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Observations on Morgan County wetland restoration

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Executive summary

The purpose of the study was to track water depth in the newly constructed ponds near the Morgan County coal haul road. An anuran calling survey was also conducted. Ponds contained water throughout the period examined. Western chorus frogs (*Pseudacris triseriata*), southern leopard frogs (*Rana sphenoccephala*), and Fowler's toad (*Bufo fowleri*) called from and successfully bred in the ponds. The Illinois chorus frog (*Pseudacris streckeri illinoensis*) was not heard in chorus anywhere near the ponds but it also was not heard at known breeding sites. Consequently no conclusions can be drawn concerning its potential use of the ponds or the impact of the haul road. Further study should be restricted to calling surveys to establish use of the ponds by the Illinois chorus frog. If the species is found breeding in the ponds, then the ponds can be monitored for breeding success of the species.

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Introduction

The purpose of this report is to document water levels and amphibian use of three newly 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 weekly during the breeding season of the Illinois chorus frog, which occurs from March through May. Ponds were also visited during June to observe any transforming amphibians. At each weekly visit the water depth in each pond was measured with a calibrated rod. Weekly rainfall was recorded with a rain gauge placed near the ponds. A dip net was used to search ponds for evidence of anuran breeding activity (eggs or tadpoles).

Seven night visits were also made to survey any anurans that were calling from the ponds. Each visit was 30 minutes in duration. Initial surveys were conducted from the road side with two 15 minute listening episodes each night. Episodes were separated by about 2 hours each night. Anurans were identified by their mating calls.

Results

Water depths in each pond are given by week in Table 1. Anurans began breeding in the area of the ponds on 20 March 2003. However, no anurans were heard calling from the ponds until 17 April when western chorus frogs (*Pseudacris triseriata*) were heard. Southern leopard frogs (*Rana sphenoccephala*) were heard at the ponds on 20 April.

Fowler's toads (*Bufo fowleri*) were heard calling on April 27. No Illinois chorus frogs were heard calling at or near the ponds. However, this species was not heard at other known breeding sites. Consequently, no conclusions can be drawn about the probability of their occurrence in the site.

Dipnetting produced tadpoles of the western chorus frog and southern leopard frog. Eggs and larvae of the smallmouth salamander (*Ambystoma texanum*) were also found. Invertebrates observed at the ponds include crayfish (primarily *Procambarus acutus*), faerie shrimp, water boatmen (an insect, order Hemiptera), and snails (genus *Physa*). Newly transformed western chorus frogs, southern leopard frogs, and Fowler's toads were observed.

Discussion

Spring of 2003 was very dry with no rain events exceeding 5 cm. Consequently, anuran activity was reduced compared to previous years. Nonetheless, amphibians did find the newly constructed ponds and use them for breeding. Three species of anurans and 1 salamander successfully bred in these ponds.

The status of the Illinois chorus frog in the area of the haul road remains to be determined. None were heard in 2003. However, this species does not appear to have bred in 2003 because it was not heard at other sites nearby either.

The main recommendation for future monitoring of these ponds is to discontinue measuring water depth in the ponds. The wetlands are now well developed and measuring depth causes needless disturbance.

Continuing the calling survey would, however, be beneficial. First, there is a need to know if the Illinois chorus frog does live in the area of the haul road. If they are heard calling from the wetlands then ponds can easily be monitored for newly transformed froglets.

Table 1. Water depth (in cm) in three newly constructed ponds along the Morgan County coal haul road during March, April, and May.

Date	Pond		
	1	2	3
7 March	21	30	ice filled
12 March	0.5	19	10
20 March	37	45	51
27 March	30	40	42
3 April	39	49	56
10 April	21	38	51
16 April	8	23	34
22 April	13	34	39
27 April	20	35	48
5 May	18	40	65
16 May	20	42	50
22 May	38	52	68
29 May	36	60	79

Table 2. Calling survey at Morgan County coal haul road.

Date	Rainfall	Anurans calling
March 20	3.5	none PTT nearby
April 4	0	none
April 17	2.5	PTT
April 19	0	PTT
April 20	0.5	PTT, RS
April 27	0	PTT, BF
April 29	0.75	BF

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