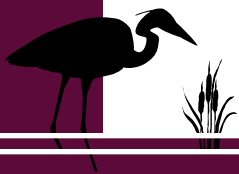


MONITORING OF OWLS AND NIGHTJARS REPORT



Chuck-will's-widow Photo by Terry Esker

Tara Beveroth (beveroth@illinois.edu)



## INTRODUCTION

In the spring of 2008 Monitoring of Owls and Nightjars, MOON, was initiated. MOON is a volunteer based program that occurs throughout the state of Illinois, and more recently a few counties in Iowa. Based on previous research conducted throughout the U.S. and Canada we know that there are certain criteria that are important when monitoring for owls and nightjars. The MOON protocol was formulated in collaboration with a number of partner organizations throughout the midwest and northeast. Volunteers monitor routes that are located along suitable habitat for owls and nightjars anywhere from late-April to mid-June. Most routes are 9 miles long with 10 stops per route. In areas that are greatly developed a 10 stop route is not always possible, and the route is abbreviated. Primary species that are monitored are Great Horned Owl, Barred Owl, Eastern Screech Owl, Barn Owl, Eastern Whip-poor-will, Chuck-will's-widow, and Common Nighthawk. Other species that may also occur that may be recorded are Northern Saw-whet Owl, Short-eared Owl, and American Woodcock. Barn Owl is currently listed as threatened in Illinois and the Short-eared Owl is currently listed as endangered. The Eastern Screech-Owl is found in low numbers on BBS routes (BBS data), the Great Horned Owl is widespread and the Barred Owl, which, historically, was listed as rare, is now found throughout the state. The Northern Saw-whet Owl is found primarily in the very northern part of the state, which is the southern edge of its border. As far as nightjars go, in 1934 Ford et al. were quoted as saying this of the Whip-poor-will in *Birds of the Chicago*



Common Nighthawk Photo Loren Merrill.

Region – “A fairly common summer resident. Although not so numerous as formerly, they still occur throughout the area”. Unfortunately, the same statement could not be said today. While Common Nighthawks and Eastern Whip-poor-wills can be found throughout the state their numbers continue to decline. Chuck-will's-widow is found in the lower southern portion of the state and is currently listed as Threatened in Illinois. Loss of habitat, and food availability are thought to be the main reasons for decline.

### ***Why volunteer for a MOON route***

If you are a bird lover and nocturnal person by nature, or just an early riser, MOON might be a fun volunteer opportunity for you! The calls are simple and easy to learn and you don't have to learn too many. The data collected can help track trends and abundance over broad scales. Data collected can also help to investigate declines in specific species. With these data we can use habitat modeling to further aid in making sure we are using the best management practices for Owl and Nightjar Conservation. Finally, another unique thing about MOON is that volunteers that are proficient with audio bird identification are encouraged to monitor for all species they hear during the listening period. This additional data can give us additional insight into the life histories of other species. We are always looking to recruit more volunteers, so if you would like to volunteer please contact [beveroth@illinois.edu](mailto:beveroth@illinois.edu).

### ***Fun MOON Highlights since 2008***

- ▷ A grand total of 4,111 birds of 10 owl and nightjars species from 75 routes have been recorded.
- ▷ Eastern Whip-poor-will detections to date total 1,406.
- ▷ County with the greatest # of Eastern Whip-poor-will on a route: Illinois, JoDaviess (28); Iowa, VanBuren (44)
- ▷ County with the greatest # of Chuck-will's-widow on a route: Johnson (13) Illinois, Iowa, VanBuren (44)
- ▷ Barred Owl was the most common species found with presence at 61 of the 75 routes.

## METHODS

### \*Monitoring Times

Routes are surveyed two times each year. These surveys should be conducted at least 30 minutes following sunset (when the moon is above the horizon) and end no later than 15 minutes prior to sunrise.

Surveys are completed during times when the moon is 50% or greater illumination. 2019 monitoring windows were May 12 - May 26 and June 10 - June 24. Monitors were asked to monitor one time/window. Weather is a great determining factor when deciding which day to monitor during the open windows. It is recommended that monitoring be performed when the moon is above the horizon and not obstructed by clouds. Nightjars call less frequently when the moon is below the horizon or hidden by cloud cover.

### \*Route Selection

Most of the MOON routes were randomly selected based on forest habitat available in the state. However, there are some routes that have been formed, or altered by volunteers, due to being near urban areas, or problems with route stops. Most routes consist of 10 stopping points where volunteers stop, get out of their vehicle, and listen for nightjars and owls. Each stopping point should be at least one mile apart. Also, given the topography of the state, and the layout of many roads, routes may differ greatly in appearance. Volunteers are encouraged to scout their routes ahead of time.

### \*Monitoring

Monitoring should be done from a stationary position outside of one's vehicle. Most importantly, be consistent. The same technique should be used at each stop including how volunteers focus for listening for nearby birds and distant birds.

Stop # and time should be recording at the beginning of each stop listening period. Species detected are recorded using a four-letter alpha



Eastern Screech-Owl Photo by Jen Mui.

code (Appendix A). Listening period may vary depending on whether or not playback (optional prerecorded bird call/song) is used. A passive listening period of six minutes should be completed at each stop. The detection history of each individual seen or heard from the time of their first detection through their last detection should be recorded in the appropriate 1-minute block of the data sheet (each individual bird detected will have their own row on the data sheet, Appendix B). A value of 1 is used if there is a detection, and if there is not a detection the minute column can be left blank. Even if an individual calls more than one time during a one minute block it is still only recorded as a 1 for that block. Birds will sometimes move during the counting period. Volunteers are asked to use their best judgement to distinguish new individuals from those individuals already detected. If unsure if a different individual is calling, a new individual should not be recorded.

If there are no birds detected at a stop NONE should be entered in the species column on the data sheet on the same line as that stop number.

If a volunteer does not use playback they only need to listen at each stop for 6 minutes.

If a volunteer chooses to use playback they will play two prerecorded calls at the end of the initial 6 minute block. A two-minute listening period will follow each of the species calls. The first call will be an Eastern Screech-Owl call for (20 seconds). Following the Screech owl playback listening period a Barn Owl call (20 seconds) will be played. Listen passively for an additional 2 minutes following this playback.

Birds should be recorded as they are heard, and not at the end of the listening periods.

**Other Species:** Volunteers are encouraged to record any species they hear calling while monitoring. If something is heard, but the volunteer is unsure of the identification, nothing should be recorded. But, for instance, if the call is identified, such as a Sedge Wren, or a Henslow's Sparrow, the species is recorded in the same format as a target species.

## RESULTS

### *MOON 2019 Results*

There were 28 MOON routes monitored in 2019, including four in Iowa. There were a total of 488 Owls, Nightjars, and Woodcock detected (Figure 1). Total numbers of each target species detected in Illinois and Iowa combined was as follows: Barred Owl (202), Eastern Whip-poor-will (190), Chuck-will's-widow (34), Great Horned Owl (28), Eastern Screech-owl (19), American Woodcock (5), Barn Owl (4), and Common Nighthawk (4).

There were 19 other non-target species observed in 2019. Other species detected greater than five times were: Killdeer (33), American Robin (8), Yellow-breasted Chat (6), and Field Sparrow (5).

### *MOON Trends*

#### *Birds in Decline*

This past year has been packed with new scientific research reporting bird declines around the world. Decline causes are interrelated and can be linked to habitat loss, insect declines, and climate change. One particularly startling study

that came out in Science, Sept 2019, showed that nearly 3 billion birds have disappeared since 1970 (Rosenberg et al 2019). What is even more surprising, and worrisome, is that, according to the study, common birds have suffered the greatest losses. Because the SBC dataset dates back to 1972 this prompted us to compare our data with the Rosenberg study to see if our data is showing similar trends. We looked at the SBC trends of five species, Horned Lark, European Starling, Eastern Meadowlark, Red-winged Blackbird, and Common Grackle, that are declining throughout North American, according to the study by Rosenberg and

colleagues. While we would have expected all Song Sparrow Photo by Patty Dickerson.

five species to show declines we found that Horned Lark, Common Grackle and Eastern Meadowlark have declined according to SBC data, but European Starling and Red-winged Blackbird populations have remained stable in Illinois, according to the SBC (Figure 1 & 2). There could be a couple of reasons we did not see declines in these two species. One being SBC is a count that takes place during spring migration. Bird numbers may vary year to year. Another possibility is that we are not paying as much attention to counting these birds as we might with a less common bird such as a Henslow's



American Woodcock by Tara Beveroth.

Sparrow. Trying to get an accurate count of common birds is just as important as counting less common birds. This is something we can easily forget, especially when trying to survey dozens of species. It is easy to not pay attention or drown out the sounds of those more common individuals, or to just assign a large number nest to their names, because we know there are a lot out there. In summary, we hope you enjoy the Spring Bird Count and remember to count both the rare and common species.

### Birds On the rise

Because we don't want to depress you too much, we thought we would talk about a couple of birds that have increased in abundance, Osprey and Red-eyed Vireo (Figure 3). Osprey are currently on the endangered species list here in Illinois, but hopefully in the future they will come off of that list. The IDNR has been working on an Osprey Recovery Project here in Illinois for over 7 years now as part of an 8 year project. While we may not be seeing direct impacts from that

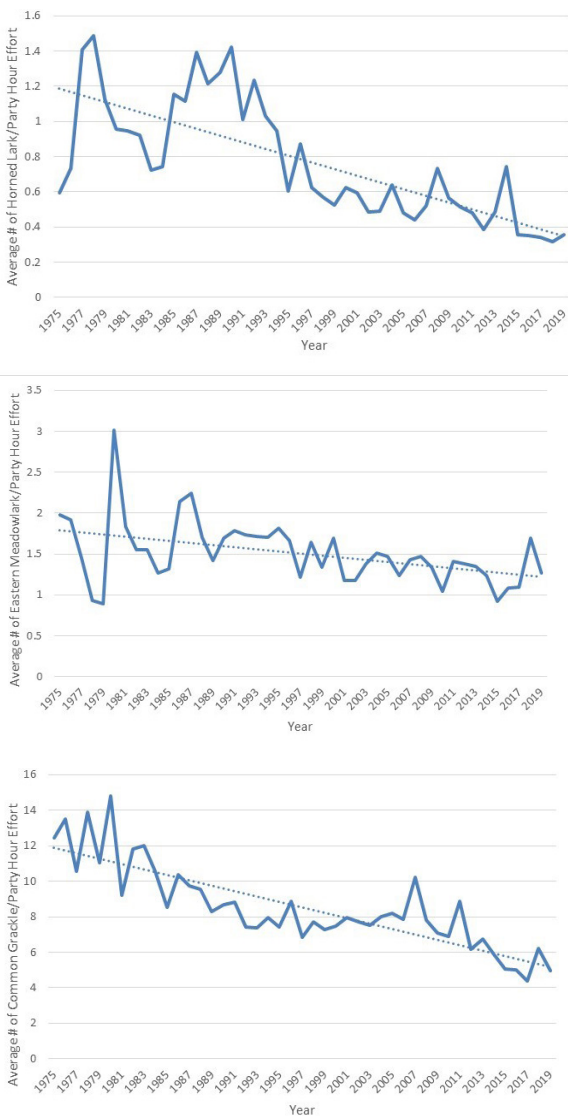


Figure 1. Average # of Horned Lark, Eastern Meadowlark, and Common Grackle, adjusted for effort, statewide over 46 years of Spring Bird Count.

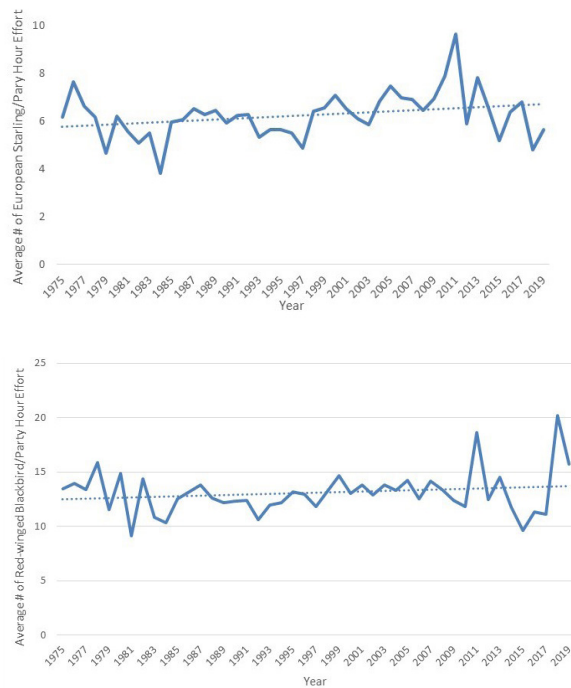


Figure 2. Average # of European Starling and Red-winged Blackbird, adjusted for effort, statewide over 46 years of Spring Bird Count.

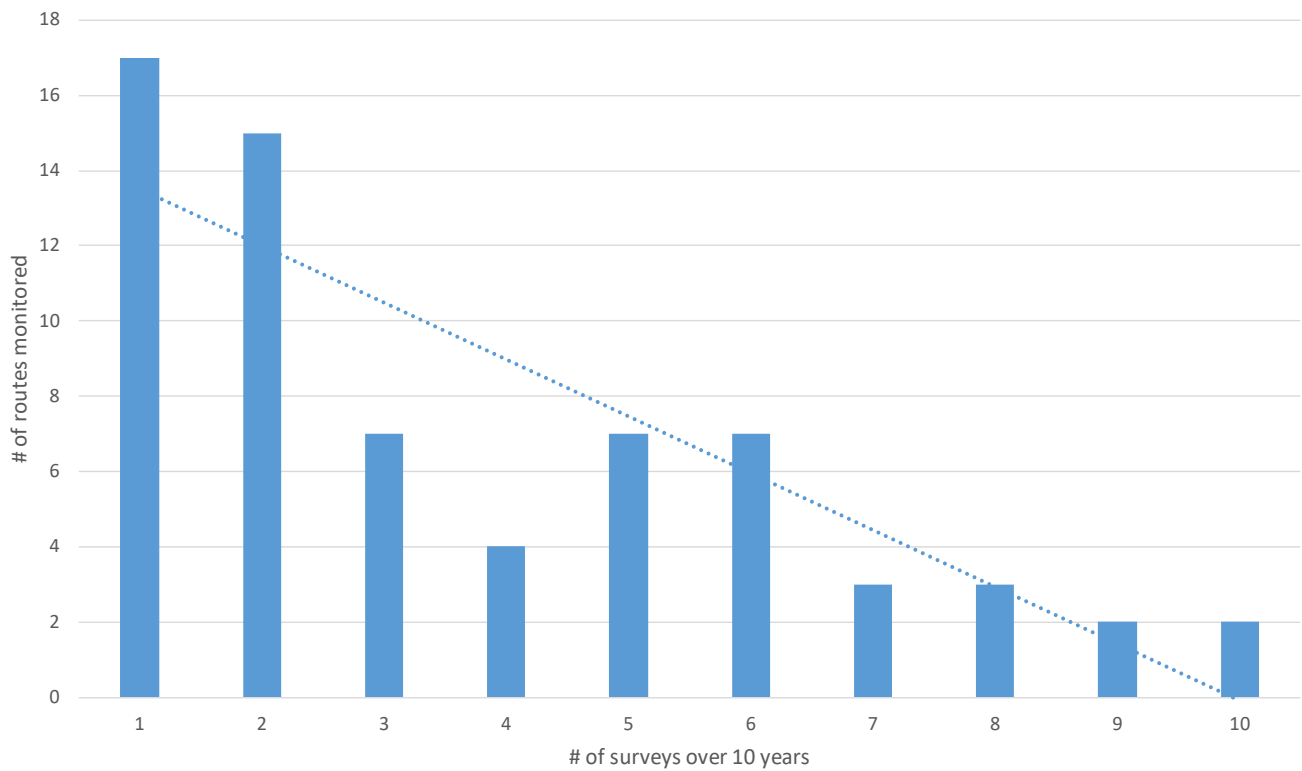
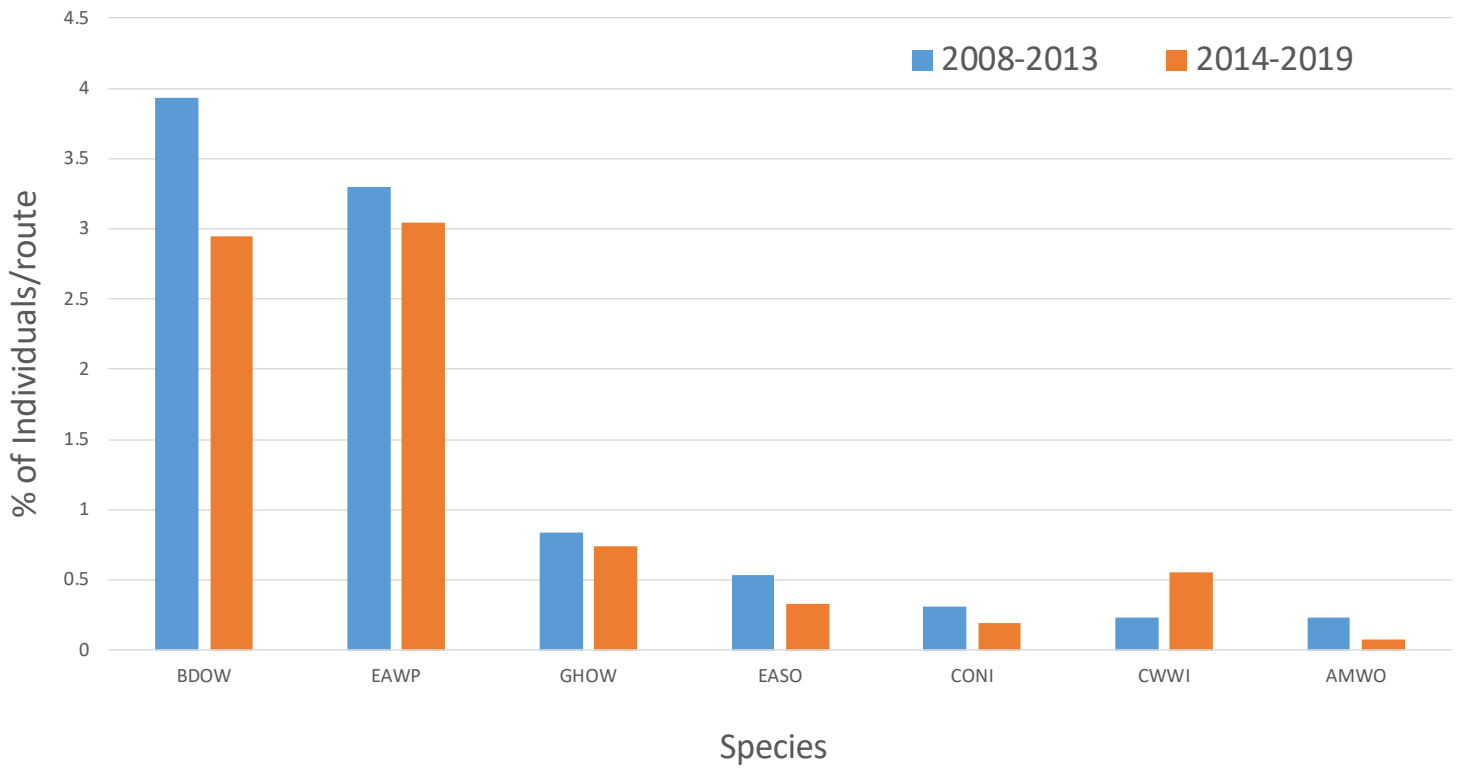


Red-winged Blackbird Photo by Ryan Askren.

Figure 1: 2019 MOON Results

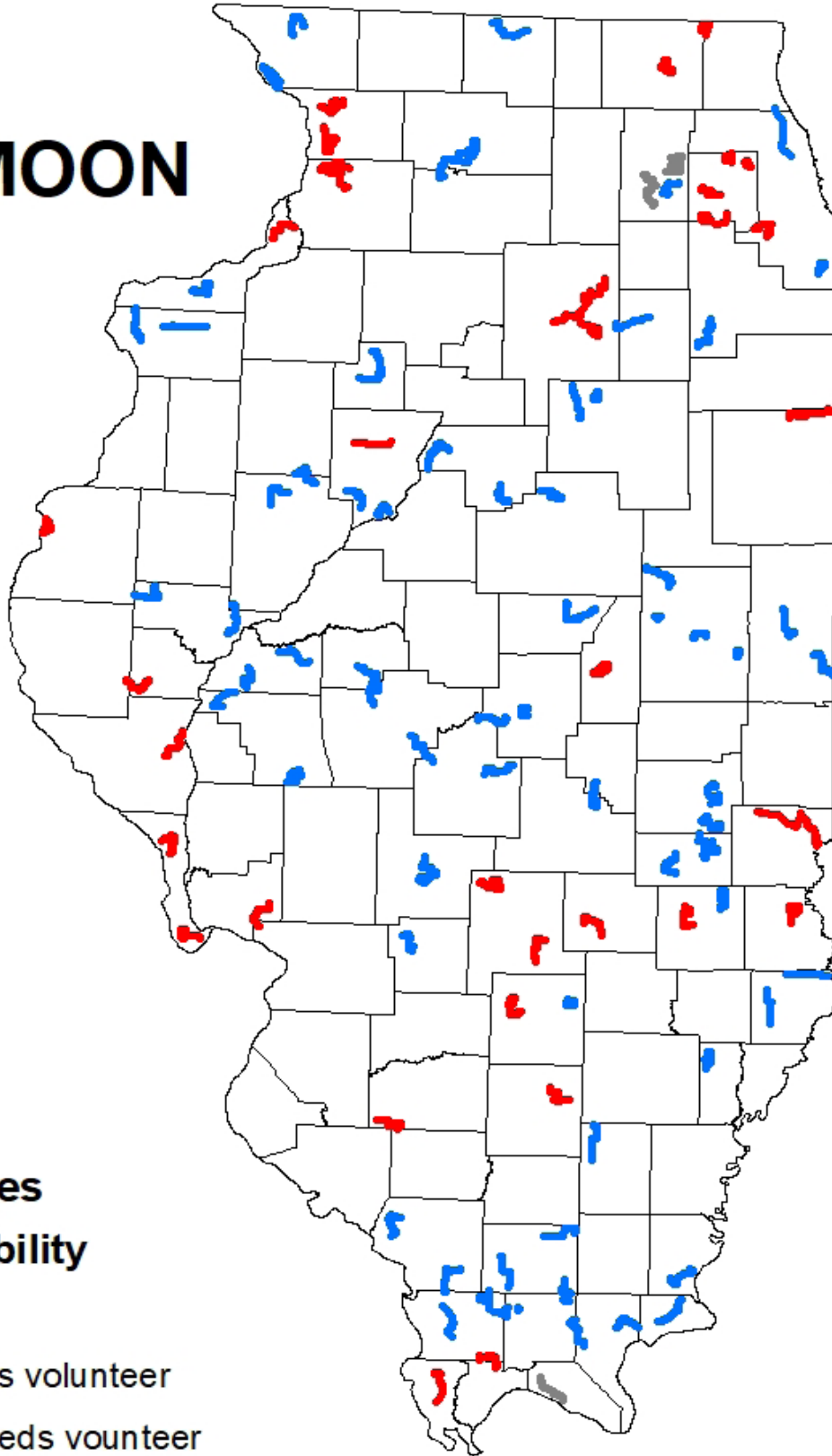
Column = Species	* Denotes Iowa route									Total # of
Row = Route and Census Date	AMWO	BANO	BDOW	CONI	CWWI	EASO	EWPW	GHOW	SEOW	Individuals/Route
<b>Cass1235</b>			1			1	24			26
Cass1235-51619							11			11
Cass1235-61319			1			1	13			15
<b>Christian3429</b>			7					1		8
Chri3429-62019			7					1		8
<b>Cumberland1212</b>			24	1				2	2	29
Cumb1212-51819			11	1				2	2	16
Cumb1212-62119			13							13
<b>Edwards0476</b>			2							2
Edwa0476-51819			2							2
<b>Grundy0674</b>			5					1		6
Grun0674-51519			3					1		4
Grun0674-61319			2							2
<b>*IABoone1</b>	1		21				7	1		30
IABoon1-51419	1		11				3			15
IABoon1-61619			10				4	1		15
<b>*IALucas3</b>			10	1	12		23	1		47
IALuca3-51919			5	1	6		8			20
IALuca3-61319			5		6		15	1		27
<b>*IARinggold2</b>			9			1	49	2		61
IARing2-51719			4				25			29
IARing2-61219			5			1	24	2		32
<b>*IAVanBuren4</b>		2	18			4	44			68
IAVaBu4-61019		2	18			4	44			68
<b>Jackson6297</b>			4		2	2	3			11
Jack6297-51719										0
Jack6297-61319			4		2	2	3			11
<b>Jasper2685</b>			2				2			4
Jasp2685-51719			2							2
Jasp2685-62119							2			2
<b>JoDavieess4321</b>	1		2					1		4
JoDa4321-61319	1		2					1		4
<b>Johnson0628</b>			8		19		3			30
John0628-51619			4		6					10
John0628-61319			4		13		3			20
<b>Macon6759</b>			2	1		0				3
Maco6759-51719			2	1		0				3
Maco6759-62219										0
<b>McLean7432</b>			1					3		4
McLe7432-61119			1					3		4

Column = Species	* Denotes Iowa route									Total # of
Row = Route and Census Date	AMWO	BANO	BDOW	CONI	CWWI	EASO	EWPW	GHOW	SEOW	Individuals/Route
<b>Montgomery5473</b>				9						9
Mont5473-51519				9						9
<b>Montgomery5473_2</b>				3		2	4	1		10
Mont5473_2-61119				3		2	4	1		10
<b>Morgan7212</b>				11		3	3			17
Morg7212-51519				11		3	3			17
<b>Morgan7438</b>				2						2
Morg7438-51519				2						2
Morg7438-61319										0
<b>Piatt7824</b>				2						2
Piat7824-62419				2						2
<b>Pope2079</b>				8		1		18		27
Pope2079-51619				3				4		7
Pope2079-61319				5		1		14		20
<b>Sangamon7940</b>		2	3	1		2			2	10
Sang7940-51719		2	3	1		1			1	8
Sang7940-62019						1			1	2
<b>Sangamon9888</b>				4		3		3		10
Sang9888-52519				1		1		2		4
Sang9888-62119				3		2		1		6
<b>Schuyler8762</b>				15				7		22
Schu8762-51319				9				5		14
Schu8762-61119				6				2		8
<b>Shelby2525</b>				10					3	13
Shel2525-52219				2						2
Shel2525-62019				8					3	11
<b>Vermillion8955</b>	3		3			1			1	8
Verm8955-51619	3									3
Verm8955-61319			3			1			1	5
<b>Winnebago1010</b>				3				3		6
Winn1010-61319				3				3		6
<b>Woodford2828</b>				13					6	19
Wood2828-61319				13					6	19
<b>Total # Individual/Species</b>	5	4	202	4	34	19	190	28	2	488



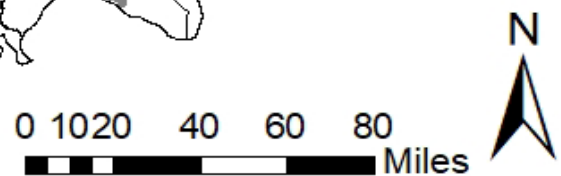


# 2020 MOON

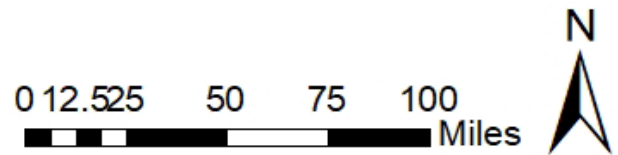
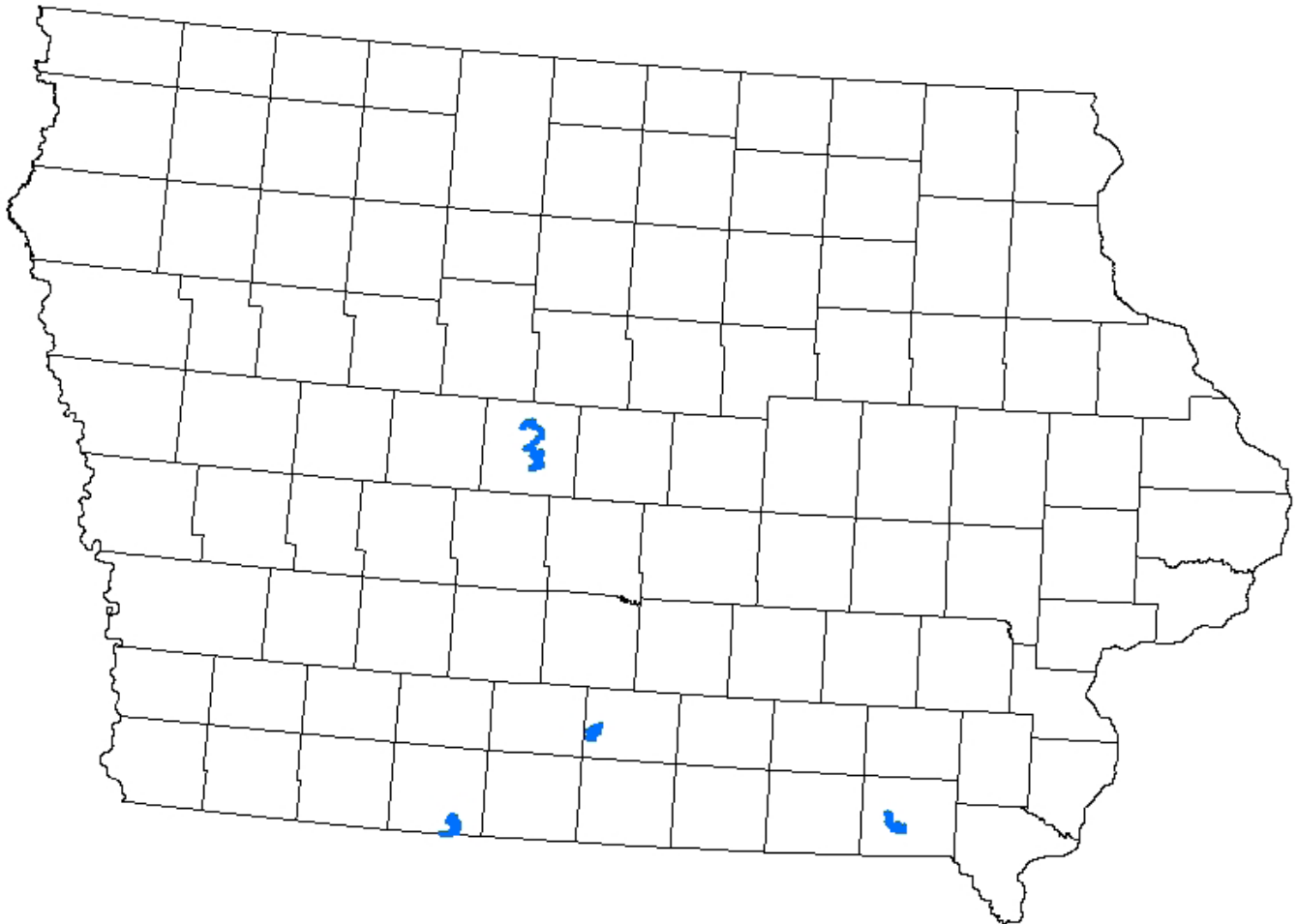


## MOON Routes Route Availability

- Maybe
- Route has volunteer
- Route needs vounteer



# 2020 IOWA MOON



project yet, we are seeing Osprey start to rise in abundance, which is great. The increase in Red-eyed Vireo is a bit of a mystery as many other primarily insectivorous birds are on the decline. They are also sensitive to disturbance and are among the most common hosts for Brown-headed Cowbird. That being said they are doing pretty well throughout most of their range, and the study by Rosenburg and colleagues also found that Red-eyed Vireos were increasing across their range.

### ***Volunteer Distribution***

There were 10 counties this year we did not receive data from (Figure 4). Of these 10, 7 were not counted at all, so this is a gap we will continue to try and fill. Though we had fewer counties compiled this year than last, we had more volunteers this year. There are always hidden hotspots to be found in counties and exploring new terrain is always fun and informative. We continue to encourage volunteers to try counting in a new county on occasion, especially if they would like to have more places to explore. Many county compilers are always looking for new participants and they can help provide areas that need to be censused and to team new volunteers with experienced participants.

### ***Compiler Recordings***

We can't stress the importance of our volunteers enough, especially our county compilers. There are more people in northeastern Illinois and generally more volunteers. Cook county alone has nearly 200 volunteers, which can make organizing volunteer distribution and collecting all of those reports challenging, not to mention the work that goes into compiling them all. Not to be left out, volunteers in the rest of the state are critical as there is so much more area to be covered by fewer people. We greatly appreciate the effort everyone puts into SBC. This count builds great friendships over time and inspires many to take a more hands

on approach to bird and habitat conservation. The stories that come from SBC tales alone could probably fill a book! Table 2 lays out all of the effort that goes into the Spring Bird Count and recognizes those that compile county wide census data.

## **CONCLUSION**

As we prepare for the 2020 SBC (May 9th) we have a few counties that need compilers for the upcoming count. If you are interested in taking on some new terrain please let us know, even if you can't do it on Saturday you can count a county that needs a compiler/ volunteers on the Sunday of count weekend instead. For 2020 we are currently looking for compilers for the following counties: DeWitt, Grundy, Jefferson, Jersey, Macoupin, Massac, McDonough, Moultrie, Lawrence, and White. For county compiler updates, and information, please visit the SBC website at <http://wx.inhs.illinois.edu/index.php?cID=2647>. Also, if you are interested in looking at population trends of individual species, or downloading the SBC data please visit: <https://data.prairie.illinois.edu/inhs/sbc/>.

## **ACKNOWLEDGEMENTS**

We would like to thank the many compilers and volunteers that have helped with SBC over the years and those that continue to do so. This program would not be possible without their dedication. We would also like to thank the Illinois Department of Natural Resources, the Illinois Audubon Society, The Illinois Ornithological society, and all other organizations that have assisted in recruiting volunteers and contributing to the success of SBC. Putting this report together would not have been possible without Jen Mui assisting us in the design layout. Also, we would like to thank Ryan Askren, Patty Dickerson, Jen Mui and Alyssa Rod for the use of their photos.

# APPENDIX A

\*If you detect this species please record it as you would an owl or a nightjar.

\*\*If you detect another species that is not a target species and you can correctly identify it please record it.

EWPW = Eastern Whip-poor-will	GHOW = Great Horned Owl	Long-eared Owl = LEOW
CWWI = Chuck-will's-widow	GHOW = Great Horned Owl	Short-eared Owl = SEOW
CONI = Common Nighthawk	BANO = Barn Owl	*AMWO = American Woodcock
BDOW = Barred Owl	Northern Saw-whet Owl = NSWO	**Other Species

