



# Efficacy of Meso-Predator Control on Blanding's Turtle (*Emydoidea Blandingii*) Nest Success in Northeastern Illinois



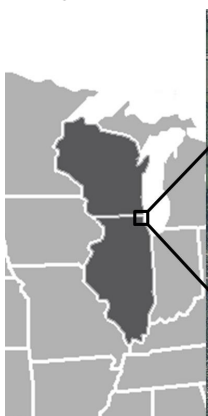
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## Introduction

The Lake Plain (Lake Plain) consists of >1,800 ha of protected wetland and upland habitat and is home to the largest population of Blanding's Turtles in Illinois. However, population models suggested the population is in decline due, in part, to high levels of nest predation (92.3%). In response, the Lake County Forest Preserve District initiated a meso-predator control program in an effort to increase nest success.

## Study Site



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## Objectives

1. Determine the efficacy of meso-predator control on increasing nest success

**Goal:** Reduce nest predation rate to <50%

## Methods

1. Raccoons were trapped and removed annually (April-May) by USDA Wildlife Services using Sterling Grizz™ or Tomahawk adjacent to known nesting locations
2. Gravid adult female turtles were tracked via radio-telemetry to document nest location and nest fate
3. Leslie catch-per-unit effort removal model (R 3.32, FSA package v0.822) was used to estimate raccoon density estimates and effective trap area was calculated in ArcGIS using a 468 m radius around trap locations



## Results

1. Raccoon density estimates prior to control efforts ranged from 22-101 (6-22 km<sup>2</sup>) and, on average, 54.8% (27%-89%) were estimated to have been removed annually (Leslie catch-per-unit effort removal model)

Year	#	Trap Nights	CPUE	#M	#F	#A	#J	Pre-removal N (95% CI)	% Removal
2013	45	466.5	0.096	34	11	41	4	51 (27-59)	88%
2014	33	439.5	0.075	28	5	23	10	37 (17-41)	89%
2015	18	375	0.048	17	1	15	3	22 (4-39)	82%
2016	36	370	0.097	32	4	30	6	53 (13-101)	68%**
2017	27	268	0.101	19	8	21	6	60 (31-151)	45%**
2018	41	262	0.157	31	10	25	16	101 (11-319)	40.6%**
2019	22	378	0.058	16	6	15	7	81 (30-549)	27.2%**
Total	222	2774	0.080	177	45	170	52	405	54.8%



Density estimates and demographic summary of Raccoons (*Procyon lotor*) trapped and removed from the Lake Plain, 2013-2019.



## Results

2. Since control efforts began in 2013, Blanding's Turtle nest success has increased from 7.7% to a 7-year mean nest success rate of 68.7%.

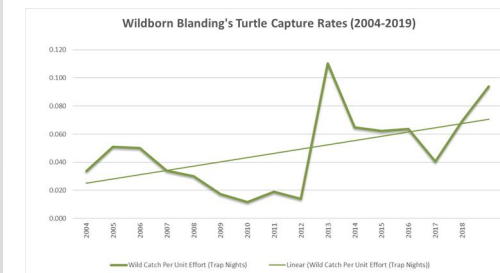
Year	#Depredated	#Successful	#Nests	%Fail	%Success
2013	1	6	7	14.3%	85.7%
2014	9	5	14	64.3%	35.7%
2015	1	12	13	7.7%	92.3%
2016	5	6	11	45.5%	54.5%
2017	4	5	9	44.4%	55.6%
2018	0	6	6	0.0%	100%
2019	1	6	7	14.3%	85.7%
Totals	21	46	67	31.3%	68.7%

Summary of nest fate of Blanding's Turtles (*Emydoidea Blandingii*) following raccoon removal at Spring Bluff Nature Preserve, Illinois and Chiwaukee Prairie Nature Preserve, Wisconsin, 2013-2019.

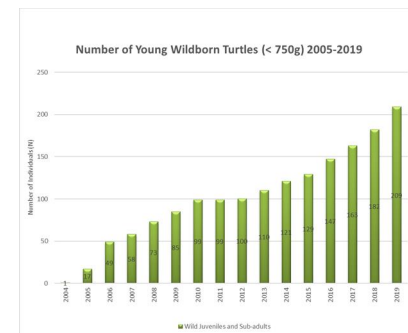
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## Results

- 3.. Capture rates and number of wildborn turtles have both increased since raccoons control efforts began in 2013.



Wild born Blanding's Turtle capture rates using baited hoop traps within SBPC portion of the Lake Plain 2004-2019.



Number of known wild born juvenile and sub-adult turtles (< 750 g) encountered within SBPC portion of the Lake Plain 2005-2019.

## Conclusions

- ~ Removal of raccoons immediately prior to nesting season had a positive influence on nest success
- ~ Raccoon densities quickly rebound following removal. However, accurate estimates challenging
- ~ Raccoon trapping and removal shows promise in increasing recruitment but long-term population monitoring data needed

## Acknowledgments

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