



## Monitoring of Owls and Nightjars, MOON, in Illinois – 2011 Report



Photo by James Ellis - INHS

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## **Summary**

Over the past four years that the Monitoring of Owls and Nightjars MOON program in Illinois has been running we have seen some periodic changes from route turnover to protocol modifications. We remain optimistic that this program can continue to grow. Although weather does not always cooperate, especially this past year, we hope to have the opportunity to engage more volunteers and increase the number of routes being monitored in years to come. It was hard to believe that the weather this year could be worse than in 2010, but indeed it was. As a result monitors had very few opportunities to monitor, and furthermore less route data came in. However, 22 of you were lucky and made it out and 20 routes were monitored at least one time (Figure 1). High detections of birds from any single monitoring period came from the following routes (Table 1): Woodford2828 - 11 Barred Owls, Iroquois7824 – 8 Eastern Screech-Owls, Coles6476 – 4 Great Horned Owls, and JoDavies3053 - 14 Whip-poor-wills. Total numbers of owls, nightjars, and American Woodcock for the year were: 114 Barred Owl, 17 Eastern Screech-Owl, 22 Great Horned Owl, 77 Eastern Whip-poor-wills, 9 Common Nighthawk, and 5 American Woodcock.

## **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 capability to estimate population trends for nocturnal species. Because of this void, many organizations throughout Canada and the United States have begun, or are beginning to implement monitoring programs for various groups of nocturnal species. Within the past couple of years The Midwest Coordinated Bird Monitoring Partnership has helped to facilitate the integration 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 initiation 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 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. Common Nighthawks have a pretty even distribution throughout the state, and the Chuck-will’s-widow is found in the lower southern portion of the state. Loss of habitat, cattle grazing, and available food are all factors that could be contributing to the decline 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. Needless to say it became apparent Illinois was in need of a monitoring program that would eventually allow us to learn more about these two groups of species and what courses of action we

need to take to see that they are conserved. Henceforth, 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 was 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) It was recommended that surveys were only completed during times when the moon was 50% or greater illumination. 2011 monitoring dates were April 12-24, May 11-24 or June 9-23 (Note this year there were only two mandatory monitoring periods, the April period was mandatory and monitors had their choice of choosing to either monitor during the May or June window for the second mandatory period ).
- 3) It was also suggested that if possible surveys be performed when the moon was above the horizon and not obstructed by clouds. Nightjars have been shown to call less frequently when the moon is below the horizon or hidden by cloud cover.

### Counting Owls and Nightjars:

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

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

Other Species – Volunteers were encouraged to record any species they heard 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 we also collected data 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, WPWI= 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 some of you were lucky and made it out and 20 routes were monitored at least one time (Figure 1 and Table 1). Unfortunately weather greatly inhibited the number of routes and the number of times monitors could make it out this year. Figure 2 is a map depicting routes that are already monitored and routes that we would like to have monitored in 2012 and beyond. We have had some turnover since we began in 2008, so not all routes are always being monitored every year (Table 2). To make our data more statistically powerful it is essential that the same routes be monitored every year.

### Nightjars

We detected a total of 86 nightjars this year, down from the 162 in 2010, with the breakdown as follows: 9 Common Nighthawks and 77 Eastern Whip-poor-wills (Table 3). As with previous years data most of our nightjars were detected in May. There were no Chuck-will's-widows detected this year compared to the 6 that were detected in 2010. Because of insufficient data and a small range, to date, it is still too early to deduce exactly what the status of Chuck-will's-widows may be in Illinois. According to SBC data from 1975-2011 Chuck-will's-widows have never been detected in high numbers, although they have been detected. Figure 3 is a map showing where chuck-will's-widows have been detected since 1975 based on average party hour data from individual counties from Spring Bird Count records. Looking at this figure one might expect that more Chuck-will's-widows would be detected along MOON routes given that we have routes located throughout areas where they have been detected in higher numbers in the past. While data is still sparse, this could also be an indicator that their occupancy and detectability are low due to possible population declines. Based on the lack of Common Nighthawk detections we again confirmed that this protocol is not adequate for estimating their population trends. Eastern Whip-poor-will detections were very low this year, most likely due to lack of opportunity to monitor. Based on monitoring period alone Jo Daviess county again produced the most Eastern Whip-poor-will detections for one evening (n=14) followed closely by Pope County (n=9), which also produced the most overall throughout all monitoring periods (n=25).

### Owls

We detected a total of 153 owls this year with the breakdown as follows: 114 Barred Owls, 22 Eastern Screech-Owls, and 17 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 supports the need for an April monitoring period (Figure 4). The following routes had greater than 5 or more Barred Owl detections during any one monitoring window in 2011: Calhoun7447, Clark1622, Coles6476, JoDavies3053, Mercer2506, Piatt7824, Pope2079, Sangamon7940, Williamson 5750, and Woodford2828 (Table 1). The greatest detection of Eastern Screech-owls came from Iroquois County with 8 being detected during one monitoring period. American Woodcock were also detected but in very low numbers (n=5), most likely due to weather prohibiting monitoring.

## The Future of MOON

We are currently working as part of the Midwest Nocturnal Bird Working Group (led by Katie Koch –USFWS), to improve MOON, so that it is performing at its maximum efficiency. This past year we received a grant from the USFWS to analyze all of the nightjar and owl data collected throughout many portions of the U.S. These analyses should help us to improve our monitoring design and most importantly help us to define population trends. 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. As always, for MOON to succeed it is crucial for monitors that already run routes to continue to run these routes in the future.

## Acknowledgements

First off we would like to thank all of the volunteers that used 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; 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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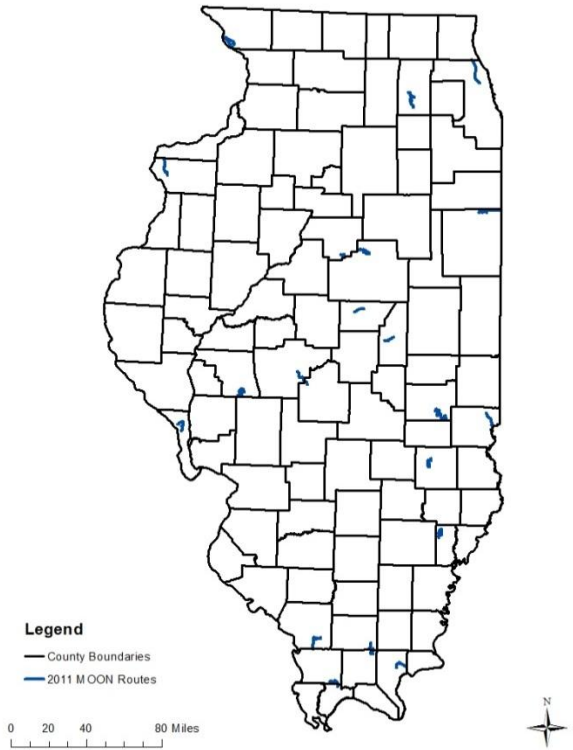


Figure 1. MOON routes monitored in 2011.

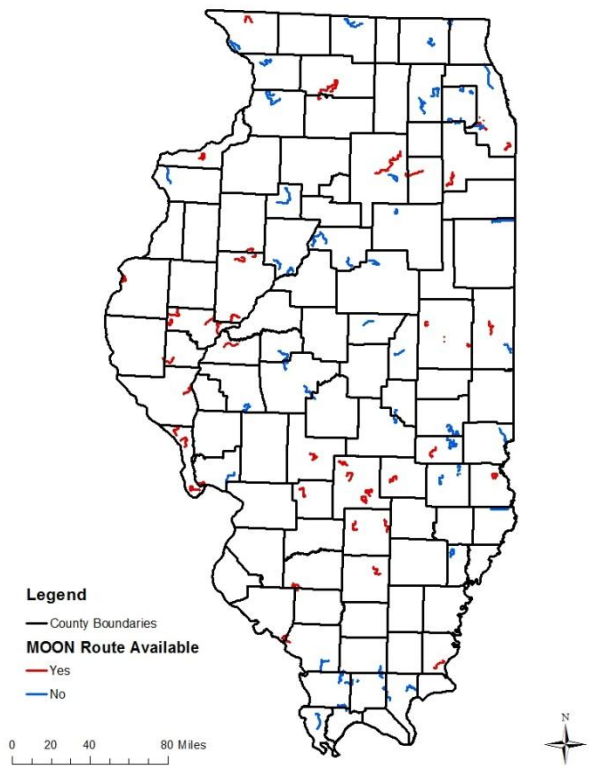


Figure 2. MOON routes available for 2012.

Table 1. 2011 species detected by route and month.

Sum of Total Route/Species	Month				Grand Total
	April	May	June	July	
<b>Calhoun7447</b>	<b>12</b>				<b>12</b>
AMWO	1				1
BDOW	10				10
WPWI	1				1
<b>Clark1622</b>	<b>7</b>	<b>8</b>	<b>7</b>		<b>22</b>
AMWO	1				1
BDOW	4	4	7		15
GHOW	1				1
WPWI	1	4			5
<b>Coles6476</b>	<b>14</b>				<b>14</b>
BDOW	7				7
EASO	2				2
GHOW	4				4
WPWI	1				1
<b>Cook4308</b>	<b>2</b>		<b>3</b>		<b>5</b>
AMWO	1				1
CONI			3		3
GHOW	1				1
<b>DeWitt6767</b>			<b>1</b>		<b>1</b>
BDOW			1		1
<b>Edwards0476</b>	<b>5</b>				<b>5</b>
AMWO	1				1
BDOW	1				1
EASO	1				1
GHOW	2				2
<b>Iroquois7824</b>				<b>17</b>	<b>17</b>
BDOW				2	2
EASO				8	8
WPWI				7	7
<b>Jasper2685</b>			<b>10</b>		<b>10</b>
BDOW			2		2
WPWI			8		8
<b>JoDavie3053</b>		<b>29</b>			<b>29</b>
BDOW		8			8
CONI		6			6
EASO		1			1
WPWI		14			14
<b>Mclean7432</b>	<b>4</b>	<b>6</b>			<b>10</b>
AMWO		1			1
BDOW	1	1			2
EASO		1			1
GHOW	3	3			6
<b>Mercer2506</b>			<b>10</b>		<b>10</b>



BDOW			7		7
GHOW			3		3
<b>Morgan7212</b>	<b>8</b>		<b>5</b>		<b>13</b>
BDOW	2				2
GHOW	1		1		2
WPWI	5		4		9
<b>Piatt7824</b>		<b>6</b>			<b>6</b>
BDOW		6			6
<b>Pope2079</b>	<b>10</b>	<b>16</b>	<b>16</b>		<b>42</b>
BDOW		7	8		15
EASO	1		1		2
WPWI	9	9	7		25
<b>Sangamon7940</b>		<b>12</b>			<b>12</b>
BDOW		9			9
EASO		1			1
GHOW		1			1
WPWI		1			1
<b>Union2515</b>		<b>6</b>			<b>6</b>
BDOW		4			4
EASO		1			1
WPWI		1			1
<b>Williamson5750</b>		<b>3</b>	<b>11</b>		<b>14</b>
BDOW		2	7		9
WPWI		1	4		5
<b>Woodford2828</b>	<b>11</b>	<b>5</b>			<b>16</b>
BDOW	11	3			14
GHOW		2			2
<b>Grand Total</b>	<b>73</b>	<b>91</b>	<b>63</b>	<b>17</b>	<b>244</b>

Table 2. MOON Routes that have been monitored for two or more years since MOON began in 2008.

Two years	Three years	Four Years
Dewitt6767	Cumberland6476	*Calhoun7447
Cook4308	*Hancock6397	Coles6476
Champaign4158	Iroquois7824	Edwards0476
Clark1622	Kane7345	Jasper2685
Johnson0628	*Lawrence2880	JoDavies3053
Lake2929	*Livingston2856	Piatt7824
McHenry0165		Union2515
McLean7432		Woodford2828
Mercer2506		
Pope2079		
Sangamon9888		
Stark0960		
Vermillion8955		
Whiteside0157		

\*Needs a new monitor for 2012.

Table 3. Avian species detected by month during four consecutive years.

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

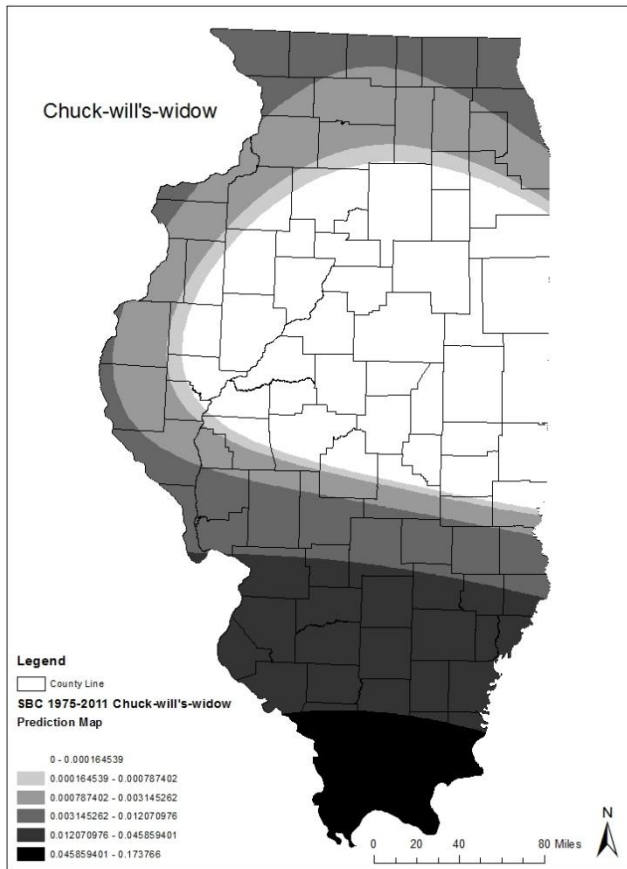


Figure 3. Chuck-will's-widow detections since 1975 based on average party hour data from individual counties from Spring Bird Count records.

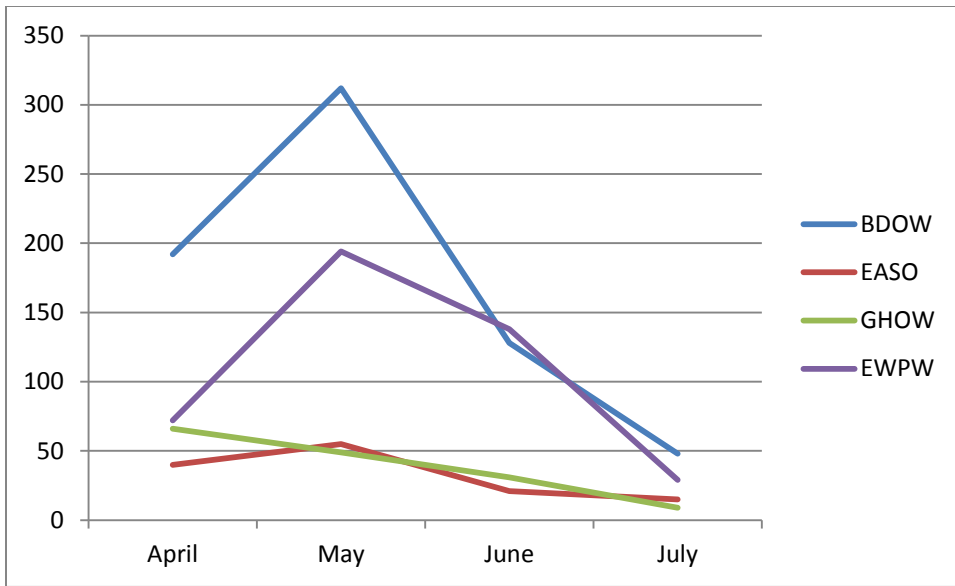


Figure 4. Barred Owl, Eastern Screech-Owl, Great Horned Owl, and Whip-poor-will detections by month over four consecutive years.