

**SURVEY FOR BLANCHARD'S CRICKET FROG (*ACRIS  
CREPITANS BLANCHARDI*) IN SOUTHWESTERN  
MINNESOTA**

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## **Abstract**

Concern about declining amphibians is increasing worldwide. Recent reports indicate that the range of Blanchard's cricket frog (*Acris crepitans blanchardi*) is decreasing from north to south. This study surveys both historic and new possible sites for Blanchard's cricket frogs in southwestern Minnesota.

Three visits were made to each of ten locations in the southwestern Minnesota counties of Pipestone, Rock, and Nobles. These sites included five historical locations and five new locations. At least one diurnal visit was made to each site to evaluate the habitat.

There were no extant populations of *Acris crepitans blanchardi* found in southwestern Minnesota. The habitat appears to be suitable for cricket frogs, despite modifications to the original habitat. Future work needs to be done to determine the cause of the apparent decline in range of the cricket frog.

## **Introduction**

Recent declines in amphibian populations have been noted throughout the United States and also in other countries. Many studies are being done to determine whether current ranges differ from historic ranges (Phillips, 1990; Blaustein and Wake, 1990; Wake, 1991). Other studies are also being done to determine the reason for declines, these possibilities include increased UV-B radiation, acid rain, increased global temperatures, and loss of habitat.

In the upper Midwest a species that appears to be declining in range is Blanchard's cricket frog, *Acris crepitans blanchardi* (Oldfield and Moriarty, 1994).

Blanchard's cricket frog is being moved from a special concern species to a state endangered species by the Minnesota Department of Natural Resources in the fall of 1996 (Carol Hall, pers. comm.) The northern portion of the cricket frog's historic range included the southeastern and southwestern corners of Minnesota (Oldfield and Moriarty, 1994), the southern half of Wisconsin (Vogt, 1981), the southeast corner of South Dakota (Conant and Collins, 1991), and all of Iowa (Christiansen and Bailey, 1991).

Cricket frogs are small, dark brown frogs with a dark triangle between the eyes and a rust or green colored middorsal stripe. They prefer to inhabit the muddy shorelines of large and small streams (Oldfield and Moriarty, 1994 Christiansen and Bailey, 1991; Vogt, 1981). In Iowa and Wisconsin they have been found using farm ponds (Christiansen and Bailey, 1991; Vogt, 1981). In northwest Iowa cricket frogs have also been found using abandoned rock quarries (Van Gorp and Christiansen pers. obs.).

In Wisconsin, cricket frogs begin calling in late May and continue through July (Vogt, 1981). In northern Iowa, Acris also begin calling in late May and continue until early August (J. L. Christiansen, pers. comm. Oldfield and Moriarty (1994) report that cricket frogs are one of the last frogs to breed in Minnesota, calling from late May into July, along with green frogs.

The purpose of this study was to locate any remnant populations of cricket frogs in southwestern Minnesota and to determine if suitable habitat still exists in the area.

## **Materials and Methods**

### **Materials**

The following were used throughout the survey:

Minnesota Natural Heritage Database

DOT General Highway maps

### **Methods**

#### **Site Selection**

Minnesota Natural Heritage Database records provided seven historical records, one each from Nobles and Pipestone counties, and five from Rock county. Of these historical locations, two of the records from Rock county were not mappable and therefore not used.

Additional sites were sought out by consulting with DNR staff from the southwestern region, and also by driving and locating sites that appeared to have suitable habitat for *Acris crepitans*.

#### **Site Description**

**Site 1.** Rock River at Edgerton, Sec. 28 T105N R44W, Pipestone County. Site is located on the west side of Edgerton, on the north and south sides of highway 1. The north side of the road contains a campground and also a pond that is used for fishing. The river and pond were both checked and appeared suitable for cricket frogs. The south side of the road included the river and also another small pond

about ten yards east of the river. This pond did not appear to have any fish present, although we cannot be sure. This site appears quite suitable for cricket frogs. This site is a historical record from 1939.

**Site 2.** Chanarambie Creek on the east side of Edgerton, Sec. 27 T105N R44W, Pipestone county. The creek looks to be somewhat suitable, but it cuts through pastures and had no backwater areas that we could find. Chanarambie Creek was also recommended by John Schladweiler, the regional nongame specialist for southwest Minnesota.

**Site 3.** Poplar Creek, Sec. 32-33 T105N R44W, Pipestone county. This site was observed when traveling to the Rock River site at Edgerton. It appeared very suitable for cricket frogs, with some backwater areas and muddy banks.

**Site 4.** Blue Mounds State Park, Sec. 13-14 T103N R45W, Rock county. Both the lake and Mound Creek at the northwest corner of the park were checked. The creek appeared moderately suitable, with some grassy banks, and some muddy backwater areas. Fish are present in the lake, which decreases the likelihood of cricket frogs being present. This is a historic location from 1939.

**Site 5.** Gravel pits, Sec. 36 T103N R45W, Sec. 1 T102N R45W, Sec. 31 T103N R44W Rock county. Most of these pits are still operational and privately owned. We were unable to visually check along the pits, but due to the recent activity, there probably would not be cricket frogs present. These pits were identified to me as potential sites by John Schladweiler.

**Site 6.** Rock River at Luverne, Sec. 11 T102N R45W, Rock county. Site is in a park on the east side of Luverne. Site appears moderately suitable, with some shallow muddy banks and small backflow areas. This is a historic site from 1936.

**Site 7.** Game refuge south of Luverne on highway 75, Sec. 23 T102N R45W, Rock county. Two large ponds with a lot of grass cover along the banks. Muddy banks seemed to appear only where fishing took place. This site may or may not have been an historical location. The record for *Acris crepitans* #23 was collected south of Luverne on highway 75 in 1967.

**Site 8.** Ash Creek and Rock River, Sec. 13 & 24 T101N R45W Rock county. Both of these water bodies look suitable. The Rock River has somewhat steeper banks than Ash Creek, and both have some muddy banks and backwater areas. A

historical site listed by the . Natural Heritage database for *Acris crepitans* #21 was collected at a gravel pit with an outlet to Ash Creek. Although the gravel pit was not found, it shows that cricket frogs were found in Ash Creek.

**Site 9.** Kanaranzi Creek, west of Adrian, Sec.14-15 T102N R43W, Nobles county. Three bridges cross the Kanaranzi and its tributaries west of Adrian. The eastern most tributary is a small wetland type with no open water, while the western and central bridges both have some open water. Kanaranzi Creek appeared suitable for cricket frogs. Mud banks, mud flats and backwater areas were all present along the stream. Kanaranzi Creek is a historic site for cricket frogs from 1936 and was also recommended by John Schladweiler.

### **Field Survey Methods**

All sites were visited approximately every two weeks during the period in which cricket frogs are known to call. These dates are June 14-15, June 30-July 1, and July 20-21. Aural surveys were done at night during peak calling times, when weather conditions were favorable. At least one diurnal visit was made to each of the sites to evaluate the habitat. All anuran species heard calling at each location were noted. Some voucher specimens were collected and deposited in the Bell



Museum of Natural History at the University of Minnesota, under special permit number 7944.

## **Results and Discussion**

Over the past ten years declines have been noted for cricket frogs at various parts of their northern range, including Minnesota, Iowa, and Wisconsin ( Oldfield and Moriarty, 1994; Christiansen and Mabry, 1985; Jung, 1993 ). This is the third major project in Minnesota that has been unable to locate an existing population of Blanchard's cricket frog (Whitford, 1991; Van Gorp and VanDeWalle, 1995 ), it is only the first attempt in southwestern Minnesota.

The results of the survey are summarized in Tables 1 and 2. Table 1 shows the physical characteristic data of each site. Table 2 shows the species that were observed at each site. Only two species, the American toad (*Bufo americanus*) and the northern leopard frog (*Rana pipiens*) were observed.

Habitat for Cricket frogs appears to still be present in southwestern Minnesota. All of the sites visited contain habitat comparable to that of areas in Iowa where

cricket frogs have been found. Much of the habitat has been altered since the time the original specimens were collected, but is still adequate in its present form.

Reasons for the apparent decline are unclear. While habitat loss could be a factor, it is not the only one. Farming and runoff from fields may also be a factor, but populations in central and southern Iowa have not been affected. One other possible cause being investigated is increased ultraviolet-B radiation.

### **Recommendations and Conclusion**

Based on this survey alone, it cannot be concluded that cricket frogs no longer exist in southwestern Minnesota. It can be said, with a high degree of confidence, that cricket frogs are not present at the sites that were surveyed in this study.

Cricket frogs are known to wander great distances from water during both wet and dry weather (Fitch, 1958).

While additional surveys may prove useful in locating populations of cricket frogs in the northern portion of the range, it is the author's belief that more time should now be invested in determining the cause for the apparent decline. Perhaps when

the reasons for the decline are better understood, it will be possible to locate any extant populations that may be in the northern portion of the range.

The results of this survey suggest that populations of Blanchard's cricket frog have been severely reduced in southwestern Minnesota.

There were no extant populations found at any of the five historic sites or any of the five new sites in Pipestone, Rock, and Nobles counties even though suitable habitat still exists. Future studies will help to determine causes for the apparent decline.

Table 1. The physical characteristics of each site, including water body type, amount of vegetation, substrate type, and the slope of the bank.

Site	Water Type	Vegetation	Substrate	Slope
1	pond & river	abundant	mud	steep
2	stream	moderate	mud	shallow
3	stream	abundant	mud & rock	moderate
4	pond & stream	abundant	mud & rock	moderate
5	pond	sparse	sand & rock	shallow
6	river	moderate	mud & sand	moderate
7	pond	abundant	mud	shallow
8	river	abundant	mud & rock	steep
9	river	moderate	mud	moderate

Table 2. Anurans heard calling or seen visually (v) at each site, during each date visited.

Site	6/14-6/15	6/30-7/1	7/20-7/21
1	-----	-----	----
2	-----	-----	----
3	-----	R. pipiens (v)	----
4	B. americanus	R. pipiens (v)	----
6	-----	-----	----
7	B. americanus	R. pipiens (v)	----
8	-----	B. americanus (v)	----
9	B. americanus	-----	----

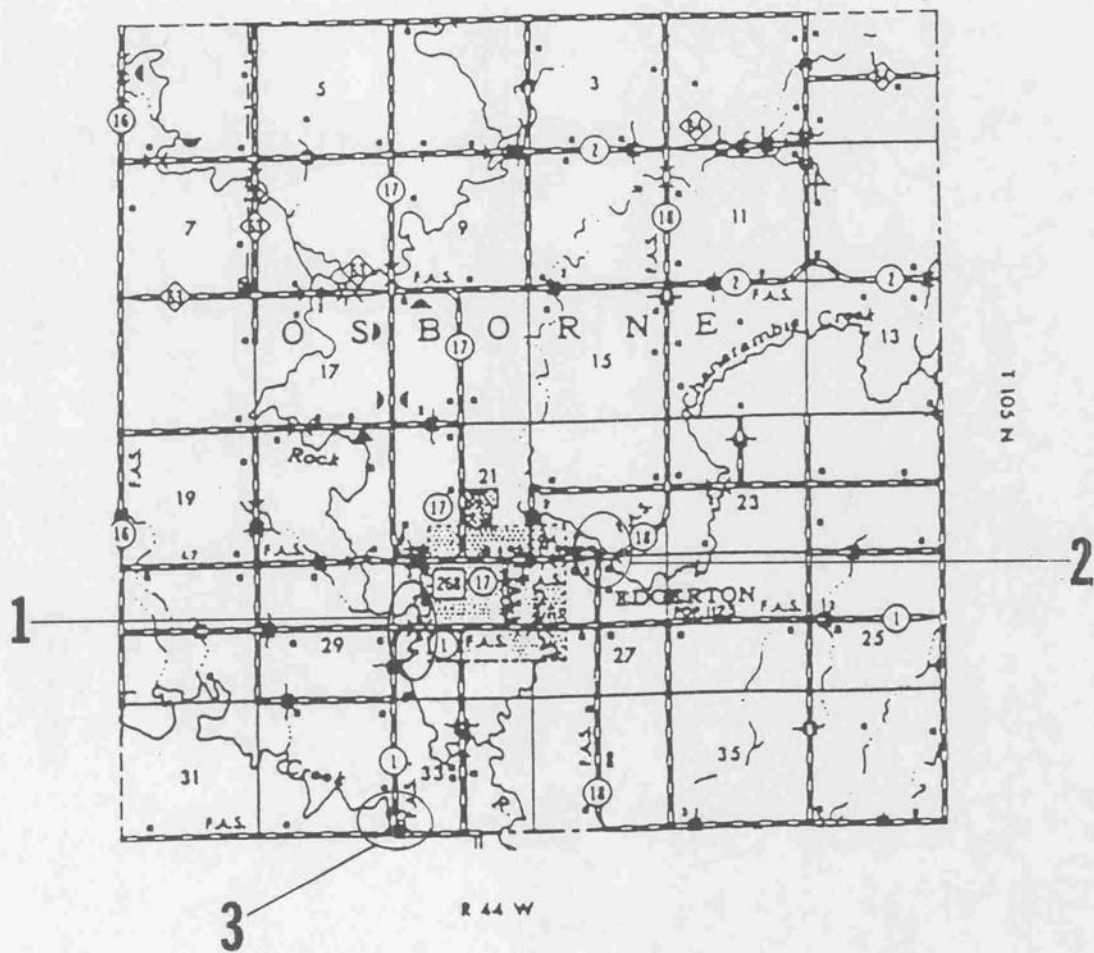


Figure 1. Location of Site 1. Rock River at Edgerton, Sec. 28 T105N R44W, Pipestone county.

Site 2. Chanarambie Creek, Sec. 27 T105N R44W, Pipestone county.

Site 3. Poplar Creek, Sec. 32-33 T105N R44W, Pipestone county.

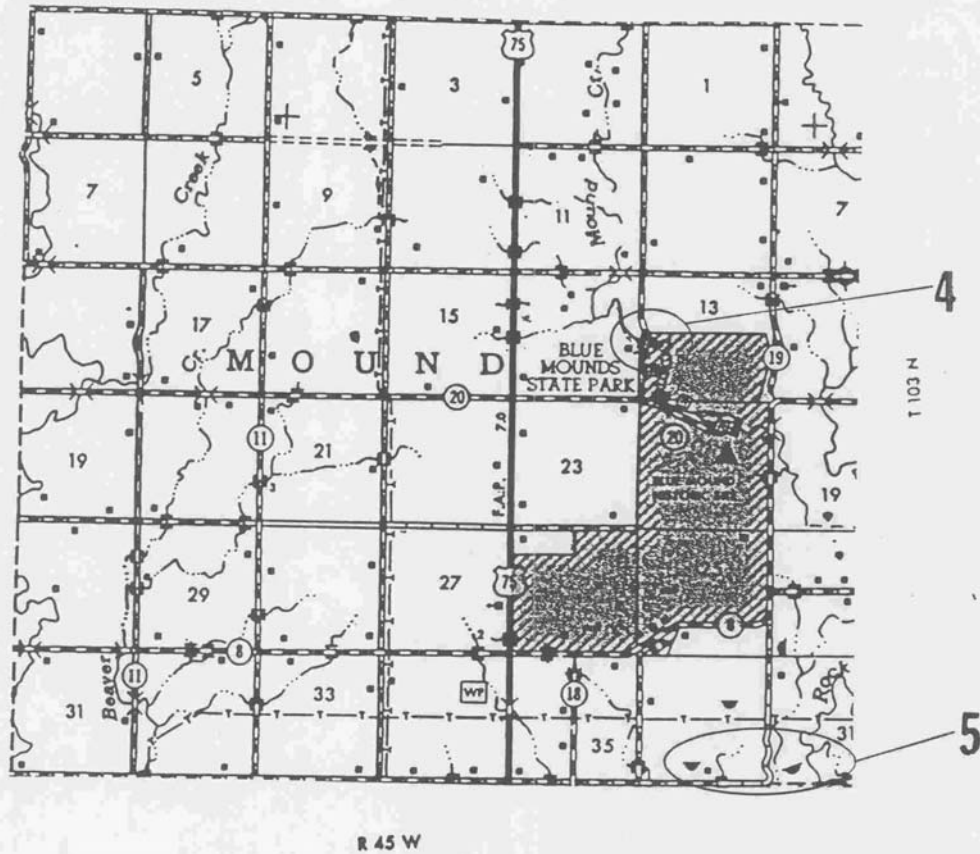


Figure 2. Location of Site 4. Blue Mounds State Park, Sec. 13-14 T103N R45W, Rock county.  
 Site 5. Gravel pits, Sec. 36 T103N R45W & Sec. 31 T103N R44W, Rock county.

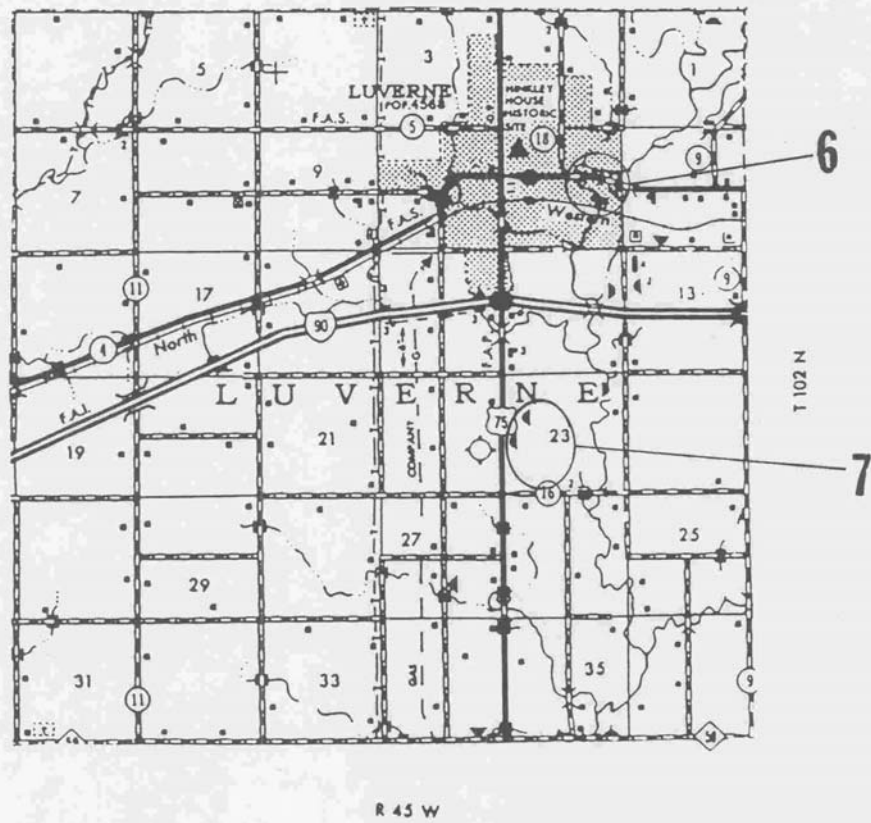


Figure 3. Location of Site 6. Rock River at Luverne, Sec. 11 T102N R45W, Rock county.  
 Site 7. Game Refuge, Sec. 23 T102N R45W, Rock county.





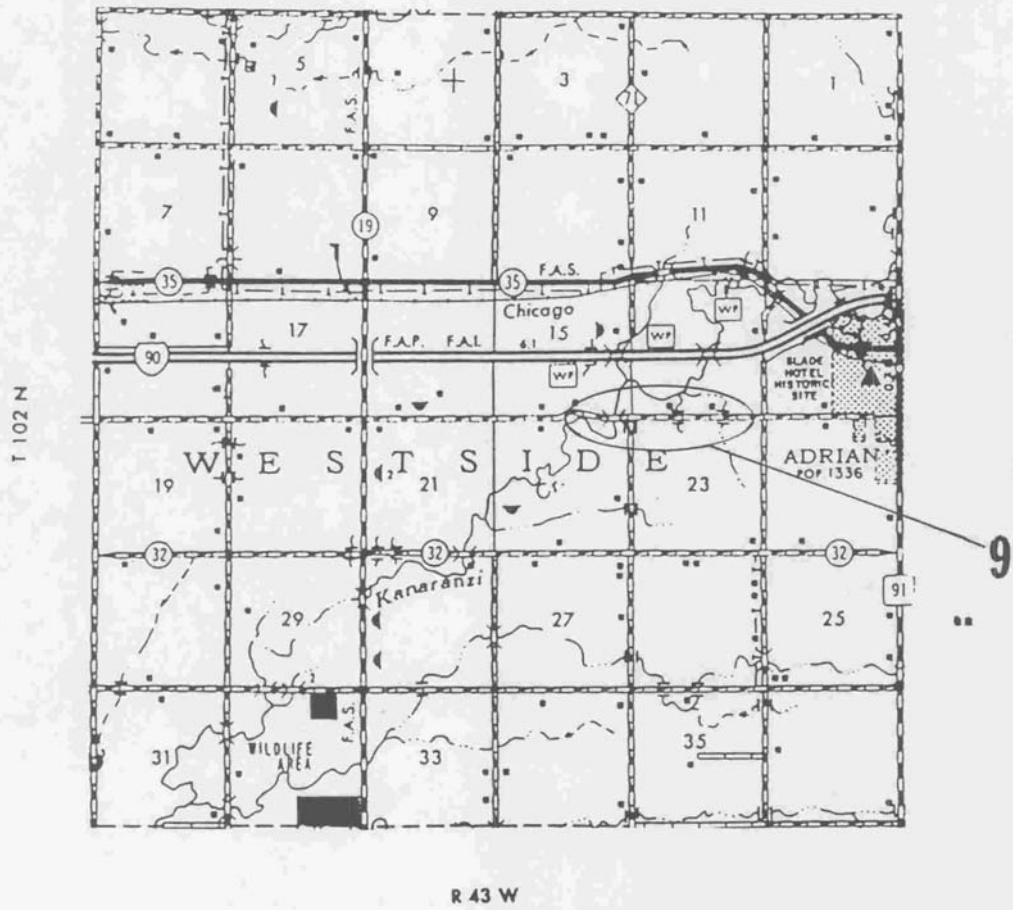


Figure 5. Location of Site 9. Kanaranzi Creek, Sec. 14-15 T102N R43W, Nobles county.

## LITERATURE CITED

- Blaustein, A.R., and D.B. Wake. 1990. Declining Amphibian Populations: A Global Phenomenon? *Trends Ecol. Evol.* 5:203-204.
- Christiansen, J.L. and R.M. Bailey. 1991. *The Salamanders and Frogs of Iowa.* Iowa Department of Natural Resources; Des Moines, IA.
- Conant, R. and J.T. Collins. 1991. *Reptiles and Amphibians of Eastern/Central North America.* Houghton Mifflin company, Boston.
- Fitch, H.S. 1958. Home Ranges, territories, and seasonal movements of vertebrates of the Natural History Reservation. *Univ. Kansas Publ. Mus. Nat. Hist.* 11(3): 63-326.
- Jung, R.E. 1993. Blanchard's cricket frogs (*Acris crepitans blanchardi*) in southwest Wisconsin. *Trans. of the Wisconsin Acad. of Sci., Arts, and Letters.* 81:79-87.
- Oldfield, B and B.B. Moriarty. 1994. *Amphibians and Reptiles Native to Minnesota.* University of Minnesota Press, Minneapolis, MN.
- Phillips, K. 1990. Where have all the frogs and toads gone? *Bioscience* 40:422-424.
- Van Gorp, C.D. and T.J. VanDeWalle. 1995. Survey for Blanchard's cricket frog (*Acris crepitans blanchardi*) in southeastern Minnesota. A report to the MCBS Nongame Wildlife Program, St. Paul, MN.
- Vogt, R.C. 1981. *Natural History of amphibians and reptiles of Wisconsin.* Milwaukee Public Museum, Wis.
- Wake, D.B. 1991. Declining Amphibian Populations. *Science* 253:860.
- Whitford, P.C. 1991. Final Report on Blanchard's cricket frog survey of southeastern Minnesota--1990-1991. A report to the Nongame Wildlife Program, St. Paul, MN.