

Final Report for Grant #14-033W

Detection and Occupancy of Crawfish Frogs (*Lithobates areolatus*) at Pyramid State Park, Perry Co., IL

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## **Introduction**

In keeping with the Illinois State Wildlife Action Plan (SWAP) program mandate, it is essential to understand the current distribution and population status of species, as supported by the best available data, in an effort to preclude the necessity of listing a species under the ESA of 1973. Crawfish Frogs (*Lithobates areolatus*) are a grassland species historically found in the southern half of Illinois. They are listed in the Illinois SWAP as a Species of Greatest Conservation need. Although historically widespread, Crawfish Frogs are thought to be in steep decline, not only in Illinois, but throughout their range. In Illinois, Crawfish Frogs inhabit tallgrass prairie, grasslands, and pastures south of the terminus of the Shelbyville Moraine. They breed in a variety of wetlands, but are not known to coexist with predatory fish. In Illinois the breeding period is from early March to mid-April. Outside of the brief breeding period Crawfish Frogs are fossorial, inhabiting the burrows of crayfish.

I originally proposed to survey for Crawfish Frogs at 20 wetlands at Pyramid State Recreation Area (PSRA), Perry Co. Historical records exist for crawfish frogs in Perry Co., although no records are available for PSRA. After a site visit in October 2013 I located only six wetlands that were potentially suitable for Crawfish Frog breeding. The remaining wetlands that I had previously identified using aerial photography were too large and likely contained fish. Therefore, I visited Sahara Woods State Fish and Wildlife Area (Saline Co.) and Saline County Conservation Area (Saline CCA) and identified 18 wetlands that were potentially suitable for Crawfish Frog breeding. These 24 wetlands, plus a wetland north of Sahara Woods where I had observed Crawfish Frogs in 2002, were included in this survey.

## **Methods**

Hoop traps (Promar Collapsible Live Bait Traps) baited with sardines were set at all

25 wetlands and checked for three consecutive days. This was done twice at each wetland in 2014; 18–21 February and 1–4 April at Sahara Woods/Saline CCA (plus the wetland north of Sahara) and 18-21 March and 22-25 April at Pyramid. The number of traps deployed was scaled to the area of each wetland at the rate of 1 trap per 100 m<sup>2</sup> of pond surface area, with a minimum of 1 trap and a maximum of 8 traps per wetland. The coordinates of each wetland and the number of traps per wetland are given in Table 1.

## Results

No Crawfish Frogs were encountered at any of the wetlands. Southern Leopard Frogs (*Lithobates sphenoccephalus*) were encountered at all 25 wetlands. Other amphibian species were also encountered.

## Discussion

The timing of at least one of the pair of my survey periods at each site overlapped with the duration of calling of Crawfish Frogs in Sullivan County, Indiana in 2014 (Mike Lannoo, pers. com.). However, the fact that Saline CCA and Sahara Woods are considerably farther south than Sullivan Co., IN may mean that my second survey period was too late and Crawfish Frogs had left the ponds. It is also possible that the first survey period at Saline and Sahara was too early given the extreme and extended cold spell that came after that period. The first survey period at Pyramid, however, should have been timed perfectly and this leads to the tentative conclusion that Crawfish Frogs do not occupy the six wetlands sampled there. It is also important to note that all six of the wetlands at Pyramid were in canopy cover of 75% or more. Other wetlands at Pyramid that were in grassland were very large and most likely inhabited by fish and therefore not surveyed.

The only historical records of Crawfish Frogs in Saline County that I am aware of are from the wetland we sampled 1 km north of the Sahara Woods wetlands (Historic Site in Table 1). I encountered Crawfish Frogs here in 2002. However this wetland is currently much larger than it was in 2002 and the canopy has become completely closed. In addition, the grassland that was adjacent to this wetland in 2002 has been replaced by *Phragmites*.

All 5 wetlands at Sahara are in grassland and have open canopy, but all are in reclaimed strip mine habitat. At Saline CCA, all wetlands except 1, 5, and 9 were in open canopy and either in the middle of extensive grasslands or immediately adjacent, and had extensive crayfish burrows surrounding them. However, the wetlands at Saline CCA with the best potential to provide Crawfish Frog breeding habitat are prone to flooding from the Saline River. During my 1-4 April survey, the Saline River topped its banks and flooded these wetlands, covering some with 1.5 meters of water. When I returned the following week to retrieve temporarily lost traps, fish (including bowfin, gar, and catfish) were in the traps. According to the USGS stream gauges near Saline CCA, this extreme flooding is a regular event.

Therefore, it seems unlikely that any of the wetlands at Saline CCA can be considered suitable for Crawfish Frog breeding.

Table 1. Geographic coordinates and number of baited hoop traps deployed for each of 25 wetlands surveyed for Crawfish Frogs in 2014.

Site	Latitude	Longitude	Number of Traps
Saline CCA 1	37.6928400	-88.3785900	5
Saline CCA 2	37.6959800	-88.3809300	1
Saline CCA 3	37.6982800	-88.3788900	8
Saline CCA 4	37.7029200	-88.3825200	8
Saline CCA 5	37.7058900	-88.3797700	1
Saline CCA 6	37.7088500	-88.3757400	1
Saline CCA 7	37.7088300	-88.3751500	1
Saline CCA 8	37.7137400	-88.3775200	8
Saline CCA 9	37.7156100	-88.3801200	1
Saline CCA 10	37.7140400	-88.3632800	2
Saline CCA 11	37.7143000	-88.3644300	3
Saline CCA 12	37.7171500	-88.3642700	8
Saline CCA 13	37.7173600	-88.3656600	5
Sahara Woods 1	37.7073100	-88.6914900	5
Sahara Woods 2	37.7081400	-88.6903300	3
Sahara Woods 3	37.7185200	-88.7018700	1
Sahara Woods 4	37.7194200	-88.6987300	2
Sahara Woods 5	37.7202900	-88.6977200	1
Historic Site	37.7354000	-88.6894600	4
Pyramid 1	38.0578900	-89.4585400	2
Pyramid 2	38.0559300	-89.4428900	2
Pyramid 3	38.0531300	-89.4115200	2
Pyramid 4	38.0423500	-89.3977200	8
Pyramid 5	38.0362000	-89.4410600	7
Pyramid 6	38.0365200	-89.4394990	8