

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*) and southern leopard frogs (*Rana sphenoccephala*) called from the ponds. The Illinois chorus frog (*Pseudacris streckeri illinoensis*) was not heard in chorus anywhere near the ponds. However, frogs were heard sporadically at other known calling sites in Morgan and Cass Counties. Frogs were also heard calling at a Scott County site. This year there was no activity in the ditch bordering the east side of the haul road. In 2006, Illinois chorus frogs did call from this ditch. The problem was lack of timely rainfall. This year the nearest chorus was heard along Toe Head Road just north of Willow Creek. This site is about 5 km NE of the haul road ponds. At the Morgan County site farmers have cultivated right up to the edges of the ponds. Continued agricultural activities so close to the ponds will result in high concentrations of agricultural chemicals and filling of the ponds by erosion runoff. I still 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.

TABLE OF CONTENTS

Cover page.....1  
Executive summary.....2  
Table of contents.....3  
Table.....4  
Introduction.....5  
Methods.....5  
Results.....5  
Discussion.....6

TABLE

Table 1. Calling survey at Morgan County coal haul road.....8

## 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 ten 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 22. The western chorus frog (*Pseudacris triseriata*) was heard. The southern leopard frog (*Rana sphenoccephala*) was first heard on March 19. I also observed juvenile bullfrogs (*Rana catesbiana*), a smallmouth salamander (*Ambystoma texanum*), and tiger salamanders (*A. tigrinum*) at the site. After April 5 no further visits were made due to unusually cold (subfreezing) night time temperatures and absence of rainfall.

No Illinois chorus frogs were heard calling at or near the ponds. This species attempted to breed in the ditch along the eastern side of the haul road in 2006. However, there was not sufficient rainfall to make breeding in the ditch possible. This species was heard at other known breeding sites in Cass and Morgan Counties on several occasions and

were first heard on March 13. 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 Scott County locations and in Cass County 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 2007 was unusual in that nearly half of April was unusually cold with temperatures falling below freezing. Such cold weather likely does not harm frogs but they do not call under such conditions. Moreover, there was little rainfall following return to more normal temperatures. Anuran activity was less sustained than in 2006.

The status of the Illinois chorus frog in the area of the haul road was similar to those observed in previous years. None were heard at the Morgan County site in 2007 (or 2003, 2004, and 2005). However, this species does appear to have bred in 2007 in other Morgan, Scott, and Cass County sites that were surveyed. Unfortunately there was not sufficient rainfall to allow breeding in the ditches along the haul road. 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 2007.

The problem then is why frogs were not heard at the haul road despite having significant anuran activity near the site in 2006. The main reason this year was likely associated with inadequate rainfall. 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.

The haul road ponds are also subject to another serious problem. In past years, agricultural activities encroached on the ponds to the extent that there was no uncultivated barrier between the agricultural fields and the pond margins. 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 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 assuming that current rainfall patterns persist. 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. 22	0.5	none
March 13	trace	PTT*
March 19	0	PTT, RS**
March 21	0.9	none
March 22	0	PTT, RS**
March 24	0	PTT**
March 26	0	none (ditch is dry)
March 28	2.5	PTT**
April 3	2.5	PTT, RS**
April 5	none	RS

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Abbreviations: PTT = western chorus frog (*Pseudacris triseriata*); RS = southern leopard frog (*Rana sphenoccephala*). \* Illinois chorus frogs calling in Scott and Cass Counties. \*\* Illinois chorus frogs calling at Toe Head Road site and elsewhere.