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## **Surveys for Nesting Sites of the Four-toed Salamander at Middle Fork SFWA**

### **Final Report**

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Restricted Access T&E Species Locations

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SURVEY

## Summary

The state-threatened four toed salamander, *Hemidactylium scutatum* uses vulnerable habitat along the edges of wetland areas during its breeding season. Over the past five years several discrete nesting locations have been documented in MFSFWA, but many more likely remain to be documented. Topographic maps and the results of previous surveys were used to determine potential nesting sites. These areas were searched for both nests along the wetland edges and the presence of adult salamanders in the adjacent areas. The locations of all nests and individuals were recorded using a GPS unit. The presence of nesting *H. scutatum* was confirmed at a site where they had been previously recorded, Site 1, and at a new site, Site 2, but no nests were found at an additional new site, Site 3. The presence of nests at Sites 1 & 2 confirms the importance of these areas for the conservation of *H. scutatum*.

## Introduction

The four toed salamander, *Hemidactylium scutatum* is state threatened within Illinois according to the Illinois Wildlife Action Plan (Appendix I). The reasons for this listing include low population densities or range and the utilization of a vulnerable habitat for some aspect of its life history. Numerous studies have documented the preference of *H. scutatum* females for nesting along pools, lakes, ponds, and springs, especially in mats of *Sphagnum* moss (Wallace 1984, Thurow 1997, Smith 1974, Wood 1953, Harris & Ludwig 2004, Harris et al. 1995, Harris & Gill 1980, Gilbert 1941, Fugler 1967, Easterla 1971, Chalmers & Loftin 2006, Carreño & Harris 1998, Breitenbach 1982, Blanchard 1923). These wetland habitats are vulnerable to loss or degradation, i.e. from fragmentation, pollution from agricultural runoff, introduction of predatory fish, etc. Several breeding locations are known for *H. scutatum* within the Middlefork State Fish and Wildlife Area (MSFWA), but the density of nests at these sites and the possibilities of other breeding locations within the MSFWA need to be assessed to increase the efficiency of future conservation decisions (Phillips 1991).

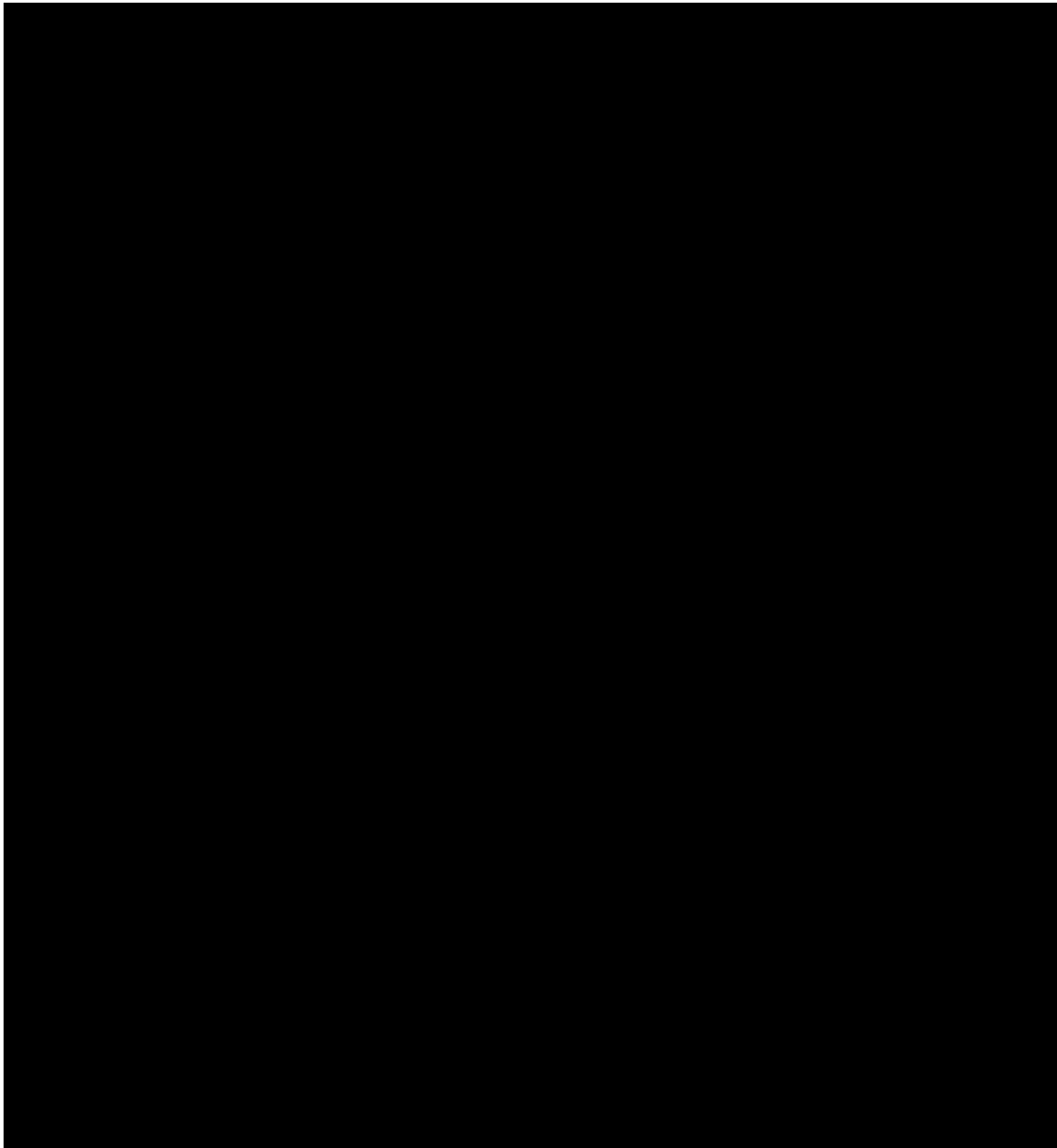
## Materials and Methods

Previous surveys had indicated a number of probable nesting sites for *H. scutatum* at the MFSWA. Using topographical maps, these sites were confirmed as being located in wetland habitats. Visual surveys were conducted both in the typical nesting habitat for *H. scutatum* and in areas further away from the edge of the wetland to assess the proximity of the population of *H. scutatum* to the breeding area. Because the wetlands surveyed were small, and could be thoroughly searched, transects were not used. GPS locations of individual salamanders and of nests were taken. Nests were flagged as they were found to prevent them from being recounted on subsequent surveys. These nesting areas were monitored on multiple days (4/26/09, 4/29/09, 5/2/09, 5/6/09, & 5/7/09) in order to prevent nests within the wetlands from being overlooked. The dates of these surveys and

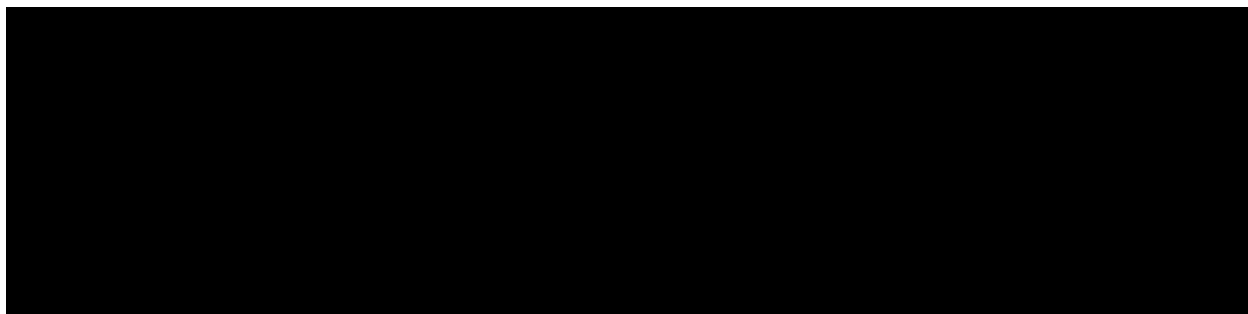
the numbers of individual salamanders and nests encountered are shown below in Table 1.

<b>Table 1. Dates and Results of the Surveys</b>		
<b>Survey Date</b>	<b># Indv. Salamanders</b>	<b># Nests</b>
3/30/09	0	0
4/1/09	0	0
4/8/09	0	0
4/9/09	0	0
4/18/09	11	0
4/26/09	7	7
4/29/09	0	0
5/2/09	7	6
5/6/09	0	8
5/7/09	0	0
5/12/09	1	0
5/14/09	0	0
5/16/09	1	0
5/18/09	0	0
5/19/09	0	0
6/4/09	1	0
6/9/09	0	0
6/20/09	0	0
8/28/09	3	0
9/1/09	1	0
9/17/09	1	0
9/18/09	2	0
9/21/09	2	0
9/22/09	1	0
9/24/09	0	0
9/25/09	0	0
9/30/09	3	0
10/5/09	3	0
10/10/09	23	0
11/1/09	0	0
11/2/09	0	0
11/3/09	0	0
11/4/09	0	0
11/5/09	0	0
11/7/09	0	0
11/9/09	0	0
11/11/09	0	0
11/12/09	0	0
11/14/09	0	0
11/17/09	0	0

## Results



## Discussion

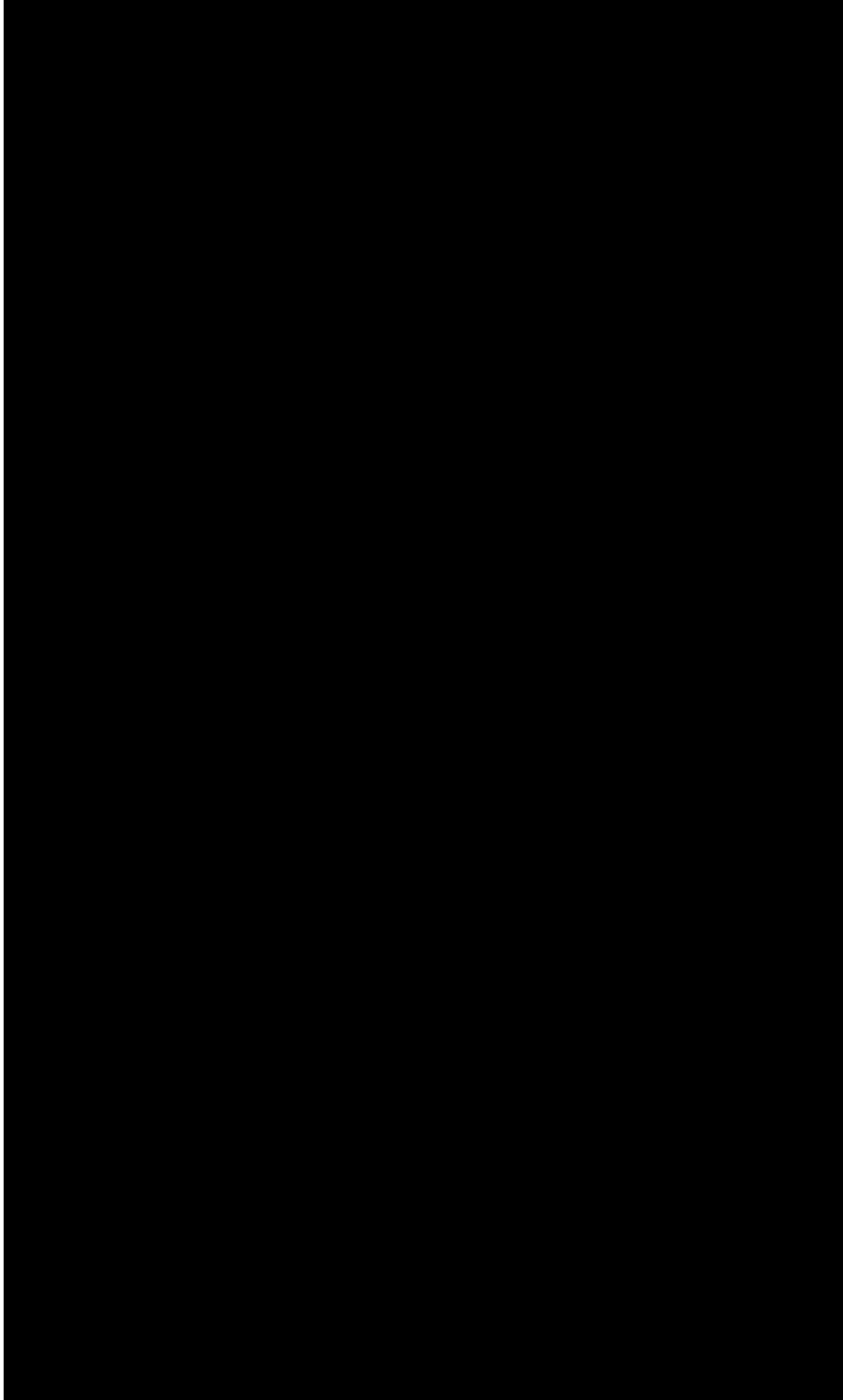




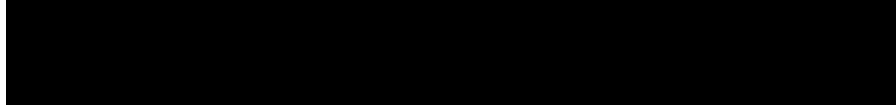
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**Appendix I. GPS Locations of Nests and Individuals**



[Redacted]		1
		2
[Redacted]		3
		4
[Redacted]		5
		6
[Redacted]		7
		8
[Redacted]		9
		10
[Redacted]		11
		12
[Redacted]		13
		14
[Redacted]		15
		16
[Redacted]		17
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[Redacted]		29
		30
[Redacted]		31
		32
[Redacted]		33
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[Redacted]		35
		36
[Redacted]		37
		38
[Redacted]		39
		40
[Redacted]		41
		42
[Redacted]		43
		44
[Redacted]		45
		46
[Redacted]		47
		48
[Redacted]		49
		50



<b>Appendix II. Supplies Purchased</b>	
Description	Cost
Best Buy- 8 GB Memory Card	[REDACTED]
Paypal- Waterproof Digital Calipers	[REDACTED]
[REDACTED]	[REDACTED]
Cabela's- Unisul. Brown Rubber Boot.	[REDACTED]
GPCV: GANDER MOUNTAIN DIRECT- rubber boot	[REDACTED]
P0300438- Fisher Scientific Company LLC - tubes	[REDACTED]
P0299595- Fisher Scientific iBuy Order - weather meter	[REDACTED]
Total	[REDACTED]