USDA-Wildlife Services' Annual Report for the GFL Zion Landfill

July 2011 Through June 2025

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Introduction

This report will summarize the observations and management actions that USDA APHIS Wildlife Services (WS) has performed at the GFL Zion Landfill located in Zion, Illinois from July 15, 2011, through June 30, 2025.

Overview of GFL Zion Landfill

GFL operates a sanitary landfill located at 701 North Green Bay Road in Zion, Illinois. The facility accepts municipal, industrial, commercial, and construction waste. Materials are typically accepted between the hours of 6:30 am and 3:30 pm Monday through Friday and 7:00 am to 11:00 am on Saturday. The "open face" of the facility is covered at the end of each day and over the weekend. During operating hours, ever present trash provides a strong wildlife attractant, especially to certain species of birds.

Large flocks of birds drawn to the site led GFL to request assistance from WS in implementing an integrated wildlife damage management program that would significantly reduce the number of birds utilizing the site. The increased bird use at the site creates potential disease threats, property damage, and nuisance issues resulting from the deposition of fecal droppings at loafing and roosting areas which may also be in the surrounding communities.

Bird Surveys

From July 15, 2011, to June 30, 2025, bird surveys were conducted at the GFL Zion Landfill two to five times per month. The surveys used are a time-area sampling design based on a modified version of the U.S. Fish and Wildlife Services' Breeding Bird Survey. In addition to providing a report on the current use of the landfill by birds, this assessment provides a baseline of information with which landfill personnel can evaluate the effectiveness of their wildlife management program in the future.

An assumption of this survey method is that all birds present at the time of the survey are observed and identified. This assumption was undoubtedly violated due to the presence of small, solitary species that occasionally went unnoticed. However, this violation is acceptable because the intent of this survey is to provide an index of the presence and behavior of larger-bodied or flocking birds as these birds have the potential to create conflicts at the landfill and in the surrounding community.

Six permanent observation stations were selected to monitor the landfill and the surrounding neighborhood (Figure 1, Appendix A). It should also be noted that data point 1 is a "roaming point" in that data is collected on the open face of the landfill, which moves throughout the year. Data was collected at each station for three minutes in 360 degrees out to a distance of 400 meters from the survey point. Binoculars were used to identify species and obtain counts, but not to search for birds. The surveys were conducted between dawn and dusk and each survey required approximately one hour to complete. At each station, WS recorded the species of birds observed, and for each observation we recorded the number of individuals, the behavior, and cover type that the individuals were utilizing.

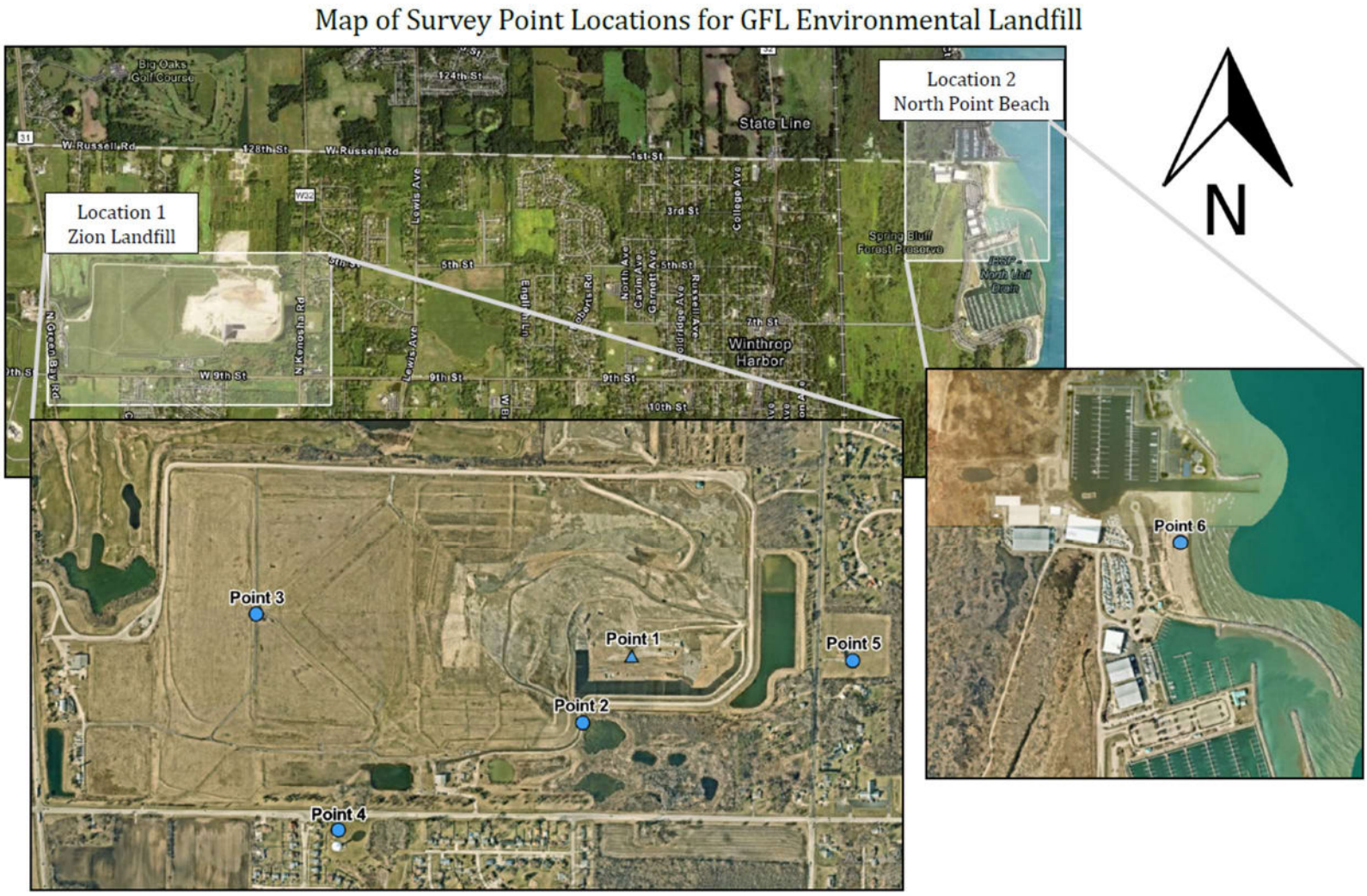


Figure 1. Map illustrating the location of survey points for the GFL Zion Landfill.

Statistical Considerations

To analyze the trend of bird activity on the landfill, the data had to be broken down into birds observed per survey. Due to the varying number of surveys conducted each month, dividing the data into observations per survey ensures standardization and allows for comparison of the data across different months.

Results of the Surveys

On The Landfill – All Bird Species

The GFL Zion Landfill attracts the suite of birds that would be expected to utilize a landfill in Northern Illinois. This includes gulls (herring and ring-billed), European starlings, and turkey vultures. These are the species that cause most of the wildlife conflicts at the landfill and will be the groups that this report focuses on. Figure 2 depicts the species of wildlife observed during surveys on the landfill from July 2011 through June 2025. As shown in Figure 2, European starlings are the most documented species on the landfill, making up approximately 54% of the total observations. Following European starlings, herring gulls and ring-billed gulls combined make up about 35%, making them the second and third most observed species on the landfill. Other notable species to consider are the red-winged blackbird at 2%, Canada goose at 2%, and turkey vulture at 1%. All species previously mentioned are within the 12A, or Work Initiation Document for Wildlife Damage Management. Additional species within this document are as follows; American crow, brown-headed cowbird, house sparrow, common grackle, and rock dove. In total, 79 species have been observed on and around the landfill from July of 2011 to June of 2025.

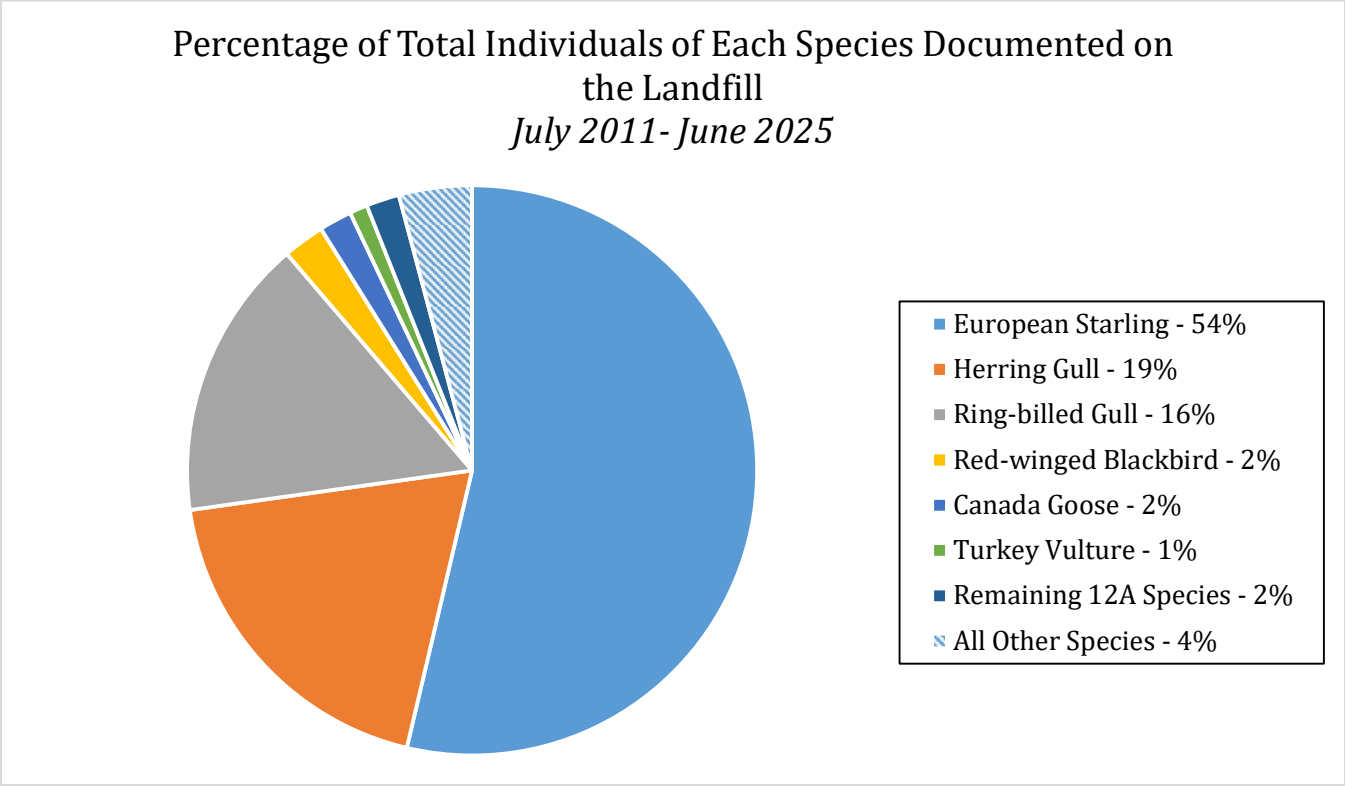


Figure 2. Percentages of birds observed during surveys on the landfill from July 2011 through June 2025.

The "all other species" group shown in Figure 1 represents the remaining 68 species of birds observed on the landfill which includes, but is not limited to American kestrels, eastern meadowlarks, horned larks, killdeer, mallards, wood ducks, red-tailed hawks, and bald eagles. These species, the species not listed within the 12A, will not be included within the following analyses and graphics, but will resume in figure 9.

On The Landfill – 12A Bird Species

Figure 3 illustrates the average number of birds observed each month since the initiation of the project. Please note that data gathered in July of 2011 was collected prior to any management actions being implemented and thus serves as a baseline for data collected from August 2011 to June of 2025.

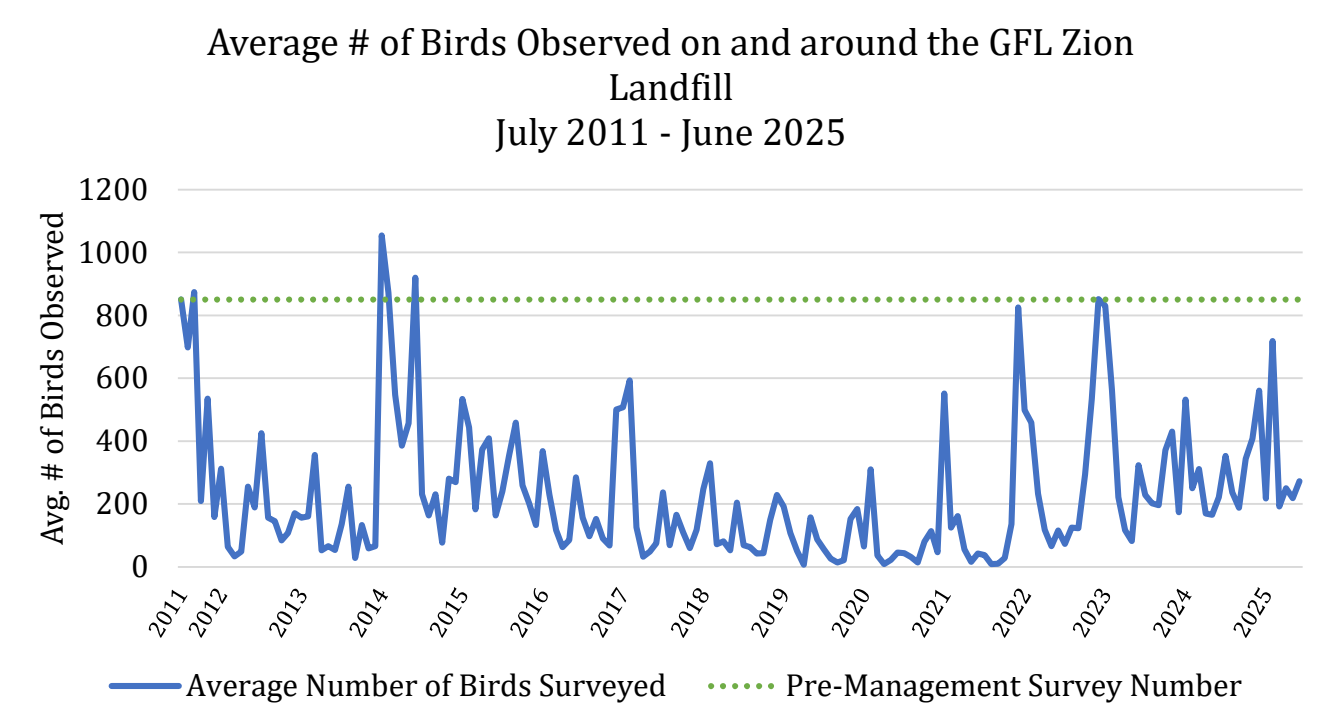


Figure 3. Average number of birds observed on the GFL Zion Landfill from July 2011 to June 2025 with an identified pre-management survey number for comparison.

After direct control work began, there was a drop in the number of birds observed. In July of 2011, an average of 851 birds were observed on and around the GFL Zion Landfill. Comparing that to the average number of birds observed during surveys in June of 2025, which was 273, it shows an overall reduction of 68%. Within the initial year, from July 2011 to June 2012, the average number of birds observed per survey varied significantly after the wildlife damage management program was implemented. This variation can be attributed to the initially large bird population responding to the management actions taken. The following year, July 2012 to June 2013, there was a dramatic overall decrease in the average number of birds observed on the landfill when compared to the year previous and years following. This dramatic decrease is likely attributed to the continuation of wildlife management and the individualized learned avoidance of the landfill by both birds of the previous year and the offspring of said birds. In recent years, there has been a steady increase in the average number of birds observed. This increase in observations could be attributed to the bird's habituation to the management efforts. This habituation has been and will be resolved by continually reinforcing with a variety of management actions.

Every winter since November 2013, there has been a higher average number of birds observed on the landfill when compared to the warmer months. This annual increase in observations could be attributed to food availability within the surrounding areas. When food availability is low in neighboring landscapes, there will be an increase in the number of birds observed foraging at the open face, regardless of management efforts. In addition to food availability, we may also potentially see an influx in the overall number of birds depending on the severity of winter on northern bird populations. If winter is more severe in northern latitudes, bird populations may move further south to find less severe conditions. Moving forward, it is likely that the duration of colder temperatures coupled with large amounts of precipitation will be a predictor of bird use at the landfill.

To further illustrate the seasonal trend of bird observations since the implementation of the management program, pre-management numbers, three-year averages, and recent data from 2024 – 2025 are compared graphically (Figure 4).

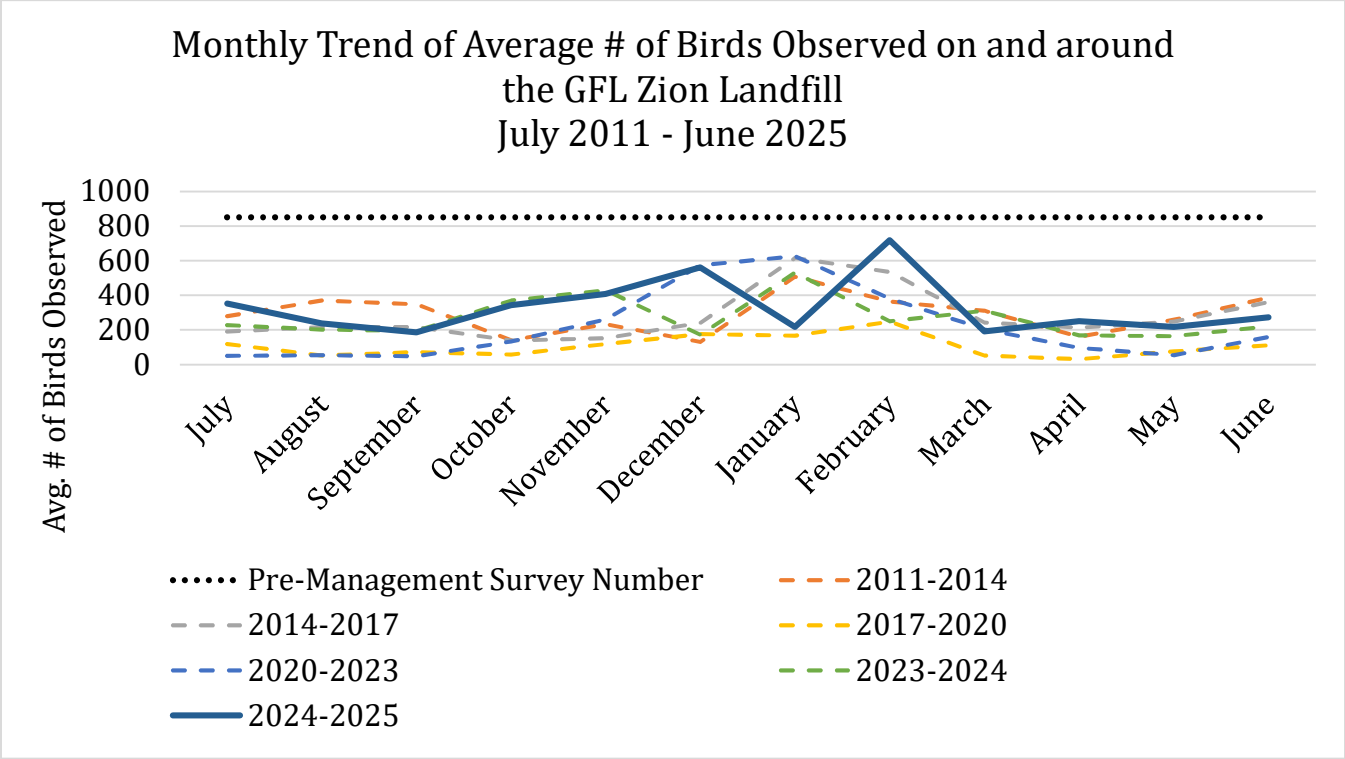


Figure 4. Monthly trend of average number of birds observed on the GFL Zion Landfill from July 2011 to June 2025.

On The Landfill – Gulls

Figure 5 focuses on the average number of gulls, both herring and ring-billed, observed each month since the initiation of the project. Please note that data gathered in July of 2011 was collected prior to any management actions being implemented and thus serves as a baseline for data collected from August 2011 to June of 2025.

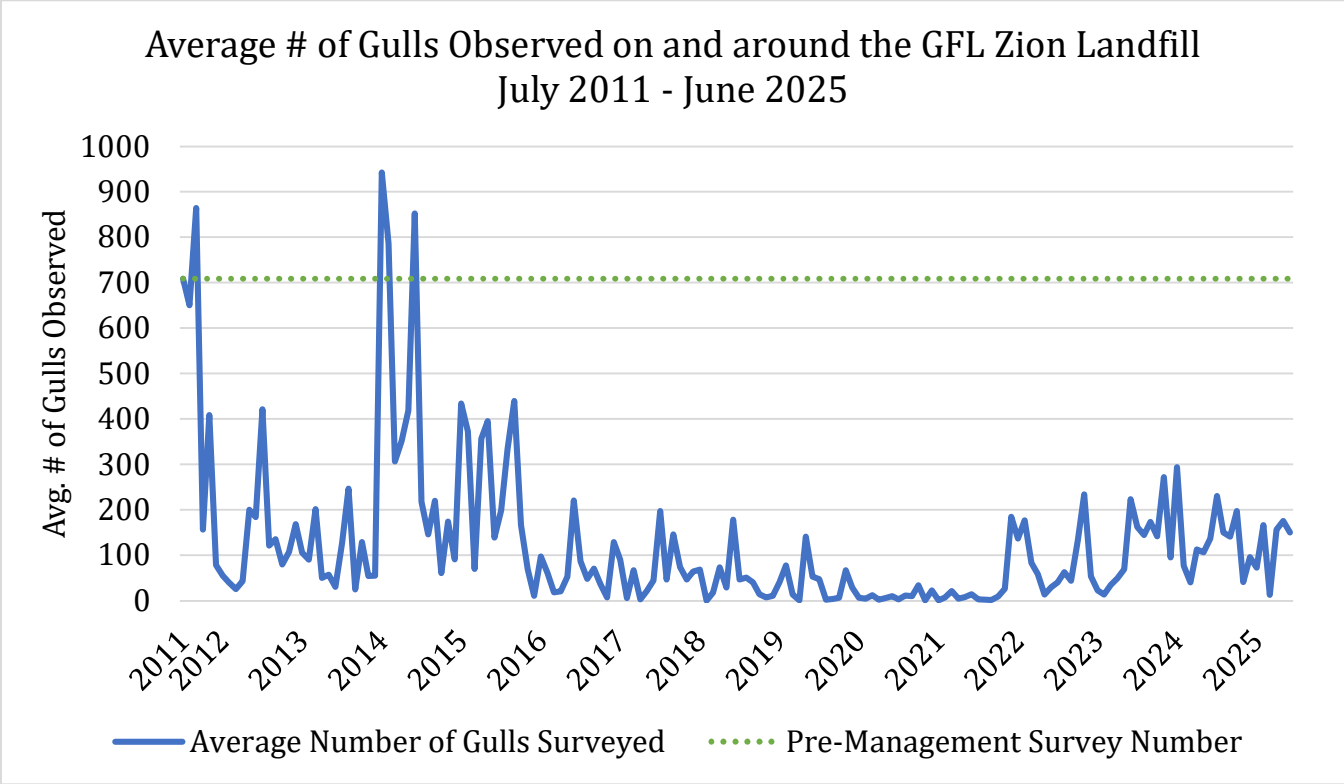


Figure 5. Average number of gulls observed on the GFL Zion Landfill from July 2011 to June 2025 with an identified pre-management survey number for comparison.

After direct control work began, there was a drop in the number of gulls observed. In July of 2011, an average of 709 gulls were observed on and around the GFL Zion Landfill. Comparing that to the average number of gulls observed during surveys in June of 2025, which was 150, it shows an overall reduction of 79%. Since December of 2021, there has been a noticeable increase in gull numbers during the winter months. This trend could potentially be attributed to the same reasonings of food availability and harsh winter conditions as the previous section. In addition to the winter months, there has been a slight increase in the number of gulls observed throughout the year. This recent increase could be a result of gulls from the migrating population integrating themselves into the non-migrating resident population.

To further illustrate the seasonal trend of gull observations since the implementation of the management program, pre-management numbers, three-year averages, and recent data from 2024 – 2025 are compared graphically (Figure 6).

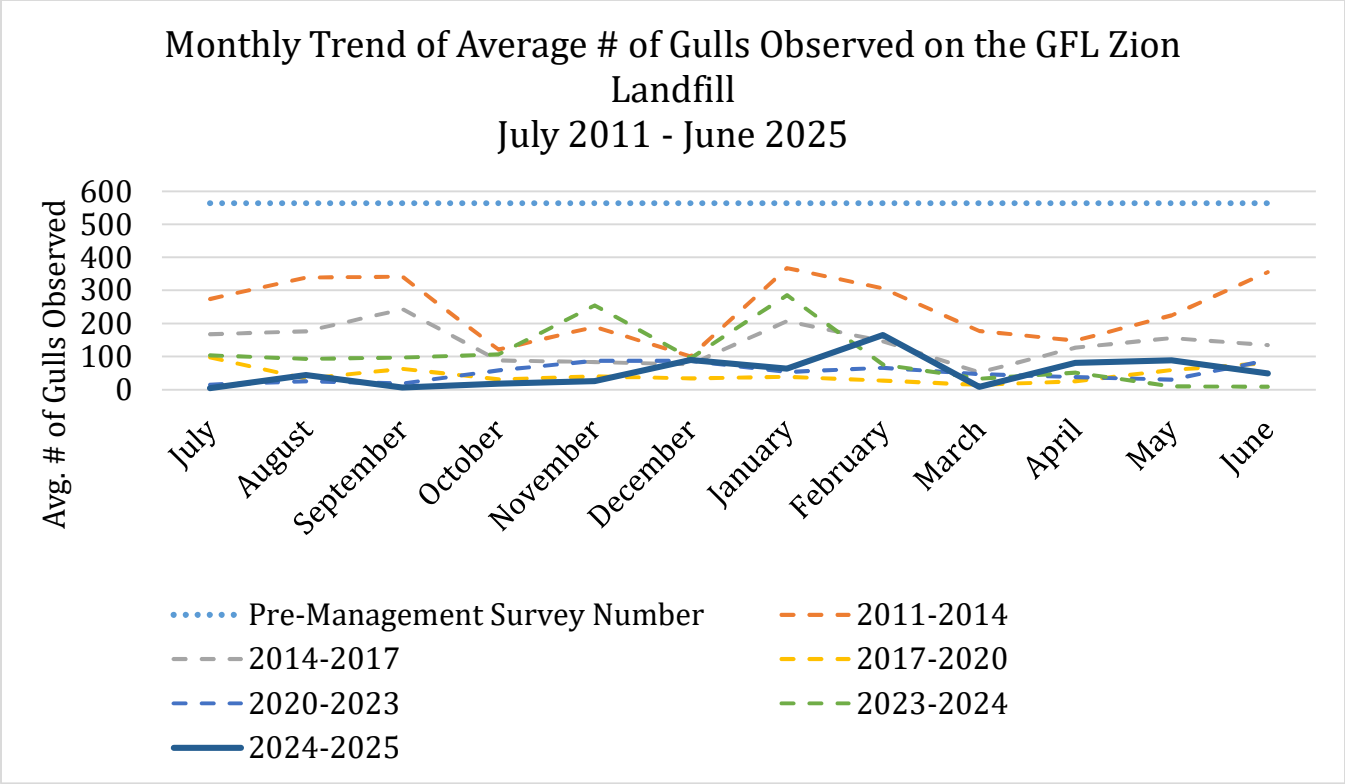


Figure 6. Monthly trend of average number of gulls observed on and around the GFL Zion Landfill from July 2011 to June 2025.

On The Landfill – European Starlings (EUST)

Figure 7 focuses on the average number of European starlings observed each month since the initiation of the project. Please note that data gathered in July of 2011 was collected prior to any management actions being implemented and thus serves as a baseline for data collected from August 2011 to June of 2025.

In July of 2011, an average of 75 European starlings were observed on the GFL Zion Landfill. Comparing that to the average number of starlings observed during surveys in June of 2025, which was 89, it shows an overall increase of 19%. Since January of 2021, there has been an increase in European starling numbers during the winter months. This increase in the starling population within the winter months could be attributed to the colder temperatures. The colder temperatures require the starlings to feed regularly for survival and the landfill provides a reliable food source. Additionally, this trend could be linked to the species high nesting/roosting site fidelity, meaning that hatchlings and adults return to sites that have been deemed reliable in previous years.

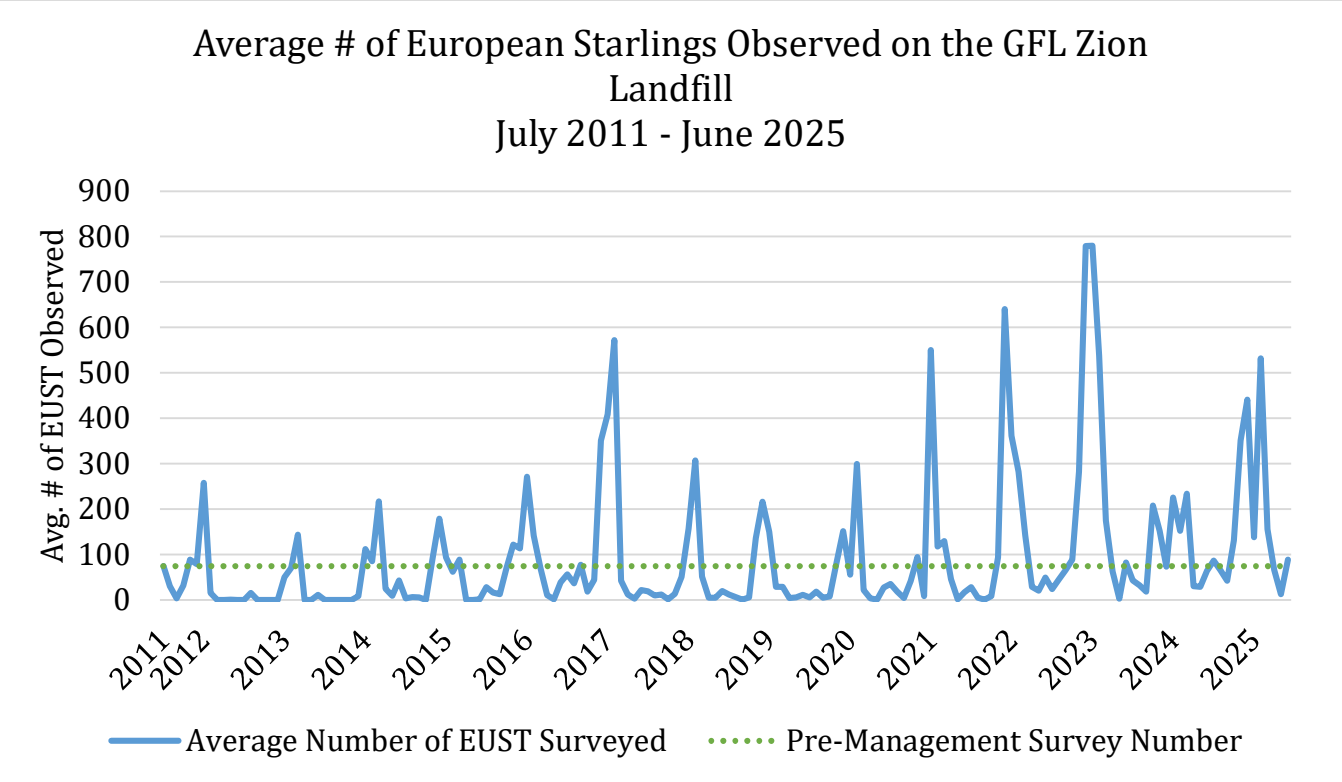


Figure 7. Average number of European starlings (EUST) observed on the GFL Zion Landfill from July 2011 to June 2025 with an identified pre-management survey number for comparison.

To further illustrate the seasonal trend of European starling observations since the implementation of the management program, pre-management numbers, three-year averages, and recent data from 2024 – 2025 are compared graphically (Figure 8).

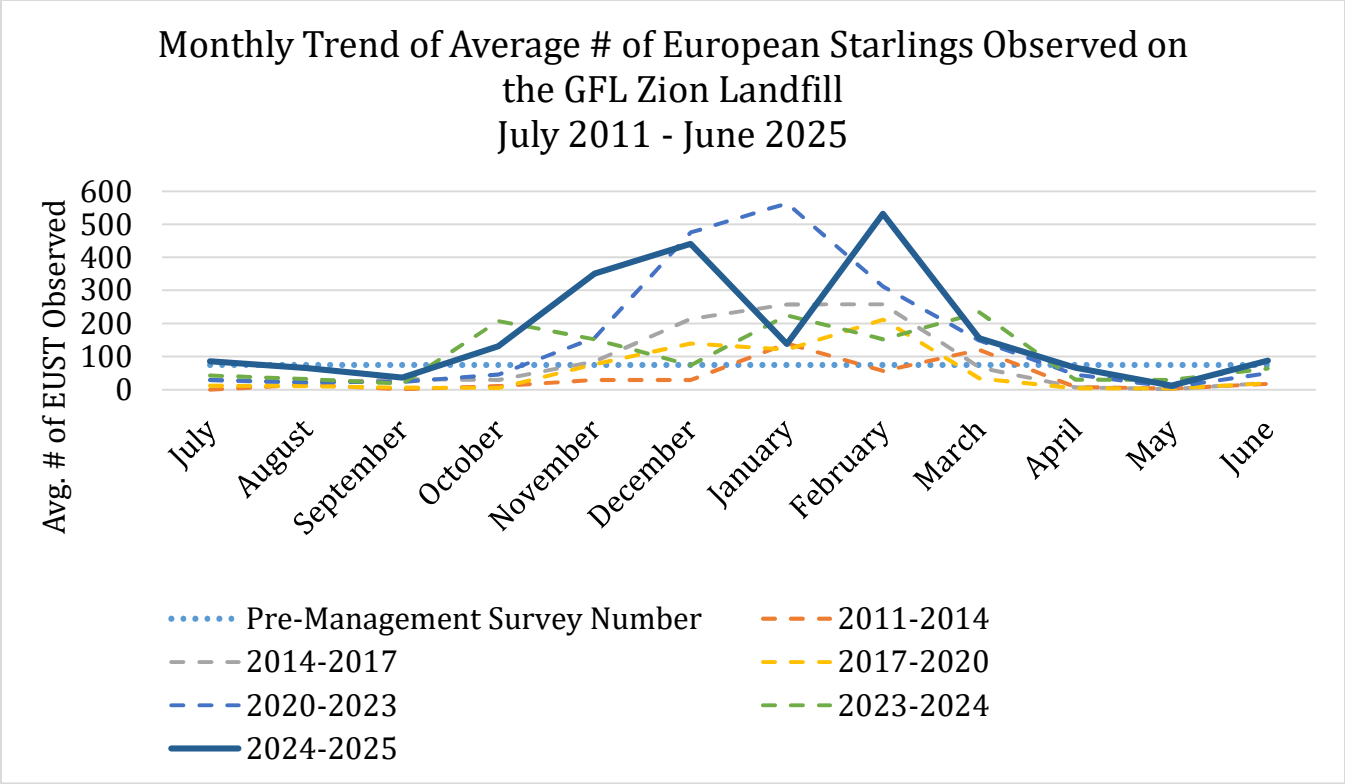


Figure 8. Monthly trend of average number of European starlings (EUST) observed on the GFL Zion Landfill from July 2011 to June 2025.

On The Landfill – Cover Type Usage

The main cover type used by birds during the observation period was the Trash/Open Face, which is the main area of operation on the landfill (Figure 9). The open face contains the largest amount of exposed trash making it the main attractant for most species observed at the landfill. The bare soil areas adjacent to the open face area account for the second highest level of wildlife use. The birds utilize the bare soil as a loafing area while they wait for the heavy machinery to clear from the open face before returning to forage until the machinery returns. Birds also loaf on the bare soil areas after feeding to rest. Many birds, especially gulls, seemed to be more comfortable in open areas where they can detect approaching predators. Loafing habitat, coupled with a high-quality food source, makes the landfill attractive to many species. It should also be noted that during the spring of 2014 the open face transferred to a new cell east of the previous cell. The old cell was capped and seeded which decreased the amount of bare soil. In the winter of 2021, a new cell was created south of the active open face. Increased perching activity has been observed in the dead trees and woodland area surrounding the marsh (survey point 2) after this cell became active. Additionally, trees surrounding this current cell have become the perching location for bald eagles who forage and hunt off the landfill, halting integrated wildlife damage management program actions. In the spring of 2025, construction of a new cell was started north of the active open face. This construction created loafing habitat for gulls and has been a focus for recent management activities in order to prevent gulls from acclimating to this site.

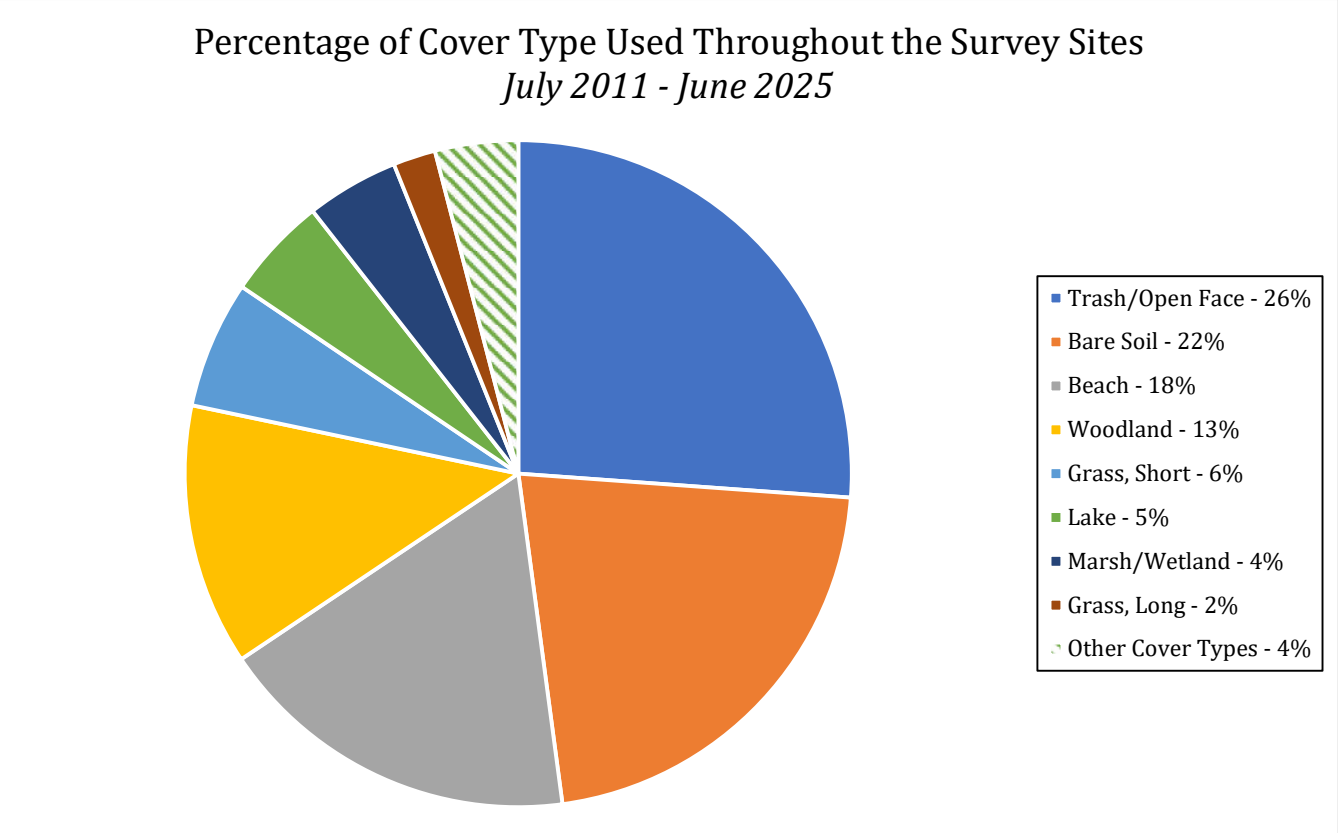


Figure 9. Percentage of cover types used throughout all the survey sites.

Management Activities

Wildlife Services employs an integrated wildlife management approach to reduce the number of birds utilizing the landfill; methods include various harassment tools, trapping, and lethal reinforcement. Full time staffing is needed to successfully implement the program due to the number of birds present on the landfill and the overall attractiveness of the landfill to wildlife, particularly birds. If management efforts are decreased, an increase in the bird usage of the landfill and surrounding areas is expected. The main species of concern to the landfill staff are ring-billed gulls, herring gulls, European starlings, and turkey vultures. Lethal management of most of these species requires depredation permits from both the United States Fish and Wildlife Service and the Illinois Department of Natural Resources to reinforce dispersal techniques. Wildlife Services maintains all necessary permits while implementing the Wildlife Damage Management Program at the GFL Zion Landfill. Management actions for each species causing conflicts will be discussed below.

Ring-billed and Herring Gulls

Gulls were one of the most abundant species observed on the landfill from July 2011 through June 2025 (Figure 2), making gull management the primary focus of the wildlife damage management program. The main tactic used to keep gulls away from the landfill is the use of pyrotechnics, coupled with lethal reinforcement when needed. Propane cannons were previously utilized to keep birds from the area when a regular patrol of the landfill was not possible but were removed from the landfill in the summer of 2014. Remote activated propane cannons were also placed at two adjacent properties (the FedEx building and the closed landfill across the street from the active landfill). Gulls were observed leaving the active landfill when harassed and loafing at these sites waiting for harassment efforts to cease before returning to the landfill to feed. The gulls are no longer observed at the closed landfill and therefore propane cannons are no longer in use. The propane cannons were also removed from the FedEx buildings in the fall of 2015 due to WS gaining permission to use pyrotechnics on site in December 2014, which has proven to be a more reliable harassment tool, although no gulls have been observed loafing at the FedEx buildings. In late 2016, WS received permission to harass gulls that were observed loafing on the Kiefer Swim Shop building off Rosecrans Road. In late 2017, WS also received permission to harass gulls at the Woodstone Apartments near the Kiefer Swim Shop. By harassing gulls at the FedEx, Kiefer, and Woodstone Apartment buildings, WS have been "training" these birds that adjacent areas around the landfill are also off limits and encouraging them to move elsewhere to forage and loaf further from the landfill. Since WS began harassment at these properties, 11,034 gulls have been dispersed from the FedEx property, 32,041 gulls have been dispersed from the Kiefer building, and 2,420 have been dispersed from the Woodstone Apartments, and the employees and tenants are happy with the results. Gull effigies were utilized for a short time in the summer and fall of 2011 as part of the integrated wildlife damage management program, but they did not appear to be very effective.

Additional harassment tools were used or tested on the landfill. For example, a device called the "Scary Man" (a human effigy or scarecrow) was tested, however it proved ineffective at keeping gulls away from the area. A remote controlled "falcon" was demonstrated to landfill staff in late July 2012. After learning the extremely high cost of the unit, WS staff purchased a remote-controlled aircraft and painted it black to mimic the color of a large raptor. High winds, which are common at the landfill, made flying the aircraft very difficult. Additionally, during January of 2014 and 2015, multiple bald eagles were observed soaring over the landfill at the same time gulls were on site and they appeared to pay very little attention to the eagles**.** Neither of these tactics were as successful as other techniques being used,

and their use was suspended. WS continues to look for new techniques to test. In 2015, WS started using a new pyrotechnic called the "silver comet" which leaves a spark trail while flying. The new pyrotechnic has been very effective on rainy, foggy, or low ceiling days due to the additional visual stimulus provided by the pyrotechnic.

Since the spring of 2013, WS identified two gull nesting colonies near Waukegan. WS staff conducted nest/egg destruction on these sites to reduce the number of hatch-year birds that would potentially utilize the landfill as a food source. At one of these locations, gulls nested both on the rooftop and the ground. After damage to the structural integrity of the roof was discovered, WS personnel and plant employees were prohibited from accessing the rooftop to oil these eggs due to safety concerns. WS will continue to oil all ground nesting gulls at this location in the future. WS was notified in the summer of 2017 of a new potential nesting site near the lakeshore in Waukegan. WS was granted permission to access this area after the 2017 nesting season was over. Management of this new colony would have taken place in the spring of 2018, but no gulls nested in the area in 2018, 2019, 2020, 2021, and 2022. WS will also continue to search for nesting colonies in areas close to the landfill. Just as at the site WS currently manages, the nests and eggs found in any newly discovered colony will be treated and rendered unviable to further reduce the population of hatch year gulls in the area if permission is granted by the property owner. WS will also search for new loafing and feeding areas adjacent to the landfill being used by gulls and will work to gain landowner permission to harass the birds there with the goal of continuing to move the birds further from the landfill.

To date, 282 ring-billed gull nests containing 346 eggs and 616 herring gull nests containing 1164 eggs were destroyed between these two colonies. On the landfill property, as of June 2025, 845,868 ring-billed gulls and 1,085,115 herring gulls were dispersed (Figure 10), and an additional 1,887 ring-billed gulls and 1,756 herring gulls were lethally removed to reinforce WS' harassment efforts since the initiation of the integrated wildlife damage management program (Figure 11). Pyrotechnics and lethal reinforcement of those harassment techniques still appear to be the best tools for keeping gulls away from the open face.

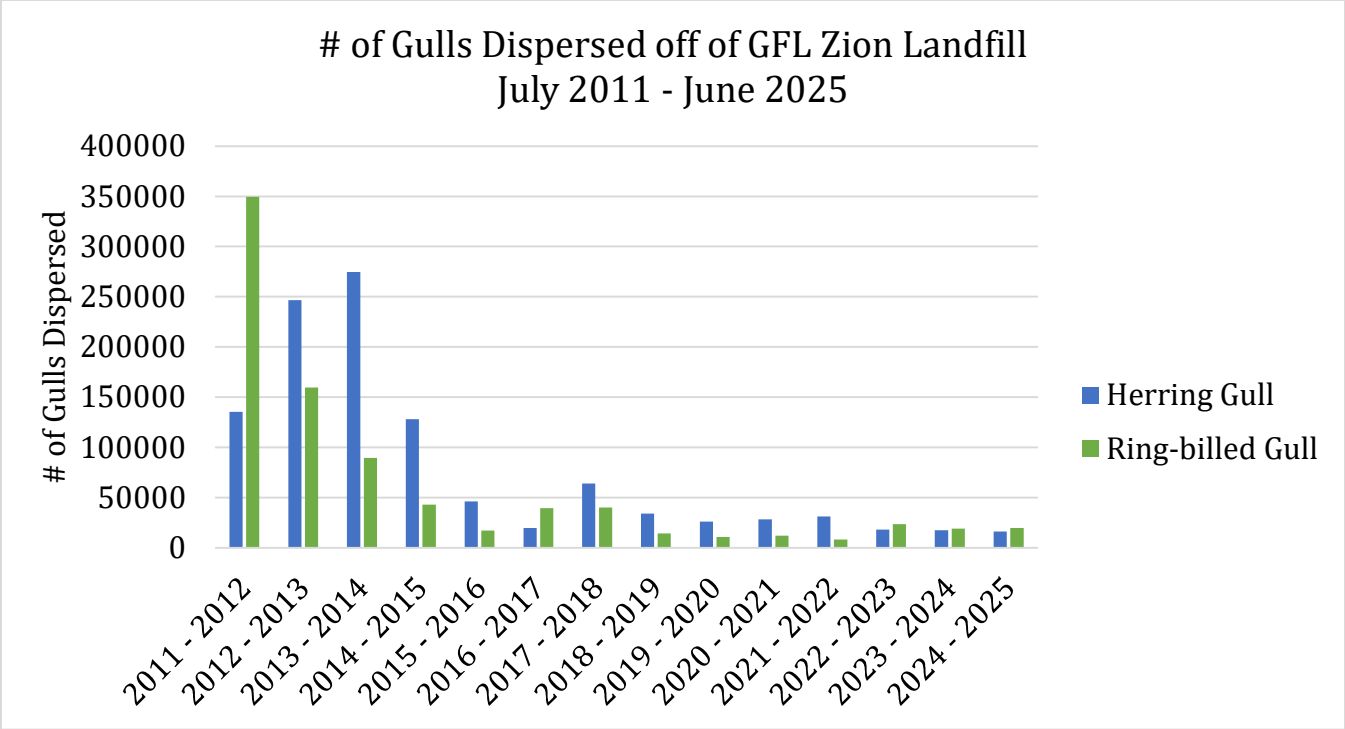


Figure 10. Number of herring gulls and ring-billed gulls dispersed from the GFL Zion Landfill July 2011 through June 2025.

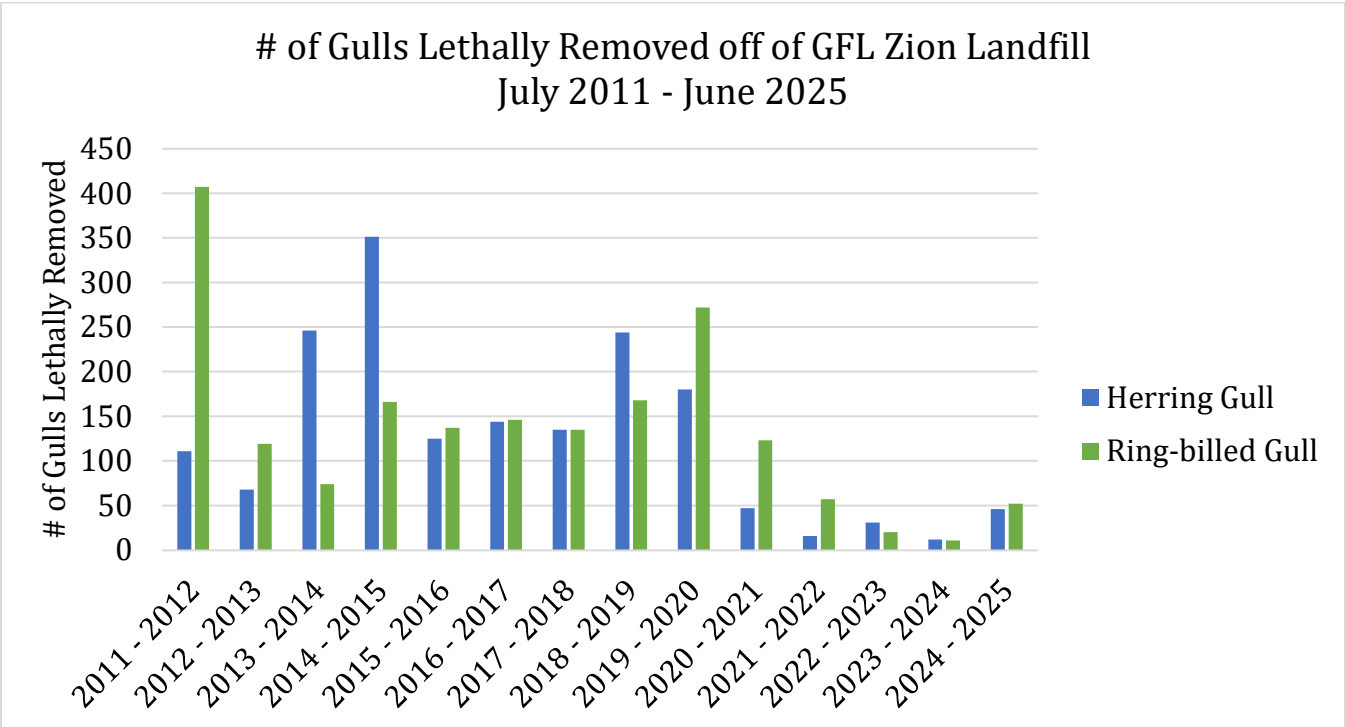


Figure 11. Number of herring gulls and ring-billed gulls lethally removed from the GFL Zion Landfill July 2011 through June 2025.

European Starlings

European starlings frequently utilize landfills and GFL Zion Landfill is no exception. During the late spring/summer months relatively few starlings are generally observed on the landfill. Conversely large flocks are usually observed utilizing the landfill as a food source in the fall/winter months each year (Figure 7, Figure 8). Harassment efforts, like those used for gulls, were implemented with varying levels of success. In addition to harassment, trapping has proven effective at maintaining a low population of starlings utilizing the landfill once these winter flocks disband. Two decoy traps built by WS have been deployed at strategic sites around the landfill to capture these birds, and one decoy trap remains. Starlings are attracted to the traps by the bait used (fat pellets, a livestock feed high in fat content) and the presence of other birds in the traps. After capture, the birds are euthanized using methods approved by the American Veterinary Medical Association. Starlings are a non-native, invasive species that competes with native wildlife for resources and are offered no federal or state protection. To date, 423,904 starlings have been dispersed and 23,909 starlings have been lethally removed from the property (Figures 12 and 13). Moving forward, if the observed number of starlings continues to increase, there will be an increase in harassment efforts, lethal reinforcement, and trapping to reduce the population of starlings observed on the landfill. In addition, new techniques will be explored and tested as they become available and/or feasible.

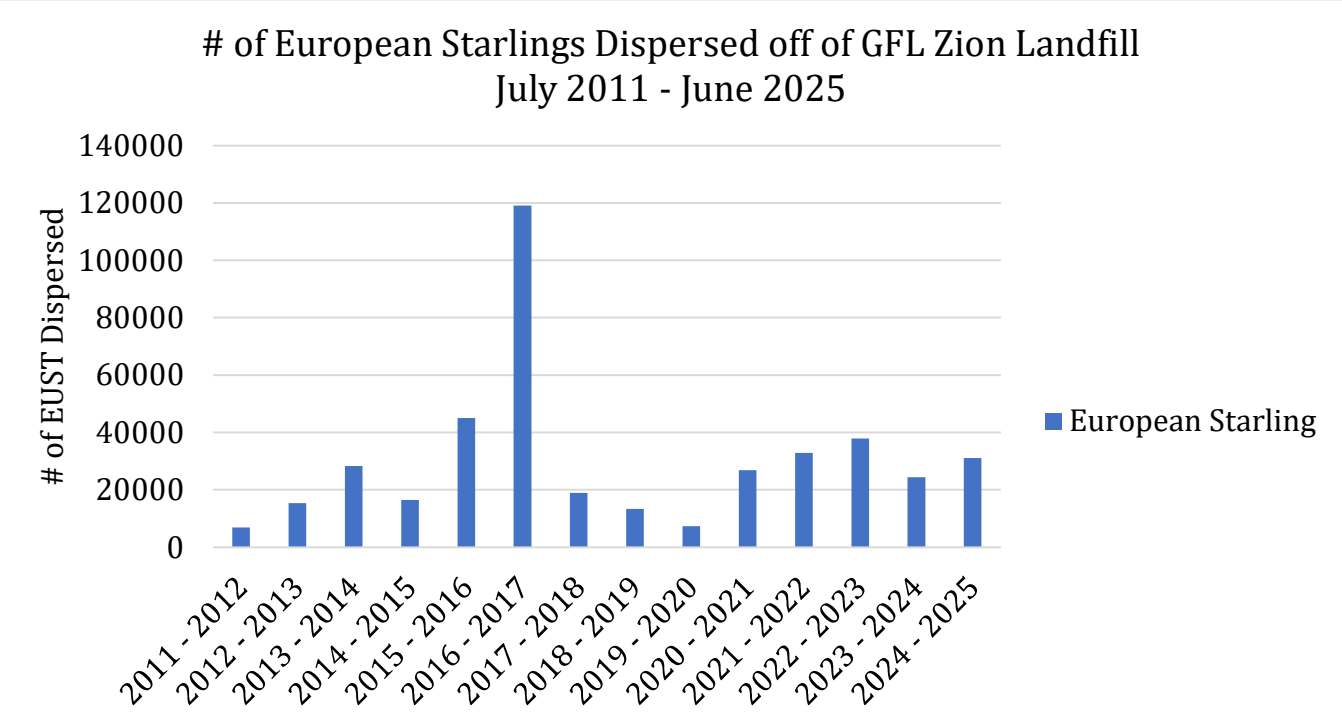


Figure 12. Number of European starlings dispersed from the GFL Zion Landfill July 2011 through June 2025.

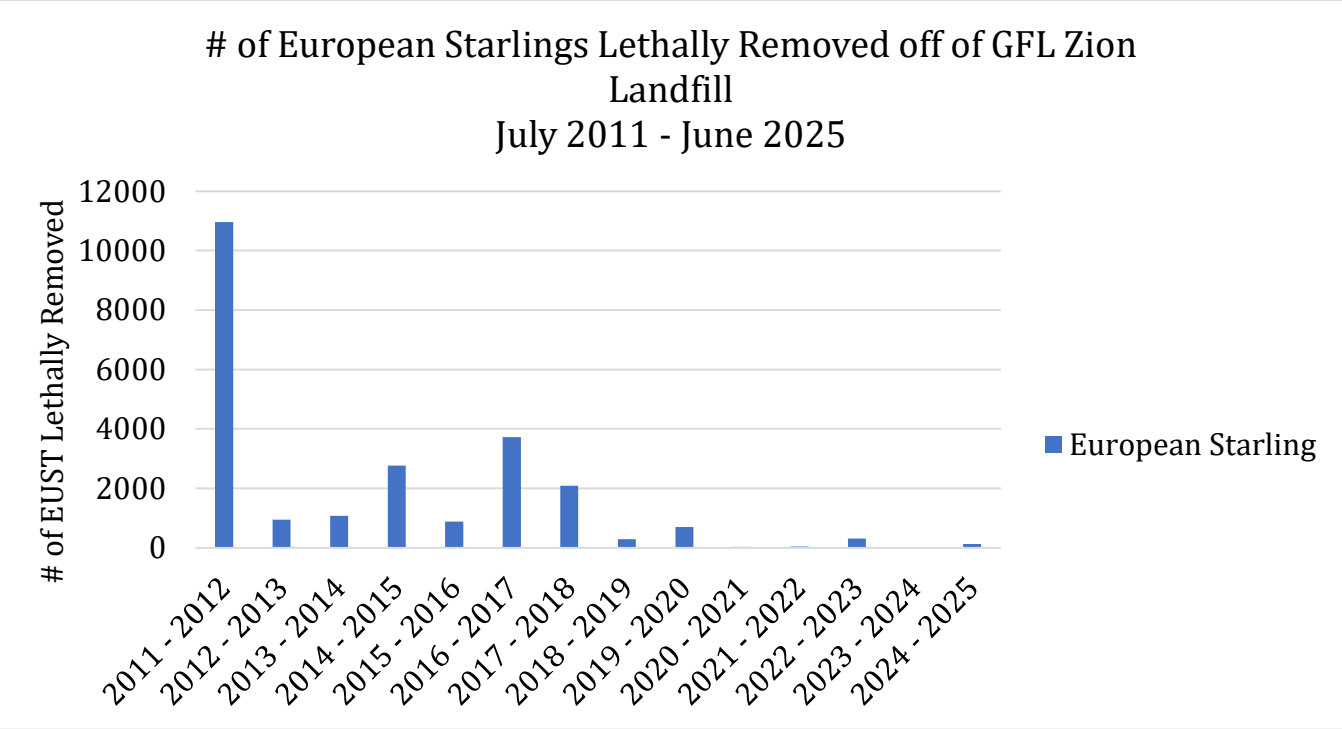


Figure 13. Number of European starlings lethally removed from the GFL Zion Landfill July 2011 through June 2025.

Turkey Vultures

Turkey vultures were first observed on the landfill from July 2011 through September 2011 and continue to make an appearance every spring through fall. Their highest numbers were observed in July 2011, with 1332 vultures observed on site. Initially the management strategy for turkey vultures was like that employed for gulls. Pyrotechnics were utilized to harass vultures from the landfill; however, the birds quickly habituated to harassment efforts. To increase the effectiveness of our efforts in encouraging vultures to move elsewhere, WS used both "artificial" and "real" turkey vulture effigies. The "artificial" effigies were made from Kevlar Canada goose decoys painted black. They were suspended head down from poles with wings outstretched and placed near vulture loafing areas on landfill property. The "artificial" effigies were somewhat effective, but a few vultures continued to utilize the landfill. The use of "artificial" effigies was followed with the deployment of "real" effigies. "Real" effigies were collected by lethally removing vultures during management operations on the landfill and suspended in the same manner and locations as the "artificial" effigies. This method proved to be much more effective in dispersing vultures from the landfill, therefore this is the preferred method, if real effigies are obtainable. Significantly fewer turkey vultures were observed in 2012 and 2013; however, vultures seem to frequent the landfill during the late spring, summer, and early fall before they migrate south for the winter months. Since June 2014, WS specialists have lethally removed 17 vultures to use as effigies, which again proved effective. July 2017 to June 2018 saw a slight increase in vulture activity around the landfill. This led to more focus on harassing and removing the vultures, mainly increasing the amount taken as compared to previous years. If vulture numbers continue to rise, WS will continue to harass and remove birds as necessary. To date, 6,051 turkey vultures have been harassed and 90 lethally removed from the landfill (Figures 14 and 15). It should also be noted that large number of turkey vultures have been spotted "towering" in areas around the landfill, but did not come onto the landfill, and left the area without harassment.

In 2011, the Heritage Faith Christian Center (HFCC) contacted the landfill about turkey vultures loafing on the roof of their worship center. In response, WS placed an "artificial" effigy on the roof of the church during the weekdays and removed it prior to worship services on Sunday morning. In 2012, the church allowed the effigy to remain on the roof throughout the week, including Sundays and the vultures left the area and HFCC was pleased with the results. Since 2012, vultures frequently returned to either the landfill or HFCC and each time harassment, lethal reinforcement and effigies were used to disperse the birds. To further increase our success, WS was approved to use pyrotechnics as another harassment tool at the HFCC but are only used as a last resort and only during the week during the middle of the day. To date, 339 turkey vultures have been harassed from the church.

In 2025, a residential property contacted the landfill about turkey vultures roosting on their property. In response, WS assisted in the placement of an "artificial" effigy in the roosting trees which was effective for a short period of time. After turkey vultures continued to use the property, WS has taken steps to use additional harassment tools on the residential property and looks forward to working alongside the landowner to disperse the birds from their property.

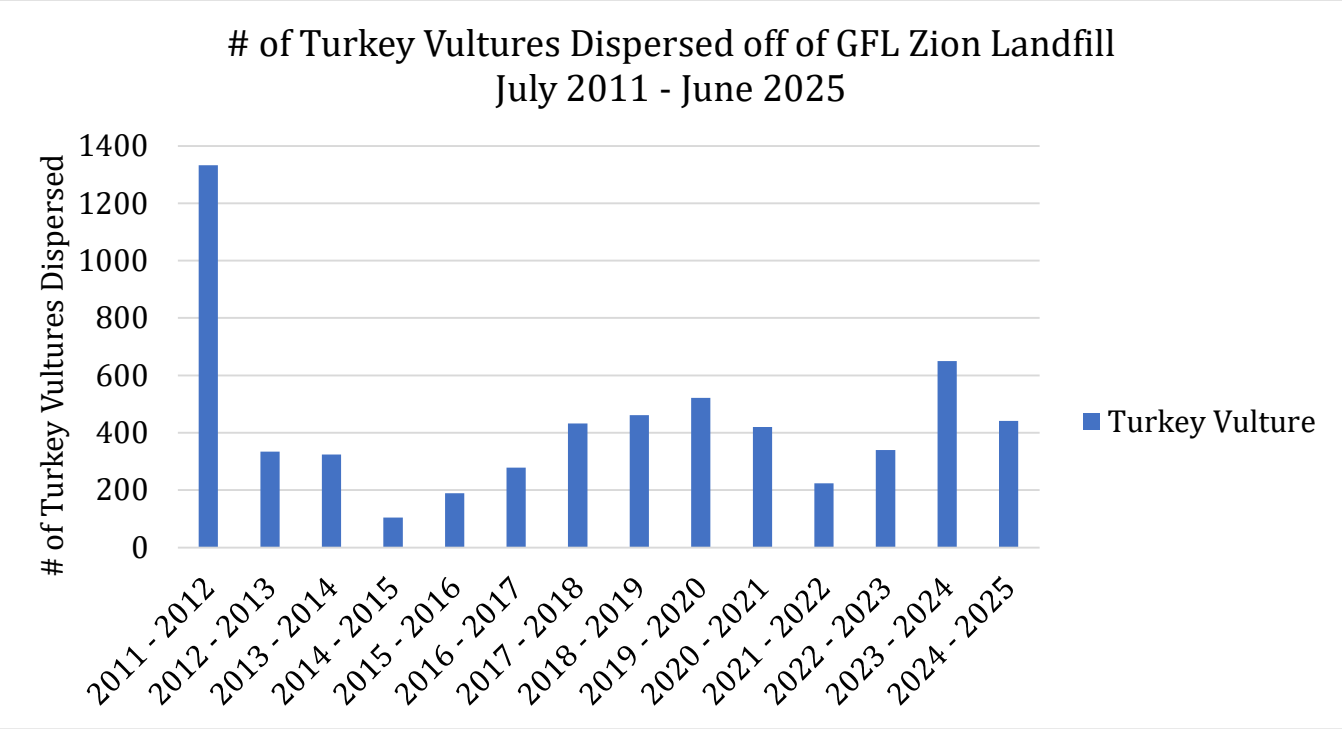


Figure 14. Number of turkey vultures dispersed from the GFL Zion Landfill July 2011 through June 2025.

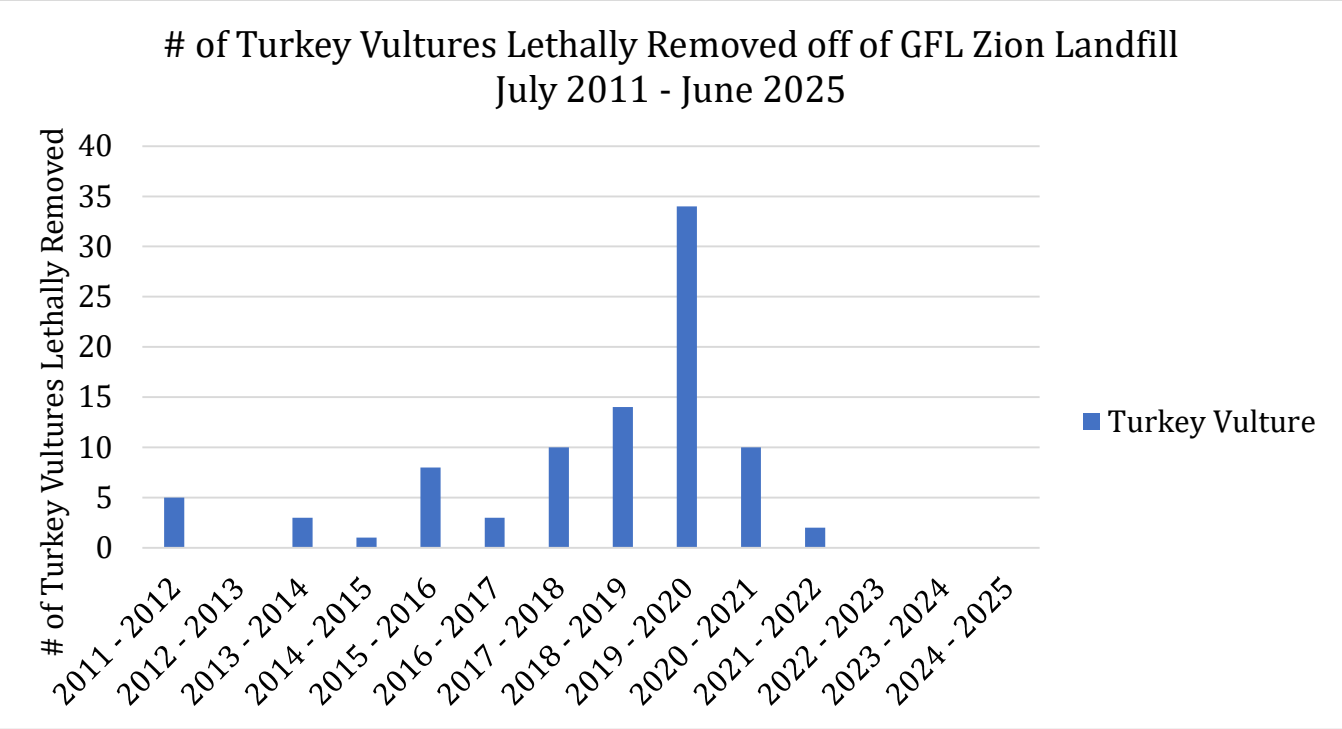


Figure 15. Number of turkey vultures lethally removed from the GFL Zion Landfill July 2011 through June 2025.

Mammals

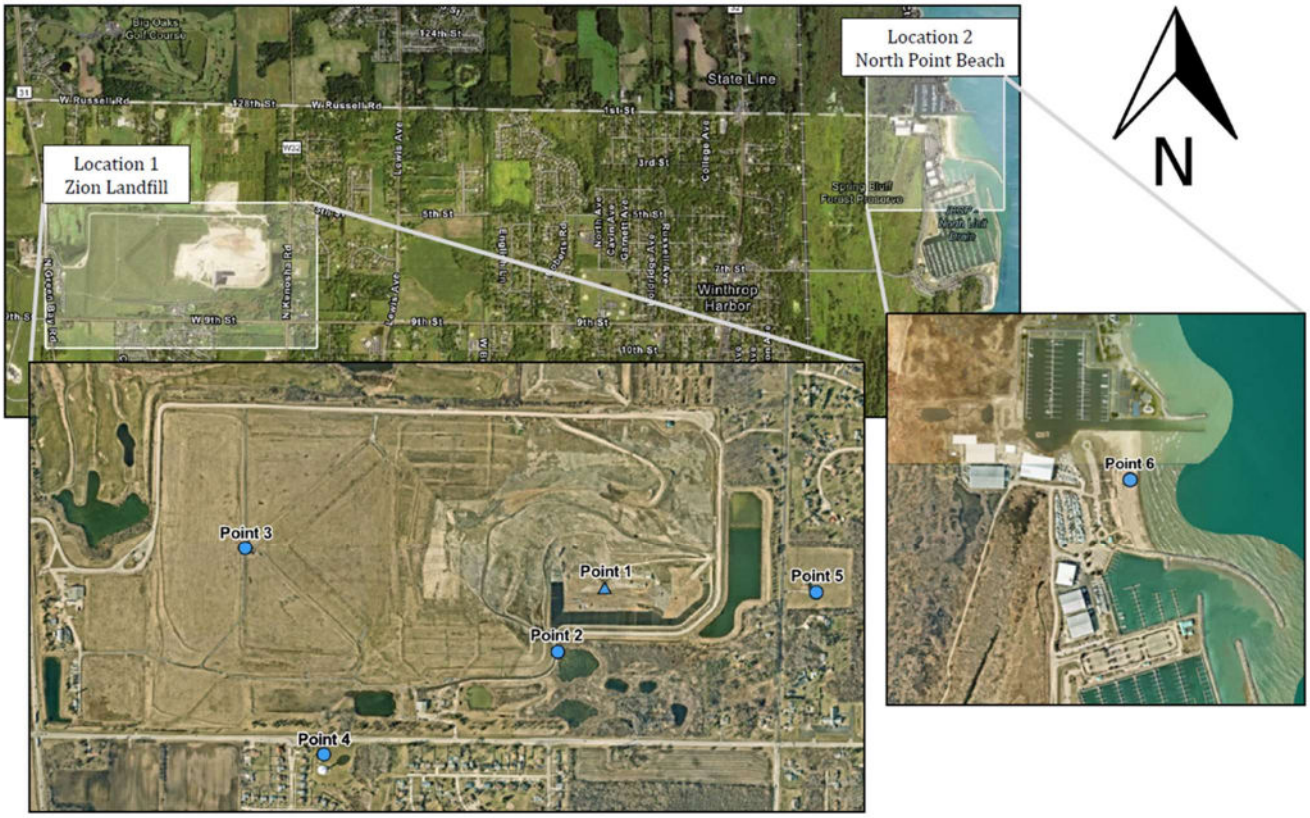
The landfill requested assistance with reducing nuisance mammals that were reported on adjacent properties. A trapping program was implemented and in addition to trapping on the landfill, WS has trapped mammals on 3 adjacent properties as requested by the landfill. To date, 8 striped skunks, 3 opossums, and 28 raccoons have been removed from the landfill and neighboring properties. Any future conflicts regarding these species are encouraged to be reported and WS will be happy to address these issues.

Conclusion

Wildlife Services looks forward to continuing its working relationship with the GFL Environmental Zion Landfill in implementing the integrated wildlife damage management program. A cooperative service agreement is in place to continue this assistance through July 31, 2027. WS will continue to research and incorporate new methods to better manage bird numbers at the landfill. Additionally, WS will continue efforts to identify gull nest colonies and new loafing sites around the landfill. If you have any questions regarding this report or the work being completed, please contact WS at (224) 483-3812.

APPENDIX A – Bird Survey Points

Map of Survey Point Locations for GFL Environmental Landfill



Point 1 – Approximate GPS Point (42.48298, -87.86778) – This is a moving point*

Cover Types
Trash
Bare Soil

Point 2 – Approximate GPS Point (42.48088, -87.86957)

Cover Types
Bare Soil
Unpaved Road

Cover Types
Long Grass
Short Grass
Bare Soil

Cover Types
Marsh

Point 3 – Approximate GPS Point (42.48315, -87.87853)

Cover Types
Long Grass
Short Grass
Unpaved Road
Structure (Gas Wells)

Cover Types
Long Grass
Short Grass

Cover Types
Long Grass
Short Grass
Structure (Gas Wells)

Point 4 – Approximate GPS Point (42.47868, -87.87637)

Cover Types
Long Grass
Short Grass
Structure (Fencing, Electrical, Water Tower)

Cover Types
Long Grass
Short Grass
Woodland

Cover Types
Long Grass
Short Grass
Woodland

Point 5 – Approximate GPS Point (42.48216, -87.86199)

Cover Types
Long Grass
Short Grass
Woodland
Structure (Building)
Asphalt

Cover Types
Long Grass
Short Grass
Woodland

Point 6 – Approximate GPS Point (42.49165, -87.80340)

Cover Types
Long Grass
Short Grass
Shrubs

Cover Types
Beach
Lake
Structure (Breakwater)

Cover Types
Beach
Lake
Structure (Breakwater)

APPENDIX B – List of Species Observed on Property (common name | scientific name)

Hawks & Eagles	
Bald Eagle	*Haliaeetus leucocephalus*
Broad-winged Hawk	*Buteo platypterus*
Cooper's Hawk	*Accipiter cooperii*
Northern Harrier	*Circus cyaneus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Rough-legged Hawk	*Buteo lagopus*
Larks	
Horned Lark	*Eremophila alpestris*
Kingfishers	
Belted Kingfisher	*Megaceryle alcyon*
Ducks	
Blue-winged Teal	*Anas discors*
Canada Goose	*Branta canadensis*
Common Merganser	*Mergus merganser*
Hooded Merganser	*Lophodytes cucullatus*
Mallard	*Anas platyrhynchos*
Wood Duck	*Aix sponsa*
Swifts	
Chimney Swift	*Chaetura pelagica*
Herons	
American Bittern	*Botaurus lentiginosus*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Green Heron	*Butorides virescens*
Waxwings	
Cedar Waxwing	*Bombycilla cedrorum*
Small Passerines	
Lapland Longspur	*Calcarius lapponicus*
Snow Bunting	*Plectrophenax nivalis*
Cardinals	
Dickcissel	*Spiza americana*
Northern Cardinal	*Cardinalis cardinalis*
New World Vultures	
Turkey Vulture	*Cathartes aura*
Plovers	
Killdeer	*Charadrius vociferus*
Pigeons and Doves	
Mourning Dove	*Zenaida macroura*
Rock Dove	*Columba livia*

Corvids

American Crow	*Corvus brachyrhynchos*
Blue Jay	*Cyanocitta cristata*

American Sparrows

American Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Dark-eyed Junco	*Junco hyemalis*
Eastern Towhee	*Pipilo erythrophthalmus*
Field Sparrow	*Spizella pusilla*
Savannah Sparrow	*Passerculus sandwichensis*
Song Sparrow	*Melospiza melodia*
White-crowned Sparrow	*Zonotrichia leucophrys*

Falcons

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*

Finches

American Goldfinch	*Spinus tristis*
European Goldfinch	*Carduelis carduelis*
House Finch	*Carpodacus mexicanus*

Cranes

Sandhill Crane	*Grus canadensis*

Swallows

Barn Swallow	*Hirundo rustica*
Tree Swallow	*Tachycineta bicolor*

New World Blackbirds

Bobolink	*Dolichonyx oryzivorus*
Brown-headed Cowbird	*Molothrus ater*
Common Grackle	*Quiscalus quiscula*
Eastern Meadowlark	*Sturnella magna*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*

Gulls

Herring Gull	*Larus argentatus*
Ring-billed Gull	*Larus delawarensis*

Pipits

American Pipit	*Anthus rubescens*

Chickadees

Black-capped Chickadee	*Poecile atricapillus*

New World Warblers	
Cerulean Warbler	*Dendroica cerulea*
Common Yellowthroat	*Geothlypis trichas*
Hooded Warbler	*Wilsonia citrina*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
Old World Sparrows	
House Sparrow	*Passer domesticus*
Cormorants	
Double-crested Cormorant	*Phalacrocorax auritus*
Woodpeckers	
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Red-bellied Woodpecker	*Melanerpes carolinus*
Sandpipers	
American Woodcock	*Scolopax minor*
Spotted Sandpiper	*Actitis macularius*
Starlings	
European Starling	*Sturnus vulgaris*
Thrushes	
American Robin	*Turdus migratorius*
Flycatchers	
Eastern Kingbird	*Tyrannus tyrannus*
Eastern Phoebe	*Sayornis phoebe*

APPENDIX C – Additional Photos from Property

Bald Eagle

Killdeer

Mallard

Red-winged Blackbird

Wood Duck

Bobolink

Ring-billed Gull

Ring-billed Gull