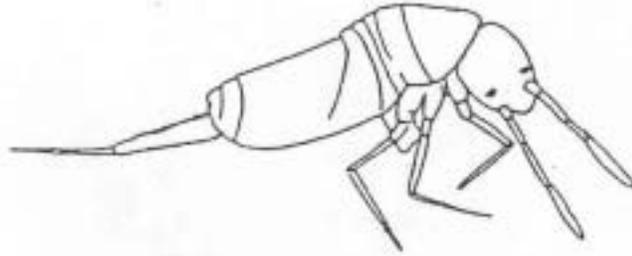


***Conservation Assessment
for
Fountain Cave Springtail (*Pseudosinella Fonsa*)***



(Christiansen & Bellinger, 1998)

USDA Forest Service, Eastern Region

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This Conservation Assessment was prepared to compile the published and unpublished information on Pseudosinella fonsa. 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.

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EXECUTIVE SUMMARY

The Fountain cave springtail is designated as a Regional Forester Sensitive Species on the Hoosier 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.

Pseudosinella fonsa is a springtail insect that is known only from caves. It has been reported from Indiana and adjacent southeastern Ohio. In Indiana it has been found in caves in both the southeastern and south-central karst areas.

NOMENCLATURE AND TAXONOMY

Classification: Class Insecta
Order Collembola
Family Entomobryidae

Scientific name: Pseudosinella fonsa

Common name: Fountain cave springtail

Synonyms: none

This species was described by Christiansen and Bellinger (1996). The nomenclature of species has been stable since that time.

DESCRIPTION OF SPECIES

Pseudosinella fonsa, typical of other springtails, is a tiny insect, reaching a length of about 2.8mm. The species has 3-4 eyes per side and scattered blue pigment granules. Identification of this species requires a specialist knowledgeable in the taxonomy of springtails.

LIFE HISTORY

Nothing is known specifically about the life history of Pseudosinella fonsa. In general springtails lay their eggs on the substrate in a concealed location. Several molts occur prior to the insect reaching its adult size, but in springtails no metamorphosis occurs and the juveniles and adults are similar except in size (Borror and DeLong, 1971).

HABITAT

This species is a troglobite, thus occurs only in caves. It is usually found in moist organic litter, stream detritus stranded on mudbanks, on raccoon or woodrat droppings, or similar nutrient rich microhabitats.

DISTRIBUTION AND ABUNDANCE

Pseudosinella fonsa was reported by Christiansen and Bellinger (1996) from caves in Clark, Harrison, Jennings and Monroe counties, Indiana and southeastern Ohio. However, the Monroe County locality was questionable and subsequent to description of the species it has been found that there are related undescribed Pseudosinella near, but different from Pseudosinella fonsa. Lewis (1998) reported Pseudosinella fonsa from 8 other localities in Crawford, Harrison and Washington counties in Indiana, where it was typically very rare, most localities being represented by single specimens. Lewis, et al. (2002) reported the springtail from five additional caves on the Hoosier National Forest in Crawford, Lawrence and Orange counties.

RANGEWIDE STATUS

Global Rank: G2 imperiled; The global rank of G2 is assigned to species that are known from between 6-20 localities. Although this species is now known from about 20 sites, its rarity and the fact that some of the known localities represent single element occurrences suggests a global rank of G2.

Indiana State Rank: S2 imperiled; The state rank of S2 is similarly assigned to species that are known from between 6-20 localities.

POPULATION BIOLOGY AND VIABILITY

Nothing is known specifically about Pseudosinella fonsa. In general springtails feed on decaying plant material, fungi, bacteria or arthropod feces (Borror and Delong, 1971).

POTENTIAL THREATS

Pseudosinella fonsa is a tiny litter dwelling insect that appears to be little threatened by human visitation to caves. Most of the caves from which it is known are rarely visited nor are they particularly threatened at present.

SUMMARY OF LAND OWNERSHIP AND EXISTING HABITAT PROTECTION

On the Hoosier National Forest Pseudosinella fonsa is known from Gory Hole and JJ's/JJ's Sister caves at the Tincher Special Karst Area; Enlow's Back Door Cave and Heron Cave, Crawford Co.; and Tucker Lake Spring Cave at the Springs Valley Recreation Area. The populations occurring in caves at the Tincher Special Area receive the restrictive management accorded forest service special areas (USDA Forest Service, 1991; 2000).

Most of the other sites from which this rare species has been recorded are on private property (Lewis, 1998), although it is also known from the IDNR Crosley Wildlife Area (Lewis, 1995).

SUMMARY OF MANAGEMENT AND CONSERVATION ACTIVITIES

No species specific management or conservation activities are being conducted concerning Pseudosinella fonsa, 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 cave bioinventory of the Hoosier National Forest is being conducted to search for additional populations of Pseudosinella fonsa.

RECOMMENDATIONS

Retain on list of Regional Forester Sensitive Species.

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