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**STATUS SURVEY FOR A CAVE AMPHIPOD,
GAMMARUS ACHERONDYTES,
HUBRICHT AND MACKIN
(CRUSTACEA: AMPHIPODA)
IN SOUTHERN ILLINOIS**

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**TECHNICAL REPORT 1993 (9)
ILLINOIS NATURAL HISTORY SURVEY
CENTER FOR BIODIVERSITY**

PREPARED FOR

**NATURAL HERITAGE DIVISION
DEPARTMENT OF CONSERVATION
524 SOUTH SECOND STREET
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SUMMARY

Gammarus acherondytes Hubricht and Mackin was previously recorded from subterranean streams in five Illinois caves: Fogelpole Cave, Illinois Caverns, Kreuger Dry Run Cave, Pautler Cave, Monroe County; and Stemler Cave, Saint Clair County. In 1993, the aforementioned localities, as well as other subterranean systems within Monroe and Saint Clair counties, were examined to determine the current status and population size of *G. acherondytes*. The entrance to Pautler Cave, has been bulldozed shut by the landowner. *Gammarus acherondytes* was also examined for in amphipod specimens collected during a two year study of the biological resources of Illinois' caves and other subterranean environments (Webb, Taylor and Krejca, 1993) and in the specimens of amphipods collected from 84 caves during a preliminary inventory of natural resources in select caves in Illinois (Oliver and Graham 1988). No specimens of *G. acherondytes* were collected from any cave in Illinois during 1993. Twenty four specimens of *G. acherondytes* were collected from Illinois Caverns on February 24, 1992. A single specimen of *G. acherondytes* was identified from Madonnaville Cave, Monroe County, Illinois from material collected during Oliver and Graham's study (1988). This record constitutes a new locality record for this species. No specimens of *Gammarus acherondytes* have been collected in Fogelpole Cave, Kreuger Dry Run Cave, Pautler Cave, or Stemler Cave since 1965. It is suggested that Fogelpole Cave, Illinois Caverns, Kreuger Dry Run Cave, Stemler Cave and Madonnaville Cave be reexamined during 1994 for *Gammarus acherondytes*, with particular emphasis on Illinois Caverns and Madonnaville Cave where this amphipods was most recently collected.

**Status Survey For a Cave Amphipod, *Gammarus acherondytes*
Hubricht and Mackin, In Southern Illinois.**

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Gammarus acherondytes Hubricht and Mackin (1940) is a rare species of amphipod, previously recorded from five subterranean streams in Monroe and Saint Clair counties, Illinois (Bousfield 1958; Cole 1970a, 1970b; Holsinger 1972; Hubricht and Mackin 1940; Nicholas 1960; Page 1974; Peck and Lewis 1977). It is associated with *G. troglophilus* Hubricht and Mackin (1940) from which it may be distinguished by its smaller size, light gray-blue color, small eyes, the absence of sensory organs on the second antenna, and by the larger fascicles of setae on the outer margin of the outer ramus of the third uropod (Hubricht and Mackin 1940).

The localities from which *G acherondytes* has been reported:

Monroe County, Illinois:
Fogelpole Cave
Illinois Caverns [Morrison's Cave]
Kreuger Dry-Run Cave [Fruth's Spider Cave]
Pautler Cave

Saint Clair County, Illinois:
Stemler Cave

In 1993, the aforementioned localities, as well as other subterranean systems within Monroe and Saint Clair counties, were examined to determine the current status and population size of *G. acherondytes*. The following is a list of the caves examined:

Monroe County:	
County Line Cave	September 4, 1993.
	September 6, 1993.
Dulcet Waterfall Cave	June 24 1993.
	August 28, 1993.
Fogelpole Cave	August 28, 1993.
Illinois Caverns	August 30, 1993.
[Morrison's Cave]	
Kelly Spring Cave	August 21, 1993.
Kreuger Dry-Run Cave	August 29, 1993.
[Fruth's Spider Cave]	
Pautler Cave	The entrance has been bulldozed shut by landowner.
Paw Paw Pit	September 3, 1993.
Running Spring Cave	June 26, 1993.
	June 30, 1993.
Shelter Dome Cave	November 11, 1993.
Shivery Slither Cave	September 5, 1993.
	September 6, 1993.
Slippery Dell Cave	June 23, 1993.
Unnamed Spring	August 21, 1993.
Wanda's Waterfall Cave	August 21, 1993.
Weeping Buddha Cave	June 23, 1993.
Weird Wall Cave	June 26, 1993.

Saint Clair County

A Little Pit More Cave	June 22, 1993.
Charles' Cave	June 25, 1993.
Dieciseis Tigrinum Pit	June 22, 1993.
Drainage Cave	June 25, 1993.
	June 30, 1993.
Misplias Cave	June 26 1993.
Sparrow Spring Cave	September 29, 1993.
Spring Valley Cave	June 22, 1993
	June 30, 1993.
Stemler Cave	June 25, 1993.
	June 30, 1993.
	October 10, 1993.

The presence of *G. acherondytes* was examined for in specimens of amphipods collected during a study of the biological resources of Illinois' caves and other subterranean environments (Webb, Taylor, and Krejca, 1993). Dr. L. M. Page, Center for Biodiversity, Illinois Natural History Survey identified all of the amphipods collected during the study. The following is a list of the caves examined:

Adams County:

Bobtail Salamander Cave	May 27, 1993.
Weed Cave	May 27, 1993.

Alexander County:

Silica Mine No. 42	June 29, 1993.
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Calhoun County:

Madison Creek Spring Cave	June 2, 1993,
June 3, 1993.	

Carroll County:

Babe's Cave	May 27, 1992.
Bat Cave	May 19, 1992.
Raccoon Den Cave	May 27, 1992.

Greene County:

Crinoid Cave	August 21, 1992.
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Hardin County:

Crystal Cave	April 17, 1993.
Mine No. 69	April 17, 1993.

Jackson County:

Ava Cave	October 20, 1992.
Toothless Cave	March 4, 1992.
Stearn's Cave	May 24, 1992.

Jo Daviess County:

Jean's Cave	May 28 1992.
Kevern's Cavern	May 26, 1992.
Kopper's Crevice	May 28 1992.
Tree Root Pit	May 28, 1992.

Johnson County:

Cedar Bluff Cave	April 29, 1992, August 18, 1993.
Jug Spring Cave	April 30, 1992.
Mason Cave #1	May 21, 1993.
Mason Cave #2	May 21, 1993.
Mason Cave #3	May 21, 1993.
Pipistrellus Pit Cave	May 21, 1993.
Procyon Cave	March 6, 1992.
Sink-Joint Cave	June 15, 1993.
Teal's Cave	May 20, 1993.

Kane County:

Devil's Den Cave	April 20, 1992.
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La Salle County:

Mathiesen Park Cave	August 20, 1992.
Skeleton Cave	August 20, 1992.
Blackball Mine North	August 20, 1992.
Blackball Mine South	August 20, 1992.

Monroe County:

Auctioneer Cave	September 4, 1992.
Unnamed Cave near Collier Spring	September 4, 1992.
Couch Cave	September 3, 1992.
Fogelpole Cave	February 24, 1992. July 1, 1992. September 29, 1992.
Fulfs Saltpeter Cave	March 26, 1992.
Illinois Caverns	February 24, 1992.
Indian Hole	July 2, 1992.
Kreuger Dry-Run Cave	April 3, 1992.
Terry Spring Cave	May 6, 1992.
Wanda's Waterfall Cave	April 3, 1992.

Pike County:

Cedar Cave	August 22, 1992.
Cloven Hoof Cave	May 15, 1992.
Boat Ramp Cave	May 15, 1992.
Lost Creek Cave	May 15, 1992.
Lower Lost Creek Cave	May 26, 1993. June 3, 1993.
Slick Crawl Cave	May 27, 1993. June 3, 1993. August 20, 1993.

Pope County:

Big Grand Pierre Creek Cave	April 14, 1992.
Brasher Cave	October 23, 1993.
Lackey Cave:	October 23, 1993.
Simmon's Creek Cave #2	April 15, 1992.
Tube Cave	April 18, 1993.

Randolph County:

Indian Cave April 9, 1993.
September 6, 1993.

St. Clair County:

Cossile Fast Pit August 18, 1992.
Sparrow Spring Cave September 29, 1992.

Saline County:

Equality Cave October 22, 1993.

Union County:

Apis Annex May 8, 1992.
Graig Cave #4 August 25, 1993.
Guthrie Cave April 30, 1992.
Honeycomb Hole May 8, 1992.
Migrant Camp Cave August 25, 1993.
Rich's Cave: May 7, 1992.
Saratoga Cave March 2, 1992.
Shilly-Shally Cave October 5, 1993.

The presence of *Gammarus acherondytes* was also examined for in specimens of amphipods collected from 84 caves during a preliminary inventory of natural resources in select caves in Illinois (Oliver and Graham 1988). The amphipods from this study were identified by Dr. L. M. Page.

Gammarus acherondytes was described in 1940 from Morrison's Caves (now part of Illinois Caverns), Monroe County and Stemler Cave, Saint Clair County, Illinois. Specimens were collected from Stemler Cave in 1965 (J. R. Holsinger, personal communication) and specimens were collected from Illinois Caverns in 1974 (INHS Collections). Holsinger (1976) reported it as being in four caves in Monroe County but did not specify which caves. Then Peck and Lewis (1977) reported it from Fogelpole Cave, Kreuger Dry-Run Cave [Fruth's Spider Cave], Illinois Caverns and Pautler Cave in Monroe County. These four caves are the four caves referred to in Holsinger (1976) (J. R. Holsinger, personal communication). Twenty specimens were again collected in Illinois Caverns on February 24, 1992. No specimens of *G. acherondytes* were collected in any of the caves during 1993 although a single specimen was identified by Dr. Page from amphipods collected in Madonnaville Cave, Monroe County, July 3, 1986 during the cave study of Oliver and Graham (1988).

The following is a evaluation of the five caves from which *Gammarus acherondytes* has been reported. The record of *Gammarus acherondytes* from Madonnaville Cave, Monroe County was not identified until after the field work of this study was complete, thus the current status of *G. acherondytes* in Madonnaville Cave was not evaluated during this study.

Fogelpole Cave: This cave passes under a large area of upland karst which contains considerable farm land (crops and livestock), rural dwellings, and several small communities. Throughout the area are small woodlots containing sinkholes that receive runoff from fields, residential land, roads, etc. Some garbage was found in the cave stream, probably washed in from sinkholes. This large and unique cave is potentially threatened by run-off from human developments and agricultural practices above it. The main entrance is gated and most of the other entrances to this cave are protected by unfriendly landowners or unpleasant passages. Thus, human visitation is not a major threat to the cave and its biota. No specimens of *Gammarus acherondytes* have been collected from this cave since one specimen was collected June 26, 1965 by S. B. Peck.

Illinois Caverns: This cave passes under an area of upland karst which contains considerable farm land (crops and livestock) and rural dwellings. Throughout the area are small woodlots containing sinkholes that receive runoff from fields, residential land, roads, etc. Access is controlled by the Illinois Department of Conservation by means of an entrance gate, and Armin Krueger is the steward of the cave. Anyone may visit the cave during the daytime hours when it is open, providing they sign a liability release. Due to the heavy human visitation it has received in the past and still receives today, many of the would-be impressive speleothems are broken, and graffiti on the walls and human trash is not uncommon. The cave is potentially threatened from the input of sediment and agricultural chemicals that drains into the cave. *Gammarus acherondytes* was last collected in this cave on February 24, 1992.

Kreuger Dry-Run Cave: This cave is located beneath an area of farmland and scattered wooded sinkholes. There are nine entrances to this cave with Pig Pen entrance situated in a wooded sinkhole heavily used by cattle. There was some scattered trash in the cave that was probably washed in from sinkholes, but there is very little vandalism. Some broken glass and drips of wax that suggests some human visitation to this fairly well known site, but these are in small amounts. There was evidence that the cave frequently floods to the ceiling, probably accounting for the scarcity of some terrestrial organisms. Most likely the frequent flooding keeps the cave clean of debris. The potential threat to this cave is likely to be from the agricultural practices that dominate its drainage basin. No specimens of *Gammarus acherondytes* have been collected from this cave since one specimen was collected June 26, 1965 by S. B. Peck.

Pautlers Cave: The entrance to this cave has been bulldozed shut. Apparently the landowner was dissatisfied with people trespassing on his property. The status of this cave and the presence of *Gammarus acherondytes* could not be determined. No specimens of *Gammarus acherondytes* have been collected from this cave since four specimens were collected on October 27, 1965 by S. B. Peck.

Stemler Cave: Current Status: This cave receives some visitation by cavers, and remains in good condition. As is evident by our 25 June 1993 visit, there are times (particularly during floods) that the cave receives sewage and sediment. Threats to this cave include continued input of sediment, fecal material, and chemicals. No specimens of *Gammarus acherondytes* have been collected from this cave since 14 specimens were collected on June 13, 1965 by J. R. Holsinger.

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