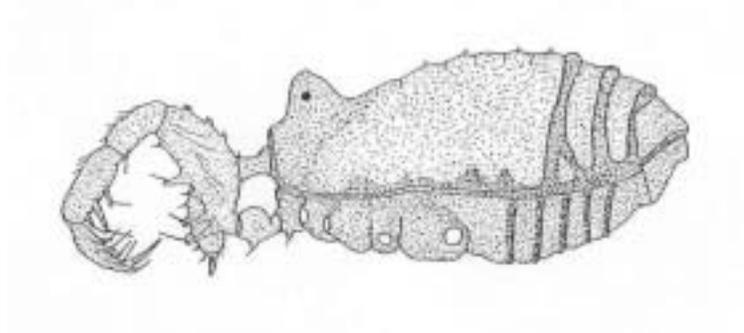


***Conservation Assessment
for
Golden Cave Harvestman (*Erebomaster flavescens*)***



(Briggs, 1969)

USDA Forest Service, Eastern Region

October 2002

Julian J. Lewis, Ph.D.
J. Lewis & Associates, Biological Consulting
217 W. Carter Avenue
Clarksville, IN 47129
lewisbioconsult@aol.com



This Conservation Assessment was prepared to compile the published and unpublished information on Erebomaster flavescens. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject community and associated taxa, please contact the Eastern Region of the Forest Service Threatened and Endangered Species Program at 310 Wisconsin Avenue, Milwaukee, Wisconsin 53203.

Table of Contents

EXECUTIVE SUMMARY 4
NOMENCLATURE AND TAXONOMY 4
DESCRIPTION OF SPECIES 4
LIFE HISTORY..... 4
HABITAT 5
DISTRIBUTION AND ABUNDANCE 5
RANGEWIDE STATUS 5
POPULATION BIOLOGY AND VIABILITY 5
POTENTIAL THREATS..... 5
**SUMMARY OF LAND OWNERSHIP AND EXISTING HABITAT
PROTECTION..... 6**
**SUMMARY OF MANAGEMENT AND CONSERVATION
ACTIVITIES 6**
RESEARCH AND MONITORING 7
RECOMMENDATIONS..... 7
REFERENCES..... 7

EXECUTIVE SUMMARY

The Golden cave harvestman is designated as a Regional Forester Sensitive Species on the Hoosier National Forest National Forest in the Eastern Region of the Forest Service. The purpose of this document is to provide the background information necessary to prepare a Conservation Strategy, which will include management actions to conserve the species.

Erebomaster flavescens is a troglomorphic troglophile that occurs primarily in caves. The true range of this species is unknown because many of the records attributed to the species are errors. At present it is known with certainty only from southern Indiana.

NOMENCLATURE AND TAXONOMY

Classification: Class Arachnida
Order Opiliones
Family Erebomastriidae

Scientific name: Erebomaster flavescens

Common name: Golden cave harvestman

Synonyms: Phalangodes flavescens
Phalangodes flavescens weyerensis
Scotolemon flavescens

The genus Erebomaster was erected to receive this species by Cope (1872). The most common synonym is Phalangodes flavescens, used by Packard (1888). A subspecies, Phalangodes flavescens weyerensis was recorded from Appalachian caves (Holsinger, et al., 1976). Briggs (1969) redescribed Erebomaster flavescens from specimens taken in Wyandotte Cave, Crawford Co., Indiana.

DESCRIPTION OF SPECIES

This harvestman is uniformly golden in color above and below, with distinct black eyes. The total body length is 2mm. It belongs to the group of harvestmen with short, compact legs. Identification of this species requires microscopic examination by a specialist with a knowledge of the taxonomy of harvestmen.

LIFE HISTORY

Although little is known of the life history of Erebomaster flavescens, in general harvestmen mate several times during life, with a few eggs fertilized and laid in cracks or crevices in the substrate. Juveniles require 7-8 molts to sexual maturity, which usually takes about 8-9 months (Snow, 1970).

HABITAT

This species has been reported primarily from caves, as well as epigeal habitats such as crevices (Bishop, 1949), indicating it to be a facultative cavernicole. In Indiana caves it is usually taken on pieces of decaying wood deep in the dark zone of caves, although it has been found on one occasion on the underside of a piece of rotting wood on the rim of a sinkhole near Wyandotte Cave (Lewis, 1998).

DISTRIBUTION AND ABUNDANCE

This species has been reported from New York (Bishop, 1949) south to Virginia and west to Indiana. The true range of this species remains unknown because many of the records attributed to Erebomaster flavescens are actually misidentifications (Holsinger, et al., 1976). A careful revision of the species will be required to sort out the species involved and establish the true distribution and abundance of Erebomaster flavescens.

RANGEWIDE STATUS

As noted above, the range of this species is unknown, so it is impossible to establish the status of Erebomaster flavescens with any certainty.

Global Rank: G3? vulnerable; The global rank of G3 is assigned for species known from 21-100 localities.

Indiana State Rank: S3 vulnerable; The status of S3 is designated to species that have been found in between 21-100 sites in Indiana. Lewis (1998) reported Erebomaster flavescens from 19 caves in Crawford, Harrison, Orange and Washington counties, to which two more localities have been added by Lewis, et al., (2002; and in progress).

POPULATION BIOLOGY AND VIABILITY

Little can be said of Erebomaster flavescens. Presumably it shares the omnivorous diet of other harvestmen, feeding on living or recently dead arthropods, as well as fungi and other vegetation (Snow, 1970; Savory, 1977). Although few of these animals are seen in any given habitat, they are relatively widespread through the southcentral Indiana karst and presumably the populations are viable.

POTENTIAL THREATS

On the Hoosier National Forest this species is known from three localities, of which two are protected in a Wilderness area. The pit on Frog Pond Ridge is essentially never visited. Due to its location on the shore of Lake Monroe, Patton Cave is visited on occasion by boaters, but the harvestman occurs only in the interior of the cave, away from where casual visitors enter. Campground Cave receives occasional visitation, although the closing of the campground probably mitigated most of the casual visitation to this site.

SUMMARY OF LAND OWNERSHIP AND EXISTING HABITAT PROTECTION

On the Hoosier National Forest this species has been found in Patton Cave and a pit on Frog Pond Ridge in the Deam Wilderness Area. It is also known from Campground Cave, in the Springs Valley area. Within the wilderness area the caves are managed for protection of their ecosystems.

Elsewhere, Wyandotte Cave is on the property of the Indiana Department of Natural Resources, Wyandotte Caves State Recreation Area. Wyandotte Cave is gated and access is generally limited to commercial tours.

SUMMARY OF MANAGEMENT AND CONSERVATION ACTIVITIES

No species specific management or conservation activities are being conducted concerning Erebomaster flavescens, however, cave and karst habitat located on the Hoosier National Forest are subject to standards and guidelines for caves and karst protection and management as outlined in the Hoosier National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service, 1991). These standards and guidelines include the following:

- *Caves are protected and managed in accordance with the Federal Cave and Karst Resources Protection Act of 1988, Forest Service Manual 2353, Memorandums of Understanding between the forest service and the National Speleological Society, the Indiana Karst Conservancy, Inc., the Forest Cave Management Implementation Plan, and individual specific cave management plans.

- *Except where modified by an existing cave management prescription, vegetation within a 150-200 foot radius of cave entrances and infeeder drainages with slopes greater than 30 percent will generally not be cut. No surface disturbing activities will be conducted on any slopes steeper than 30 percent adjacent to cave entrances. Similar protection areas will be maintained around direct drainage inputs such as sinkholes and swallow holes known to open into a cave's drainage system of any streams flowing into a known cave.

- *Allow no sediment from erosion of access roads and drilling sites to wash into caves or karst features.

- *Seismic surveys requiring explosives shall not be conducted directly over known cave passages or conduits.

- *All caves will be managed as significant.

(USDA Forest Service, 1991)

The forest plan includes a cave and karst management implementation plan. This management plan places an emphasis on cave resource protection and mitigation. Understanding of the caves is established through mapping, bioinventory, cataloging of resources (e.g., archaeological, paleontological, speleothems, etc.), and estimating use levels and trends. Protection zones or other mitigation measures recommended by a management prescription will be established around caves entrances, sinkholes and swallowholes. Specific criteria will include consideration for protection of entrance and cave passage microclimate, animals inhabiting the cave, physical and chemical parameters and aesthetic values associated with the cave.

RESEARCH AND MONITORING

A bioinventory of the caves of the Hoosier National Forest revealed the presence of this species in the Deam Wilderness (Lewis, et al., 2002; and in progress).

RECOMMENDATIONS

Retain on list of Regional Forester Sensitive Species.

REFERENCES

- Bishop, Sherman. 1949. The phalangida (Opiliones) of New York. Proceedings of the Rochester Academy of Science, 9 (3): 159-235.
- Briggs, Thomas S. 1969. A new holarctic family of Laniatorid phalangids. Pan-Pacific Entomologist, 45 (1): 35-50.
- Cope, Edward D. 1872. On the Wyandotte Cave and its fauna. American Naturalist, 6:109-116.
- Keith, J.H. 1988. Distribution of Northern cavefish, Amblyopsis spelaea DeKay, in Indiana and Kentucky and recommendations for its protection. Natural Areas Journal, 8 (2): 69-79.
- Lewis, Julian J. 1998. The subterranean fauna of the Blue River Area. Final Report, The Nature Conservancy, 266 pages.
- Lewis, Julian J., Ronnie Burns and Salisa Rafail. 2002. The subterranean fauna of the Hoosier National Forest. Unpublished report, Hoosier National Forest, 115 pages.
- Savory, Theodore. 1977. Arachnida. Academic Press, New York, 340 pages.
- Snow, Keith R. 1970. The arachnids: An introduction. Columbia University Press, New York, 84 pages.

USDA Forest Service. 1991. Land and Resource Management Plan Amendment for the Hoosier National Forest.