



## Monitoring of Owls and Nightjars, MOON, in Illinois – 2012 Report



Photo by James Ellis - INHS

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## **Summary**

We now have five years of MOON data in Illinois. Unlike last year weather this year was great for monitoring and many of you took advantage. High detections of birds from any single monitoring period came from the following routes (Table 1): Stark0960 - 12 Barred Owls, Iroquois7824 and Stark0960 – 4 Eastern Screech-Owls, McLean7432 – 8 Great Horned Owls, and JoDavies3053 - 22 Whip-poor-wills. Total numbers of owls, nightjars, and American Woodcock for the year were: 136 Barred Owl, 16 Eastern Screech-Owl, 28 Great Horned Owl, 95 Eastern Whip-poor-wills, and 10 Common Nighthawk. One of the main obstacles we still seek to overcome is establishing consistency in running the same routes every year. Without repeated sampling along the same routes it will be very challenging to determine population trends in a shorter period of time. However, we remain optimistic that this program can continue to grow. As always we are looking for more volunteers throughout the state.

## **Background**

Bird monitoring has played a crucial role in estimating population trends, distribution, and abundance for many species, which in turn has been integrated into management and conservation decisions regarding many high profile species. These changes in management, and efforts to conserve, have restored and stabilized many of the once extirpated or nearly extirpated species. However, while current monitoring programs, such as Breeding Bird Survey (BBS), Spring Bird Count (SBC), and Christmas Bird Count (CBC) have done an excellent job of estimating population trends for most species they do not have the power to estimate population trends for nocturnal species. Because of this void, many organizations throughout Canada and the United States have implemented, or are beginning to implement monitoring programs for various groups of nocturnal species. Within the past few years The Midwest Coordinated Bird Monitoring Partnership has helped to facilitate the coordination of these Midwest nocturnal monitoring groups so that we can work together to make the most beneficial bird conservation decisions (<http://midwestbirdmonitoring.ning.com/>). The formation of efficient and statistically powerful monitoring programs for nocturnal species will allow us to detect small population changes over a shorter period of time.

### Owl and Nightjar Status in Illinois

In Illinois we have five confirmed breeding species of owl; Barn Owl, Barred Owl, Eastern Screech-owl, Great Horned Owl, and Short-eared Owl and three confirmed breeding species of nightjar; Chuck-will's-widow, Common Nighthawk, and Eastern Whip-poor-will. Within these two groups the Barn Owl and the Short-eared Owl are 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. 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 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. The Eastern Whip-poor-will is considered to be rare and declining by the U.S. Fish and Wildlife service. In Canada it has declined so much it is now considered Threatened. While Common Nighthawks are considered to be evenly distributed throughout the state, monitoring their population trend is difficult. The Chuck-will's-widow has been historically found in the southern portion of the state. Loss of habitat, lack of forest management, cattle grazing, and available food are all factors that could be contributing to possible declines of some of these species.

Because much of Illinois has become agriculturally dominated habitat selection is limited for owls and nightjars. Additionally, changes in agricultural practices have caused a decrease in available food sources for owls and nightjars. Also, while Illinois has retained much of its forested landscape throughout the last hundred years many forests are not managed and succession becomes a problem, especially for nightjars, which prefer an open understory (Walk et al. 2010 and Cink 2002). In 2008 a study found that the high number of habitat openings created by some forest regeneration practices provided whip-poor-wills with foraging opportunities that were not present in systems not managed intensely (Wilson and Watts 2008). Because we cannot anecdotally say some owls and nightjars are declining due to these changes we needed to create a powerful monitoring program to determine the population trends of these birds. Therefore, in the spring of 2008 Monitoring of Owls and Nightjars, MOON, in Illinois was initiated. MOON is a volunteer based program that occurs throughout the state of Illinois. Volunteers monitor routes located along suitable habitat for owls and nightjars. Routes are 9 miles long with 10 stops per route.

## **Protocol**

Based on previous research (Northeast Coordinated Bird Monitoring Partnership, Wisconsin Bird Conservation Initiative, Bird Studies Canada, and the U.S. Nightjar Survey Network) we know that there are certain criteria that are important when monitoring for owls and nightjars (Hunt 2007, Gallo 2007, Wilson and Watts 2006). Because of these criteria, we closely followed the standard protocols of those currently undergoing Owl and Nightjar research with some minor adjustments to fit interest we have here in Illinois:

- 1) Each survey is conducted at least 30 minutes following sunset (when the moon is above the horizon) and end no later than 15 minutes prior to sunrise.
- 2) 2012 monitoring dates were March 31 - April 13 and May 29 – June 11. June 27 – July 10 was a make-up window.
- 3) If possible surveys should be completed when the moon is above the horizon and not obstructed by clouds.

### Counting Owls and Nightjars:

If detected, each individual owl or nightjar is recorded once during each 1 minute block of a 6 minute passive listening period. Monitors with acoustic equipment play an Eastern Screech-owl playback and in some areas of the state a Barn Owl playback is incorporated as well. Playbacks are used following the 6 minute passive listening period. After each playback monitors listen for an additional 2 - 1 minute blocks. Monitors should listen, with the same consistency at each stop, for birds from a stationary position outside of their vehicle. Volunteers should use their best judgment when determining if a bird is moving while listening at a stop.

Data is recorded at the time birds are detected, rather than waiting for the end of the 6, 8, or 10 minute listening period, to avoid data omission errors.

Other Species – Monitors are encouraged to record any species they hear calling while monitoring. In the future we hope that this data may become applicable to understanding more about other species that call at night.

Data forms:

Data forms consisted of filling in the route name and number, observer name, date, start time, and end time, estimated temperature, playback use, as well as detection data at each stop. In conjunction with other surveys already in progress data is collected on wind speed, sky condition, and noise at each stop. When entering data Alpha codes were used for species names (BDOW=Barred Owl, EASO=Eastern Screech-Owl, BAOW=Barn Owl, GHOW=Great Horned Owl, EWPW= Eastern Whip-poor-will, CWWI=Chuck-will's-widow, CONI=Common Nighthawk, and AMWO=American Woodcock). In addition, route location data was also collected from volunteers, as well as habitat data at each stop.

#### Route Selection:

Each route consists of 10 stopping points where monitors stop, get out of their vehicle, and listen for nightjars and owls for a period of 6 minutes or 8/10 if using playback. Each stopping point is at least one mile apart. The starting point of a route is named stop #1 and so on until stop #10 is reached. At this time a nine mile route will have been completed. Note: at times rather than shortening space between stops to avoid double counting distance was added. Also, given the topography of the state and the layout of many roads we realized that not all routes would be straight nine mile routes. While some of the MOON routes were put together by volunteers in the past, in 2010 we randomly selected new routes using GIS forest coverage layers. Because of the topology of Illinois (agriculturally dominated) using a forest coverage GIS layer appeared to be the best way to ensure that nightjar/owl habitat was being monitored. Routes created prior to 2010 were still monitored if monitors were available to monitor. Monitors, as always, were asked to scout their route to make sure other problematic variables, such as noise and traffic, would not be limiting.

## **Results and Discussion**

### Routes

This year 24 routes were monitored at least one time (Figure 1 and Table 1). Figure 2 is a map depicting routes that are already monitored and routes that we would like to have monitored in 2013 and beyond. Because of occasional volunteer turnover, time restraints, and weather some routes are not monitored every year. To make our data more statistically powerful it is essential that the same routes be monitored every year. Volunteers are definitely the key to making this program successful and we are hoping to establish a strong volunteer network for this reason. We seek to make this program efficient and also at the same time we keep in mind the constraints it puts on our volunteer's time.

### Nightjars

We detected a total of 129 nightjars this year, with the breakdown as follows: 10 Common Nighthawks, 112 Eastern Whip-poor-wills and 7 Chuck-will's-Widows (Table 2). As mentioned in prior reports Common Nighthawks are challenging to detect using this monitoring protocol. Setting a monitoring program up for this species is something that has been discussed in within the Midwest Nocturnal Bird Monitoring Group. Eastern Whip-poor-will detections were few and far between again this year. Based on monitoring period alone Jo Daviess county again produced the most Eastern Whip-poor-will detections for one evening (n=14), following by Williamson County (n=10) and Pope County (n=9). Breeding Bird Atlas data from northeastern and some Midwestern states indicates that Whip-poor-wills have disappeared from around half the areas they occupied 20-25 years ago (BBA). Much of the forested habitat in Illinois is privately owned and unfortunately not everyone manages or is able to manage their forests. Forest succession has led to thick understory in many areas, which is poor habitat for whip-poor-wills. We seek to use our data and data from others to make informed habitat management decisions for these nocturnal birds.

## Owls

We detected a total of 191 owls this year with the breakdown as follows: 145 Barred Owls, 16 Eastern Screech-Owls, and 30 Great Horned Owls (Table 3). As in the past this year's data suggest that Great Horned Owl detections are again highest in April, which lends supports to the need for an April monitoring period. The following routes had greater than 5 Barred Owl detections during any one monitoring window in 2012: Clark1622, Jasper2685, McLean7432, Mercer2506, Morgan7212, Pope2079, Stark0960, Will1798, Woodford2828 (Table 1). The greatest detection of Eastern Screech-owls came from both Iroquois and Stark County with 4 being detected during one monitoring period. This year 10 of the 24 routes used playbacks for Eastern Screech-owls and of those 4 had responses after the initial playback, prior to these playbacks there had been no screech owls detected during the stops. There were no Barn Owls detected this year during MOON, however, I have received Barn Owl sighting reports and I am hoping that in the future we will begin to detect them along some of our routes. Thanks to the DNR and their Barn Owl Recovery program more Barn Owls are beginning to breed successfully and many others around the state are following suit to try and bring more Barn Owls back. Barred owls have really increased in our state and are now common throughout the state. Their direct influence upon other owls such as Eastern Screech-owls is something we may have to take a look at in the future. They are both cavity nesting species and given the Barred Owls increasing population and the Eastern Screech-owl's unknown population trend we might want to start thinking about whether or not these two things are related.

We are currently working as part of the Midwest Nocturnal Bird Monitoring Program (led by Katie Koch – USFWS), to improve MOON, so that it is performing at its maximum efficiency. In addition modeling the data to look at how different variables may or may not play a part in occupancy and detectability will aid us in making management decisions that will benefit owls and nightjars of greatest concern. As always, for MOON to succeed it is crucial for us to run the same routes consistently year to year.

## Acknowledgements

First off we would like to thank all of the volunteers that use their personal time to help continue to make MOON a success. Without all of you MOON would not be possible. Additionally, we would like to thank Northeast Coordinated Bird Monitoring Partnership, Wisconsin Bird Conservation Initiative, U.S. Nightjar Survey, and Bird Studies Canada for starting up such fantastic monitoring programs to serve as excellent references when putting together our own here in Illinois. Also, the Midwest Coordinated Bird Monitoring Partnership should be thanked for their efforts to bring all of these groups together to help conserve these nocturnal birds. Also, a thank-you to all the natural areas that have allowed us admittance for monitoring; Crab Orchard National Wildlife Refuge, Lost Mound Field Station, Ferne Clyffe State Park, Sam Dalton Lake Conservation Area, Iroquois County Conservation Area, and Chain O' Lakes State Park.. Finally, to the staff of the IDNR, USFWS, TNC, and INHS thank-you for all of your input and in some cases your contributions to monitoring.

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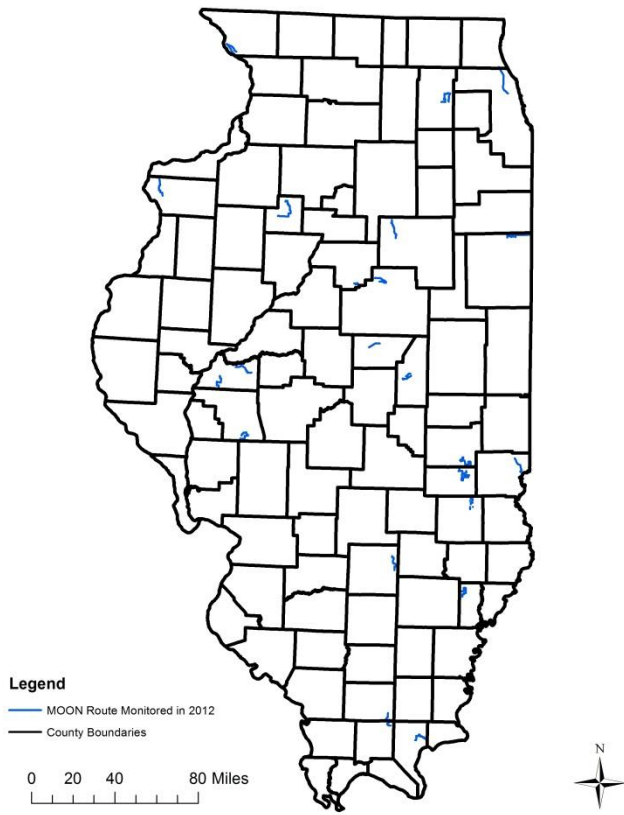


Figure 1. MOON routes monitored in 2012.

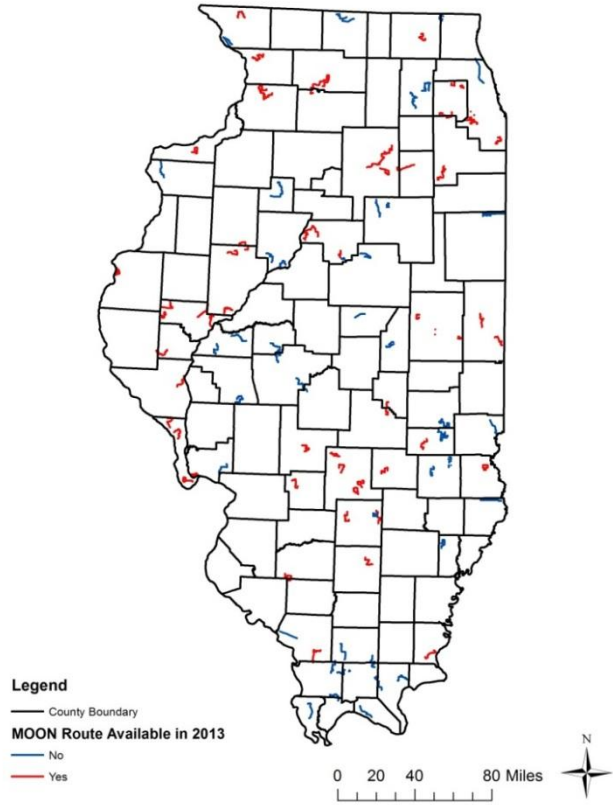


Figure 2. MOON routes available for 2013.

Table 1. 2012 species detected by route and month.

Route/Species	March	April	May	June	Grand Total
<b>Cass1235</b>			<b>13</b>		<b>13</b>
EWPW			13		13
<b>Cass8761</b>	<b>3</b>			<b>15</b>	<b>18</b>
BDOW	3			1	4
EASO				1	1
EWPW				13	13
<b>Clark1622</b>		<b>4</b>		<b>10</b>	<b>14</b>
BDOW		3		8	11
EWPW				2	2
GHOW		1			1
<b>Coles6476</b>		<b>2</b>		<b>4</b>	<b>6</b>
BDOW		1		4	5
EWPW		1			1
<b>Cook4308</b>				<b>5</b>	<b>5</b>
CONI				3	3
EASO				1	1
GHOW				1	1
<b>Cumberland6476</b>			<b>3</b>		<b>3</b>
BDOW			3		3
<b>Dewitt6767</b>		<b>1</b>			<b>1</b>
BDOW		1			1
<b>Edwards0476</b>		<b>2</b>			<b>2</b>
BDOW		1			1
GHOW		1			1
<b>Iroquois7824</b>		<b>5</b>			<b>5</b>
BDOW		1			1
EASO		4			4
<b>Jasper2685</b>		<b>6</b>	<b>4</b>		<b>10</b>
BDOW		5	1		6
EWPW		1	3		4
<b>JoDavies3053</b>				<b>33</b>	<b>33</b>
BDOW				3	3
CONI				6	6
EWPW				22	22
GHOW				2	2
<b>Lawrence2880</b>		<b>8</b>		<b>3</b>	<b>11</b>
BDOW		4		3	7
GHOW		4			4
<b>Livingston2424</b>		<b>1</b>		<b>5</b>	<b>6</b>
BDOW				2	2
EASO				3	3
GHOW		1			1



<b>Marion6245</b>	<b>3</b>	<b>9</b>	<b>12</b>
BDOW	3	4	7
CWWI		4	4
EWPW		1	1
<b>Mclean7432</b>	<b>3</b>	<b>18</b>	<b>21</b>
BDOW	3	7	10
EASO		2	2
EWPW		1	1
GHOW		8	8
<b>Mercer2506</b>	<b>6</b>	<b>7</b>	<b>13</b>
BDOW	5	6	11
CONI		1	1
GHOW	1		1
<b>Morgan7212</b>	<b>5</b>	<b>11</b>	<b>16</b>
BDOW	5	2	7
EWPW		9	9
<b>Piatt7824</b>	<b>4</b>	<b>3</b>	<b>7</b>
BDOW	1	1	2
EASO	1		1
GHOW	2	2	4
<b>Pope2079</b>	<b>26</b>	<b>14</b>	<b>40</b>
BDOW	10	3	13
EWPW	16	11	27
<b>Stark0960</b>	<b>14</b>	<b>7</b>	<b>21</b>
BDOW	12	2	14
EASO		4	4
GHOW	2	1	3
<b>Williamson4712</b>	<b>12</b>	<b>5</b>	<b>17</b>
BDOW	8	5	13
EWPW	2		2
GHOW	2		2
<b>Williamson5750</b>	<b>2</b>	<b>17</b>	<b>12</b>
BDOW	2	5	2
CWWI		1	2
EASO	0		0
EWPW		10	7
GHOW		1	1
<b>Woodford2828</b>	<b>6</b>	<b>9</b>	<b>15</b>
BDOW	6	9	15
<b>Grand Total</b>	<b>3</b>	<b>110</b>	<b>60</b>
			<b>147</b>
			<b>320</b>

Table 2. Avian species detected by month during five consecutive years.

Year/Month	AMWO	BDOW	CONI	CWWI	EASO	EWPW	GHOW	NSWO	Grand Total
<b>2008</b>	<b>3</b>	<b>145</b>	<b>18</b>		<b>13</b>	<b>84</b>	<b>35</b>		<b>298</b>
May		59	4		6	40	17		126
June	1	46	5		2	39	10		103
July	2	40	9		5	5	8		69
<b>2009</b>	<b>31</b>	<b>193</b>	<b>19</b>	<b>26</b>	<b>47</b>	<b>135</b>	<b>62</b>	<b>2</b>	<b>515</b>
April	15	63	2		13		33	1	127
May	16	95	4	13	18	54	11	1	212
June		29	9	13	14	64	17		146
July		6	4		2	17	1		30
<b>2010</b>	<b>22</b>	<b>228</b>	<b>19</b>	<b>6</b>	<b>54</b>	<b>137</b>	<b>36</b>		<b>502</b>
March	4	20			5		8		37
April	16	73			18	55	13		175
May	2	114	12	4	27	70	15		244
June		21	7	2	4	12			46
<b>2011</b>	<b>5</b>	<b>114</b>	<b>9</b>		<b>17</b>	<b>77</b>	<b>22</b>		<b>244</b>
April	4	36			4	17	12		73
May	1	44	6		4	30	6		91
June		32	3		1	23	4		63
July		2			8	7			17
<b>2012</b>		<b>146</b>	<b>10</b>	<b>7</b>	<b>17</b>	<b>112</b>	<b>30</b>		<b>322</b>
March		3							3
April		72			6	20	14		112
May		21		1		35	3		60
June		50	10	6	11	57	13		147
<b>Grand Total</b>	<b>61</b>	<b>826</b>	<b>75</b>	<b>39</b>	<b>148</b>	<b>545</b>	<b>185</b>	<b>2</b>	<b>1881</b>