

# Madison Audubon Society's Goose Pond Sanctuary 2016 Annual Report



*Above: Tundra swans, Canada geese and mallards gather at Goose Pond. Photo by Arlene Koziol. Bottom left: Prairie smoke plants ripen. Photo by Maddie Dumas. Bottom right: A kestrel chick is weighed before being banded. Photo by Arlene Koziol.*



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# I. Staff and Board Members of Madison Audubon Society

## **Goose Pond Staff**

Mark Martin, Land Manager  
Susan Foote-Martin, Land Manager  
Maddie Dumas, Land Steward

## **Goose Pond Sanctuary Committee**

Jim Shurts – Chair  
Curt Caslavka  
William Damm  
Janet Flynn  
Arlene Koziol  
Chuck Pils  
Susan Slapnick  
Greg Tiedt  
Topf Wells



*Mark Martin, Susan Foote-Martin, Maddie Dumas. Photo by Matt Reetz.*

## **Madison Audubon Society Staff**

Matt Reetz – Executive Director  
Carolyn Byers – Director of Education  
Brenna Marsicek – Director of Communications  
John Minnich – Financial Manager  
Mikhail Fernandes – Communications & Outreach Assistant  
Drew Harry – Faville Grove Sanctuary Land Steward

## **Madison Audubon Society Board of Directors**

Roger Packard – Board President  
Marcia MacKenzie – Vice President  
Topf Wells – Secretary  
Joanne Jones – Treasurer  
Susan Knaack – Programs Committee Chair  
Jim Shurts – Sanctuaries Committee Chair  
Galen Hasler  
Arlyne Johnson  
Marenda Weiss

*Report prepared by Mark Martin, Susan Foote-Martin, and Maddie Dumas  
Branding and formatting prepared by Brenna Marsicek*

## II. Goose Pond Historic Data

### A. Overview of 2016

The year 2016 at Goose Pond Sanctuary was a year filled with new faces, long-wished-for facility improvements, exciting projects, and great data acquisition. Some of the highlights include UW-Madison Nelson Institute graduate student Heather Inzalaco performing an extensive survey of the breeding birds of Goose Pond; Maddie Dumas beginning as the full-time land steward and moving into the Prairie Lane house with her husband Aaron Dumas; the repaving of the Kampen Road residence's driveway; the continuation of silphium borer moth research; a record 967 monarch butterflies tagged; fledging 166 kestrels from our nest boxes, and the beginning of a new project to create the "Wingspan" viewing pavilion dedicated to Mark Martin and Sue Foote-Martin on the Bicentennial Prairie. This annual report will provide information on these highlights as well as historical changes, conservation activities, and other achievements that occurred at Goose Pond, Erstad Prairie and Otsego Marsh for the year 2016. Thanks to everyone who volunteered time working on restoration, management and research projects, and also to members who provided funds to support this work! We could not do it without you!

### B. Weather 2016

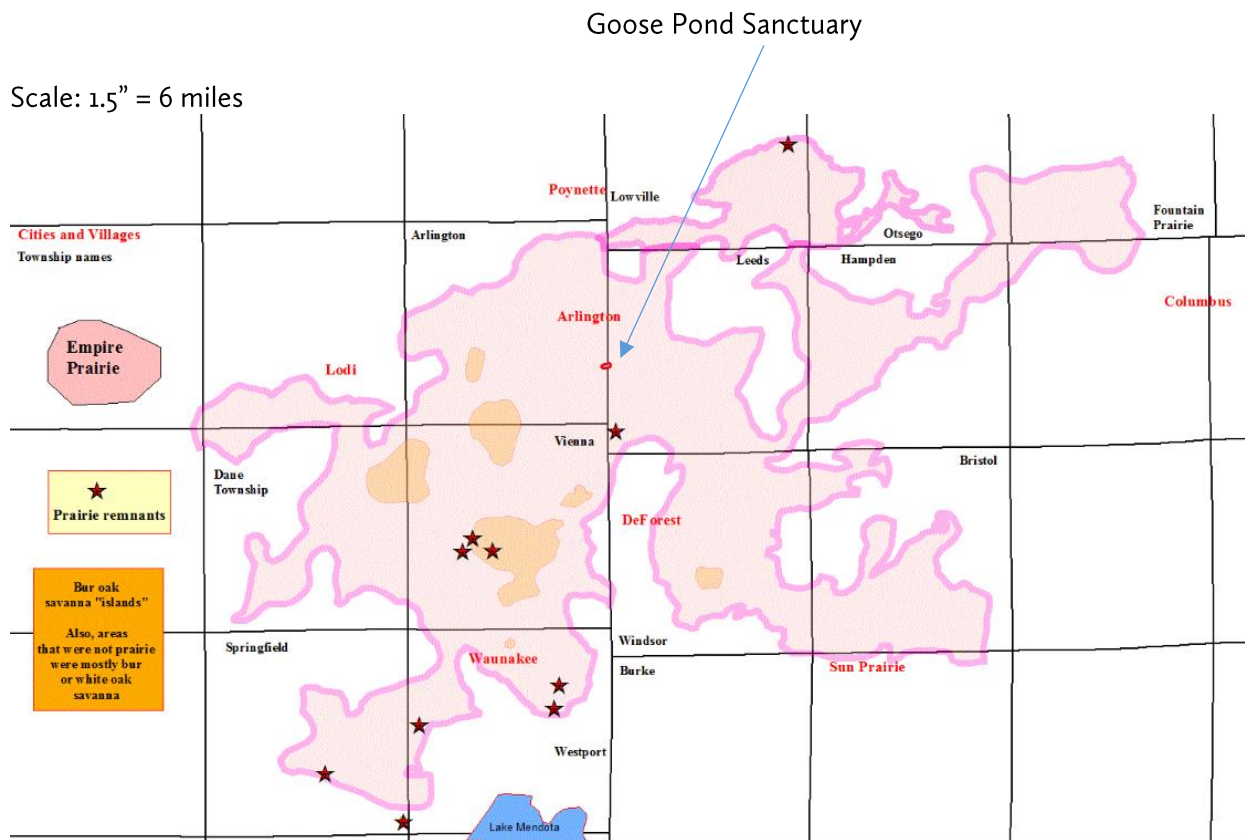
2016 was an above-average year for precipitation and for above normal temperatures. Temperatures reached 80° F in April, and were still into the 80s in October. The summer months and early fall saw many 80 plus degree days. It rained regularly throughout the growing season providing excellent growing conditions for the prairie plants. The Goose Pond ice-off date was March 9<sup>th</sup> and the ice-on date was December 7<sup>th</sup>. The first frost of the fall was October 13<sup>th</sup>. Rain totaled 38 inches and snow total 17.3 inches. The 16 inches of rain in August and September helped raise the Goose Pond water level.

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Rain	0.4"		3.2"	1.6"	2.6"	3.2"	5.2"	6.9"	9.3"	3.4"	1.7"	0.5"
Snow	6.0"	4.5"	5.0"	1.8"								18"

### C. Tom Brock Blogs about the Twenty-Mile Empire Prairie

On March 4, 2016, Tom Brock, co-founder of Pleasant Valley Conservancy, a remnant/restored oak savanna prairie complex near Black Earth, posted about the Empire Prairie (Arlington Prairie) on his blog. The post described the history of the 150,000-acre Empire Prairie that was 20 miles across, and included a map, seen below, of the former extent of the prairie. Goose Pond Sanctuary spans two townships that are within the historic Empire Prairie. According to Tom's blog post, about 80% of Arlington Township and 75% of Leeds Township were in prairie before European settlement.

<http://pvcblog.blogspot.com/2016/03/what-once-was-wisconsins-twenty-mile.html>



### III. Education and Outreach

#### A. Interns

This year we had another great group of interns. Five interns worked at Goose Pond one day a week for 12 weeks in the summer as part of the Prairie Partners internship program that is coordinated by Madison Audubon Society. On the remaining four days, the interns worked at Pheasant Branch Conservancy, UW-Lakeshore Nature Preserve, Westport Drumlin Prairie, and Pope Farm Conservancy. This year's interns were from UW- Eau Claire, Madison and Steven's Point; and all were majoring in a natural resource field. At Goose Pond, the interns learned hands-on skills doing activities such as invasive species control; kestrel banding; silphium borer moth surveys; nest box monitoring, and seed collecting.



From left: Gina Lehner, Adelyn Hanchette, Ali Ban-Herr, Allison Earl, Kurt Bennett. Photo by Maddie Dumas.



Sarah Betzler  
Photo by Maddie Dumas.

Sarah Betzler was our full-time Goose Pond intern. She worked with us from June through early November. A recent graduate of the UW-Madison Nelson Institute's graduate program, Sarah was extremely knowledgeable in the field as well as being hard-working and enthusiastic. She stayed with us through the summer weed management season and into the fall seed collecting season. Sarah was a key for us having a record prairie seed harvest.

## B. Maddie Dumas's Master's Thesis

In May, Maddie graduated with a MS degree in Landscape Architecture with an emphasis on restoration ecology. The field portion of her research took place at Goose Pond Sanctuary. The thesis compared the germination of six prairie forbs when planted at two different times—immediately after setting seed, and in late fall after the growing season had ended. The species examined were: Pasque flower, prairie smoke, shooting star, blue-eyed grass, prairie phlox, and bird's foot violet. Her results, though not statistically significant, showed anecdotally that most of these species, except shooting star, germinate at a greater rate when planted immediately after seed set, confirming that some early-blooming prairie forb species do not rely on cold or over-winter stratification. Maddie gives her thanks to Goose Pond Sanctuary for allowing this research to be done here!



Shooting star seedlings grow in a field plot. Photo by Maddie Dumas.

## C. Tours

We enjoy giving tours and talks to promote Madison Audubon Society and Goose Pond Sanctuary. Below are some highlighted talks, tours and events.

- Tour of Goose Pond for the Youth Bird Club's inaugural field trip in March
- Birding tour of Goose Pond for a group from Oakwood Village in April
- Tour of Goose Pond to Operation Fresh Start in July
- Tour of Goose Pond and local wetlands to the new Waterfowl Professor at UW-Stevens Point, Jacob Straub and his wife Rachel, a Wetland Scientist at UWSP in September
- Seed collecting event and tour of Goose Pond for Seth McGee and 40 Biocore students

- Tour of Goose Pond for Wisconsin Wetlands Association executive director Tracey Hammes, Katie Belfuss, and their visitors—Lynda Saul, retired from the Montana Aquatic Resource Services and Ester Lev, Executive director of the Oregon Wetlands Conservancy

#### D. Talks

- In March, Mark gave a talk at The Ridges Sanctuary in Door County on snowy owls as part of their “Owl Weekend”
- In March, Mark and Sue gave a two-parted talk at a joint meeting of The Wild Ones and UW Arboretum Photo Club: the history of Goose Pond, followed by Richard Armstrong’s photos of Goose Pond Sanctuary, Erstad Prairie and Otsego Marsh
- In April, Mark gave a talk on monarch butterflies to the Friends of John Muir
- In April, Mark and Sue presented on Goose Pond History and Richard Armstrong’s sanctuary photography to a group at Oakwood Village
- In September, Mark and Sue gave a talk at the UW Arboretum Friends luncheon on our snowy owl project (when “Goose Pond” was fitted with a cellphone transmitter)

#### E. Events

- In February, Maddie, Mark and MAS office staff hosted a booth at the Madison Garden Expo at the Alliant Energy Center
- Maddie and Mark attended The Prairie Enthusiasts conference in Madison on February 20<sup>th</sup>
- In April, Mark and Brand Smith attended a two-day Wisconsin Breeding Bird Atlas II workshop in Wausau
- Maddie, Mark and Sarah attended the North American Prairie conference in Normal, IL on July 17-20<sup>th</sup>
- Sue and Arlene Koziol hosted an MAS table with information on monarch butterflies at Olbrich Garden’s Blooming Butterflies event in July

## IV. Wildlife

### A. Special Wildlife Sightings



*Greater white-fronted geese over Goose Pond in November. Photo by Arlene Koziol.*

This year at Goose Pond we had some special wildlife sightings. Here are some of them in chronological order: On February 23<sup>rd</sup> the first sandhill cranes returned to Goose Pond. In March there were 3,000 Canada geese, 730 tundra swans, and 200 greater white-fronted geese on the pond. In April there were 144 ruddy ducks on the pond. The first red-headed woodpecker at Goose Pond in 37 years was seen in May, while in the same



month at Otsego Marsh a family of barred owls and pileated woodpeckers were documented. In June an adult bald eagle landed in the Kampen Road residence yard. In July and August, a pair of non-breeding whooping cranes were spotted, and Maddie had two badger sightings. In September, a fox squirrel visited the Kampen Road residence, and Island Girl—a peregrine falcon banded and fitted with a GPS transmitter in Chile in 2009—flew over Goose Pond. In November, the pond had 3,000 mallards, 2,000 Canada geese, 200 greater white-fronted geese, 146 sandhill cranes and 100 tundra swans. In December, at the tail-end of migration, Otsego Marsh had 500 Canada geese and 500 mallards. Also in December, the last of the sandhill cranes flew over Goose Pond with 2,000 seen in three hours by Goose Pond volunteer and supporter, Jim Otto.

## B. Birds

### *Heather Inzalaco's Bird Survey Results*

In 2016, Goose Pond Sanctuary hosted Heather Inzalaco, a graduate student from the Nelson Institute at UW-Madison. Heather conducted two rounds of point counts at Goose Pond Sanctuary, Erstad Prairie, Otsego Marsh, and on the Manthe farm. Her work will help us create management goals for the property, and it was so important to our mission that it is our 2016 highlight of the year!

In addition to contributing to her Master's project, her data was also entered into the Wisconsin Breeding Bird Atlas II. From Heather's data we learned about the presence and abundance of birds on the sanctuary. Grassland birds are a focus at Goose Pond Sanctuary and we were very pleased to learn that 1,233 pairs of grassland birds were found. Here are some of the highlights of her data. Note: the number in parentheses represents pairs. Pairs were counted if a male and female were seen together, if a bird of either sex was seen carrying nesting materials or food, or if a lone male was observed or heard singing.



*Song sparrow chicks in the nest.  
Photo by Heather Inzalaco.*

- **Found 51 species breeding and 1,663 breeding pairs!**
- **Grassland birds:** ring-necked pheasant (28), Northern harrier (2), sedge wren (62), common yellowthroat (212), clay-colored sparrow (128), savanna sparrow (1), song sparrow (302), dickcissel (23), red-winged blackbird (365), Eastern meadowlark (46), brown-headed cowbird (17), and American goldfinch (47).
- **Waterfowl:** Canada geese (1), mallards (93), blue-winged teal (7), Northern shoveler (3), green-winged teal (4), hooded merganser (1), and ruddy duck (1).
- **Wetland birds breeding pairs:** sandhill crane (2), marsh wren (7), yellow warbler (14), and swamp sparrow (15).
- **Shrub/fencerow/savanna and woodland birds:** wild turkey (6), mourning dove (8), northern flicker (1), alder flycatcher (7), willow flycatcher (15), Eastern kingbird (6), warbling vireo (3), American robin (39), gray catbird (16), brown thrasher (11), field sparrow (1), Northern cardinal (5), indigo bunting (3), orchard oriole (1), and Baltimore oriole (2).
- **Birds found mainly around the residences, in nest boxes or miscellaneous habitats:** killdeer (10), rock pigeon (2), American kestrel (6), Eastern phoebe (1), tree swallow (64), barn swallow (40), house wren (11), Eastern bluebird (2), European starling (2), chipping sparrow (3), common grackle (8), house finch (1), and house sparrow (8).

- **Erstad Prairie had 207 pairs and 40 species.** Breeding pairs found were: wood duck (3), mourning dove (1), killdeer (1), red-headed woodpecker (1), red-bellied woodpecker (1), downy woodpecker (1), Northern flicker (1), Eastern wood pewee (2), alder flycatcher (2), willow flycatcher (4), great crested flycatcher (1), Eastern kingbird (1), warbling vireo (1), blue jay (1), tree swallow (12), house wren (2), marsh wren (8), Eastern bluebird (1), American robin (1), gray catbird (8), brown thrasher (2), cedar waxwing (1), common yellowthroat (18), yellow warbler (8), chestnut-sided warbler (1), chipping sparrow (1), clay-colored sparrow (1), field sparrow (2), song sparrow (21), swamp sparrow (4), Northern cardinal (2), dickcissel (8), red-winged blackbird (62), Eastern meadowlark (2), yellow-headed blackbird (2), common grackle (1), brown-headed cowbird (11), Baltimore oriole (2), house finch (1), and American goldfinch (4).



*Matt Reetz ready to release a recently-banded adult female kestrel. Photo by Arlene Koziol.*

### **American Kestrel Nest Box Program**

Brand Smith, the coordinator for our American kestrel nest box program, reported that the kestrels had a record year. Brand and volunteers monitored 135 nest boxes in six counties and found kestrels using 46 boxes. They found 201 eggs, 182 young, and **165 fledged** from 40 boxes. A first was having a hooded merganser nest in a kestrel box at Zeloski Marsh.

Janet Eschenbauch and her crew of kestrel researchers who monitor kestrel boxes at Buena Vista Marsh, came to Goose Pond and banded 93 young, 2 adult females, and 1 adult male. The interns, MAS office staff, and many volunteers enjoyed helping with the kestrel banding. Janet collected one feather from each brood and the feathers samples are being used in a national American Kestrel Genoscape Project. All nesting observations were entered in the Breeding Bird Atlas II.

It was also a record year for the six pairs of kestrels nesting at Goose Pond Sanctuary. Thirty young were banded and all fledged with five young per pair. Brand, with the assistance of Bob Bennicoff and Jim Williams, spend a number of days in fall erecting more boxes, replacing old boxes, and attaching metal predator guards to the poles.

### **Tree Swallow Nest Boxes**

2016 was a very successful year for nesting tree swallows! The 81 nest boxes at Goose Pond fledged 280 tree swallows, 11 house wrens, and 5 Eastern bluebirds. The 14 nest boxes at Erstad Prairie fledged 68 tree swallows and 4 bluebirds. The nest boxes are surveyed and maintained by Goose Pond staff, interns, and volunteers. Thanks to Amy Ihlenfeldt & Frank Iltis, and Mark & Jenny McGinley for monitoring nest boxes!



*Tree swallow photo by Richard Armstrong.*



*Volunteers Mark and Jenny McGinley check a wood duck nest box. Photo by Mark Martin.*

### **Wood Duck Nest Boxes**

We coordinate a wood duck/hooded merganser nest box program that has nest boxes at locations in Columbia, Dane and Jefferson counties, including boxes at Goose Pond, Schoeneberg's Marsh, and Otsego Marsh. Because we survey and clean boxes in late winter, 2016 data is still being collected. Data from 2015 show that in 221 nest boxes, there were 148 hatched nests. 133 of these were from wood ducks, 9 were from hooded mergansers, and 6

showed evidence of being used by both species. On average, each successful nest box nest produces 10.4 young. 2015 was an exceptional year and we estimate that over **1,500 young** jumped from the boxes! Wood duck nest boxes are surveyed and maintained by Goose Pond staff and volunteers. Thanks to all our volunteers who monitored wood duck nest boxes especially Ohne Raasch, and Mark & Jenny McGinley!

### **Breeding Bird Atlas II, Year Two**

The Wisconsin Breeding Bird Atlas II (WBBAll) project began its second of five years in 2016. Goose Pond staff coordinate the Columbia County atlas work, and in two years, 83 participants have submitted 1,142 checklists and confirmed 117 species. In addition to surveying priority blocks, volunteers assisted with special counts for purple martins and eastern whip-poor-wills. Goose Pond staff and volunteers found 34 purple martin colonies; 90% of them were on Amish farms around Dalton. Whip-poor-wills were found as probable breeders in three blocks and a brood was found west of Arlington. This is the only whip-poor-will brood found out of five confirmations in Wisconsin. New to the confirmation list in 2016 are the gadwall, Northern shoveler, American bittern, least bittern, Eurasian collared-dove, and common raven. Thanks to all the WBBAll volunteers! <http://ebird.org/ebird/atlaswi/explore>



*Red-winged blackbird nest.  
Photo by Maddie Dumas.*



*Jane Considine and Mark Martin at Observatory Hill during the Pardeeville CBC. Photo by Maddie Dumas.*

### **Christmas Bird Counts**

Sue and Mark look forward every year to participating in the Pardeeville Christmas Bird Count (CBC) and coordinating the Poynette CBC. Maddie helped on the Pardeeville CBC for her first CBC and she had a very memorable time; she spotted five bald eagles and four Eastern bluebirds.

On the December 15 Pardeeville CBC we were in two parties and ended up with 530 dark-eyed juncos. Checking the North American CBC results, we were surprised and pleased to see that Pardeeville was number one with 4,688 juncos of the 1,926 counts where juncos were found. The count is coordinated by Paul and Glenna Schwalbe.

The December 31 Poynette CBC includes the “Goose Pond” unit. The highlight of the unit was when Maia and Todd Persche, and Jim Otto checked our seven-acre food plot and found: 35 pheasants, 1 Cooper’s hawk, 1 rough-legged hawk, 217 mourning doves, 1 downy woodpecker, 4 black-capped chickadees, 126 American tree sparrows, 8 dark-eyed Juncos, 3 cardinals, and 24 goldfinches. Jim Hess and Bill Waters also assisted on the Goose Pond unit that covers 2,000 acres, including 800 acres of habitat at the sanctuary, the Manthe farm, and Judi Benadi’s land. The remaining 1,200 acres were mostly cropland and devoid of cover.

The following were found in the Goose Pond unit: 15 Canada geese, 50 ring-necked pheasants, 1 Cooper’s hawk, 1 red-tailed hawk, 1 rough-legged hawk, 1 American kestrel, 19 rock pigeons, 220 mourning doves, 1 short-eared owl, 4 downy woodpeckers, 4 hairy woodpeckers, 5 blue jays, 5 American crows, 29 black-capped chickadees, 50 European starlings, 151 American tree sparrows, 1 swamp sparrow (new to the count), 41 dark-eyed juncos, 8 northern cardinals, 1 house finch, 84 American goldfinch, and 46 house sparrows.

Mark has a long-lasting memory of spotting a short-eared owl flying down Kampen Road near the food plot at dusk; it was his last bird sighting of 2016 and one of the best of the count!

Overall 56 species (all time high) and 9,953 birds were found on the Pardeeville CBC. Sixty species and 8,810 birds were found on the Poynette CBC. You can access these count results and 2,000 others at <http://www.audubon.org/conservation/science/christmas-bird-count>



*American goldfinches on a feeder at the Kampen Road residence. Photo by Maddie Dumas*

### **Great Backyard Bird Count**

Mark and Sue participated in the National Audubon Society's Great Backyard Bird Count in mid-February at the Kampen Road residence. In seven hours, Mark and Sue saw 342 birds and 11 species: 9 Ring-necked pheasants, 1 Cooper's hawk, 26 rock pigeons, 180 mourning doves, 1 downy woodpecker, 31 American crows, 2 black-capped chickadees, 70 American tree sparrows, 6 dark-eyed juncos, 4 American goldfinches, and 12 house sparrows.

### **Great Wisconsin Birdathon**

The "Reckless Wrens" team of Mark, Sue, Jim & Kathy Shurts, and Heather Inzalaco found 100 species of birds and raised \$1,000 as part of the fifth annual Great Wisconsin Birdathon sponsored by the Natural Resources Foundation of Wisconsin and the Wisconsin Bird Conservation Initiative. The Reckless Wrens began at Goose Pond, visited Erstad Prairie and ended at Otsego Marsh. The highlight of the count was finding a common raven nest. The Birdathon, as a whole, raised \$77,000 for bird protection, statewide. Fifty percent of funds raised by the Reckless Wrens went to Madison Audubon.

### **Ten Years of Banding Mourning Doves**

In July and August, Goose Pond staff and interns helped Sara Kehrli, Columbia County Wildlife Biologist, band 88 mourning doves (74 young and 14 adults) at the Kampen Road residence. In the past 10 years, 456 doves have been banded at Goose Pond. In the first nine years, 368 doves were banded and eight were reported by dove hunters. Six doves were shot in Wisconsin between 7 and 73 miles from Goose Pond. Two doves were recovered in Georgia (848 miles) and Louisiana (904 miles). Hopefully the class of 2016 stayed at Goose Pond Sanctuary to feast on our sunflowers.

### **Friday Feathered Features**

Madison Audubon Society's "Friday Feathered Feature" is a weekly column. We feature birds that were recently spotted at Goose Pond whether present in large numbers, a rare sight, or just interesting. We try to make the features educational and hopefully visitors will come out and view the birds. We switch off weeks writing the feature with Faville Grove Sanctuary. Listed below are the 2016 Friday Feathered Features from Goose Pond. To see the complete set of 2016 Friday Feathered Features check out the Madison Audubon Society website!



*Sarah Kehrli holds up a recently banded mourning dove. Photo by Mark Martin.*

December 30 – Breeding Bird Point Count Project



<http://madisonaudubon.org/fff/2016/12/30/breeding-bird-point-count-project-at-goose-pond-sanctuary?rq=breeding%20point%20count>

November 11 – Snow Goose



<http://madisonaudubon.org/fff/2016/11/11/featured-sanctuary-bird-snow-geese>

December 9 – Bird Feeders



<http://madisonaudubon.org/fff/2016/12/9/bird-feeders?rq=bird%20feed>

October 28 – Peregrine Falcon



<http://madisonaudubon.org/fff/2016/10/25/featured-sanctuary-bird-peregrine-falcon>

November 25 – Mallard



<http://madisonaudubon.org/fff/2016/11/25/featured-sanctuary-bird-mallard?rq=mallard>

October 7 – Mourning Dove



<http://madisonaudubon.org/fff/2016/10/31/mourning-dove>

July 29 – Whooping Crane



<http://madisonaudubon.org/fff/2016/11/1/whooping-crane>

June 18 – American Kestrel



<http://madisonaudubon.org/fff/2016/12/7/american-kestrel>

July 15 – Purple Martin



<http://madisonaudubon.org/fff/2016/11/2/purple-martin>

June 3 – Pileated Woodpecker



<http://madisonaudubon.org/fff/2016/12/7/pileated-woodpecker>

July 1 – Northern Harrier



<http://madisonaudubon.org/fff/2016/11/7/northern-harrier>

May 20 – Wood Duck



<http://madisonaudubon.org/fff/2016/12/7/wood-duck>

May 6 – Wild Turkey



<http://madisonaudubon.org/fff/2016/12/7/wild-turkey>

March 25 – Greater White-fronted Goose



<http://madisonaudubon.org/fff/2016/12/7/greater-white-fronted-geese>

April 22 – Bonaparte's Gull



<http://madisonaudubon.org/fff/2016/12/7/bonapartes-gull>

February 26 – Horned Lark



<http://madisonaudubon.org/fff/2016/12/7/horned-lark>

April 8 – Cackling Goose



<http://madisonaudubon.org/fff/2016/12/7/cackling-geese>

January 29 – Pine Siskin



<http://madisonaudubon.org/fff/2016/12/7/pine-siskin>

January 15 – Snow Bunting



<http://madisonaudubon.org/fff/2016/12/7/snow-bunting>

January 8 – Trumpeter Swan



<http://madisonaudubon.org/fff/2016/12/7/trumpeter-swans-at-goose-pond>

## C. Mammals

### **Bat Surveys**

On June 5 and July 31 Mark and Sue counted 4 and 5 bats respectively as part of the Summer Roost Emergence Count for the DNR. Some of these bats are roosting in the corn crib and upper barn at Goose Pond. They noted fewer bat droppings this year than in previous years.



Left: Anabat Detector. Photo from <https://www.youtube.com/watch?v=V6DJWZ8nHDQ>.

Right: Eastern red bat. Photo from <http://horizonspestcontrol.com/pest/eastern-red-bat/>



On August 17<sup>th</sup>, Mark, Sarah, and Maddie surveyed bats at Schoeneberg Marsh. Using a bat detector from the DNR, they were able to pick up the high frequency calls of bats. By canoeing the entire circumference of the marsh they were able to confirm the presence of 4 species including: little brown, Eastern red, hoary, and big brown bats. We found 82 individuals, compared with 215 found in a July 21, 2009 survey. The presence of Eastern red bats is new in 2016.

On August 18<sup>th</sup>, Mark and Sarah drove the roads and trails around the west half of Goose Pond and, using the bat detector, were able to confirm the presence of little brown and big brown bats. However, the survey was cut short due to a thunderstorm and results cannot be compared to other years.



**Muskrat House Count**

The muskrats at Goose Pond can be seen mostly every day when the water is open. In the winter they spend the days sitting in their houses. We count their houses to get an idea of their numbers. In dry years there are no muskrats at Goose Pond but when water returns, so do the muskrats. Winter populations per house average 5 animals. In January of 2016 there were 38 muskrat houses on the west pond. In December of 2016 there were 67 houses on the west pond and 5 houses on the east pond.

**D. Amphibians**

**Frog and Toad Survey**

Mark and Sue conducted their 100<sup>th</sup> frog survey at Goose Pond this summer. With three surveys per year (early spring, late spring, and summer) they have collected important data about the frogs and toads on three MAS properties. The count route has stops at ten wetland sites beginning at Otsego Marsh, two stops at Schoeneberg Marsh, and ends at Goose Pond. The wood frogs at Otsego Marsh are new to the survey this year. Numbers change with changes in water levels but overall we have found that frog and toad numbers have not been on the decline since 1981 when the counts began. However, some species such as toads have a short calling window and can be missed in some years at some sites. We appreciate Bob and Gerri Bennicoff helping on two counts. The results of the 2016 surveys for three sites are below:



*A volunteer finds a chorus frog. Photo by Arlene Koziol.*

**2016 Frog and Toad Count**

	Wood Frog	Chorus Frogs	Spring Peeper	Leopard Frog	(E.) Gray Tree Frog	Cope's Gray Tree Frog	Green Frog	American Toad
<b>Otsego Marsh</b>	1	3	3	3	0	3	2	1
<b>Schoeneberg Marsh</b>	0	3	3	3	0	3	1	0
<b>Goose Pond</b>	0	3	2	0	0	3	0	0

*0=Was not heard*

*1=Individuals can be counted; there is space between calls (no overlapping of calls)*

*2=Calls of individuals can be distinguished but there is some overlapping of calls*

*3=Full chorus. Calls are constant, continuous and overlapping; individuals cannot be distinguished.*

## E. Insects

### North American Butterfly Count



*Black Swallowtail butterfly. Photo by Richard Armstrong.*

On July 1<sup>st</sup>, eight volunteers and five interns assisted us at Goose Pond on our 3<sup>rd</sup> year of participating on the Mud Lake Butterfly Count that is part of the North American Butterfly Count. Monarch butterfly numbers were down in early July, due to the bad weather that occurred at their breeding grounds in Texas in March. However, it was a great year for common wood nymphs and black swallowtails. Two new species of butterfly were spotted this year, the great spangled fritillary, and a common buckeye. The Mud Lake county has been going on for 27 years, and is coordinated by Karl and Dorothy Legler.

Species	2016	2015	2014
<b>ADMIRALS</b>			
Viceroy		1	2
<b>ANGLEWINGS</b>			
Question Mark	1	2	1
Eastern Comma		10	
<b>BLUES</b>			
Eastern Tailed-blue	9		8
Summer Azure		4	1
Common Buckeye	1		
<b>CRESENTS</b>			
Northern Crescent	8	17	24
Pearl Crescent		1	1
<b>FRITILLARIES</b>			
Great Spangled Fritillary	2		
<b>LADIES</b>			
American Lady	6	2	4
Painted Lady			5
Red Admiral	9	59	15
<b>MONARCH</b>	23	50	68
<b>SATYRS</b>			
Common Wood-nymph	131	28	5
<b>SKIPPERS, FOLDED-WING</b>			
Delaware Skipper	3	2	8
European Skipper		12	7
Least Skipper	2	13	1

<b>SULPHURS</b>			
Clouded Sulphur	42	118	384
Orange Sulphur	2	11	31
<b>SWALLOWTAILS</b>			
Black Swallowtail	118	22	5
<b>TORTOISEHELLS</b>			
Mourning Cloak	1	13	7
<b>WHITES</b>			
Cabbage White	38	32	27
<b>SPECIES</b>	16	18	19
<b>TOTAL INDIVIDUALS</b>	396	397	603
<b>GOOSE POND TOTAL SPECIES FOUND FOR ALL YEARS = 22</b>			
<b>PARTIES</b>	4	2	5
<b>PARTY-HOURS</b>	18.75	9	12
<b>PARTY MILES WALKED</b>	8	4.75	6.5
<b>PARTY MILES DRIVEN</b>	4.25	4.75	0

### *Monarch Butterfly Tagging*

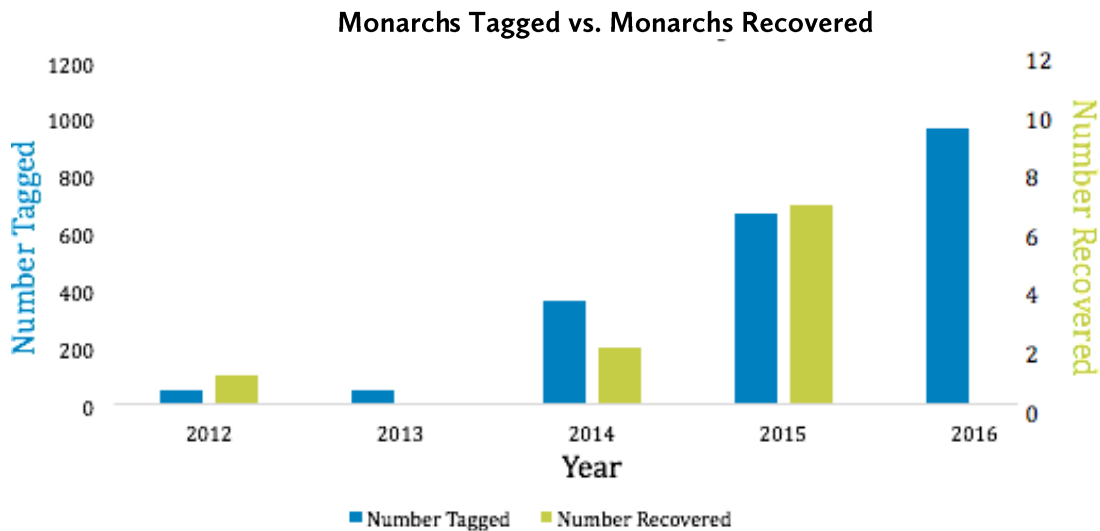


*Volunteer monarch taggers. Photos by Arlene Koziol*

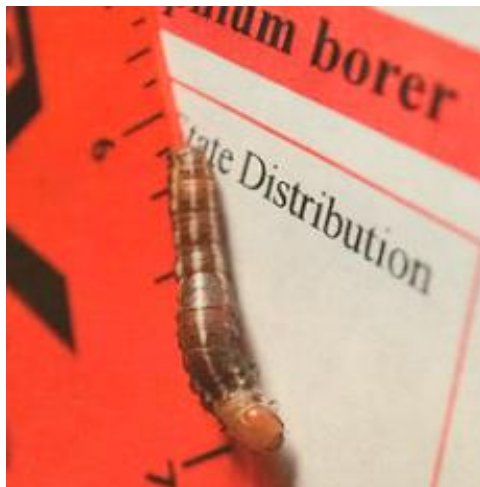
This year was our biggest year of monarch tagging to date. In September, we hosted two tagging events for members, and one for a home school class, and volunteers. With the assistance of over 150 monarch lovers/netters we tagged 801 monarchs at Goose Pond Sanctuary.

One of our tagging events, on September 17<sup>th</sup>, happened to be a peak migration time for the monarchs and it also coincided with the peak showy goldenrod blooms. Monarchs were so abundant that a couple volunteers snatched them off goldenrods by hand. One young netter caught six monarchs at

one time. Partners of Goose Pond also tagged an additional 166 monarchs on other lands, for a grand total of 967 monarchs tagged. In the previous four years we tagged 1,142 monarchs, and had 10 recovered. This is a rate of return of about 1%. The graph below shows the number of monarchs we have tagged over the years at Goose Pond and with the help of our partners. *Graph created by Maddie Dumas*



### Silphium Borer Moth Survey



*Silphium borer moth larvae. Photo by Arlene Koziol.*



*Silphium borer moth. Photo by Robert Panzer.*

This year, we continued to survey silphium borer moths at Goose Pond. The silphium borer moth is a state-endangered prairie obligate insect. An impressive 23,000 moths were estimated to be on the sanctuary. In the larval form, the insect bores into the roots of silphium plants mainly compass plant, and prairie dock. The presence of a silphium borer moth larvae in a silphium plant can be detected by brown, senesced leaves with evidence of herbivory near the base of the stem, and frass on the base of the stem. Later when they emerge as moths, the pattern on their wings mimics the mottled gray/brown color of senesced prairie dock and compass plant leaves. In each prairie, we sampled 900

square foot quadrats at a set interval throughout the prairie, and counted the silphium plants that were affected and unaffected in each quadrat. We surveyed 335 acres of prairie. Additional prairies will be surveyed in the future. Some silphium plants were dug up so that we could observe the larvae in the roots. Most roots had one or two moth larvae, but one prairie dock root contained five larvae! For the purposes of estimation, however, we assumed that each affected silphium contained one borer moth. The results of the survey are below:

Prairie	Estimated # of Silphiums per Prairie	% Affected Silphiums	Total Moths per Prairie	Total Est. Moths at Goose Pond
Ankenbrandt	20,112	25	5,028	<b>23,001</b>
Browne (2015)	16,451	2.8	461	
Hill (west of pond)	4,613	60.4	2,786	
Hopkins Road	4,946	30	1,484	
Lapinski-Kitze	24,599	24.5	6,027	
Sue Ames	6,579	14.9	980	
Wood Family (2015)	60,536	10.3	6,235	

## V. Plant Life

### A. Focus Plant Species

#### *Prairie Bush Clover Survey*

Prairie bush clover, a federally threatened and state endangered prairie legume, was planted at Goose Pond Sanctuary at two different locations and times. One of the plots is on the north slope of the big hill prairie. The other plot is at the west end of Browne Prairie. This year in August we surveyed the number of individual plants at each plot. The results of the survey show that our prairie bush clover population is reproducing and expanding. There were 78 flowering plants and 49 nonflowering, juvenile plants for a total of 128 prairie bush clover plants.



*A prairie bush clover in flower. Photo by Maddie Dumas.*



*Volunteer Janet Flynn nets a monarch that was nectaring on a meadow blazingstar. Photo by Arlene Koziol.*

#### *Liatrix Planting*

Meadow blazingstar (*Liatrix ligulistylis*) was first planted into plots at Goose Pond Sanctuary in 2015. We added additional plants in 2016. This native mesic prairie forb is highly attractive to monarch butterflies. It blooms in late August and early September and provides nectar to the generation of monarchs that migrates, and the parents of this generation. It is so popular with monarchs that when it is in bloom, it is not unusual to find 5-6 butterflies on one individual plant. Because of its ability to attract monarchs, it provides an ideal place to net monarchs for tagging. Meadow blazing star is also a new species that we are adding to our restorations by planting plugs.



### ***Bur Oak Tree Planting***

Five new bur oak saplings were planted near the residences at Goose Pond Sanctuary this spring. The oaks came from Paul Keller's private nursery; a business with which we have worked with before. The oaks were 8-10 feet tall when planted and all survived the growing season and appear healthy. They did not need as much watering this year due to an above average level of rain during the growing season. These oaks join the nine oaks at the Kampen Road residence and 11 oaks at the Prairie Lane residence. We can envision what the area will look like in the future and we hope the wildlife and visitors will enjoy the oaks.

*Bur oak planted in 2016 at the Prairie Lane residence. Photo by Maddie Dumas.*

## **B. Plantings**

### ***Food Plot***



*The food plot in bloom in August. Photo by Mark Martin.*

*Northern harrier hunting in the food plot. Photo by Maddie Dumas.*

This year, a seven-acre food plot was planted on the south side of Kampen Road, north of Goose Pond. The plot was planted with a mixture of nine varieties of sorghum, buckwheat and three types of sunflowers. We left one acre unplanted to grow weeds that songbirds like to eat such as foxtail and amaranth. The plants performed well, and in August the sunflowers bloomed in mass and attracted thousands of pollinating bees and 150 visitors.

Maia Persche, UW-Madison graduate student, and Jim Otto, have been monitoring the bird use of the food plot. The weekly counts began in mid-August and will continue through March 2017. Thirty species of birds have been observed feeding or hunting in the food plot. Included in the list are downy woodpeckers that were feeding on insects in the sorghum and sunflower stems, and a wide variety of sparrows including field, savanna, Lincoln's, swamp, fox, white-crowned, and white-throated.

In September, bobolink numbers ranged from 60-100 over a three week period. High numbers were found for the following: 35 ring-necked pheasants, 240 mourning doves, 323 American tree sparrows, 38 song sparrows, 500 red-winged blackbirds, and 700 American goldfinches. Raptors including Cooper's hawks, red-tailed hawks, rough-legged hawks, northern harriers, American kestrels and one merlin, were attracted to the large numbers of birds and small mammals that love the food plot. The food plot has proved to be a great way to help fuel birds in migration and sustain them during the winter.

### ***Nine Acres Planted to Pollinator Mixes***

This year, we planted two new prairies (six and three acres) to pollinator habitat mixes at the Lapinski-Kitze Prairie. The acres were planted with over 30 species of forb seed per square foot. The six-acre prairie was also planted with 10 seeds per square foot of little bluestem while the three-acre prairie was planted with 10 seeds per square foot of Indian grass. To increase the wildflower diversity, we planted seedlings of wild strawberry, meadow blazing star, and rough blazing star. Many species flowered this summer/fall due to the abundant rainfall. A number of monarchs were netted in the six acre planting.



*Pollinator planting crew. Photo by Arlene Koziol.*



*Seventh graders planting a prairie at Patrick's Marsh. Photo by Maddie Dumas*

### ***Partner Prairie Plantings***

We enjoy working with partners to establish prairie habitat. This year we helped with four new plantings for partners and friends to create a total of 45 additional acres of prairie.

In November, Maddie and Mark helped plant 18 acres of shortgrass prairie with Natural Heritage Land Trust at Patrick's Marsh in Sun Prairie. Some of the seed planted came from Goose Pond. The planting was done with the help of 200 7<sup>th</sup> graders from the nearby Patrick Marsh Middle School. All planting was done by hand broadcasting.

Sarah Betzler helped Topf Wells, an MAS board member and member of Trout Unlimited, collect seed for the 4-acre Neperud planting on Dane County land near Paoli. The wetland planting was done along a stream bank restoration along the upper Sugar River. Some of the seed used came from Goose Pond.

In November, the Madison Audubon office and Goose Pond employees and volunteers worked together to plant seven acres belonging to friend David Gunnulson near Cambridge. We hand-planted the area with a shortgrass mix of seed from Goose Pond. The planting area is directly across from the East and West Koshkonong Lutheran Churches; this planting will give churchgoers a beautiful new view!

Mark, Maddie, Sarah and volunteers collected and mixed seed for a 16-acre planting adjacent to Muir Park in Marquette County. The land is owned by the Friends of the Ice Age Trail, but efforts to plant it were coordinated by Allison Manwaring of U.S. Fish & Wildlife Service. Maddie worked with Allison to clean and mix the seed to allow it to go through a broadcast spreader. The area was planted to a mix of tallgrass species, in the low-lying areas, and shortgrass species on the uplands.

## C. Invasive Plant Species

### *Invasive Species Management*

We spend much of the field season controlling invasives in the prairies and preventing the establishment of new ones. This summer we focused on wild parsnip and wild carrot (Queen Anne's lace), particularly in the Wood Family Prairie, and white & yellow sweet clover, Dame's rocket, garlic mustard, and invasive thistles. We also targeted invasive woody species such as honeysuckle, buckthorn, aspen, and autumn olive, and treated a blackberry clone that was taking over at the entrance to Hopkins Road Prairie.

### *Teasel Control*

This summer a small, dense population of teasel, a very invasive species, was discovered along Highway 51 north of Arlington. We cut and treated over 100 flowering stems and sprayed herbicide on several hundred first year plants. This was the first teasel found in the local area.



Teasel seedheads. Photo from <https://gobotany.newenglandwild.org/species/dipsacus/laciniatus/>

### *Wild Chervil Control*



A patch of wild chervil in flower. Photo from <http://www.leadertelegram.com/Features/Home-Garden/2015/06/06/Wild-chervil-spreads-in-area.html>

Wild chervil (*Anthriscus sylvestris*), was discovered along roadsides adjacent to Goose Pond in the early 2000's. This invasive species has a presence in 16 counties in Wisconsin, and the DNR is working to keep it from invading further. In our area it escaped from a planting at a private residence. This year, as in previous years, we received a \$500 DNR grant to control wild chervil. We sprayed 13 gallons of herbicide and spent 46 hours working on control of this plant. Compared to previous years, wild chervil numbers have greatly declined.



## VI. Other Management Activities

### A. Prairie Burns

This past year at Goose Pond we did fewer prescribed burns than usual due to the need to collect baseline data on the state-endangered silphium borer moth at our prairies. We were, however, able to burn four key areas: Erstad Prairie; Hill Prairie behind the Prairie Lane house; five acres in Browne Prairie, and 40 acres in the Lapinski-Kitze Prairie that were subsequently planted to corn as part of an invasive thistle management plan. The burns were performed in April by Goose Pond volunteers and staff.



*Erstad Prairie burn. Photo by Maddie Dumas.*



*Volunteers show off their haul of white wild indigo, showy goldenrod, and stiff gentian. Photo by Maddie Dumas.*

### B. Seed Collecting

It was another good year of seed collecting at Goose Pond! We had a bumper crop of a few key species including white wild indigo, prairie cinquefoil, and showy goldenrod. Most years, the seed of white wild indigo is negatively affected by a weevil that hatches inside the seed pod and feeds on the seeds. The weevil was less abundant this year, and the white wild indigo was more productive, perhaps due to abundant precipitation. A spring burn at Erstad Prairie is likely responsible for the great seed production in prairie cinquefoil and showy goldenrod there. Other species that produced well at Erstad Prairie this year include spiderwort, Missouri goldenrod, and hoary vervain. Thanks to all the volunteers who helped us collect seed this year!

### C. Seed Cleaning

We allow partners to use our seed-cleaning equipment to help them create additional prairie habitat. Partners using the equipment this year included Pleasant Valley Conservancy, Middleton Parks, Department of Natural Resources, Madison bike trail volunteers, Pope Farm Conservancy, Fish and Wildlife Service, and Natural Heritage Land Trust.

## VII. Facility Development



*Maddie and Aaron Dumas. Photo by Arlene Koziol.*

### A. Improvements to Prairie Lane Residence

This year Maddie, our land steward, moved into the Prairie Lane house with her husband Aaron. Improvements were made both before and after they moved into the house. These improvements include:

- Thorough cleaning of house and garage
- New appliances were added including a stove, refrigerator, microwave and washer/dryer unit
- Fresh coat of paint for entire interior
- Nine windows with broken seals were repaired
- Trees leaning over electrical wires were cut down
- The well pump was replaced and the water was treated

### B. Improvements to Kampen Road Residence

This year the Kampen Road residence had some major improvements done thanks to the generous support of donors and volunteers:

- A badly needed new driveway was completed! The driveway was paved using recycled tires. Funds for this project were generously donated by Sandy Stark
- Gravel was added to the shoulders of the new driveway by LMS Construction
- The seed building was upgraded to 220 voltage and new outlets were added by hard-working volunteer Bob Bennicoff
- Electric garage doors and entryway were added to the seed-cleaning building by an Amish crew



*Sandy Stark is honored at the ribbon cutting for the new Kampen Road driveway. Photo by Arlene Koziol.*

## C. Donations

Goose Pond is fortunate to have received generous donations of equipment this past year including a camera, a Garmin GPS unit, a canoe, binoculars, bird seed, storage bins, a socket set, nest boxes, a leaf blower, a weed whacker, a DR power wagon, and back cans and a drip torch for prescribed burning.

Volunteers worked hundreds of hours helping with collecting seed, planting prairie, monitoring nest boxes, surveying birds and butterflies, restoring savanna habitat, removing trees in the yard, tagging monarchs, taking photos and flying a drone to document habitat. Thank you to all our donors and volunteers!

## VIII. Otsego Marsh

### A. Timber Harvest at Otsego Marsh

This year we harvested the pine plantation at Otsego Marsh for the third time since acquiring the land. This harvest was done to meet the DNR requirements of the Managed Forest Program. The Weekly Timber & Pulp logging company removed 148 cords (320 tons) of pulp wood, and 12.5 cords of aspen (27 tons). The harvest took place in July, after several delays due to wet conditions. Andrew Komassa of Weekly Timber noted that there was *Diplodinium* fungus affecting the red pine and recommended that we wait a year before replanting, and do not replant the area in red pine.



*Logging machine at work at Otsego Marsh.  
Photo by Mark Martin.*

### B. Heather Inzalaco's Otsego Bird Survey Results

Heather Inzalaco also surveyed Otsego Marsh as part of her Master's project. She found **39 species and 213 pairs** of birds, not including waterfowl. Breeding pairs found were: barred owl (1), red-bellied woodpecker (9), downy woodpecker (3), hairy woodpecker (3), Northern flicker (1), pileated woodpecker (1), Eastern wood pewee (20), great crested flycatcher (17), willow flycatcher (2), warbling vireo (8), red-eyed vireo (7), Philadelphia warbler (2), tufted titmouse (4), black-capped chickadee (5), American crow (1), red-breasted nuthatch (6), white-breasted nuthatch (18), house wren (19), marsh wren (1), blue-gray gnatcatcher (5), wood thrush (2), American robin (2), common yellowthroat (6), gray catbird (4), yellow warbler (2), American redstart (1), Nashville warbler (1), chestnut-sided warbler (1), chipping sparrow (2), song sparrow (6), swamp sparrow (4), scarlet tanager (3), Northern cardinal (6), rose-breasted grosbeak (4), indigo bunting (8), red-winged blackbird (11), Baltimore oriole (19), and American goldfinch (1).

## IX. Past, Present, Future

### A. Highlights of Past Years

For many years Mark and Sue picked one important event in the history of Goose Pond Sanctuary to be the highlight of the year. These highlights tell of important natural events on the property and also

show the great progress that has been made in expanding the sanctuary. Below is a selection of these highlights from past years:

- 1990** – 30,000 mallards use Otsego Marsh as staging area during migration
- 1991** – 1,200 snow geese in fall at Goose Pond
- 1993** – Record rainfall – 16 inches in June and July
- 1994** – Large numbers of waterfowl, pheasant and gray partridge broods
- 1996** – Sandhill cranes return to nest at Goose Pond Sanctuary after 100-year absence
- 1997** – Snowy owl invasion in January and February on the Arlington Prairie
- 2000** – Willy Hutcheson’s sighting of six species of geese at one time at Goose Pond
- 2002** – Goose Pond went dry – lowered water levels provided excellent shorebird habitat
- 2003** – Acquisition of 1,730 acres at Goose Pond, Rose Lake & Zeloski Marsh
- 2004** – Acquisition of the 116-acre Northern Prairie (now known as Lapinski-Kitze Prairie)
- 2005** – Great Gray Owl added to Goose Pond bird checklist
- 2006** – A flock of 41 American Avocets sighted in April at Goose Pond
- 2012** – Tagging 50 monarch butterflies at Goose Pond.
- 2014** – Sighting seven snowy owls at Goose Pond at one time
- 2015** – Silphium borer moths (state-endangered) discovered at Goose Pond and tagging of a snowy owl named “Goose Pond”
- 2016** – Graduate student Heather Inzalaco documents 51 species and 1,663 pairs of breeding birds at Goose Pond

## B. Looking Ahead to 2017



*Architect's rendering of the Wingspan Pavilion*

We have some exciting new projects planned for 2017! We are looking forward to the construction of Wingspan, a viewing pavilion located in Bicentennial Prairie overlooking Goose Pond. The project began with a \$25,000 matching gift from John and Marlen Kaiser and is dedicated to Mark Martin and Susan Foote-Martin. The project design was created and donated by architect Jim Gempler of GMK Architects of Madison, and is styled to look like a bird with outstretched wings. MAS member Don Schmidt of Custom Metals in Madison will donate his time and talent to build and install Wingspan which will meet all ADA specifications. The pavilion will be a beautiful addition to Goose Pond.

In 2017 we will host another graduate student project from the Nelson Institute. Erin Manlick will survey purple martin populations in south central Wisconsin and search for new sites for purple martin nest boxes.

We hope to begin the first phase of a project to introduce the regal fritillary butterfly to Goose Pond. This summer we will work to collect seeds of our native prairie violet species, the host plant for the regal fritillary. With the seed we will plant nursery beds of violets!

With the new driveway in place, in the spring of 2017 we will create a rain garden just south of the Kampen Road residence. The rain garden will provide a means for capturing the runoff from the driveway and buildings, replace an area dominated by problematic weeds with wet mesic prairie species, filter toxins, and beautify the area.

See you at Goose Pond in 2017!

