

AMPHIBIANS HIT THE ROAD: ASSESSING ROADWAY MORTALITY AND ECOPASSAGE UTILIZATION ALONG A TWO-LANE HIGHWAY



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Ohio University**





Minneapolis

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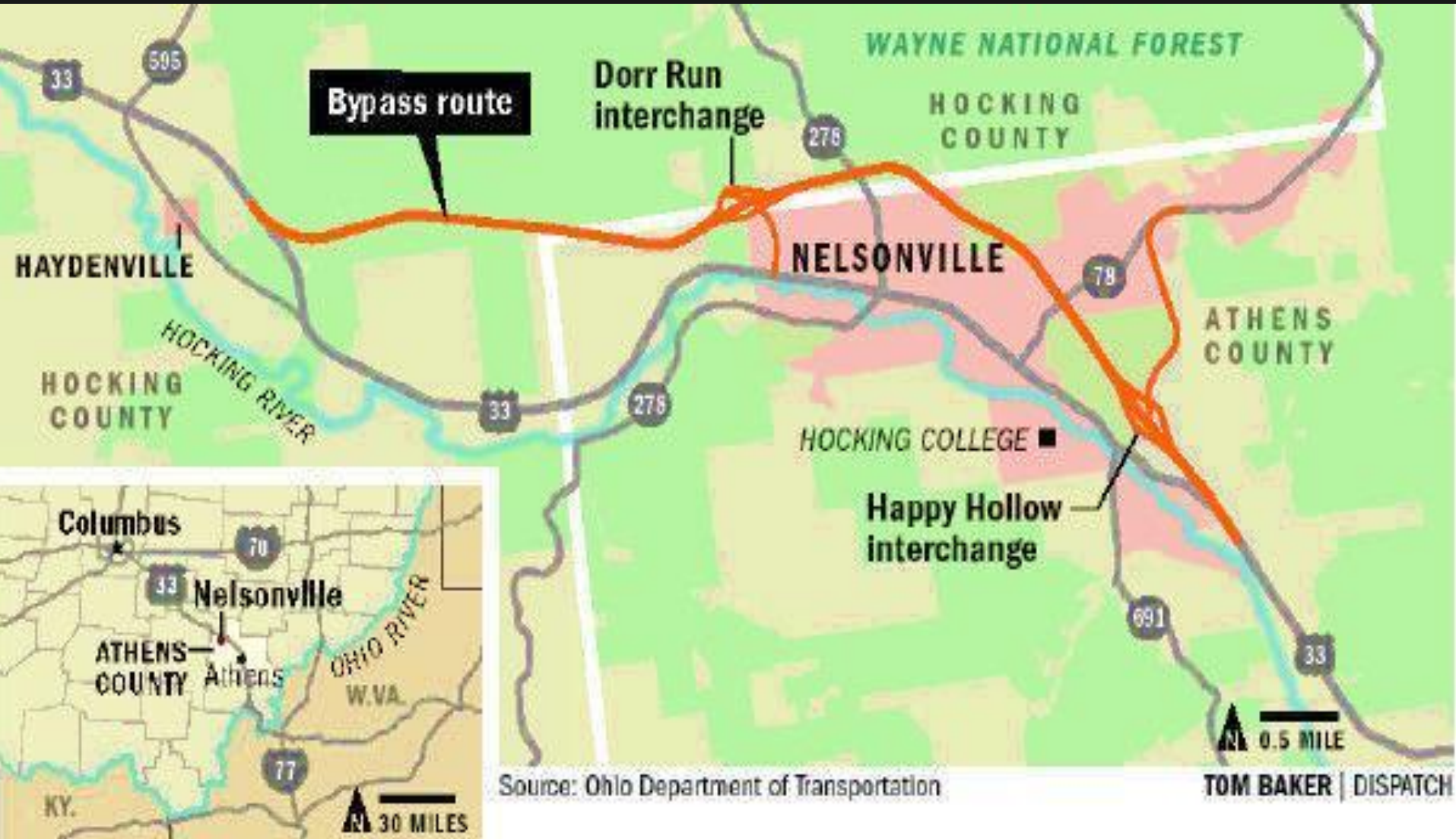
Nashville-Davidson

Memphis

Charlotte

Atlanta

US Hwy 33 & SR 78





GOALS:

- Estimate breeding population size
 - Assess and analyze roadway mortality
 - Analyze effectiveness of barrier fencing
 - Analyze effectiveness of ecopassages
 - Analyze effectiveness of barrier-ecopassage system
-

Population Estimates

SPOTTED SALAMANDER: 150-1,000

JEFFERSON SALAMANDER: 200-900

MARBLED SALAMANDER: ???

RED-SPOTTED NEWT: 2,100-2,500

AMERICAN TOAD: 1,000-2,000

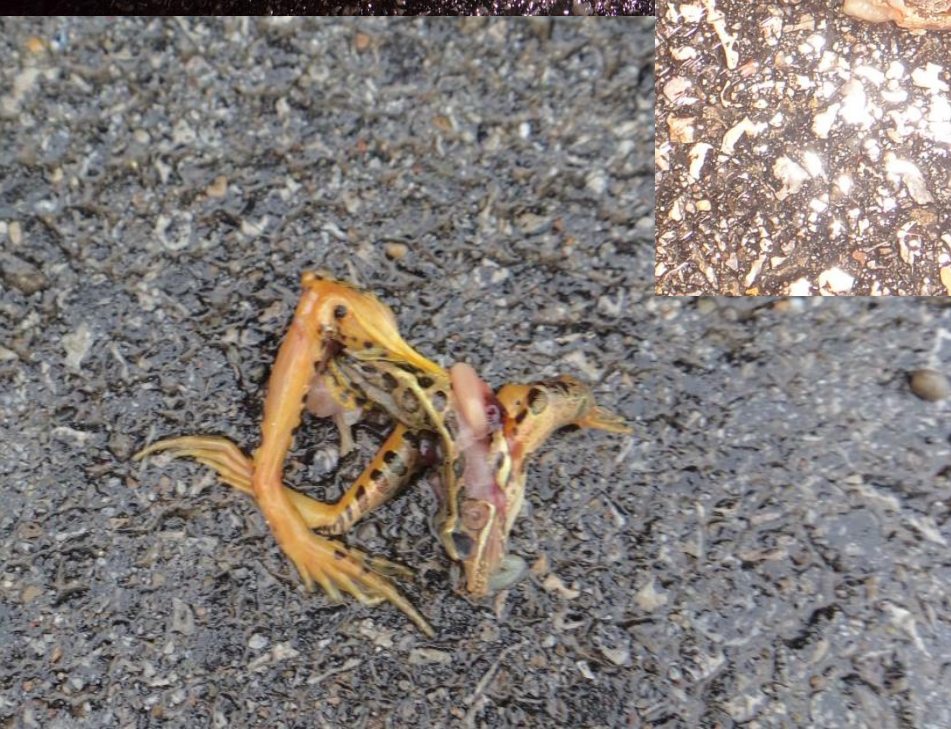
SPRING PEEPER: 24,000-30,000

GREEN FROG: ???

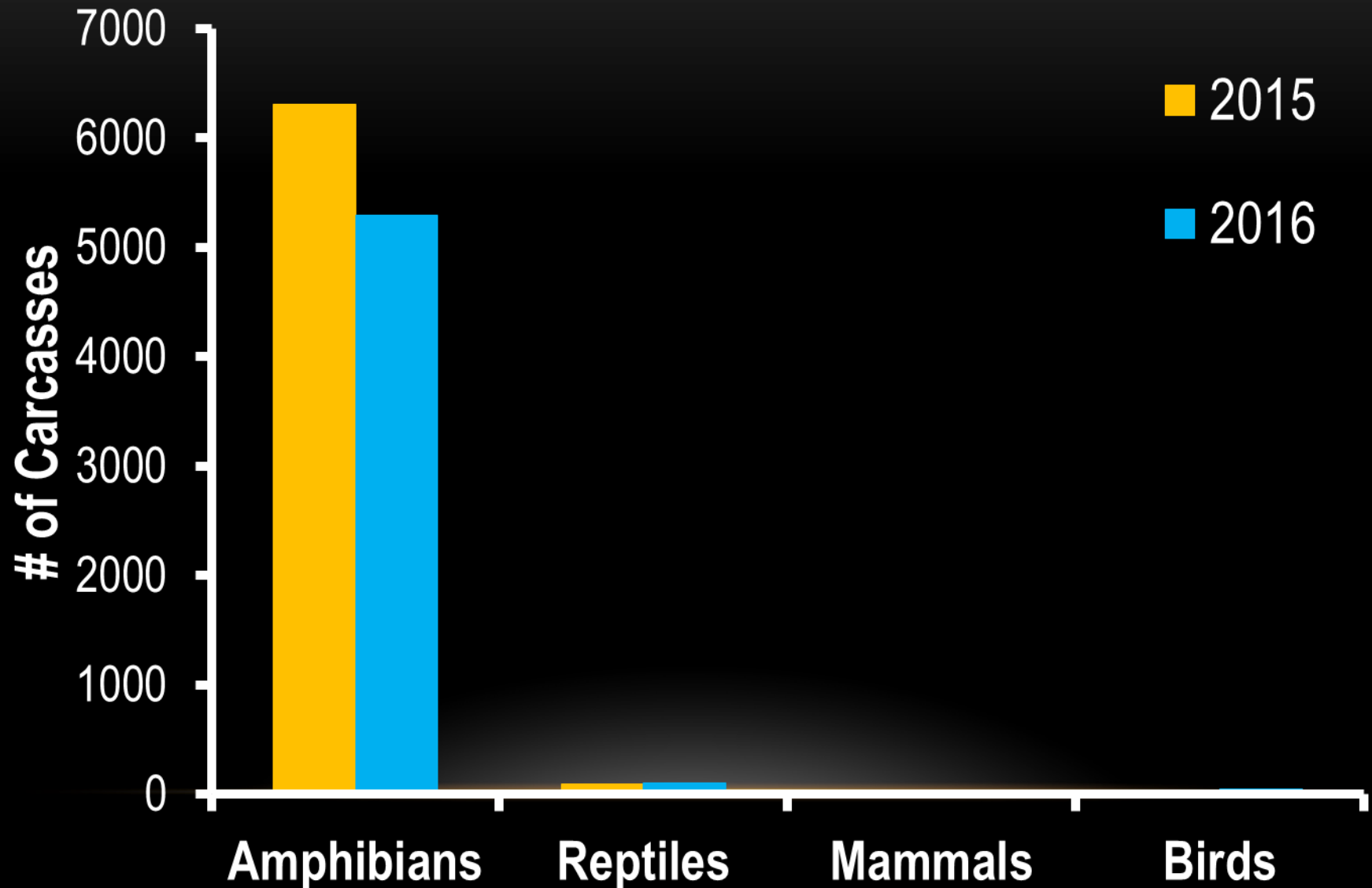


Roadway Mortality

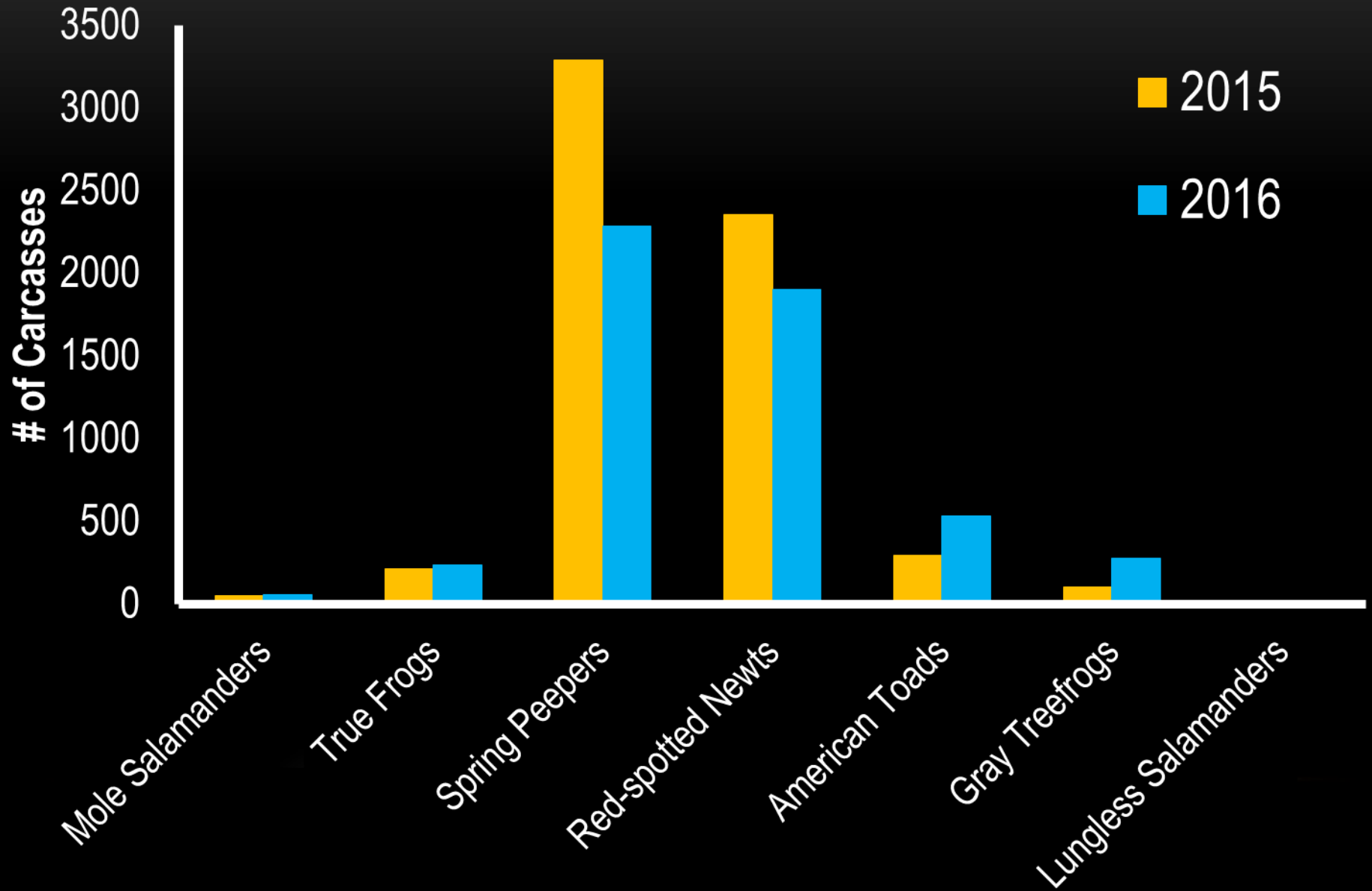




Carcasses in Each Tetrapod Group in Spring of 2015 and 2016



Carcasses by Group for Spring 2015 and 2016



Number of carcasses per year compared to population estimate

Species	Pop. Est.	Avg. # of carcasses per year	Percentage of population
Spotted Salamander	150-1,000	~40	4-27%
Jefferson Salamander	200-900	~25	3-13%
Red-spotted Newt	2,100-2,500	~2,200	NA
American Toad	1,000-2,000	~380	19-38%
Spring Peeper	24,000-30,000	~2,850	9-12%

Barrier Fencing Ecopassages & Barrier-Ecopassage System





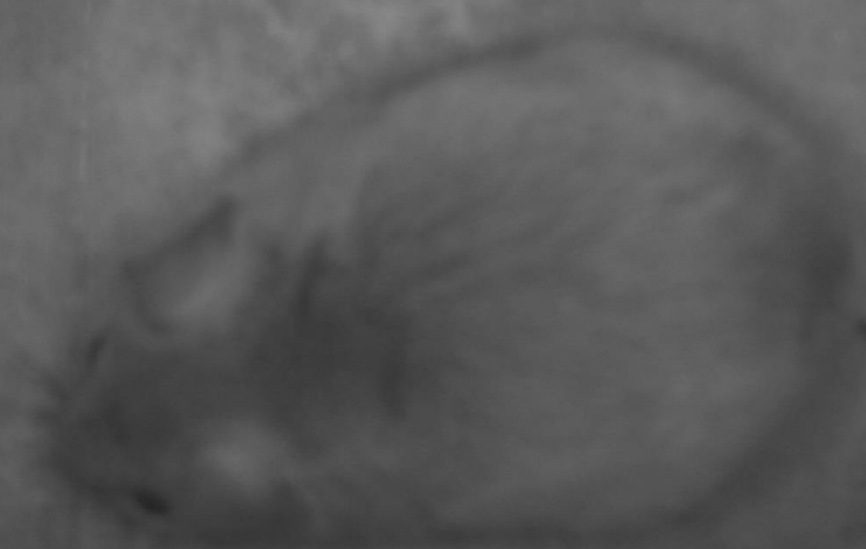




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TINY-W3

06/03/2015 21:26

● 14°C



SPYPOINT TINY
+plus

04/04/2016 19:50

○ 01°C



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02/27/2016 11:44

● 02°C



SPYPOINT TINY
+plus

04/25/2016 16:53

● 25°C



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+plus

03/29/2016 14:00



15°C

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04/21/2016 21:32

● 16°C



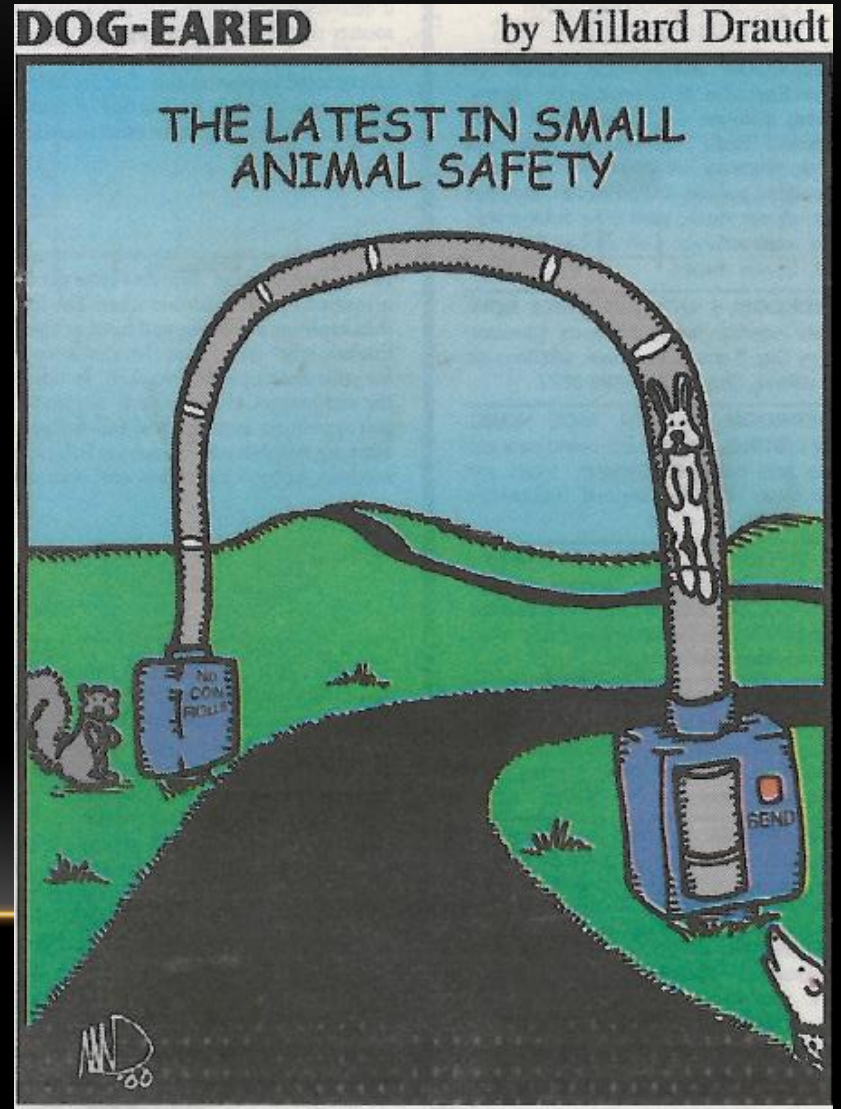
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+plus

09/04/2015 21:13

● 20°C

Species	DOR	Pitfalls	Ecopassages
American Toad	848	31	4 (one entrance)
Bullfrog	152	13	2 (one entrance)
Green Frog	385	107	9 (4 all the way: 5 one entrance)
Leopard Frog	19	2	
Pickerel Frog	227	8	
Wood Frog	10	2	
Gray Treefrog	460		
Spring Peeper	5,616	1	2 (one entrance)
Jefferson Salamander	28	10	
Spotted Salamander	69	15	
Marbled Salamander	27	11	2 (all the way)
Red-spotted Newt	4,736	17	1 (one entrance)

Make recommendations for improving mitigation



FUTURE GOALS:

- **Continue to refine previous work**
 - **Assess roadway crossing behavior**
 - **Assess variables affecting ecopassage effectiveness**
 - **Box choice experiments**
 - **Pseudoecopassages along drift fence**
 - **Understand spatial use relating to roadway crossing**
 - **GIS models, Circuitscape**
 - **Improve ecopassage use through design and placement**
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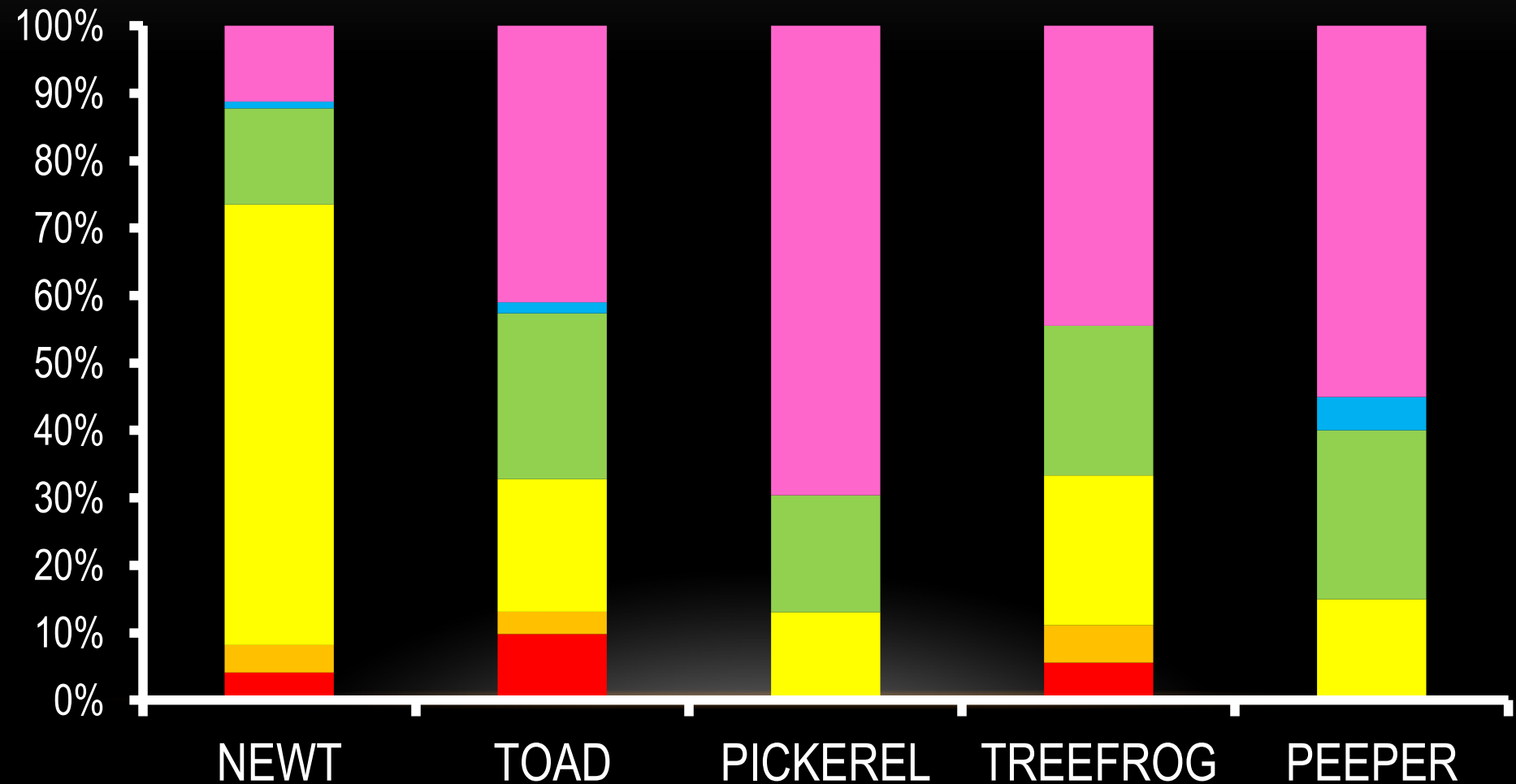




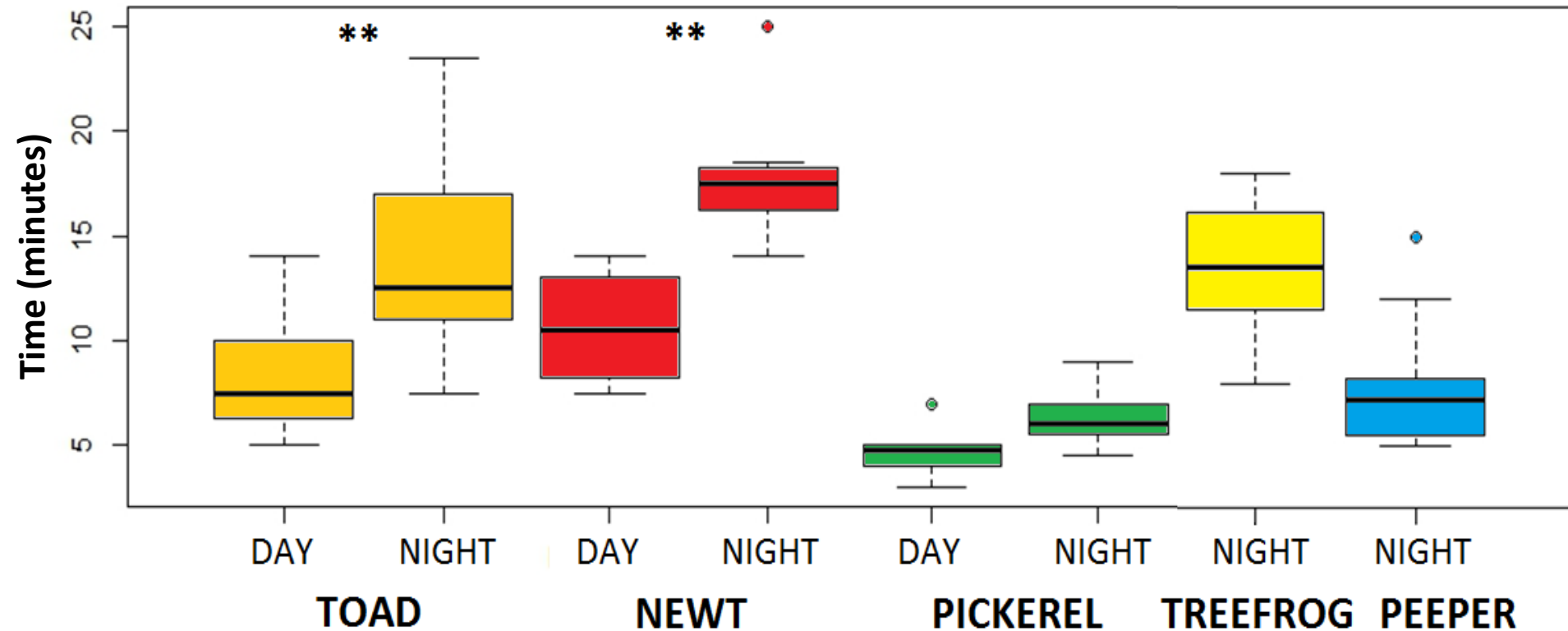


Road Crossing Successfulness

MADE IT DEAD 1ST LANE DEAD 2ND SHOULDER DEAD 2ND LANE DEAD 1ST SHOULDER TURNED AROUND



Time to Successfully Cross

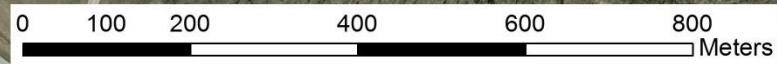
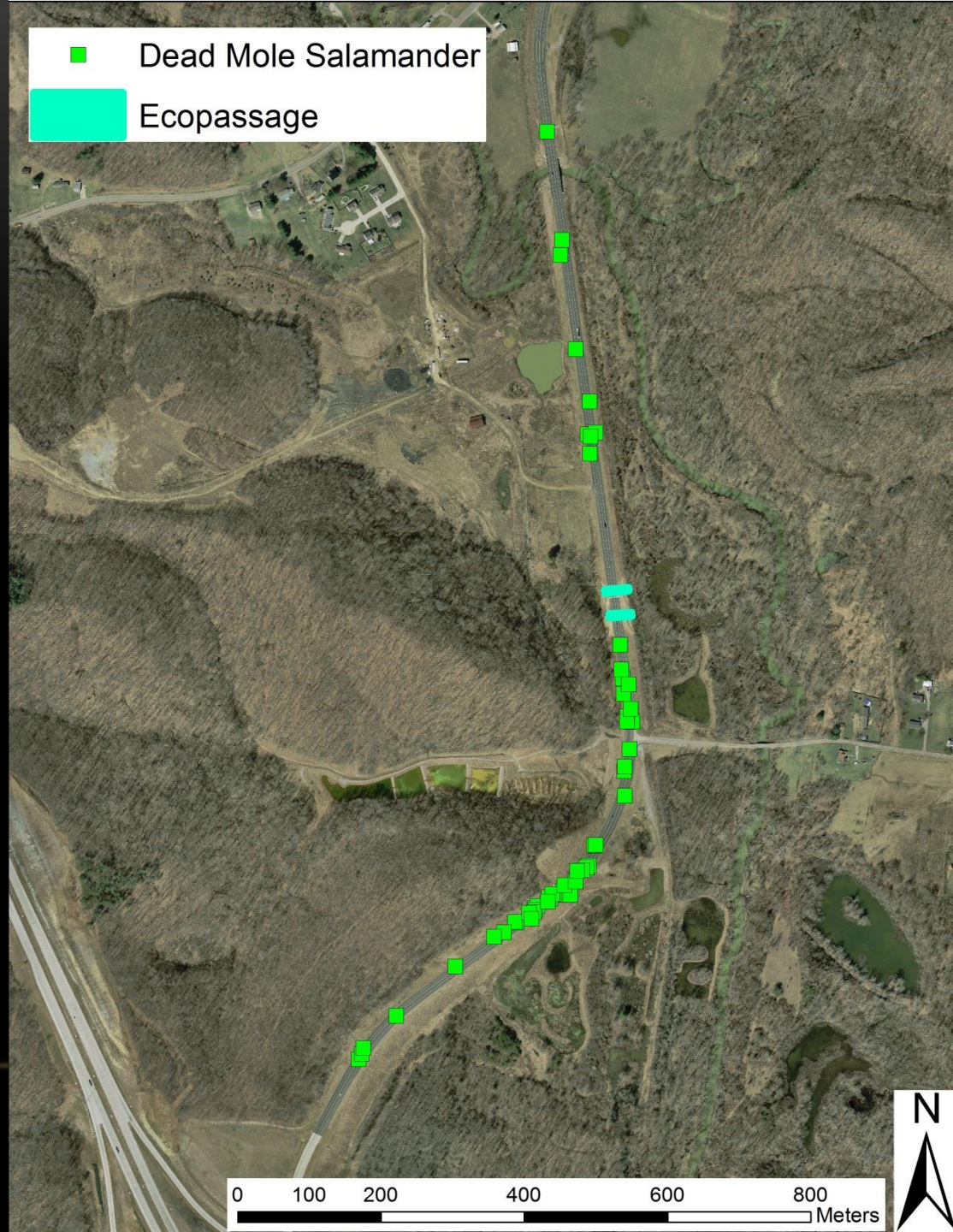


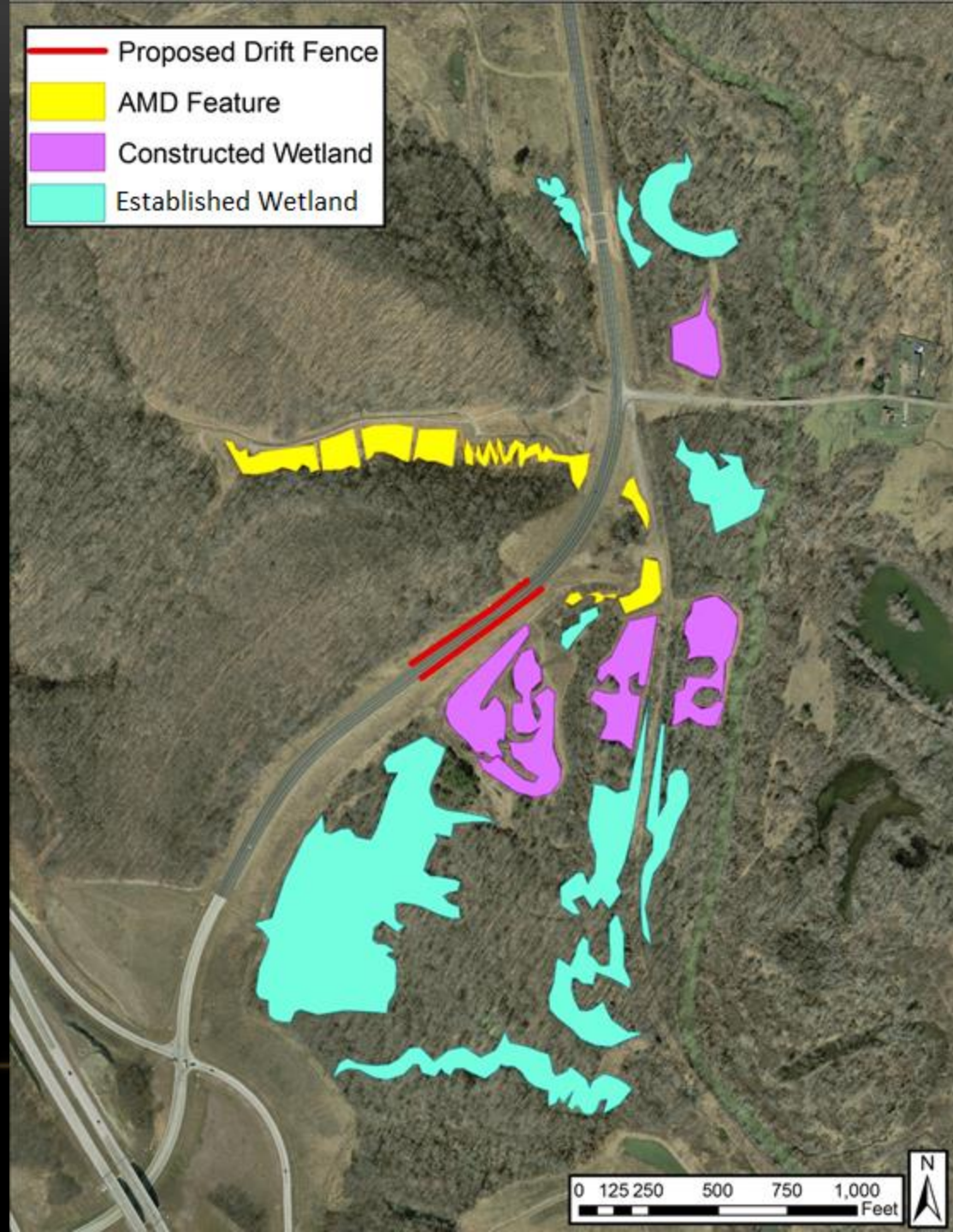
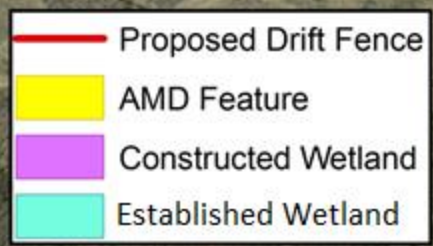
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$



■ Dead Mole Salamander

■ Ecopassage

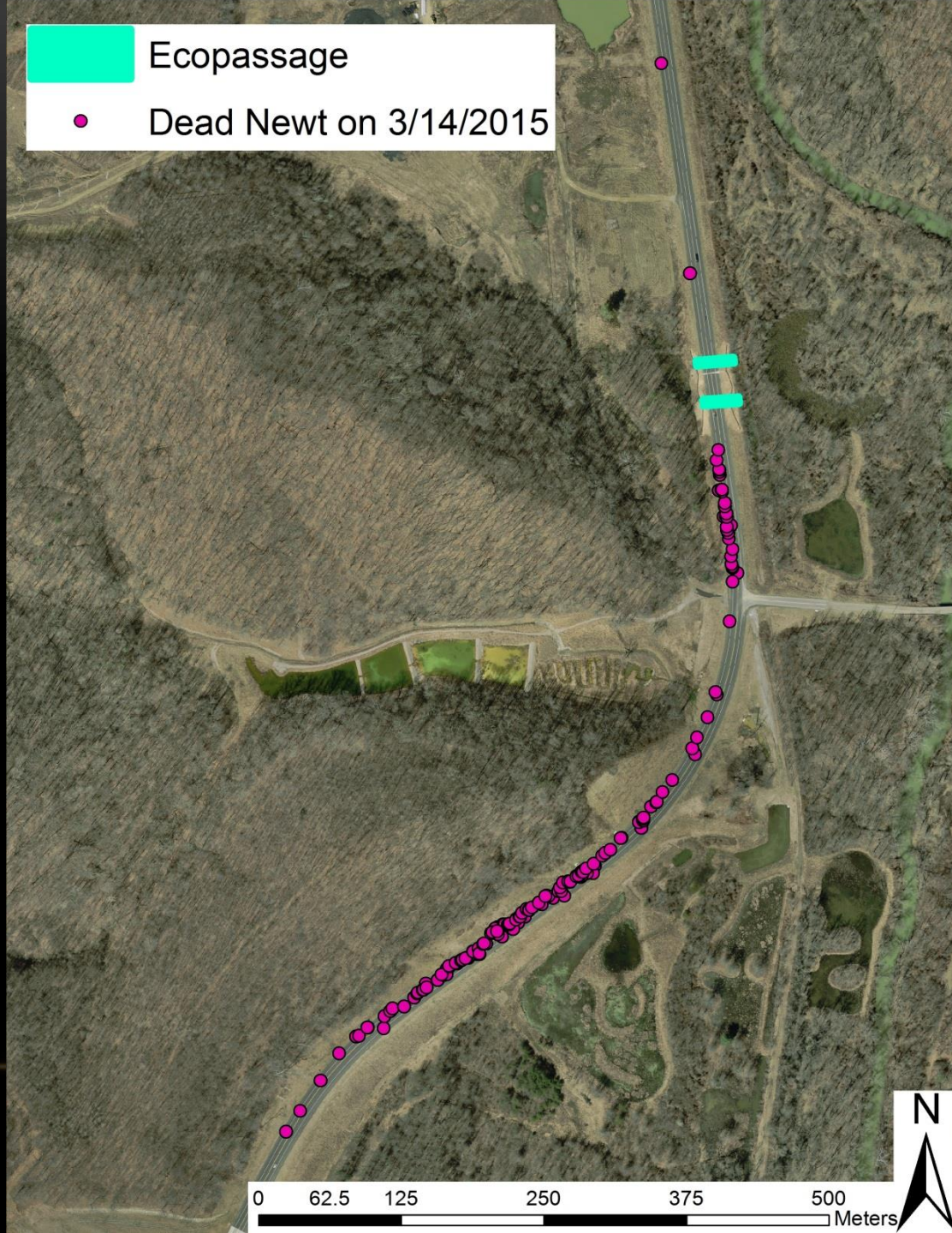


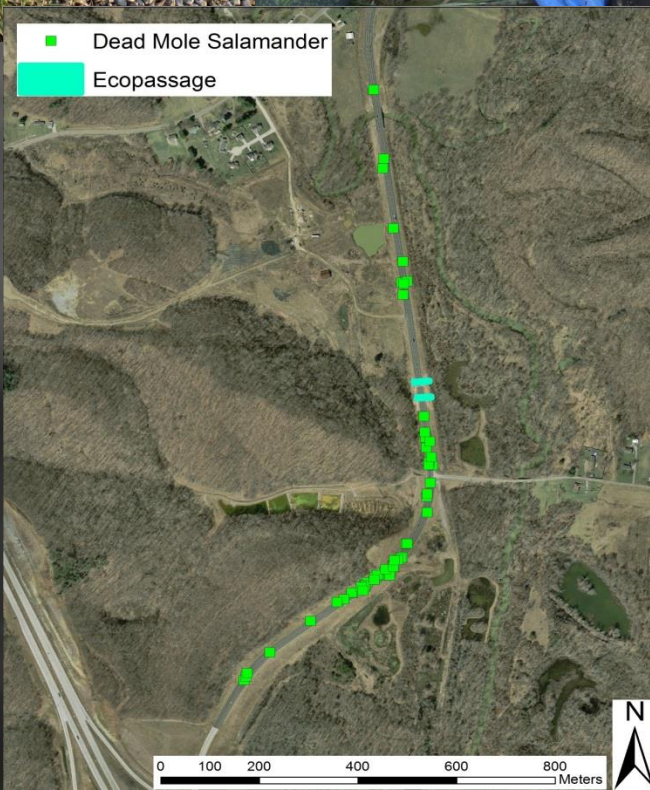




Ecopassage

Dead Newt on 3/14/2015







Thank You!



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