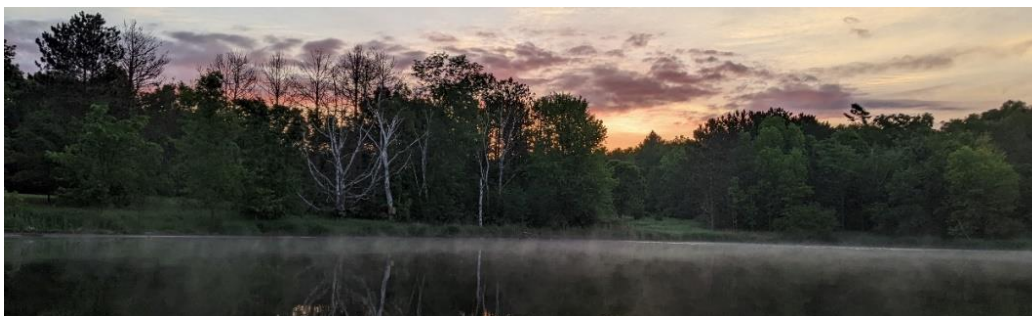
State Threatened Species



Red-shouldered Hawks are of high conservation priority, having the state status as a Threatened Species. Red-shouldered Hawks are present on Bone Lake, though their overall life histories are tied to the expanses of greater forested landscapes of Polk County. Protecting and maintaining larger, contiguous tracts of forested land surrounding Bone Lake could play an important role in the future of this species. Large tracts of forested wetlands, especially those with a greater diversity of hardwood tree species, are favored by Red-shouldered Hawks. With its numerous wild rivers, wetlands, forested lands, back bays, and small lakes, Polk County supports a healthy population of this medium-sized buteo hawk.

Red-shouldered Hawks may be identified by their repetitive call, a nasal, piercing, and loud “*kee-awww, kee-awwww, kee-awwww.*” The call is clear, not raspy, and it carries a very long way through the forest. In the spring, Red-shouldered Hawks perform aerial mating displays, and the loud and clear call notes are given from the open air, often far above the forest canopy. Positive identification by call alone can be tricky, since Blue Jays are expert mimics. When soaring, Red-shouldered Hawks have distinctive “window” marks on the primary flight feathers, allowing sunlight to penetrate the soaring bird’s wings. Strong black-and-white barring on the tail feathers is similar to that of the smaller Broad-winged Hawk. The Red-shouldered Hawk does indeed have reddish shoulders that give it its name, complemented by a rusty belly and breast in the adult bird.

Currently (2022), a large, continuous block of forest in the east central region of Bone Lake holds a territory of Red-shouldered Hawks. This is excellent news, as the birds were also there in 2011. The hawks are indicators of high-quality habitat that has endured the test of time, including the derecho storm of 2019. The forests to the west of Bone Lake also hold great promise for this species, and Red-shouldered Hawks were detected in high quality forests of the northwest region of Bone Lake in 2011.



Common Loon

S3B, Vulnerable Breeding Species due to Restricted Range and Habitat



Common Loon populations remain stable and are even increasing slightly on Bone Lake, though 2022 did not look promising for reproduction. Loons have nested on Bone Lake in recent years. While working for the Wisconsin Breeding Bird Atlas II on June 30, 2018, I found a Common Loon nest with a single egg. The nest was a low mud mat that had been built at the edge of the sedges and rushes in the northwest bay (WI DNR lands).

The Common Loon is a sensitive species. With an average population growth of around 1% per year under ideal conditions in Wisconsin, the Common Loon exhibits many characteristics that put it at risk over the long term. Common Loons are long-lived birds with a low reproductive success. Approximately 30% of adult loon pairs are successful in producing an average of just one chick per year, and chick survival rates are low enough that loon reproduction is barely a step ahead of population maintenance. In many areas over the last decade, Common Loon populations have begun to decline.

Loons require undeveloped landscapes including pristine back bays, isolated islands, and a minimum of boat traffic disturbance and boat wakes within the proximity of nesting areas and the nursery areas where chicks are reared. Intensified powerboat activities and boat wakes are detrimental to loon reproduction. Loon studies have shown that loons are sensitive to boat traffic and recreational powerboating, and some studies cite instances in which loon nests have been swamped by boat wakes.

Because loons feed high on the food web as a top predator, they are sensitive to chemical pollutants such as methyl mercury that may accumulate in toxic levels through biomagnification. In recent years, much attention has been given to lead poisoning in loons. Efforts to replace lead fishing tackle and lead sinkers with non-toxic alternatives are an important step in loon conservation, as loons pick up lead from the bottom of the lake when seeking gizzard gravel. Behavioral studies paired with blood chemistry studies in eastern North America have shown that reproductive stress in loons is associated with increasing mercury levels in lake food webs. The mercury is the result of impurities in the coal burned by those power plants providing a vast percent of our electricity. Bacteria convert inorganic mercury fallout to methyl mercury in aquatic ecosystems, a soluble, toxic form that incorporates into body tissues and accumulates through the levels of the food chain.

As loons are sensitive to the many environmental changes associated with an industrial nation, their survival may depend upon the utmost respect being paid to their need for space and solitude in raising strong young. Anglers choosing to use nontoxic sinkers will also play a role in supporting loon survival and reproduction.

For more information, visit the Sigurd Olson Institute's Loon watch:

<https://www.northland.edu/centers/soei/loonwatch/>

Red-headed Woodpecker

Species of Special Concern



The Red-headed Woodpecker remains one of the most rapidly declining bird species in North America, and the cause of their disappearance is somewhat of a conservation mystery. The International Union for the Conservation of Nature lists it as a “Near Threatened” species. Open oak savannah and mature, open forested areas with diverse hardwoods are likely the habitats that will preserve this species into the future. Red-headed Woodpeckers require tree cavities for nesting, using dead and standing tree stumps of large size and larger dead branches on live trees. They forage on acorns in the early autumn, stripping the acorns from the upper branches of oaks. Areas of evenly spaced, mature trees, including mast-bearing oaks, present in Bone Lake’s residential areas are increasingly inviting to Red-headed Woodpeckers. Because Red-headed Woodpeckers are relatively common on Bone Lake, residents may be inspired to continue maintaining open woodlots with mature trees and may also wish to keep a few larger dead trees standing to provide for this otherwise rare species.

This year, on Bone Lake, I observed firsthand the role that aquatic insects play in the chick-rearing phase of the Red-headed Woodpecker’s life cycle. Red-headed Woodpeckers enthusiastically used the shore of Bone Lake to forage for recently emerged dragonflies. The aquatic community of Bone Lake represents an unexpected nutritional boost for Red-headed Woodpeckers. While it might not be too surprising that this resourceful omnivore would take to aquatic insect emergence as a food windfall, it does place a new importance and emphasis on Bone Lake’s water quality and the intimate connection between terrestrial and aquatic ecology.



Open areas with evenly spaced, large shade trees may be beneficial to populations of Red-headed Woodpecker

Golden-winged Warbler

Species of Special Concern, S3B Vulnerable Breeding Species due to Restricted Range and Habitat



Currently, about 75% of the world's population of Golden-winged Warblers nests in northern Wisconsin and Minnesota, and, due to important population declines, strong consideration is being given to this species for Threatened status. Currently, fewer than 400,000 adult birds constitute the global population, and their populations have declined by more than 65% since the late 1960's. (Cornell Labs, 2022)

Golden-winged warblers are truly tropical birds, migrating to Costa Rica and Panama, and they are highly sought and enjoyed by birdwatchers from around the globe, as often in their tropical homes as in the Great Lakes region. Reasons for the decline of this species are, in large part, related to landscape ecology and changes in land use practices in recent decades. Golden-winged Warblers are birds of habitat mosaics, requiring a blend of mature forest and open, disturbed sites. Prime habitat in Northern Wisconsin occurs in a variety of situations. In most forest habitats, Golden-winged Warblers seek open, sunny areas of young aspen in close proximity to mature forest. In sand barrens, Golden-winged Warblers thrive with logging practices wherein patches of clear-cut and subsequent brushy, weedy growth intersects mature forest. In mature, lowland habitats near lakes and rivers, Golden-winged Warbler presence seem to correlate well with alders, especially where patches of young aspen occupy dry sites nearby.

Four Golden-winged Warblers were detected on Bone Lake during the 2022 survey period, and all were present in the large wetland to the Northwest on properties owned by the Wisconsin DNR, and in two parcels just south of the DNR lands. Habitat for Golden-winged Warblers on Bone Lake is fairly rare and consists of low country with an abundance of alder and young forest in close proximity to mature forest.



Osprey

Species of Special Concern



Much like Bald Eagles and Peregrine Falcons, Ospreys nearly went extinct in the 1960's following a couple of decades of intensive DDT pesticide use at a global scale. With DDT no longer legally manufactured or applied in the United States, many species of birds have recovered or nearly recovered. Ospreys are now quite common in Wisconsin, nesting on the stadium lights of many football fields, the FM and cell towers along our roads, maritime channel markers, and on the tops of electrical poles. Seldom does an Osprey even nest in the broken off old top of a white pine around here, as they so often do in wilderness. Ospreys, like eagles, pelicans, and falcons, are susceptible to bioaccumulation and biomagnification of toxic pollutants, as the toxins accumulate in greater and greater concentrations up the food chain. For this reason, conservationists remain vigilant and protective over what we have now successfully recovered.

Ospreys catch fish and must compete with Bald Eagles for resources. Eagles will often engage in piracy, chasing Ospreys until a fish is dropped. Observing Ospreys is thrilling, as, unlike eagles, they perform a headlong high dive, crashing into the water as if a giant kingfisher, seizing a fish in talons. The outer front toe of an Osprey famously pivots so that the bird, usually with three toes forward and one toe back, can make a box-like, four-sided fish trap tipped in sharp talons.

Much like Bald Eagles, Bone Lake's Ospreys will benefit from anglers using the correct test weights of fishing line, minimizing line cuts, and removing lures from fish before releasing them back to the water. Aquatic raptors are susceptible to accumulation of hooked lures within their digestive tracts.

Purple Martin

S2S3B, Imperiled or Vulnerable Due to Restricted Range and Habitat



Despite their incredible success among the lakes of Polk and Barron Counties, Purple Martin populations have declined steeply across much of their original North American range. The American Bird Conservancy estimates the Purple Martin population globally at 7 million birds with a continually decreasing trend. Purple Martins are susceptible to pesticides in the United States and on their wintering grounds in South America.

Competition with House Sparrows and European Starlings is one key factor for decline on the breeding grounds. Proper seasonal maintenance of martin houses and increases in availability of nest boxes are benefits to Purple Martin populations.

The ecological concept of a “population source” is that of a place where reproductive successes continually create net gains in the population of a species. Bone Lake shows strong evidence of being such a population source. Residents with successful Purple Martin colonies are encouraged to teach and mentor their neighbors on best practices. Providing increasing nesting opportunities for Purple Martins and improving reproductive rate creates a population source on Bone Lake that may ultimately spill into other communities across the larger landscape. Indeed, Northwest Wisconsin’s Lakeland is a high-density region for Purple Martins, and the opportunity to contribute growth to the global population is of importance.

Bone Lake’s healthy aquatic systems that produce abundant, ecologically healthy insect life and the proud Purple Martin stewards of Bone Lake are to credit for the area’s growing Purple Martin population. Let’s keep up the amazing work! Bone Lake is a place of promise for this species.

<http://www.wisconsinpurplemartins.org>

Neotropical Migrant Birds



Because we share the responsibility in conservation with so many other nations, from Canada all the way to Peru, all species of Neotropical migrant birds are a conservation priority. Just as we count on other nations to save “our birds” we must also be responsible and proactive in saving “their birds.” These are the birds we share, the birds we borrow, and the birds we lend. We welcome them back in May, and we say farewell to them in August and September. June is the month in which most of them breed here. While these birds do in fact breed in our landscape, they spend more than 7 months each year in tropical countries, overwintering in a crucial part of their lifecycle. We truly are partners in conservation with all of Latin America.

Neotropical migrants face many perils. Collectively, they suffer from habitat loss, habitat fragmentation and habitat degradation, both on the breeding grounds in the north and the wintering grounds in the south. During migration, they face increasing degradation to migratory stopovers, collisions with buildings (windows), radio and cell towers, and city lights. Many of these birds make epic ocean crossings as they fly from North America to South America. Crossing the Gulf of Mexico takes a Baltimore Oriole more than 24 hours, and the penalty for failure is to end up as fish food. Some wood warbler species fly continuously from the Carolina coasts, out over the Atlantic ocean, making landfall in South America some 1400 miles later. To accomplish these feats, Neotropical Migrants must find enough food to amass fuel, adding 30% additional body weight in fat before a long flight. They must also to survive moments of near starvation upon making landfall. High quality habitats with high quality foods are essential to their survival.

The survival of these bird species is dependent upon Wisconsin’s habitats providing the right ingredients for a successful reproductive season, free of parasitism, predation, or abandonment. It is also dependent upon a corridor of safe haven habitats for migrating birds stretching from here to the tropics, and, of course, it is dependent upon the tropical nations’ having habitats that provide for successful and safe overwintering. The idea of birds “flying south” for winter is vastly oversimplified. In reality, the future of our Neotropical migrant birds is a species-by-species, population-by-population, habitat-by-habitat jigsaw puzzle of national boundaries, habitat preservation concepts, conservation initiatives, and private landowner and public agency cooperation and follow-through. Our shared birds are affected by our economic decisions in all of the Americas, and our net impact on the birds hinges not only on Wisconsin’s land management decisions but also, as an example, on where a Wisconsin resident buys tropical coffee,

chocolate, and bananas. We vote on land practices in other countries with our purchase power, and purchases that support bird-friendly agriculture make a landscape-level difference when they grow to a majority. A vast number of Wisconsin's breeding birds are "birds without borders," an international conservation priority requiring international thinking and collaboration.

Find out what you can do here:

<https://tropicalwings.org/>

<https://partnersinflight.org/>

<https://www.wisconservation.org/about-us/>

<https://www.birds.cornell.edu/home/>

While many bird species using Bone Lake migrate to the southern United States in winter, truly Neotropical birds breeding in Bone Lake's forested habitats included the following (*in taxonomic order*):

Green Heron

Yellow-billed Cuckoo

Chimney Swift

Ruby-throated Hummingbird

Spotted Sandpiper

Osprey

Broad-winged Hawk

Merlin

Eastern Kingbird

Great Crested Flycatcher

Eastern Wood Pewee

Least Flycatcher

Alder Flycatcher

Purple Martin

Barn Swallow

Tree Swallow

Blue-gray Gnatcatcher

Gray Catbird

Veery

Yellow-throated Vireo

Red-eyed Vireo

Warbling Vireo

Ovenbird

Golden-winged Warbler

Blue-winged Warbler

Northern Waterthrush

Nashville Warbler

Black-and-white Warbler

Chestnut-sided Warbler

Yellow Warbler

American Redstart

Mourning Warbler

Common Yellowthroat

Rose-breasted Grosbeak

Indigo Bunting

Bobolink

Baltimore Oriole

Scarlet Tanager

Bone Lake's Aquatic Birds



A female Belted Kingfisher, a charismatic and agile hunter of small fish

Water birds of greatest conservation interest are Common Loons, of which a total of 8 birds were estimated to be living on Bone Lake in 2022. No evidence of a nest was observed during the survey period in 2022, and no loon chicks were detected. Trumpeter Swans were present with recently hatched cygnets on the north end of the lake, and it is likely that these birds nested in the northwest section of the lake in the sensitive area. Other water birds included Double-crested Cormorant, Hooded Merganser, Mallard, Wood Duck, Canada Goose, Great Blue Heron, Green Heron, Spotted Sandpiper, and Belted Kingfisher.

Wood Duck and Hooded Merganser, both tree-nesting species that use cavities, were likely present due to the abundance of suitable nesting habitat. Fish-eating species of birds benefiting from Bone Lake's rich fishery included Common Loon, Double-crested Cormorant, American White Pelican, Hooded Merganser, Caspian Tern, Ring-billed Gull, Great Blue Heron, Green Heron, and Belted Kingfisher. While not necessarily considered to be aquatic birds, swallows were the most abundant of all small birds using the open water areas of Bone Lake. Barn Swallow, Tree Swallow, and Purple Martin were all abundant, and Northern Rough-winged Swallows were present. These birds were detected most often while aerial foraging for insects over open water. Of note, many of the insects that swallows eat are aquatic species that spend most of their lives underwater as gill-breathing larvae before going through a winged metamorphosis at the surface of the water. Stoneflies, caddisflies, mayflies, blackflies, mosquitoes, and dragonflies are among these aquatic insect species.

Conclusions and Considerations

With an astonishing 101 species of birds detected, the biological diversity of Bone Lake's bird communities has not been fully described. 76 regular breeding species occur on the shores of Bone Lake. Numerous conservation opportunities have become apparent, and many conservation goals can be reached simply by maintaining the current quality of Bone Lake's habitats. Residential woodlots, in maintaining old trees and in allowing standing dead wood to remain, play an important role in sustaining populations of Red-headed Woodpeckers, a species of conservation concern. These habitats also support Bald Eagles as well as Red-bellied Woodpeckers and Great Crested Flycatchers. Large parcels of second growth forests play an important role in the conservation of a Threatened Species, the Red-shouldered Hawk. Forest species such as Least Flycatcher, Ovenbird, Rose-breasted Grosbeak, Scarlet Tanager, and Veery are sustained by keeping larger blocks of forest habitats intact. In the lake's northwestern corner, a spectacular tamarack lowland supports Common Loons, Sandhill Cranes, Trumpeter Swans, and a species of immediate conservation urgency, the Golden-winged Warbler. While this wetland habitat is a property owned by the Wisconsin DNR, Bone Lake's residents are able to contribute to the value of this property's habitat to birds at the landscape level.

Get the Lead Out!

Three high-profile bird species, the Bald Eagle, Trumpeter Swan and Common Loon, are potentially threatened by lead sinkers. These three species are icons of the north woods lake country and are a source of tremendous pride and inspiration for Bone Lake's residents and visitors. Bone Lake's residents have an opportunity to promote the use of nontoxic fishing equipment by promoting alternative metal sinkers at boat landings through the use of information kiosks and possibly even offering nontoxic sinkers at boat landings. Bone Lake's residents may also choose to lead by example, switching to non-toxic tackle. Both Common Loon and Trumpeter Swan pick up the lead directly as they forage to pick up grit and gravel for their gizzards. While much of the lead ingested by eagles is through lead bullet fragments in the remains of deer gut piles, eagles are also affected by fishing line breakage and similar litter. X-ray analysis of young eagles shows that lead fishing tackle is frequently ingested by eagles when the lost tackle remains attached to the fish being consumed by the eagle. A lead jig provides a toxic dose of lead.

<http://replacelead.com/project.shtml>

<http://www.peregrinefund.org/subsites/conference-lead/PDF/0119%20Neumann.pdf>

Bringing Back Bluebirds and Keeping Cavity Nesting Birds Thriving!

Nest boxes are readily utilized by a variety of species. Currently, the use of nest gourds, martin houses, bluebird houses and other nest boxes appears to be very successful in attracting birds and enhancing reproductive success of species that use these structures. Purple Martin populations are thriving on Bone Lake, increasing 179% since 2011. Tree Swallows, House Wrens, Black-capped Chickadees, and a variety of other cavity-nesting species are very abundant here. Eastern Bluebirds, it seems, have declined in detectability and, thus, likely in population. Promoting new Eastern Bluebird boxes and placement of the boxes in open, sunny areas, far from thickets or edges, will help increase bluebird numbers. Service learning and conservation have the potential to meet on the shores of Bone Lake if a nest box program is launched through a school or service organization. For example, neighboring Unity High School has a graduation requirement of 40 hours' community involvement for each student. Unity also has a thriving

agriculture and technical education program, and all students complete a Capstone project for 9th, 10th, 11th, and sometimes 12th grades. The prospect of building nest boxes of the correct dimensions and specifications is good for birds, satisfies student requirements, and fosters an appreciation for Bone Lake and the power of local conservation efforts. Residents maintaining successful martin houses are encouraged to mentor others in best practices and to encourage increases in availability of martin houses.

Join eBird! Keep Track of the Birds!

Opportunities for citizen science monitoring, natural history appreciation, and a gathering of community around directed conservation efforts abound at Bone Lake. Keeping daily bird lists, getting young people involved with citizen science and eBird listing, and sharing checklists with one another promotes conservation awareness and the link between birds and habitat. Birdwatchers should be sure to check out eBird. Creating an account and submitting observation reports helps conservation! Check out eBird at www.ebird.org

Grow the Acreage of Forest and Keep the Wild!

Continuous acreage of forest provides ground cover structure, understory and shrub layer structure, and an abundance of dead snags not usually present in landscaped, residential woodlots and yards. Efforts to maintain continuous acreage of forest and concurrent efforts to minimize fragmentation by roads, trails, buildings, and clearings can be considered as an important step in long-term conservation efforts. Property owners adjacent to undeveloped forest parcels may wish to begin reforestation efforts at the edges of their lots, perhaps planting hardwood species such as white oak and replenishing understory species such as dogwood, Viburnum, or winterberry. These efforts to preserve and expand acreage of woodland will benefit sensitive forest bird species, including state Threatened Red-shouldered Hawks, and will promote other area-sensitive forest birds that were not detected during bird surveys. A few unique forest birds such as Wood Duck, Hooded Merganser, Barred Owl, and Pileated Woodpecker require large, old trees and a good supply of larger dead and standing tree snags. A larger variety of Neotropical migrant songbirds will benefit from forest preservation or expansion as well.

No Wake Zone! An Opportunity to Protect Loon Nests

Important conservation priorities for the Wisconsin DNR parcel of tamarack forest lowland and sedge meadow point to maintaining the wild character of nearby land so that Common Loons, Trumpeter Swans, and Sandhill Cranes will be encouraged to nest. Further, Sandhill Crane pairs and Golden-winged Warbler pairs indicate that this property represents an intact and sizeable example of Northern Wet Sedge Meadow and alder/tamarack dominated swampland. Increasing participation by nearby landowners in providing wild shoreline may increase the overall effectiveness in this wetland's production of important birds each summer. Further, the lake district may wish to discuss a **no wake zone** to discourage boating activities that would be disruptive to sensitive species in the vicinity of this property, especially loons. It is reported that boat wakes are dangerous to floating loon nests on natural vegetation, and keeping a distance buffer between high speed, random recreation and sensitive species may increase the likelihood that nesting and chick rearing will occur.

Protect What We Have!

Much of what can be done at Bone Lake, fortunately, continues to be to keep things as they are. Bone Lake is still a biologically rich location that is integral to the surrounding landscape ecology. Protection of remaining parcels of intact forest should be a priority, and citizens have the opportunity to dissipate the negative effects of fragmentation by planting shrubs and allowing natural forest vegetation to return at the edges of their property lots. Improving natural shoreline vegetation is as beneficial to bird communities as it is to maintaining water quality and preventing algal blooms. Reducing reliance on fertilizers and increasing the size of shoreline vegetation buffers is an important part of long-term bird conservation.

Bone Lake's collective community efforts are producing a bird-rich, conservation-friendly environment that ensures a wealth of clean water, intact ecosystems interactions, and an abundance of natural beauty. The outstanding stewardship of Bone Lake's community is seen in the quality and connectedness of the landscape level ecology. Some further work on reduction of boat wakes, nontoxic tackle, site protection, and landscaping for wildlife will help to ensure that more sensitive species remain. Bone Lake's residents should be proud of the stewardship example demonstrated here. Sharing this ethic and enthusiasm with younger people will help ensure that such stewardship continues for generations.

Reference Materials and Works Cited

American Bird Conservancy, ABC Bird Library: <https://abcbirds.org/bird/purple-martin/>

Cornell Labs of Ornithology. All About Birds. www.allaboutbirds.org

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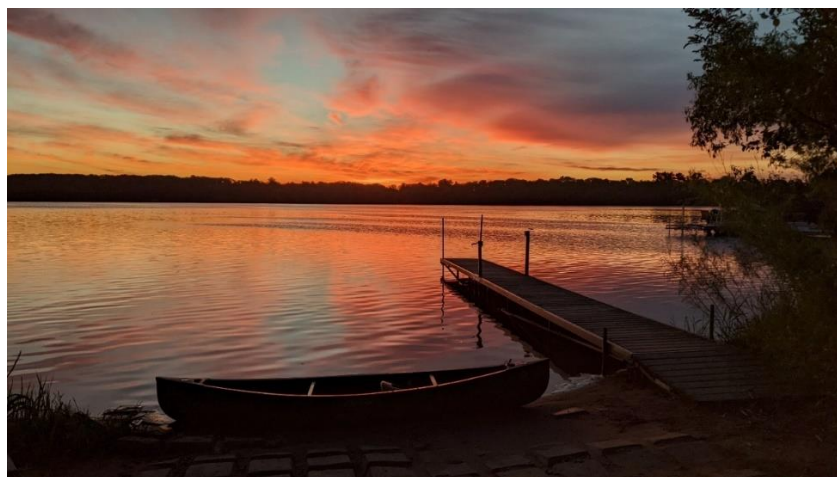
Rosenberg, K.V. et al. 2019. Decline of the North American Avifauna. Science 366(64). 120-124.

The Wisconsin Breeding Bird Atlas II

<https://ebird.org/atlaswi/explore>

The Wisconsin DNR Natural Heritage Conservation Working Lists

<https://dnr.wisconsin.gov/sites/default/files/topic/NHI/NHIWorkingList.pdf>



Appendix 1: Relative Abundance of All Birds, 2022 and 2011

Bird Detections in 2022

<i>SPECIES, Year 2022</i>	<i>Total</i>	<i>Percent %</i>	<i>Per Survey</i>
Canada Goose	220	8.18	4.07
Purple Martin	170	6.32	3.15
Common Grackle	165	6.13	3.06
Red-winged Blackbird	164	6.10	3.04
Red-eyed Vireo	124	4.61	2.30
American Robin	109	4.05	2.02
Tree Swallow	109	4.05	2.02
Baltimore Oriole	105	3.90	1.94
American Crow	89	3.31	1.65
Yellow Warbler	78	2.90	1.44
Barn Swallow	71	2.64	1.31
Song Sparrow	59	2.19	1.09
Mourning Dove	57	2.12	1.06
Chipping Sparrow	54	2.01	1.00
House Wren	52	1.93	0.96
Blue Jay	50	1.86	0.93
Warbling Vireo	50	1.86	0.93
American Redstart	42	1.56	0.78
Pine Warbler	41	1.52	0.76
Red-bellied Woodpecker	41	1.52	0.76
Common Yellowthroat	40	1.49	0.74
Black-capped Chickadee	39	1.45	0.72
Yellow-throated Vireo	38	1.41	0.70
Great Crested Flycatcher	37	1.38	0.69
White-breasted Nuthatch	37	1.38	0.69
Cedar Waxwing	36	1.34	0.67
American Goldfinch	35	1.30	0.65
European Starling	35	1.30	0.65
Eastern Kingbird	32	1.19	0.59
Gray Catbird	30	1.12	0.56
Great Blue Heron	28	1.04	0.52
Red-headed Woodpecker	28	1.04	0.52
Sandhill Crane	28	1.04	0.52
Veery	27	1.00	0.50
Bald Eagle	23	0.86	0.43
Eastern Wood-Pewee	20	0.74	0.37

Pileated Woodpecker	19	0.71	0.35
Hairy Woodpecker	18	0.67	0.33
Common Loon	16	0.59	0.30
House Sparrow	15	0.56	0.28
Eastern Phoebe	13	0.48	0.24
Green Heron	13	0.48	0.24
Indigo Bunting	13	0.48	0.24
Northern Cardinal	13	0.48	0.24
Rock Pigeon	12	0.45	0.22
Ruby-throated Hummingbird	12	0.45	0.22
Brown-headed Cowbird	11	0.41	0.20
Ring-necked Pheasant	11	0.41	0.20
Wood Duck	11	0.41	0.20
Ovenbird	10	0.37	0.19
Rose-breasted Grosbeak	10	0.37	0.19
Trumpeter Swan	10	0.37	0.19
Downy Woodpecker	8	0.30	0.15
Alder Flycatcher	7	0.26	0.13
Swamp Sparrow	7	0.26	0.13
Belted Kingfisher	6	0.22	0.11
Common Raven	6	0.22	0.11
Northern Flicker	6	0.22	0.11
Scarlet Tanager	6	0.22	0.11
Black-and-white Warbler	5	0.19	0.09
Least Flycatcher	5	0.19	0.09
Golden-winged Warbler	4	0.15	0.07
Hooded Merganser	4	0.15	0.07
Red-breasted Nuthatch	4	0.15	0.07
Wild Turkey	4	0.15	0.07
Caspian Tern (<i>Transient Birds</i>)	3	0.11	0.06
Chestnut-sided Warbler	3	0.11	0.06
Mallard	3	0.11	0.06
Nashville Warbler	3	0.11	0.06
Purple Finch	3	0.11	0.06
Yellow-bellied Sapsucker	3	0.11	0.06
Blue-winged Warbler	2	0.07	0.04
Chimney Swift	2	0.07	0.04
Double-crested Cormorant	2	0.07	0.04
Merlin	2	0.07	0.04
Mourning Warbler	2	0.07	0.04
Pine Siskin	2	0.07	0.04
Ring-billed Gull	2	0.07	0.04
Turkey Vulture	2	0.07	0.04

Yellow-billed Cuckoo	2	0.07	0.04
American White Pelican	1	0.04	0.02
Blue-gray Gnatcatcher	1	0.04	0.02
Broad-winged Hawk	1	0.04	0.02
Brown Thrasher	1	0.04	0.02
Killdeer	1	0.04	0.02
Northern Mockingbird	1	0.04	0.02
Northern Rough-winged Swallow	1	0.04	0.02
Northern Waterthrush	1	0.04	0.02
Osprey	1	0.04	0.02
Red-shouldered Hawk	1	0.04	0.02
Sedge Wren	1	0.04	0.02
Spotted Sandpiper	1	0.04	0.02

Summary 2022

<i>Total Individuals All Distance</i>	2690
<i>Total Species</i>	92
<i>Total Surveys</i>	54
<i>Individuals per Survey All Distances</i>	49.81

Bird Detections in 2011

<i>SPECIES, Year 2011</i>	<i>Total</i>	<i>Percent %</i>	<i>Per Survey</i>
Canada Goose	108	6.33	2.00
Barn Swallow	99	5.80	1.83
American Crow	92	5.39	1.70
Baltimore Oriole	85	4.98	1.57
Tree Swallow	73	4.28	1.35
Red-eyed Vireo	70	4.10	1.30
Song Sparrow	61	3.57	1.13
House Wren	55	3.22	1.02
Yellow Warbler	54	3.16	1.00
American Robin	52	3.05	0.96
Blue Jay	50	2.93	0.93
Purple Martin	49	2.87	0.91
Chipping Sparrow	46	2.69	0.85
Great Crested Flycatcher	42	2.46	0.78
Common Grackle	39	2.28	0.72
Red-winged Blackbird	37	2.17	0.69

Black-capped Chickadee	36	2.11	0.67
Eastern Phoebe	36	2.11	0.67
Red-bellied Woodpecker	34	1.99	0.63
Mourning Dove	30	1.76	0.56
American Goldfinch	27	1.58	0.50
American Redstart	27	1.58	0.50
Cedar Waxwing	27	1.58	0.50
Common Yellowthroat	27	1.58	0.50
Warbling Vireo	25	1.46	0.46
White-breasted Nuthatch	23	1.35	0.43
Great Blue Heron	18	1.05	0.33
Bald Eagle	16	0.94	0.30
European Starling	16	0.94	0.30
Green Heron	16	0.94	0.30
Mallard	16	0.94	0.30
Brown-headed Cowbird	15	0.88	0.28
Eastern Kingbird	15	0.88	0.28
Eastern Wood Pewee	15	0.88	0.28
Alder Flycatcher	13	0.76	0.24
Pine Warbler	13	0.76	0.24
Yellow-throated Vireo	13	0.76	0.24
Northern Cardinal	12	0.70	0.22
Chimney Swift	11	0.64	0.20
Downy Woodpecker	11	0.64	0.20
Eastern Bluebird	11	0.64	0.20
Northern Flicker	10	0.59	0.19
Sandhill Crane	10	0.59	0.19
Gray Catbird	9	0.53	0.17
Pileated Woodpecker	9	0.53	0.17
Veery	9	0.53	0.17
Common Loon	8	0.47	0.15
Trumpeter Swan	8	0.47	0.15
Yellow-bellied Sapsucker	8	0.47	0.15
Common Raven	7	0.41	0.13
Hairy Woodpecker	7	0.41	0.13
Hooded Merganser	7	0.41	0.13
Spotted Sandpiper	7	0.41	0.13
Belted Kingfisher	6	0.35	0.11
Ovenbird	6	0.35	0.11
Ring-necked Pheasant	6	0.35	0.11
Red-headed Woodpecker	5	0.29	0.09
Rock Pigeon	5	0.29	0.09
Ruby-throated Hummingbird	5	0.29	0.09

Black-and-white Warbler	4	0.23	0.07
Chestnut-sided Warbler	4	0.23	0.07
Indigo Bunting	4	0.23	0.07
Northern Rough-winged Swallow	4	0.23	0.07
Rose-breasted Grosbeak	4	0.23	0.07
Swamp Sparrow	4	0.23	0.07
Wild Turkey	4	0.23	0.07
Blackpoll Warbler (migrant)	3	0.18	0.06
Golden-winged Warbler	3	0.18	0.06
Red-shouldered Hawk	3	0.18	0.06
Tennessee Warbler (migrant)	3	0.18	0.06
Great Horned Owl	2	0.12	0.04
Least Flycatcher	2	0.12	0.04
Magnolia Warbler (migrant)	2	0.12	0.04
Merlin	2	0.12	0.04
Scarlet Tanager	2	0.12	0.04
Bay-breasted Warbler (migrant)	1	0.06	0.02
Blue-gray Gnatcatcher	1	0.06	0.02
Bobolink	1	0.06	0.02
Double Crested Cormorant	1	0.06	0.02
House Finch	1	0.06	0.02
House Sparrow	1	0.06	0.02
Nashville Warbler	1	0.06	0.02
Purple Finch	1	0.06	0.02
Ruffed Grouse	1	0.06	0.02
Wood Duck	1	0.06	0.02

Summary 2011

<i>Total Individuals All Distance</i>	1707
<i>Total Species</i>	85
<i>Total Surveys</i>	54
<i>Individuals per Survey All Distances</i>	31.61

Appendix 2: Raw Data and GPS Locations, Bird Surveys in 2022

POINT	DATE	TIME	LAT	LONG	SPECIES	<50M	>50M	General Habitat Classification
1	6/12/2022	5:23	45.56413	-92.39327	Common Yellowthroat	2		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	House Wren	2	1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Eastern Wood-Pewee	1	1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Canada Goose		74	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Yellow Warbler	2	2	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Yellow-throated Vireo	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Warbling Vireo		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Eastern Kingbird	1	1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Pileated Woodpecker	1	1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Purple Martin	5	8	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Red-headed Woodpecker		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Mourning Dove	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Red-eyed Vireo	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	American Redstart		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Song Sparrow	4	2	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Common Loon		2	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	American Crow	1	2	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Red-winged Blackbird	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Belted Kingfisher		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	American Robin	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Tree Swallow		2	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Chipping Sparrow		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Baltimore Oriole	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Brown-headed Cowbird	1		Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Bald Eagle		1	Second Growth Deciduous Forest
1	6/12/2022	5:23	45.56413	-92.39327	Common Grackle	3	1	Second Growth Deciduous Forest
2	6/4/2022	5:24	45.50133	-92.38087	House Wren	1	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Mourning Dove	2	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Tree Swallow		4	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Chipping Sparrow	1	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	American Robin	2	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Blue Jay	1	1	Residential Woodlot

2	6/4/2022	5:24	45.50133	-92.38087	Bald Eagle	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Wild Turkey	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Ring-necked Pheasant	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	American Crow	2	3 Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Red-winged Blackbird	2	2 Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Hairy Woodpecker	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Spotted Sandpiper	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Common Grackle	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Common Raven	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	European Starling	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Red-eyed Vireo	1	1 Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Gray Catbird	2	2 Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Trumpeter Swan	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	White-breasted Nuthatch	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Downy Woodpecker	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Common Loon	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Baltimore Oriole	1	1 Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Sandhill Crane	2	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Cedar Waxwing	1	Residential Woodlot
2	6/4/2022	5:24	45.50133	-92.38087	Indigo Bunting	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Red-bellied Woodpecker	2	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Red-breasted Nuthatch	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	White-breasted Nuthatch	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Ruby-throated Hummingbird	2	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Chipping Sparrow	2	3 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Black-capped Chickadee	3	1 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	American Robin	2	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Tree Swallow	2	2 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Barn Swallow	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Great Crested Flycatcher	1	1 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Ring-necked Pheasant	2	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Common Raven	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Mourning Dove	2	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Pileated Woodpecker	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Brown-headed Cowbird	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Red-eyed Vireo	2	2 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Hairy Woodpecker	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Yellow-bellied Sapsucker	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Red-headed Woodpecker	2	1 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Blue Jay	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Pine Warbler	1	Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Red-winged Blackbird	1	2 Residential Woodlot
3	6/4/2022	5:45	45.5044	-92.38286	Broad-winged Hawk	1	Residential Woodlot

4	6/4/2022	6:04	45.50766	-92.38375	Gray Catbird	2	2	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	House Wren	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Red-eyed Vireo		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	American Robin	2	2	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Black-capped Chickadee	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Common Loon	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Common Grackle	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Mourning Dove		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	American Crow		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Ring-necked Pheasant		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Hooded Merganser	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Great Crested Flycatcher		2	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Wild Turkey		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	European Starling	3		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Great Blue Heron	1	1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Pine Warbler	1	1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Red-bellied Woodpecker		1	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Blue Jay	1		Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Canada Goose		7	Residential Woodlot
4	6/4/2022	6:04	45.50766	-92.38375	Bald Eagle		1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Red-headed Woodpecker	1	1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Black-capped Chickadee	2	2	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	European Starling	3		Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Great Crested Flycatcher		2	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Pine Warbler	1	1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Hairy Woodpecker	1		Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	American Robin	2	3	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Red-bellied Woodpecker	1	2	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Tree Swallow	3	2	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Ring-necked Pheasant		1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	White-breasted Nuthatch	2	1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Common Grackle	1		Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Blue Jay	1	1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Brown-headed Cowbird	1		Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Sandhill Crane		2	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Chipping Sparrow		1	Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Northern Cardinal	1		Residential Woodlot
5	6/4/2022	6:23	45.51068	-92.38495	Cedar Waxwing	2		Residential Woodlot
6	6/4/2022	6:46	45.51457	-92.38705	Baltimore Oriole	3	2	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Northern Cardinal	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	White-breasted Nuthatch	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Eastern Phoebe	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Red-headed Woodpecker	1		Residential Edge/Thicket

6	6/4/2022	6:46	45.51457	-92.38705	House Wren	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Tree Swallow	2	2	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Barn Swallow	2		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Purple Martin	3	8	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Red-bellied Woodpecker		1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Red-eyed Vireo	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Black-capped Chickadee	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	European Starling	2	3	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Blue Jay	2	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Mourning Dove	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Sandhill Crane		3	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Cedar Waxwing	2		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Northern Mockingbird		1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Purple Finch	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Brown-headed Cowbird	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Chipping Sparrow	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Ring-necked Pheasant		1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Gray Catbird	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Common Yellowthroat		1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Song Sparrow	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Red-winged Blackbird	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	American Robin	1	1	Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Pine Siskin	1		Residential Edge/Thicket
6	6/4/2022	6:46	45.51457	-92.38705	Canada Goose	1		Residential Edge/Thicket
7	6/4/2022	7:13	45.51692	-92.38497	Red-headed Woodpecker	1	1	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	White-breasted Nuthatch	1	1	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Baltimore Oriole	1	2	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Common Grackle	5	2	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Tree Swallow	2		Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	American Robin	1	1	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Red-winged Blackbird	3		Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Blue Jay	1	2	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Purple Martin	2	2	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	House Wren		1	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Purple Finch		1	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Mourning Dove	1		Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Brown-headed Cowbird	1		Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Barn Swallow	3	2	Residential Woodlot
7	6/4/2022	7:13	45.51692	-92.38497	Warbling Vireo		1	Residential Woodlot
8	6/8/2022	9:25	45.52981	-92.38646	Yellow Warbler	4	3	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Baltimore Oriole	2	1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Song Sparrow	1		Second Growth Deciduous Forest

8	6/8/2022	9:25	45.52981	-92.38646	Gray Catbird	1		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Common Grackle	3	2	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Barn Swallow	1	2	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Tree Swallow	4	2	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Red-eyed Vireo	1	2	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Yellow-throated Vireo	1	1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Warbling Vireo	1	1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	American Crow	1		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Blue Jay		2	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	White-breasted Nuthatch	2		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Veery	1	1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Red-winged Blackbird	2	1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Great Blue Heron	1		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Eastern Wood-Pewee	1		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	American Robin		1	Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	American Redstart	1		Second Growth Deciduous Forest
8	6/8/2022	9:25	45.52981	-92.38646	Hairy Woodpecker		1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	American Redstart	3	2	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Warbling Vireo	1	1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Green Heron	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Great Blue Heron		1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Song Sparrow	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	European Starling	3		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Gray Catbird	2	1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Yellow-throated Vireo	1	1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	White-breasted Nuthatch		1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Yellow Warbler	2	2	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	House Wren	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	American Goldfinch	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Common Grackle	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Veery	2		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Mourning Dove		2	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Ruby-throated Hummingbird	1		Second Growth Deciduous Forest

9	6/7/2022	8:03	45.52684	-92.3883	American Crow		2	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	American Robin	1		Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Bald Eagle		1	Second Growth Deciduous Forest
9	6/7/2022	8:03	45.52684	-92.3883	Tree Swallow	2	1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Song Sparrow	1	2	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Yellow Warbler	2	2	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Gray Catbird	2	1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Common Grackle	6	5	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Baltimore Oriole	2	1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Great Crested Flycatcher	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Red-winged Blackbird	4	2	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Blue Jay		1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Warbling Vireo	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	American Redstart	3	1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Common Yellowthroat	1	2	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Cedar Waxwing	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Yellow-throated Vireo	1	1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Tree Swallow	2		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Northern Flicker	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Veery	2		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Purple Martin	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Barn Swallow	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Common Loon	2		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Canada Goose		1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Great Blue Heron		1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Rose-breasted Grosbeak	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Red-eyed Vireo	1		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	American Goldfinch	4		Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Northern Cardinal		1	Second Growth Deciduous Forest
10	6/12/2022	8:54	45.5335	-92.38605	Green Heron		1	Second Growth Deciduous Forest
11	6/12/2022	8:14	45.53926	-92.38492	Hairy Woodpecker	1		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Yellow Warbler	1	2	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Baltimore Oriole	1	1	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Indigo Bunting		1	Residential Woodlot

11	6/12/2022	8:14	45.53926	-92.38492	Red-eyed Vireo	3	3	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Common Grackle	4		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Bald Eagle	2		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Cedar Waxwing	1		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Black-capped Chickadee	1	1	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Blue Jay	1		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	American Robin	2		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Common Yellowthroat	1		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Red-winged Blackbird	1		Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Yellow-throated Vireo		1	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	American Crow		1	Residential Woodlot
11	6/12/2022	8:14	45.53926	-92.38492	Barn Swallow	1		Residential Woodlot Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Warbling Vireo	1	1	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Baltimore Oriole	2	3	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Yellow Warbler	2	2	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Common Yellowthroat	2	2	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Least Flycatcher	2	2	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	American Redstart	2	3	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Red-eyed Vireo	4	3	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Red-winged Blackbird	3	3	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Bald Eagle	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Black-capped Chickadee	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	American Goldfinch	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Song Sparrow		1	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Wood Duck	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Cedar Waxwing	4		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Northern Flicker	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Yellow-throated Vireo	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Hairy Woodpecker	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Blue Jay	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Red-bellied Woodpecker		1	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Eastern Kingbird	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Chipping Sparrow	1		Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Black-and-white Warbler		1	Forest Second Growth Deciduous
12	6/12/2022	8:33	45.53569	-92.38377	Scarlet Tanager		1	Forest
13	6/8/2022	10:07	45.53172	-92.38303	Yellow-throated Vireo	1	1	Residential Woodlot

13	6/8/2022	10:07	45.53172	-92.38303	Common Yellowthroat	1	2	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Yellow Warbler		3	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	European Starling	3		Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Common Grackle	2	5	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Eastern Kingbird	1		Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	American Robin		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Gray Catbird		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Red-winged Blackbird	4	4	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Tree Swallow	1	3	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Red-eyed Vireo		3	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Warbling Vireo		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Chipping Sparrow		3	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	House Wren		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Bald Eagle		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Song Sparrow	1		Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Baltimore Oriole	1	1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Blue Jay		1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	American Crow	1	1	Residential Woodlot
13	6/8/2022	10:07	45.53172	-92.38303	Barn Swallow	2		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Northern Waterthrush		1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	American Crow	1	2	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Great Blue Heron	1	2	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Veery	1	3	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Red-eyed Vireo	1	3	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Common Yellowthroat	1	1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	American Robin		1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Belted Kingfisher	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Common Grackle	1	3	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Warbling Vireo	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Red-winged Blackbird	4	1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Tree Swallow	3	1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Chipping Sparrow	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Brown-headed Cowbird	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Pine Warbler	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Barn Swallow	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Song Sparrow		3	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	White-breasted Nuthatch	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Nashville Warbler		1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	House Wren	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Eastern Kingbird	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Yellow Warbler		1	Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	Indigo Bunting	1		Residential Woodlot
14	6/8/2022	9:48	45.52929	-92.37949	American Goldfinch	1		Residential Woodlot

15	6/7/2022	7:45	45.52617	-92.38133	Red-eyed Vireo	1	5	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Common Yellowthroat	1		Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Trumpeter Swan	1		Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Yellow-throated Vireo		2	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Common Grackle	2	2	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Song Sparrow	1	3	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	American Crow		2	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Blue Jay	1	3	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	House Wren		2	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Pileated Woodpecker		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Warbling Vireo		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Great Crested Flycatcher		2	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Downy Woodpecker		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Caspian Tern (<i>Transient Birds</i>)		3	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	American Robin		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Canada Goose		4	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Yellow-billed Cuckoo		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Belted Kingfisher		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Red-shouldered Hawk		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Veery		1	Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Red-bellied Woodpecker	1		Residential Woodlot
15	6/7/2022	7:45	45.52617	-92.38133	Hairy Woodpecker	1	1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Great Crested Flycatcher	1	1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Blue Jay	2		Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	House Wren		1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	American Robin	1	2	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Red-winged Blackbird	3	1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Song Sparrow	2		Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Barn Swallow	1	2	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Red-eyed Vireo	1	4	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Yellow-throated Vireo		1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Pine Warbler	1	2	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Tree Swallow	1	4	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Common Grackle	1	2	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	White-breasted Nuthatch		1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Mourning Dove		1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Cedar Waxwing	3		Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Chipping Sparrow	1	1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	American Crow		1	Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Eastern Wood-Pewee	1		Residential Woodlot
16	6/7/2022	7:28	45.52264	-92.38005	Downy Woodpecker		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	House Wren	1		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Yellow-throated Vireo		1	Residential Woodlot

17	6/7/2022	7:13	45.51956	-92.38007	Red-eyed Vireo	1	2	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Black-capped Chickadee	2	1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Great Crested Flycatcher	1	2	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Pine Warbler	1	1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	American Robin	2		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Barn Swallow	4	1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Downy Woodpecker	1		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Common Raven		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Common Loon	1		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Scarlet Tanager		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Northern Cardinal		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Mourning Dove		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Common Grackle	7	1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Great Blue Heron	1		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Baltimore Oriole		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	American Crow	1	2	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Tree Swallow	1		Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Blue Jay		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	Pileated Woodpecker		1	Residential Woodlot
17	6/7/2022	7:13	45.51956	-92.38007	White-breasted Nuthatch	1	1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Baltimore Oriole	1	3	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Black-capped Chickadee	1	1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Barn Swallow	1	1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Tree Swallow	4	2	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Northern Cardinal		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Chipping Sparrow		3	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	American Crow		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Ring-necked Pheasant		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Blue Jay		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Great Blue Heron		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Red-eyed Vireo		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Mourning Dove	1	2	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	House Wren		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Ruby-throated Hummingbird	1		Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	White-breasted Nuthatch	1	1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Common Grackle	1		Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Red-winged Blackbird	1	3	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Great Crested Flycatcher		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	American Robin		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Common Loon		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Gray Catbird	1		Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Eastern Phoebe		1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Sandhill Crane		2	Residential Woodlot

18	6/7/2022	5:15	45.50126	-92.3765	Red-bellied Woodpecker	1	Residential Woodlot
18	6/7/2022	5:15	45.50126	-92.3765	Rock Pigeon	12	Residential Woodlot
19	6/7/2022	5:30	45.50301	-92.37325	Bald Eagle	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Pileated Woodpecker	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Belted Kingfisher	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Common Grackle	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Red-eyed Vireo	3	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Northern Rough-winged Swallow	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Barn Swallow	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Great Crested Flycatcher	3	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Mourning Dove	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	House Wren	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Red-headed Woodpecker	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Song Sparrow	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Red-winged Blackbird	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Ovenbird	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Northern Cardinal	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Blue Jay	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Tree Swallow	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Ring-necked Pheasant	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	American Crow	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Double-crested Cormorant	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Mallard	2	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Chipping Sparrow	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Cedar Waxwing	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Pine Warbler	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	Red-bellied Woodpecker	1	Forest
19	6/7/2022	5:30	45.50301	-92.37325	American Robin	1	Forest
20	6/7/2022	5:43	45.50493	-92.37224	Wood Duck	2	Forest
20	6/7/2022	5:43	45.50493	-92.37224	Red-bellied Woodpecker	1	Forest
20	6/7/2022	5:43	45.50493	-92.37224	Red-eyed Vireo	3	Forest
20	6/7/2022	5:43	45.50493	-92.37224	Chipping Sparrow	2	Forest
20	6/7/2022	5:43	45.50493	-92.37224	White-breasted Nuthatch	2	Forest

20	6/7/2022	5:43	45.50493	-92.37224	American Crow	1	4	Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Cedar Waxwing	2		Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Indigo Bunting	1		Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Hooded Merganser	1		Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	American Robin		1	Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Baltimore Oriole	1	1	Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Common Grackle	1		Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Great Crested Flycatcher	1	1	Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Pileated Woodpecker		1	Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Downy Woodpecker	1		Second Growth Deciduous Forest
20	6/7/2022	5:43	45.50493	-92.37224	Pine Warbler		1	Second Growth Deciduous Forest
21	6/7/2022	5:59	45.50739	-92.37468	Pine Warbler	1	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Ovenbird	1	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Chipping Sparrow	1		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Eastern Phoebe		1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Great Crested Flycatcher	2	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	American Redstart	1	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Red-eyed Vireo	1	2	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Sandhill Crane	5	2	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Red-headed Woodpecker	1	2	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Eastern Wood-Pewee	1		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Bald Eagle	1		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Common Grackle	1	4	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	American Goldfinch	2		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Yellow-throated Vireo	2	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	American Crow	1	3	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Blue Jay	1		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Yellow Warbler		1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Tree Swallow	1	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	American Robin	1		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Great Blue Heron		1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Common Loon	2		Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Pileated Woodpecker	1	1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Red-bellied Woodpecker		1	Residential Woodlot
21	6/7/2022	5:59	45.50739	-92.37468	Black-capped Chickadee		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Chipping Sparrow	2	1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Pine Warbler	2	1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	American Crow	3	2	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Red-eyed Vireo	2	2	Residential Woodlot

22	6/7/2022	6:23	45.50955	-92.37759	Red-headed Woodpecker		2	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	American Goldfinch	2	1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Northern Cardinal	1		Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Pileated Woodpecker		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Ovenbird		3	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Sandhill Crane		2	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	American Robin	1	1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Blue Jay		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Red-breasted Nuthatch	1		Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Yellow-billed Cuckoo		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Ruby-throated Hummingbird	1		Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	White-breasted Nuthatch		2	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Red-bellied Woodpecker		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Common Grackle	1		Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Mourning Dove		1	Residential Woodlot
22	6/7/2022	6:23	45.50955	-92.37759	Green Heron		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Pileated Woodpecker	1		Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Mourning Dove	1	1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Pine Warbler	2	1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Yellow-throated Vireo	1	1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	House Wren	1		Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	American Robin	1		Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Eastern Wood-Pewee		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	American Crow	1	4	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Red-eyed Vireo	1	3	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Baltimore Oriole		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Great Blue Heron	1		Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	American Redstart		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Yellow Warbler	1	2	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Red-bellied Woodpecker		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Blue Jay		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Red-headed Woodpecker		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Red-breasted Nuthatch		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Belted Kingfisher		2	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Hairy Woodpecker	1		Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	House Wren		1	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Purple Martin		2	Residential Woodlot
23	6/7/2022	6:42	45.51231	-92.37895	Chipping Sparrow	1		Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Pine Warbler	1	1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Barn Swallow		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Mourning Dove		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Chipping Sparrow	1		Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	American Crow	2	2	Residential Woodlot

24	6/7/2022	6:59	45.51597	-92.37888	American Goldfinch		3	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	American Robin		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Baltimore Oriole		2	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	American White Pelican		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Yellow-throated Vireo		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Common Raven		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Common Grackle	1	3	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Ruby-throated Hummingbird	1		Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Red-eyed Vireo	1	3	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Tree Swallow		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Hairy Woodpecker	1	1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Purple Martin		1	Residential Woodlot
24	6/7/2022	6:59	45.51597	-92.37888	Blue Jay		1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Red-headed Woodpecker	1		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Red-eyed Vireo	2	5	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Eastern Wood-Pewee	1		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Wild Turkey		1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Warbling Vireo	1	2	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Yellow-throated Vireo		2	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Yellow Warbler		4	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Purple Martin	6		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Eastern Kingbird	1	3	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Mourning Dove	1	2	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Hooded Merganser	1		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Common Grackle	2	1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Baltimore Oriole		1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	American Crow	1	3	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Red-winged Blackbird	1	1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Cedar Waxwing	2		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Chipping Sparrow		1	Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Black-capped Chickadee	2		Residential Woodlot
25	6/8/2022	5:20	45.56414	-92.39737	Song Sparrow		1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Red-winged Blackbird	7	4	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Common Grackle	10	5	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Baltimore Oriole	2	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Mourning Dove	2	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Green Heron	2		Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Gray Catbird	1	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	White-breasted Nuthatch	2		Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Warbling Vireo	1	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Eastern Kingbird	1	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Song Sparrow	1	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Yellow Warbler	1	2	Residential Woodlot

26	6/8/2022	5:36	45.56666	-92.39948	Yellow-throated Vireo	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Wild Turkey	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Tree Swallow	2	2 Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Purple Martin	8	3 Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	American Goldfinch	6	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Eastern Wood-Pewee	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Chipping Sparrow	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Ring-necked Pheasant	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Common Raven	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	American Crow	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Pileated Woodpecker	1	Residential Woodlot
26	6/8/2022	5:36	45.56666	-92.39948	Veery	1	Residential Woodlot Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Golden-winged Warbler	1	1 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Sedge Wren	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Common Yellowthroat	2	1 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Green Heron	2	1 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Alder Flycatcher	1	3 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Veery	1	2 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Swamp Sparrow	2	2 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Mourning Dove	1	2 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Red-winged Blackbird	7	15 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Rose-breasted Grosbeak	1	1 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Wood Duck	1	3 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Yellow Warbler	1	3 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Red-bellied Woodpecker	1	1 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Cedar Waxwing	2	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Black-and-white Warbler	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Common Grackle	2	3 Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Pileated Woodpecker	2	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Great Crested Flycatcher	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Purple Martin	3	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Indigo Bunting	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Nashville Warbler	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Brown-headed Cowbird	1	Wetland Tamarack/Alder Forested
27	6/8/2022	5:53	45.56551	-92.40327	Baltimore Oriole	1	Wetland

27	6/8/2022	5:53	45.56551	-92.40327	American Robin	1		Tamarack/Alder Forested Wetland
27	6/8/2022	5:53	45.56551	-92.40327	Common Loon	2		Tamarack/Alder Forested Wetland
27	6/8/2022	5:53	45.56551	-92.40327	Red-eyed Vireo	1		Tamarack/Alder Forested Wetland
27	6/8/2022	5:53	45.56551	-92.40327	Eastern Kingbird	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Black-and-white Warbler	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Warbling Vireo	2	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Red-winged Blackbird	6	5	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Yellow Warbler	2	3	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Golden-winged Warbler	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Green Heron	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Eastern Kingbird	2	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Swamp Sparrow	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Chipping Sparrow	2		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Trumpeter Swan	7		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Great Blue Heron	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Red-eyed Vireo	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Cedar Waxwing	2		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Alder Flycatcher	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Barn Swallow	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Common Grackle	2	2	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Tree Swallow	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Baltimore Oriole	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Common Yellowthroat	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Chestnut-sided Warbler	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Veery	1	2	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Red-bellied Woodpecker	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Red-headed Woodpecker	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Bald Eagle	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Purple Martin	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	American Crow	3		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	Blue-winged Warbler	1		Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	American Redstart	1	1	Tamarack/Alder Forested Wetland
28	6/8/2022	6:23	45.56263	-92.40318	American Robin	1		Tamarack/Alder Forested Wetland

28	6/8/2022	6:23	45.56263	-92.40318	Rose-breasted Grosbeak		1	Tamarack/Alder Forested Wetland
29	6/8/2022	6:42	45.56064	-92.40053	Gray Catbird	1		Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Baltimore Oriole	3	2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	House Wren		1	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Canada Goose		3	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Veery	1		Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Yellow Warbler	2	2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Red-winged Blackbird	7	3	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Common Grackle	3	1	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Mourning Dove		2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Warbling Vireo	1	2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	American Crow		1	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Sandhill Crane		2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Yellow-throated Vireo		2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Purple Martin	2		Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Ruby-throated Hummingbird	2		Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Ring-necked Pheasant		1	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Swamp Sparrow	1		Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Song Sparrow	1	1	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	Tree Swallow		2	Residential Woodlot
29	6/8/2022	6:42	45.56064	-92.40053	American Robin	1		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Great Crested Flycatcher	1	1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Eastern Kingbird	1		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Song Sparrow	2		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Warbling Vireo	1		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Ruby-throated Hummingbird	1		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Red-eyed Vireo	1	2	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Mourning Dove	1	2	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	American Robin	2	1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Chipping Sparrow		1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Common Yellowthroat	1	1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Baltimore Oriole	1	2	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Purple Martin	4		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Barn Swallow	3	3	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Great Blue Heron	1	1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Common Grackle	3	1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	American Crow		1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Chimney Swift	2		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Red-bellied Woodpecker		1	Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Blue Jay	1		Residential Woodlot
30	6/8/2022	6:56	45.55807	-92.39933	Red-winged Blackbird	4	1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Red-bellied Woodpecker	1	2	Residential Woodlot

31	6/8/2022	7:10	45.55537	-92.39938	Great Crested Flycatcher	2	2	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Red-eyed Vireo	1	3	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Black-capped Chickadee	1	1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	American Robin	4	2	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Great Blue Heron		1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Tree Swallow	2		Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Barn Swallow	2	1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Blue Jay	1		Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Baltimore Oriole	2	1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Song Sparrow	1		Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Common Grackle	2		Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Mourning Dove		2	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Brown Thrasher		1	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	House Wren		2	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Wood Duck	1		Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Canada Goose		2	Residential Woodlot
31	6/8/2022	7:10	45.55537	-92.39938	Eastern Wood-Pewee		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Osprey	1		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Baltimore Oriole	3	3	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Red-eyed Vireo	1	2	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	House Wren	1	1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Hairy Woodpecker	2		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Downy Woodpecker	1		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	American Robin	1	1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Great Crested Flycatcher		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Red-bellied Woodpecker	1	1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	White-breasted Nuthatch	1		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Canada Goose		42	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Blue Jay		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Eastern Wood-Pewee	1	1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Great Blue Heron	1	2	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Indigo Bunting		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Green Heron		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Sandhill Crane		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Tree Swallow	1		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Mourning Warbler		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Brown-headed Cowbird	1		Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Purple Martin		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Wood Duck		1	Residential Woodlot
32	6/8/2022	7:27	45.55244	-92.39919	Chipping Sparrow		1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Red-bellied Woodpecker	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Chipping Sparrow	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Baltimore Oriole	2	2	Residential Woodlot

33	6/8/2022	7:44	45.55004	-92.39704	Red-eyed Vireo	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	American Robin	3	1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Barn Swallow	3		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Blue Jay	2		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Brown-headed Cowbird	2		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Mourning Dove	2	1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	House Wren	2	2	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	White-breasted Nuthatch	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Purple Martin		2	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Scarlet Tanager		1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Tree Swallow	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Mourning Warbler		1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Eastern Phoebe	2		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Red-headed Woodpecker	1		Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Eastern Wood-Pewee		1	Residential Woodlot
33	6/8/2022	7:44	45.55004	-92.39704	Common Grackle		2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Eastern Phoebe	3		Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Common Grackle	8	2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	American Robin	1	2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Red-eyed Vireo		2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Baltimore Oriole		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Mourning Dove		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	House Wren		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Cedar Waxwing	1	2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Purple Martin	2	6	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Red-headed Woodpecker		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Red-bellied Woodpecker		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Eastern Wood-Pewee		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	European Starling	2		Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	American Crow		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Chipping Sparrow		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	American Goldfinch		2	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Song Sparrow		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Warbling Vireo		1	Residential Woodlot
34	6/8/2022	8:02	45.54793	-92.39328	Barn Swallow	1		Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Pine Warbler	1	2	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Common Yellowthroat	1		Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Eastern Phoebe	1		Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	American Robin	1	1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Canada Goose		7	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Purple Martin	3	10	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Warbling Vireo	2	1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Common Grackle	1		Residential Woodlot

35	6/8/2022	8:18	45.54521	-92.39391	Red-eyed Vireo	1	2	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Red-winged Blackbird		3	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Blue Jay		1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Baltimore Oriole	1	1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Barn Swallow	1	1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Tree Swallow	2		Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Song Sparrow		1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	House Wren		2	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Mourning Dove		1	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	American Crow		2	Residential Woodlot
35	6/8/2022	8:18	45.54521	-92.39391	Yellow-throated Vireo	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Warbling Vireo	1	1	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Pine Warbler		2	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Barn Swallow	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Red-winged Blackbird	4	1	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Purple Martin	46		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Chipping Sparrow		1	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Common Grackle	3		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Song Sparrow	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Baltimore Oriole	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Ruby-throated Hummingbird	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Tree Swallow	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Yellow-throated Vireo		1	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	White-breasted Nuthatch	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	European Starling	1		Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	House Wren	1	1	Residential Woodlot
36	6/8/2022	8:35	45.54247	-92.39497	Bald Eagle		1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Common Yellowthroat	1	1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Baltimore Oriole	2	2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Warbling Vireo	2	2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Song Sparrow	1	2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	House Wren		1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Common Grackle	4	2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	American Robin	3	2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Tree Swallow	3	5	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	American Goldfinch	1	1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Red-winged Blackbird	2	3	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	European Starling	4		Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Yellow Warbler	1	1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Red-bellied Woodpecker		2	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Common Raven		1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	American Crow		1	Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Cedar Waxwing	1		Residential Woodlot

37	6/8/2022	8:53	45.54017	-92.39797	Eastern Kingbird	1		Residential Woodlot
37	6/8/2022	8:53	45.54017	-92.39797	Purple Martin	2		Residential Woodlot
38	6/4/2022	9:50	45.53767	-92.39954	Yellow Warbler	1	2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Great Blue Heron	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Song Sparrow	2	2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Eastern Phoebe		1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Eastern Kingbird	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Common Yellowthroat	1	2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	American Crow	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Tree Swallow	2	2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Red-winged Blackbird	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Barn Swallow	2	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Red-headed Woodpecker	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Sandhill Crane	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Baltimore Oriole	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	American Goldfinch	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Red-eyed Vireo	2		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Ring-billed Gull		2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Northern Flicker	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Cedar Waxwing	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Hairy Woodpecker	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	American Robin		1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	European Starling	1	1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Rose-breasted Grosbeak		2	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Great Crested Flycatcher	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	American Redstart		1	Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Swamp Sparrow	1		Forest Second Growth Deciduous
38	6/4/2022	9:50	45.53767	-92.39954	Red-bellied Woodpecker		1	Forest Second Growth Deciduous
39	6/4/2022	9:34	45.53483	-92.40075	American Redstart	1	1	Forest Second Growth Deciduous
39	6/4/2022	9:34	45.53483	-92.40075	Common Yellowthroat	1	1	Forest Second Growth Deciduous
39	6/4/2022	9:34	45.53483	-92.40075	Baltimore Oriole	1	1	Forest Second Growth Deciduous
39	6/4/2022	9:34	45.53483	-92.40075	Veery	1	1	Forest Second Growth Deciduous
39	6/4/2022	9:34	45.53483	-92.40075	Purple Martin	5		Forest

39	6/4/2022	9:34	45.53483	-92.40075	Eastern Kingbird	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Tree Swallow	2	2	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Red-winged Blackbird	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Yellow Warbler	1	1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Barn Swallow	2		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Common Grackle	2	1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Song Sparrow	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Blue Jay	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Warbling Vireo	1	1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Great Crested Flycatcher	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Yellow-throated Vireo		1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Bald Eagle		1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	American Robin	1		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Black-capped Chickadee		1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	American Crow		1	Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	American Goldfinch	2		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	House Sparrow	2		Second Growth Deciduous Forest
39	6/4/2022	9:34	45.53483	-92.40075	Red-bellied Woodpecker		1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Purple Martin	16	2	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Tree Swallow	4	3	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Barn Swallow	3		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Veery	1		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Eastern Wood-Pewee		1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Song Sparrow	1	1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Common Yellowthroat		1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Great Blue Heron		1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Baltimore Oriole	1	1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Cedar Waxwing	2		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Warbling Vireo		2	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Common Grackle	1	1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	House Wren	1	1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Red-eyed Vireo	2		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Chipping Sparrow		1	Second Growth Deciduous Forest

40	6/4/2022	9:13	45.53185	-92.40106	Bald Eagle			1	Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Chestnut-sided Warbler	1			Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Red-winged Blackbird	1	2		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	American Robin	1	2		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Downy Woodpecker	1	1		Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Black-capped Chickadee	1			Second Growth Deciduous Forest
40	6/4/2022	9:13	45.53185	-92.40106	Common Loon	1		1	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Yellow-throated Vireo			2	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Black-and-white Warbler	1			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Golden-winged Warbler	1			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Veery	1	1		Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Red-eyed Vireo	1	1		Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Common Grackle	4	1		Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Baltimore Oriole	2	1		Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Warbling Vireo			1	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Song Sparrow	1	1		Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Barn Swallow	2			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Northern Flicker	1			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Tree Swallow			6	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Purple Martin			4	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Red-winged Blackbird	2			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	American Goldfinch	1			Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Black-capped Chickadee			1	Second Growth Deciduous Forest
41	6/4/2022	8:54	45.5292	-92.40019	Eastern Kingbird			1	Second Growth Deciduous Forest
42	6/4/2022	8:38	45.52648	-92.39729	Eastern Kingbird	1			Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Warbling Vireo	1	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Yellow-throated Vireo			1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	House Sparrow	2			Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Purple Martin	6	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Yellow Warbler	1	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Tree Swallow	2			Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Baltimore Oriole	1	1		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	American Robin	2	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Red-winged Blackbird	3	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Chipping Sparrow	2	2		Residential Woodlot

42	6/4/2022	8:38	45.52648	-92.39729	Pine Warbler	1	1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Cedar Waxwing	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	American Redstart	1		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	White-breasted Nuthatch	1	1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Purple Finch		1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Great Crested Flycatcher		1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Barn Swallow	3	1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	European Starling	1		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Mourning Dove		1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Black-capped Chickadee		1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Common Grackle	2		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Blue Jay	1		Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Song Sparrow		1	Residential Woodlot
42	6/4/2022	8:38	45.52648	-92.39729	Great Blue Heron		1	Residential Woodlot
43	6/4/2022	8:14	45.52289	-92.39458	Alder Flycatcher		1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Red-bellied Woodpecker	2	1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Red-winged Blackbird	4	2	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Tree Swallow	3	2	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Warbling Vireo	1	1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Baltimore Oriole	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Common Yellowthroat	2		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Rose-breasted Grosbeak	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Barn Swallow	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Yellow Warbler	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Common Grackle	2	1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Mourning Dove		1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	European Starling	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Hairy Woodpecker	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Least Flycatcher	1		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Song Sparrow	2		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Blue Jay		1	Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Cedar Waxwing	2		Forest Second Growth Deciduous
43	6/4/2022	8:14	45.52289	-92.39458	Veery	1		Forest Alder Lowland/Residential
44	6/4/2022	7:53	45.52062	-92.39259	Warbling Vireo	2	1	Woodlot Alder Lowland/Residential
44	6/4/2022	7:53	45.52062	-92.39259	Yellow Warbler	1		Woodlot Alder Lowland/Residential
44	6/4/2022	7:53	45.52062	-92.39259	Red-headed Woodpecker	1		Woodlot Alder Lowland/Residential

44	6/4/2022	7:53	45.52062	-92.39259	Canada Goose	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Black-capped Chickadee	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Eastern Kingbird	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Song Sparrow	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	American Redstart	1	1	Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Gray Catbird	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Barn Swallow	4	2	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Baltimore Oriole	2	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Common Grackle	3		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	House Wren	1	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	European Starling	2		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Eastern Phoebe	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Red-winged Blackbird	2	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Red-bellied Woodpecker	1	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Mourning Dove	1	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Cedar Waxwing	2		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	American Robin	1	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Green Heron	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Great Blue Heron		2	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Black-and-white Warbler	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Tree Swallow	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	White-breasted Nuthatch	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Pine Siskin	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Rose-breasted Grosbeak	1		Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Common Grackle	3	1	Alder Lowland/Residential Woodlot
44	6/4/2022	7:53	45.52062	-92.39259	Alder Flycatcher		1	Alder Lowland/Residential Woodlot
45	6/4/2022	7:37	45.52029	-92.38855	Eastern Kingbird	2	2	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Common Grackle	2	3	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	White-breasted Nuthatch	1		Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Red-eyed Vireo		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Warbling Vireo	1	1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Chipping Sparrow	1		Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Mourning Dove		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Song Sparrow	1		Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Baltimore Oriole	2	2	Residential Edge/Thicket

45	6/4/2022	7:37	45.52029	-92.38855	Yellow Warbler		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Pileated Woodpecker		2	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	American Robin	1	2	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Canada Goose	1	15	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Red-winged Blackbird	2	4	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Black-capped Chickadee	1		Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Rose-breasted Grosbeak		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Red-bellied Woodpecker		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	European Starling		3	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Barn Swallow		1	Residential Edge/Thicket
45	6/4/2022	7:37	45.52029	-92.38855	Tree Swallow	1		Residential Edge/Thicket
46	6/12/2022	5:36	45.56174	-92.39124	American Goldfinch	2		Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Yellow-throated Vireo	1		Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Great Crested Flycatcher	1	1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Song Sparrow	2	1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Indigo Bunting	1	1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Common Yellowthroat	1		Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	American Redstart	2		Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Northern Cardinal	1	1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Baltimore Oriole	1	2	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Purple Martin	2	2	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Nashville Warbler		1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Red-eyed Vireo	1	3	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Common Yellowthroat		2	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	American Crow		3	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Black-capped Chickadee	1	1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Yellow Warbler		2	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Mourning Dove		1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Warbling Vireo		1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Sandhill Crane		2	Forest
46	6/12/2022	5:36	45.56174	-92.39124	Scarlet Tanager		1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Gray Catbird	1		Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	White-breasted Nuthatch		1	Forest
46	6/12/2022	5:36	45.56174	-92.39124	House Wren		1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Eastern Kingbird		1	Forest

46	6/12/2022	5:36	45.56174	-92.39124	Red-bellied Woodpecker	1	1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Wood Duck	1	1	Second Growth Deciduous Forest
46	6/12/2022	5:36	45.56174	-92.39124	Red-headed Woodpecker	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Ovenbird	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	American Redstart	2	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Blue-winged Warbler	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Pine Warbler	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	White-breasted Nuthatch	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Black-capped Chickadee	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Northern Cardinal	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Red-eyed Vireo	2	3	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Eastern Wood-Pewee	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Hooded Merganser	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Scarlet Tanager	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Pileated Woodpecker	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Yellow-throated Vireo	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Mourning Dove	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Bald Eagle	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Brown-headed Cowbird	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	Hairy Woodpecker	1	1	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	American Crow	3	3	Second Growth Deciduous Forest
47	6/12/2022	5:50	45.55957	-92.38883	American Goldfinch	1	1	Second Growth Deciduous Forest
48	6/12/2022	6:20	45.55717	-92.38789	House Wren	1	2	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	American Crow	2	2	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Pine Warbler	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Indigo Bunting	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Chipping Sparrow	1	3	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Eastern Phoebe	2	2	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Ovenbird	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Red-eyed Vireo	2	2	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Yellow-throated Vireo	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	White-breasted Nuthatch	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Hairy Woodpecker	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	American Robin	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Sandhill Crane	2	2	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Gray Catbird	1	1	Residential Woodlot

48	6/12/2022	6:20	45.55717	-92.38789	Great Blue Heron		1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Mourning Dove	1	1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	American Redstart		1	Residential Woodlot
48	6/12/2022	6:20	45.55717	-92.38789	Common Grackle	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Red-breasted Nuthatch	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	American Robin	1	3	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Pine Warbler	1	1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Common Yellowthroat	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Chipping Sparrow	1	2	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Red-eyed Vireo	1	1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Mourning Dove	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Ruby-throated Hummingbird	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Yellow-throated Vireo	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	House Wren	1	1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Eastern Wood-Pewee		1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	American Goldfinch	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Baltimore Oriole		1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	American Redstart	1	2	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Red-headed Woodpecker	1		Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Indigo Bunting		1	Residential Woodlot
49	6/12/2022	6:35	45.5547	-92.38611	Blue Jay	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	House Wren		2	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Song Sparrow	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	American Robin	1	2	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Yellow Warbler		1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Red-winged Blackbird	3	4	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Baltimore Oriole	1	3	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Eastern Wood-Pewee		1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	American Crow		2	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Barn Swallow	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Great Crested Flycatcher		1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Black-capped Chickadee	1	1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Yellow-throated Vireo		1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Mourning Dove		1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Great Blue Heron	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	House Sparrow	2		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Red-headed Woodpecker	1	1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	American Goldfinch	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Gray Catbird	1		Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Common Grackle	2	1	Residential Woodlot
50	6/12/2022	6:51	45.55212	-92.38405	Northern Flicker		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	American Robin	3	2	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Barn Swallow	1		Residential Woodlot

51	6/12/2022	7:08	45.5495	-92.3856	Red-bellied Woodpecker	1	1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Baltimore Oriole		2	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	House Sparrow		5	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Blue Jay	1	1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Killdeer		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Great Blue Heron		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Common Loon		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Merlin	2		Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Bald Eagle		2	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	House Wren		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	American Goldfinch	1		Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Ruby-throated Hummingbird	1		Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Mourning Dove	1		Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Red-headed Woodpecker	1		Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	American Crow		1	Residential Woodlot
51	6/12/2022	7:08	45.5495	-92.3856	Turkey Vulture	1		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	House Wren	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Turkey Vulture	1		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Bald Eagle		4	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Chestnut-sided Warbler	1		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Northern Cardinal	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Common Loon	1		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Yellow Warbler	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Song Sparrow	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Eastern Wood-Pewee		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	American Robin	2	3	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	American Crow		3	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Indigo Bunting	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Pileated Woodpecker	1		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Red-eyed Vireo		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Black-capped Chickadee	1	1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Eastern Kingbird		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Pine Warbler		2	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	American Redstart		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Sandhill Crane		2	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	House Sparrow	4		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Blue Jay		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Canada Goose	4		Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	White-breasted Nuthatch		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Mourning Dove		1	Residential Woodlot
52	6/12/2022	7:23	45.54675	-92.38509	Baltimore Oriole		1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Pine Warbler	1	2	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Gray Catbird	2		Residential Woodlot

53	6/12/2022	7:41	45.54397	-92.3821	Black-capped Chickadee	1	2	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	American Crow	1	2	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Yellow Warbler	1	2	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	American Robin	2	3	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Blue-gray Gnatcatcher	1		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Rose-breasted Grosbeak		1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Blue Jay		4	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Red-bellied Woodpecker	1		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Bald Eagle	2		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Baltimore Oriole	1		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	American Redstart	1	1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Veery	1		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Common Yellowthroat		1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Eastern Kingbird	1		Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Yellow-throated Vireo		1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Mourning Dove		1	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Red-winged Blackbird		2	Residential Woodlot
53	6/12/2022	7:41	45.54397	-92.3821	Canada Goose	2		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Yellow-bellied Sapsucker	2		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	American Redstart	1	2	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Green Heron	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	American Crow	1	2	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Chipping Sparrow	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Blue Jay		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Red-eyed Vireo	1	3	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	White-breasted Nuthatch		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Yellow Warbler		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	American Robin	1	2	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Hairy Woodpecker	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Baltimore Oriole	2	1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Ovenbird		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Great Blue Heron	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Red-winged Blackbird	1	1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Veery		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Red-bellied Woodpecker		1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Gray Catbird	1	1	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Canada Goose		56	Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Northern Flicker	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Eastern Kingbird	1		Residential Woodlot
54	6/12/2022	7:57	45.54152	-92.38212	Eastern Wood-Pewee		1	Residential Woodlot