

COVER PAGE

Observations on Morgan County wetland restoration

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Executive summary

The purpose of the study was to conduct an anuran calling survey at breeding ponds constructed near the Morgan County coal haul road. Western chorus frogs (*Pseudacris triseriata*), southern leopard frogs (*Rana sphenoccephala*), Blanchard's cricket frog (*Acris crepitans*), and Fowler's toad (*Bufo fowleri*) called from the ponds. The Illinois chorus frog (*Pseudacris streckeri illinoensis*) was not heard calling from the ponds, however, several Illinois chorus frogs were heard in the vicinity of the ponds calling from the ditch on the opposite side of the haul road. In addition, frogs were heard at other known calling sites in Morgan, Scott and Cass Counties at the time of surveys. Although frogs were found within 90 meters of the southernmost pond, no frogs were heard or found calling from the constructed ponds along the haul road. The closest known breeding site where Illinois chorus frogs were heard calling was along Toe Head Road just north of Willow Creek. This site is about 5 km NE of the haul road ponds. Potential problems with agricultural activities were found at the Morgan County site. Farmers have encroached to the edges of the ponds and either they have trespassed on the site or the site is not big enough to buffer the ponds from agriculture. Continued agricultural activities so close to the ponds will result in high concentrations of agricultural chemicals and filling of the ponds by erosion runoff. Future use of the ponds by the Illinois chorus frog is possible but no evidence to date has indicated that this is the case thus far. Furthermore, due to the small size of the ponds, it is unlikely that a large population could be sustained here for any length of time since males tend to call at distance intervals greater than the ponds can sustain. It is recommended that a larger tract of land be dedicated to the frogs in order to provide sufficient habitat for successful breeding. This

tract of land of several acres should be maintained as an ephemeral wetland free of fish and with a large agricultural buffer.

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Introduction

The purpose of this report is to document amphibian use of three constructed wetland depressions associated with the Morgan County coal haul road. These depressions were designed to act as ephemeral wetlands that would be suitable for breeding sites for anuran amphibians that breed in ephemeral fishless sites. The primary target anuran is the Illinois chorus frog (*Pseudacris streckeri illinoensis*), which may inhabit the general area near the wetlands.

Methods

The ponds were visited during the breeding season of the Illinois chorus frog, which occurs from March through May. At each visit a calling survey was conducted. A total of eleven visits were made. Each visit was 30 minutes in duration. Anurans were identified by their mating calls and some collected for photographic identification.

Results

The following results are broken down by each visit and are as follows:

2/28/06. First visit, no anurans were heard calling at the site and basic site evaluation was performed which included checking the ponds and ditches for water and any other additional changes that may of occurred at the site since last year.

3/01/06. Second visit, no anurans heard calling at site.

3/06/06. Third visit, no anurans heard calling at site.

3/11/06. Fourth visit, no anurans were heard calling at the site.

3/12/06. Fifth visit to the pond site to listen for presence of the Illinois chorus frog (*Pseudacris streckeri illinoisensis*). Heavy storms had rolled through the area and water was flowing in ditches on both sides of the road. Western chorus frogs (*Pseudacris triseriata*) were the only frogs heard calling from the pond. However, 227 m north

of the pond, an Illinois chorus frog was heard calling and captured for photographic documentation (Figure 1). Frog was found calling on the east side of the road, on the bank of the west side of the ditch. GPS coordinates for the location of the frog are as follows: E 710573m N 4410804m in UTM's using NAD27CONUS map datum. Frog was collected at 23:17 pm at an air temperature of 21.1 °C. Approximately 10 other Illinois chorus frogs were heard from various locations along the ditch.

3/27/06. Sixth trip to the pond site resulted in no frogs heard calling from either the pond or the ditch. Rainy overcast weather prompted the checking of the ponds. The pond and ditch had a considerable reduction in water level since the last visit. Temperature was relatively cooler than the prior visit with an air temperature of 9.4 °C.

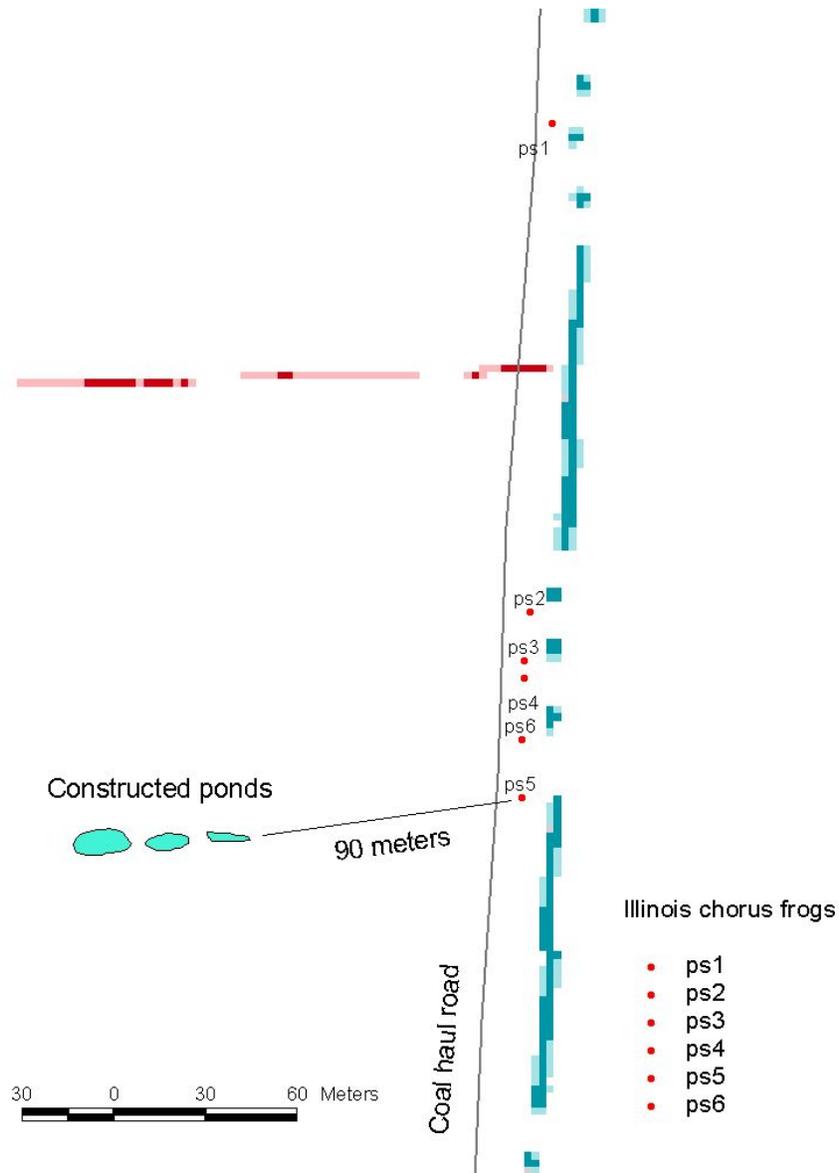
3/30/06. A slow steady rain all day prompted the seventh visit and several Illinois chorus frogs were heard calling from the ditch but not the pond. Five Illinois chorus frogs (PS2-6) (Figures 2-6.) were collected from the ditch on the east side of the road near the first capture between 21:33 pm and 21:57 pm. All specimens were photographed and released. GPS coordinates in UTM's using NAD27CONUS map datum for PS2-6 are as follows: PS2- E 710566m N 4410644m, PS3- E 710564m N 4410628m, PS4- E 710564m N 4410622m, PS5- E 710563m N 4410583m, PS6- E 710563m N 4410602m. Air temperature was 15.0 °C at time of capture. Although several other frogs were calling no large choruses were heard, just scattered individuals dispersed throughout the length of the ditch. The GPS position was recorded for each frog collected and a map showing the constructed ponds and the coal haul road in relation to the frogs can be seen in Figure 7.

3/31/06. No frogs were heard calling on the eighth visit in either the pond or the ditch except Western chorus frogs from the pond.

4/06/06. No frogs were heard calling from the pond, but heard one Illinois chorus frog on the East side of the road .5 miles North of the pond. This was the last visit to the site due to lack of rain and low call activity at other known active Illinois chorus frog sites. At this point, the ditches where the frogs were collected had become almost dry.

Figure 1-6. Illinois chorus frogs found in the ditch of the Morgan County coal haul road (PS1-6) in the order they were heard/collected.

Figure 7. Map of frog locations in relation to the constructed ponds and Coal haul Rd.



Discussion

Spring of 2006 was another dry year but sufficient rainfall occurred to stimulate breeding activity in the Illinois chorus frog. Anuran activity was more sustained than in previous years. Amphibians did use the ponds for breeding. The predominant frog calling from the ponds were Western chorus frogs.

In contrast to previous years, 2006 produced several Illinois chorus frogs along the ditch of the coal haul road in the vicinity of the constructed ponds. However, once again no Illinois chorus frogs were heard or observed from the actual ponds and the closest individual found was 90 m away in the ditch on the opposite side of the road. If the Illinois chorus frogs were to utilize the ponds, they would need to cross the road in order to do so since all frogs were found on the opposite side of the road. The status of the Illinois chorus frog in the area of the haul road was much better resolved this year. When the frogs were found this year, they were calling at all known locations and discovered at two new locations in Scott county. This was a good year for Illinois chorus frog reproduction due to the heavy rainfall events throughout the month of March. Whether the presence of frogs is attributable to immigration or emergence by heavy rainfall, there is no reason to believe that these frogs will not remain in the area. Even though the Illinois chorus frogs were near the ponds, no evidence of pond utilization has been observed. Hence, frogs either prefer not to use the ponds due to soil type, agricultural runoff, unsuitable habitat, etc. or they have simply not found them yet, which is the less likely of the two scenarios.

The agricultural impact is one of the major concerns regarding habitat suitability of the frog ponds. In 2005 and 2006, agricultural activities encroached on the ponds to the extent that there was no uncultivated barrier between the agricultural fields and the pond margins. I suspect that some agricultural trespass occurred in 2005 and more in 2006 and should be addressed. If a buffer is not maintained, then the concentration of agricultural chemicals in the ponds will be large. Moreover, these ponds will rapidly fill with silt carried by run off from the adjoining fields. These ponds will not last many years with this level of agricultural compromise. The only solution is to make certain that a buffer is present between the ponds and the agricultural activities.

The 2006 survey revealed frogs in the vicinity of the ponds but with no actual Illinois chorus frogs using the ponds. This again brings up the question as to the value of the constructed ponds in their current state. If the ponds were larger with a greater agricultural buffer, I believe their intended purpose would be better served. An ideal situation is to purchase a large tract of land composed of several acres and manage this area as a ephemeral wetland free of fish and human encroachment along the haul road. The current ponds are insufficient and a large amount of sedimentation due to field erosion has already taken place. In addition, after locating frogs in 2006, in order for them to utilize the current ponds, they will need to cross the coal haul road and chance potential injury or death from vehicular traffic. Pending additional habitat restoration and development, future call surveys at the constructed pond sites is advised.