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The Status of the Cricket Frog, *Acris crepitans*, in Northern Illinois: Project Progress Report

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INTRODUCTION

Blanchard's cricket frog, *Acris crepitans blanchardi,* is a small, rugose frog averaging 1.6 – 3 cm in length. It can be found in almost all aquatic habitat types throughout the state of Illinois. Open or partly vegetated mud flats or mud banks seem to be the preferred micro-habitat. The cricket frog is short-lived with an average life expectancy of approximately four months (Burkett, 1984). Burkett (1984) also found in Kansas about 5% of the population survives the winter and complete population turnover occurs in about sixteen months. Chorusing commences around the end of April in Illinois and continues through the summer months. Metamorphosis occurs from July through September, depending on egg deposition date (Smith, 1961). Smith (1961) labeled the cricket frog as the most common and abundant amphibian in Illinois. The cricket frog has been documented from all 102 Illinois counties.

It has been reported that the cricket frog has dramatically declined in Michigan (Harding and Holman, 1992) and Wisconsin (Casper, 1996). A population of cricket frogs was recently discovered in Hennepin Co., Minnesota (Moriarty, Forbes and Jones, 1998). This population represents the first report of the species from Minnesota in the last 17 years. Christiansen (1998) reported that cricket frogs have disappeared from most of the northern two tiers of Iowa counties. Minton (1998) reported that cricket frogs have almost disappeared from the northern quarter of Indiana. A paper by Dr. Martin Greenwell, Dr. Val Beasley and Dr. Lauren Brown was recently published in the Shedd Aquarium publication Aquaticus in 1996. In this paper, the authors reported that the cricket frog is nearly gone from the northern third of Illinois. This statement is starting to become widely circulated as fact in publications and presentations by other herpetologists. However, no rigorous, scientific surveys have been conducted to determine if the cricket frog is actually declining in northern Illinois. Reporting speculation as fact can be potentially damaging to the field of amphibian decline studies as well as the credibility of amphibian biologists.

This project arose from three central points of interest. First and foremost: Is the cricket frog declining or disappearing from the northern third of Illinois? Second: Baseline data for a "common" amphibian species in Illinois such as the cricket frog is sorely lacking. Third: No rigorous, scientific surveys have been conducted on the status of the cricket frog in Illinois. Conducting a statewide survey will provide baseline data on which to ground judgements of status and perhaps serve as impetus for a long-term study. Other projects concerning cricket frog biology and distribution will be initiated by the author in the future.

Previous surveys for cricket frogs by this author were conducted in spring and fall 1998 and spring 1999. This report contains a brief summary of the results of the fall 1999 and the spring 2000 cricket frog surveys. Weather conditions and other logistical problems prevented surveys of some study sites in fall 1999 and spring 2000. Surveys were

conducted in September 1999 and May and June 2000. A report combining all three years of survey data will be sent at a later date once analyses have been completed.

STUDY AREAS

Historic localities, defined for this study as those localities with collection dates or observations made before 1980, were compiled from museum collections records, from the scientific literature and from field notes of reliable biologists. Sites with obscure data (i.e. "Chicago" or "near Quincy") or sites known to be destroyed or developed were not considered. A line of demarcation extending from Cissna Park (Iroquois Co.) in eastern Illinois to Nauvoo (Hancock Co.) in western Illinois served to split localities in to either southern Illinois sites or northern Illinois sites. This line of demarcation was derived from cricket frog collections data and from observations by Illinois herpetologists.

Twenty northern sites and ten alternates were randomly selected from a pool of 46 northern sites. Similarly, twenty southern sites and ten alternates were randomly selected from a pool of 82 southern sites.

METHODS

Decision rules were drawn up to provide direction on when a site could or could not be surveyed. A site could not be surveyed under the following conditions: 1) rain, 2) flooded site, 3) site has been recently scoured or swept by high water levels and 4) air temperatures below 60° F. A site was rejected if the habitat was deemed unsuitable or if the collection site was destroyed or developed. An example of unsuitable habitat is a heavily vegetated stream where there is no open bank or mud flats.

At each site a visual encounter survey (VES) was conducted, usually for 15 minutes. A visual encounter survey involves a researcher walking through an area/habitat for a prescribed amount of time systematically searching for animals (Crump and Scott, 1994). The number of cricket frogs was recorded and used to calculate relative abundance. Starting in the Spring 1999 survey season, effort and presence/absence was recorded for some sites which were not surveyed for relative abundance because of decision rule violations. Relative abundance is calculated as the number of cricket frogs (N)/person hour and the number of cricket frogs (N)/kilometer (km). A stopwatch was used to record time and a pedometer was used to record distance. Weather conditions, habitat characteristics and other environmental variables were recorded at each site.

RESULTS

NORTHERN SITES

1) CARROLL COUNTY: 2.75 km SW of Wacker, tributary of the Savanna-York Ditch at Scenic Bluff Rd.; T24N, R04E section 29 SW, SW; Wacker quadrangle.

The tributary of the Savanna-York Ditch was visited on 23 September 1999. Fifty-five (55) cricket frogs were observed in 0.71 km (0.44 miles; 15 minute VES).

2) COOK COUNTY: W of Glenview at Beck Lake; T42N, R12E section 31; Park Ridge quadrangle.

Beck Lake was visited on 3 September 1999. No cricket frogs were observed.

3) COOK COUNTY: W of Palos Hills at Tuma Lake; T37N, R12E section 09 SW; Palos Park quadrangle.

Tuma Lake was visited on 3 September 1999. No cricket frogs were observed. Large numbers of bullfrogs (*Rana catesbeiana*) and green frogs (*Rana clamitans*) occupy this site.

4) DeKALB COUNTY: 1.75 km ENE of Somonauk, Somonauk Creek at U.S. Rt. 34; Somonauk quadrangle.

No cricket frogs were observed on 7 September 1999.

5) HENDERSON COUNTY: 1.75 km NE of Gulfport at Crystal Lake; T10N, R06W section 34 NE; Burlington, Iowa - ILL. quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

6) HENRY COUNTY: 8 km NNE of Kewanee, Johnson Lake in Johnson Sauk Trail State Park; T16N, R05E section 35; Kewanee North quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

7) LAKE COUNTY: 2.75 km NNW of Volo at Volo Bog; T45N, R09E section 28 SW, NE; Wauconda quadrangle.

Volo Bog was visited on 3 September 1999. No cricket frogs were observed. Bullfrogs (*Rana catesbeiana*), green frogs (*Rana clamitans*) and northern leopard frogs (*Rana pipiens*) were observed in the bog along the boardwalk.

8) McLEAN COUNTY: 10 km N of Normal at Evergreen Lake; T25N, R02E section 07 SE and section 08 SW, SW, SW; El Paso quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

9) OGLE COUNTY: 2 km NW of Rochelle and just E of Flagg Center, Gardener's Creek at Flagg Rd.; T40N, R01E section 15 SW, SW, NE; Rochelle quadrangle.

Site visited on 23 September 1999. This site is rejected because of unsuitable habitat.

10) PEORIA COUNTY: 6 km SSW of Laura, Swab Run at McClellan Rd.; T10N, R05E section 08 SE; Elmwood quadrangle.

The site was not surveyed to comply with landowner wishes.

11) WARREN COUNTY: 3.5 km S of Alexis, Henderson Creek at Co. Rd. 1200E; T12N, R01W section 18 SW; Alexis quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

12) WARREN COUNTY: 3 km S of Cameron, Slug Run at Co. Rd. 1400E; T10N, R01W section

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

13) WARREN COUNTY: 1.7 km N of Utah at unnamed stream; T12N, R01W section 27 SE; Galesburg West quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

14) WHITESIDE COUNTY: W of Penrose, Elkhorn Creek at Penrose Rd.; T22N, R07E section 16 SW and section 21 NW; Hazelhurst quadrangle.

Cricket frogs were not observed during the 23 September 1999 survey. Mud flats previously exposed were vegetated with reed canarygrass.

15) WHITESIDE COUNTY: 3.25 km N of Sterling, Sugar Creek at Freeport Rd.; T21N, R07E section 03 SE, NE and NE, SE; Sterling quadrangle.

Sugar Creek was visited on 24 September 1999. The temperature was below 60° F and the site was surveyed for the presence/absence of cricket frogs only. No cricket frogs were observed.

16) WILL COUNTY: 4 km SSE of Wilmington, Forked Creek on the E side of IL Rt. 102; T32N, R10E section 07 SE; Symerton quadrangle.

Forked Creek was surveyed on 7 September 1999. No cricket frogs were observed.

17) WILL COUNTY: E of Goodenow, Plum Creek at Goodenow Rd.; T34N, R14E section 33 NW; Steger quadrangle.

Alternate to replace rejected site. Plum Creek was surveyed on 7 September 1999. No cricket frogs were observed, but suitable habitat exists at this site.

18) WINNEBAGO COUNTY: 3 km E of Machesney Park, Pierce Lake in Rock Cut State Park; T45N, R02E section 27 SE; Caledonia quadrangle.

Pierce Lake was surveyed on 23 September 1999. No cricket frogs were observed.

19) WOODFORD COUNTY: 9.5 km SSW of El Paso, Sixmile Creek below Evergreen Lake; T25N, R01E section 01 SW; El Paso quadrangle.

This site was not visited because of weather conditions and other logistical problems in both fall 1999 and spring 2000.

SOUTHERN SITES

1) **ADAMS COUNTY**: 18 km SW of Mt. Sterling, Crabapple Lake in Siloam Springs State Park; T02S, R05W section 24 NW, NW; Kellerville quadrangle.

Crabapple Lake was visited on 6 June 2000 and 63 crickets frogs were observed (1 km; 13 minutes, 31 seconds VES).

2) **ALEXANDER COUNTY**: 2.5 km E of Miller Park, Lake Creek below Horseshoe Lake spillway; T16S, R02W section 21 NE, SE; Cache quadrangle.

Alternate site visited on 19 May 2000. Banks may have been recently swept due to recent rains. The water level, however, was at normal levels. Nine (9) cricket frogs were observed (0.85 km; 15 minute VES).

3) **BOND COUNTY**: 0.5 km N of Reno at Yankee Creek; T06N, R04W section 11 NE, NW; Sorento South quadrangle.

Yankee Creek had been recently swept by high water levels when visited on 31 May 2000. However, water levels had returned to normal and a presence/absence survey was conducted. No cricket frogs were observed during the presence/absence survey. Two cricket frogs were observed after the survey.

4) **CHAMPAIGN COUNTY**: Busey Pasture (portion of Busey Woods in Crystal Lake Park), Urbana; T19N, R09E section 08 NW; Thomasboro quadrangle.

Busey Pasture was not visited in spring 2000. Cricket frogs were heard chorusing nearby in Crystal Lake in July 2000.

5) **CLARK COUNTY**: 3 km SSW of Marshall, Lincoln Trail Lake in Lincoln Trail State Park; T10N, R12W section 35; Snyder quadrangle.

On 2 June 2000, 13 cricket frogs were observed in 1.08 km (15 minute VES). An additional transect was surveyed which started at the end of the previous one and ended on a vegetated mud flat. This mud flat occurs where an unnamed stream enters Lincoln Trail Lake. I walked 0.39 km (0.24 mi) along this transect and counted 33 cricket frogs.

6) **HAMILTON COUNTY**: 2.75 km E of Broughton, North Fork Saline River at Co. Rd. 200N; T07S, R07E section 03 SW; Broughton quadrangle.

The North Fork Saline River was visited on 26 May 2000. I did not conduct a survey because it was raining and a heavier thunderstorm was moving in to the area.

7) **HARDIN COUNTY**: 2.8 km NE of Elizabethtown, tributary Hosick Creek and Ohio River at IL Rt. 146; T12S, R08E section 13 SW, NW; Rosiclare quadrangle.

This site was not visited because the landowner did not respond to a letter asking permission to survey on her property.

8) **JACKSON COUNTY**: NW of Aldridge, Big Muddy River at IL Rt. 3; T11S, R03W section 18 SE; Wolf Lake quadrangle.

Rain (potentially heavy) the night before may have influenced the presence of cricket frogs along the Big Muddy. Only one (1) cricket frog was observed in 1.40 km (15 minute VES). Visit made on 19 May 2000.

9) **JEFFERSON COUNTY**: 3 km SW of Scheller at Scheller Lake West; T04S, R01E section 17 NW, SW; Tamaroa quadrangle.

Scheller Lake West was visited on 18 May 2000 and 35 cricket frogs were observed (1.24 km; 15 minute VES).

10) **JOHNSON COUNTY**: S of Goreville, lake in Ferne Clyffe State Park; T11S, R02E section 27; Goreville quadrangle.

The lake had received heavy rain a couple nights before my visit on 25 May 2000. Sixteen cricket frogs were observed in 1.16 km (15 minute VES).

11) **JOHNSON COUNTY**: 3.5 km N of Belknap at Little Black Slough; T13S, R02E section 26 SE, NE; Karnak quadrangle.

Little Black Slough received heavy rainfall a couple nights before my visit on 25 May 2000. Locals in Vienna reported approximately 2 inches of rain and large hail. Fifty-seven (57) cricket frogs were observed 0.80 km (15 minute VES). Cricket frogs were also observed all along the Tupelo Hiking Trail and in the forest adjacent to Little Black Slough.

12) **LAWRENCE COUNTY**: 2 km NE of Sumner; Red Hills Lake in Red Hills Lake State Park; T03N, R13W section 02 NW; Sumner quadrangle.

Alternate site surveyed to replace rejected site. Red Hills Lake was surveyed 2 June 2000 and eight (8) cricket frogs were observed in 1.30 km (15 minute VES).

13) **McDONOUGH COUNTY**: 2.5 km N of Colchester, pond in Argyle Lake State Park; T06N, R04W section 36 SE; Colchester quadrangle.

This site was surveyed on 6 June 2000 and four cricket frogs were observed in 0.47 km (7 minutes, 37 seconds VES). Bullfrogs (*Rana catesbeiana*) and green frogs (*Rana clamitans*) are abundant at this pond and may be the reason for the low numbers of cricket frogs.

14) **MACOUPIN COUNTY**: 1.25 km S of Hettick, Otter Creek at IL Rt. 111; T10N, R08W section 06 NW, SW; Hettick quadrangle.

Evidence of recent high water was apparent during the 31 May 2000 visit. A presence/absence survey (8 minutes, 17 seconds) was conducted and no cricket frogs were observed.

15) **MADISON COUNTY**: 2.75 km NNW of Highland, Highland Lake at Silver Lake Park; T04N, R05W section 19 SE, SE; Grantfork quadrangle.

The lake showed signs of recent high water but had since receded somewhat. One cricket frog was observed during a presence/absence survey (0.61 km; 8 minutes, 23 seconds VES) on 31 May 2000. Two more cricket frogs were observed post-survey.

16) **MASON COUNTY**: NE of Buzzville, Eagle Bluff Access Area at Lake Chautauqua; T22N, R08W section 10 NE; Topeka quadrangle.

The site near the Illinois Natural History Survey Forbes Field Station is chronically flooded. A new site, the Eagle Bluff Access Area on Lake Chautauqua, was chosen because of its accessibility and in hopes that it does not flood as often. Lake Chautauqua was surveyed on 6 June 2000. No cricket frogs were observed.

17) **PERRY COUNTY**: 2.2 km SSE of Du Bois, tributary of the Little Muddy River at Robin Rd.; T04S, R01W section 03 SW, SW; Tamaroa quadrangle.

The tributary to the Little Muddy River was not surveyed in spring 2000 because there was no response by the landowner to a request to survey the site.

18) **POPE COUNTY**: 7.75 km SE of Stonefort at Burden Falls; T11S, R05E section 15 NE; Stonefort quadrangle.

Alternate site visited to possibly replace a chronically flooded site. Burden Falls was not visited in spring 2000.

19) **POPE COUNTY**: 5.25 km SE of Rosebud, Cave Creek at Co. Rd. 1700N; T14S, R06E section 27 SE, SE; Brownfield quadrangle.

Cave Creek was visited on 25 May 2000. A survey was not conducted as evidence of recent high water was apparent. A casual search of several sand bars revealed no cricket frogs.

20) **RANDOLPH COUNTY**: 4.4 km N of Chester at the Randolph County State Conservation Area; T06S, R06W section 30 SE; Chester quadrangle.

Randolph County Lake was surveyed on 18 May 2000 and 54 cricket frogs were observed (1.11 km; 15 minute VES). One more cricket frog was observed post-survey. The transect is becoming overgrown with cattails, grasses and other vegetation and obscuring some of the mud flats and open bank.

21) **TAZEWELL COUNTY**: 6.4 km S of Green Valley, Main Ditch at IL Rt. 29; T22N, R05W section 14 SW, SW, SW or section 15 SE, SE, SE; Natrona quadrangle.

Alternate site. The Main Ditch was visited on 6 June 2000. Site is rejected because of unsuitable habitat.

22) **UNION COUNTY**: 0.5 km W of Ware at Running Lake Ditch; T12S, R03W section 26 NE; Ware quadrangle.

Rain (potentially heavy) the night before may have influenced the presence of cricket frogs along Running Lake Ditch. Only one (1) cricket frog was observed in 1.30 km (15 minute VES).

23) VERMILION COUNTY: 7 km W of Danville, Middle Fork Vermilion River and Long Pond; T19N, R12W section 09 NW; Danville NW quadrangle.

Two cricket frogs were observed in 1.08 km (15 minute VES) along the Middle Fork on 12 June 2000. Water levels had been fluctuating in recent weeks because of heavy rainfall but was near normal levels at the time of survey. Evidence of recent high water levels was apparent.

Six cricket frogs were observed along Long Pond (1 km; 15 minute VES) on 12 June 2000.

24) VERMILION COUNTY: SE of Muncie at Muncie Pond (S side U.S. Rt. 150); T19N, R13W section 16 NW; Oakwood quadrangle.

Muncie Pond was not surveyed because the landowner did not respond to a letter asking permission to survey the site.

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