ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** ILARAD4010
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Albiorix anophthalmus*
COMMON NAME: Arkenstone Cave Pseudoscorpion
SYNONYMS: None
FAMILY: Ideoroncidae

AUTHOR, PLACE OF PUBLICATION: Muchmore and Pape, Southwestern Naturalist Vol. 44, No. 2, Pp: 138-147. 1999.

TYPE LOCALITY: Arkenstone Cave, Pima County, Arizona.

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: In North America, there are 18 known families, roughly 100 identified genera, and about 350 described species of pseudoscorpions. It is estimated that there are 500 undescribed species of pseudoscorpions in North America, and probably 75% of the genera need revision. (Read *in* http://www.sff.net/people/windrummer/ReadWebSite/psdoscrp.html). According to the Bohart Museum at UC Davis, There are about 200 species of pseudoscorpions in North America (*In* http://bohart.ucdavis.edu/bohart.asp?s=kidscorner&f=arachnid). Worldwide, there are about 2000 described species of pseudoscorpions.

DESCRIPTION: A small arachnid 3 mm long, with a scorpion-like appearance. They bear relatively large chelae on the pedipalps, but they do not have a telson or stinger. Pseudoscorpion pedipalps are smaller, pincher-like appendages, and are similar to those of scorpions except that usually each has a poison gland located in one or both "fingers" of the hand. The abdomen of the pseudoscorpions is oval and has a wide junction with the rectangular carapace. The chelicerae, or grasping pincers, are small and are equipped with structures for cleaning the mouthparts. The third pair of walking legs has excretory glands near the coxae, or base segment. On various parts of the body are numerous trichobothria, or sensory hairs, which can sense small air currents. Pseudoscorpions respiration occurs through two pairs of spiracles, or openings to the outside, leading to a tracheal system. With age adults develop a shiny, dark gray swath across the dorsum of the abdomen, which appears more striking in males. The rest of the body varies from light brown to tan. As well as being the largest *Albiorix* species known, it is also the only known eyeless species.

AIDS TO IDENTIFICATION: As well as being the largest *Albiorix* species known, it is also the only known eyeless species. Pseudoscorpions as a whole are seldom more than 5 mm in length, and have zero, two or four eyes.

ILLUSTRATIONS: Color photo (Gruss *in* http://mitchtobin.com/Archive/Focus%20on%20three%20species.htm)

TOTAL RANGE: Arizona

RANGE WITHIN ARIZONA: Pima County, Arizona.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Many pseudoscorpions have poison glands in their pedipalps, which are used to subdue insect prey and small invertebrates. They also have silk glands, but unlike spiders, which have them at the tip of the abdomen, the duct openings are located on the jaws or chelicerae. They use this silk to spin cocoons, in which they over winter and molt. They can maneuver with great ease, moving forward, backward, and sideways. Pseudoscorpions sometimes cling to and are carried around by large insects. All species typically have highly localized distributions, low dispersal and cannot survive outside the cave. Pseudoscorpions do not fluoresce under ultraviolet light. They move slowly, holding their pedipalps in front of them.

REPRODUCTION: In general male pseudoscorpions deposit a spermatophore on the substrate, and the female is attracted to it by scent. However in some advanced species, the male aids the female in the uptake actively maneuvering her to the spermatophore. After insemination, the female builds a silk lined nest. After the 2-50 eggs are laid, they remain in a sac that is attached to the underside of the female's body. They feed on a milk-like liquid from the female's ovaries. Development takes place within the sac. The young undergo one molt before hatching and one during hatching before emerging from the sac. They molt three more times before becoming adults, usually a year later; individuals may live 2-3 years.

FOOD HABITS: The species of pseudoscorpion is involved in an elaborate food chain. It feeds on macroscopic invertebrates, which feed on the mold that grows on cricket guano.

HABITAT: This species is found only within the interior of the cave, within the zone of complete darkness, where the temperature and humidity remain constant. It is typically found under a variety of pieces of floor debris including rocks, pieces of broken speleothems, mineral crusts, and clumps of soils throughout the interior of the cave.

ELEVATION: 1,112 meters asl.

PLANT COMMUNITY:

POPULATION TRENDS: Stable as of last survey conducted in August of 1998.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: Vulnerable Species (Pima County – Sonoran Desert Conservation Plan Priority)

MANAGEMENT FACTORS: The cave is a secured, designated research site. Protection of the cave from human disturbance minimizes potential impacts to this and other invertebrate species that are endemic to the cave. Since the species is critically linked with cave cricket guano deposits in the cave, maintenance of existing native vegetation in the vicinity of the cave, on which the crickets feed, is critical to preservation of this pseudoscorpion species. Control of buffelgrass (*Pennisetum ciliare*) is crucial to maintenance of the existing native vegetation. An annual survey of the pseudoscorpion population is recommended.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Surveys of caves to determine range and population status of this species is necessary, as well as life history studies.

LAND MANAGEMENT/OWNERSHIP: Pima County Natural Resources – Parks and Recreation Department.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Revised: 2004-04-23 (AMS)
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