

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 in chorus anywhere near the ponds. However, frogs were heard at other known calling sites in Morgan and Cass Counties. Frogs were also heard calling at a Scott County site. Apparently the frogs have not found the haul road ponds. The haul road ponds may be too far from existing Illinois chorus frog populations. The closest 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. It may also be that the silt/loam soil type excludes the Illinois chorus frog, which inhabits sand soil habitats. Potential problems with agricultural activities were also found. At the Morgan County site farmers have cultivated right up to the edges of the ponds. 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. Further study is likely not to find this frog in these silt loam habitats. I recommend that the ponds be back filled and the land returned to agriculture. If further mitigation is required, land at known breeding sites such as the Toe Head Road site should be acquired and larger breeding ponds be constructed in habitats where the frog occurs. Further monitoring of the Morgan County site is not indicated.

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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.

## Results

Anurans were first heard calling from the ponds on February 14. The western chorus frog (*Pseudacris triseriata*) was heard. The southern leopard frog (*Rana sphenoccephala*) was first heard on March 21. Fowler's toads (*Bufo fowleri*) were heard calling on March 24. Finally, Blanchard's cricket frog (*Acris crepitans*) was first heard on April 5. I also observed juvenile bullfrogs (*Rana catesbiana*) and the smallmouth salamander (*Ambystoma texanum*) at the site.

No Illinois chorus frogs were heard calling at or near the ponds. This species was heard at other known breeding sites in Cass and Morgan Counties on several occasions and were first heard at Beardstown on March 21. The closest site to the haul road breeding ponds was on Toe Head Road just north of Willow Creek, a site previously recorded. This

site is about 5 km NE of the Morgan County Haul Road site. Illinois chorus frogs were heard calling at a Scott County site on two nights when call surveys were conducted at the Morgan County site. Thus, Illinois chorus frogs were heard calling at sites north and south of the haul road but not at the haul road.

#### Discussion

Spring of 2005 was another dry one 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. Four species of anurans were heard calling and 1 salamander and another anuran were observed at the ponds.

Blanchard's cricket frog was a new finding and had not been heard in previous years.

The status of the Illinois chorus frog in the area of the haul road was much better resolved this year. None were heard at the Morgan County site in 2005 (or 2003 and 2004). However, this species does appear to have bred in 2005 in Morgan, Scott, and Cass County sites that were surveyed in 2005 because it was heard calling on several occasions at these sites. The closest populations appears to be the frogs located at the Toe Head Road site about 5 km NE of the haul road. Frogs called there on multiple occasions in 2005. Calling at the Beardstown site began on March 21 and continued through April 27. Newly metamorphosed froglets were recovered at the Beardstown site confirming successful reproduction there.

The problem than is why frogs were not heard at the haul road despite having significant anuran activity at the site in 2005. One reason may be that the site is too far from suitable sandy habitats where the

adults spend the nonbreeding season. The site also has a silt/loam soil, which is known to exclude these frogs. Thus, a combination of unsuitable soil types and distance likely combine to prevent Illinois chorus frogs reaching the site. In previous years the effect of dry springs could not be eliminated. However, in 2005, even with a relatively dry season, enough rain did fall to stimulate anuran activity.

The haul road ponds are also subject to another serious problem. In 2005, 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 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.

There is, however, an even more important consideration. The 2005 survey strongly suggests that the ponds will not be used by the Illinois chorus frog due to unsuitable habitat. The question then remains, should the ponds be retained? I think that they should be back filled and the lands returned to agriculture. The haul road likely has no measurable impact on the Illinois chorus frog. Mitigation was probably not needed to begin with and the current effort is insufficient in any case. It would be better to invest in a site where the Illinois chorus frog occurs than to continue to expend

resources on this site. In my professional opinion there is no reason to expect that continued monitoring will find Illinois chorus frogs at this site or anywhere along the haul road. Thus the calling surveys should be concluded with the current year's effort.

Table 1. Calling survey at Morgan County coal haul road.

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Date	Rainfall (cm)	Anurans calling
Feb. 14	0.5	PTT
March 8	0	none
March 15	1.0	PTT
March 21	0.9	PTT, RS
March 23	1.0	PTT, RS
March 24	0	PTT, BF
April 5	0.5	RS, BF, AC
April 14	2.5	PTT, RS, AC, BF
April 22	1.2	RS, AC, BF
April 23	0.3	RS, BF
April 26	0.3	none
April 28	0.1	BF

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Abbreviations: AC = Blanchard's cricket frog (*Acris crepitans*), BF = Fowler's toad (*Bufo fowleri*), PTT = western chorus frog (*Pseudacris triseriata*); RS = southern leopard frog (*Rana sphenoccephala*).