ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** IITRI97010
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Metrichia nigritta*
COMMON NAME: Page Spring Micro Caddisfly
SYNONYMS: *Metrichia volada, Ochrotrichia volada*
FAMILY: Hydroptilidae

AUTHOR, PLACE OF PUBLICATION: R.L. Blickle and D.G. Denning. 1977. Journal of Kansas Entomological Society 50:(2)287-300. *M. nigritta,* S.R. Moulton, K.W. Stewart, and K.L. Young. 1994, Entomological News 105:(3)164-174.

TYPE LOCALITY: Page Springs Fish Hatchery, Arizona.

TYPE SPECIMEN: No collection number given. R.W. Baumann. April 1968.

TAXONOMIC UNIQUENESS: See "Additional Information."

DESCRIPTION: Very small caddisflies with the larvae measuring from 3.0-6.0 mm (0.12-0.24 in.). Larvae have purse-like cases. Adults are <6.0 mm (0.24 in.) in length, very hairy, often with dark mottled appearance. (Raisanen 1991).

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: Line drawing last instar case (Borror and White 1970:213)
Line drawing thorax (Borror and White 1970:215)
B&W photo entire fly (Elzinga 1987:360)
Line drawing caddisfly adult (Elzinga 1987:390)
B&W photo larval caddisfly with pebble case (Elzinga 1987:390)
Line drawings larval cases (Raisanen 1991:92)
Line drawings larvae (Raisanen 1991:94)
Line drawings genitalia and abdomen (Raisanen 1991:96)

TOTAL RANGE: See "**Additional Information**"

RANGE WITHIN ARIZONA: Page Springs Fish Hatchery.

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SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Univoltine life cycle. Wiggins (1977) states most caddisflies in temperate latitudes complete one generation each year. Life cycle of hydroptilid caddisflies unusual because first four instars are spent as free-living larvae without cases and onset of case-building delayed until final instar. In most genera the larva, up to beginning of the fifth instar, have a slender abdomen but during fifth instar, abdomen becomes greatly enlarged. Nielsen (1948) states in temperate latitudes there is a tendency for the larvae to overwinter in the fifth instar (Raisanen 1991).

REPRODUCTION: "Merrit and Cummins (1978) reports the adult caddisflies probably live less than one month and lay their eggs in the water during this period" (Raisanen 1991).

FOOD HABITS: "Method of feeding according to Wiggins (1977) is that of shredders. They are herbivores feeding on living vascular hydrophytes and filamentous algae. Nielsen (1948) reports that the larvae utilize algae to a large extent - consuming the cellular contents form the filamentous forms and grazing on periphytic diatoms" (Raisanen 1991).

HABITAT: "Wiggins (1977) reports that the hydroptilids can live in running waters of rivers and warm streams to cold spring runs. Merrit and Cummins (1978) state that *Metrichia* prefers a lotic habitat that is either erosional or depositional. *Metrichia volada* has only been found under and around the culvert of the outflow canal of Bubbling Ponds. Bottom material, small to mid-size cobble with fine sand grains between the cobble" (Raisanen 1991).

ELEVATION: 3,500 ft. (1,068 m)

PLANT COMMUNITY: Major aquatic macrophytes in Bubbling Springs include *Elodea occidentalis* and *Potamogeton gramineus. Elodea* beds maintained year-round but *Potamogeton* beds die out in November returning in late March to early April. Other aquatic plants found within Page/Bubbling/Lolomai Springs/Oak Creek Complex during various times of the year include: *Nasturtium officinale, Lemna minor, Berula erecta, Hydrocotyl verticillata, Veronica anagallis-aquatica* and *Rumex verticillatus.* Major macroalgal groups include *Rhizoclonium hieroglyphicum* and *Oscillatoria rubescens*. For further details, see Raisanen 1991.

POPULATION TRENDS: "Appears to be slightly declining. The numbers collected by Milt Sanderson (1978) are no longer present" (Raisanen 1991).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1994]

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[C2 USDI, FWS 1991]

STATE STATUS:
OTHER STATUS:

MANAGEMENT FACTORS: "Present plans call for a new retaining wall on the dike on the eastern side of the pond. If extreme care is taken so as to not disturb the pond itself, I feel the new retaining wall should not be a threat to the populations of invertebrates in this pond. Overall, I feel that any new major construction should be monitored very closely through each of its stages. Wherever possible, rip-rap and not cement should be used for bank stability so as to increase and not decrease niches for the various invertebrates that are found in these unique spring systems and ponds" (Raisanen 1991).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: Arizona Game and Fish Department

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

Borror, D.J. and R.E. White. 1970. Micro-caddisflies. In: Insects, Peterson Field Guides. 213-215.

Moulton, S.R. II, K.W. Stewart and K.L. Young. 1994. New records, distribution and taxonomic status of some northern Arizona caddisflies (Trichoptera). Entomological News 105(3):164-174.

Raisanen, C. 1991. Status survey of four invertebrates of the Page/Bubbling/Lolomai Springs/Oak Creek Complex. Report prepared for United States Fish and Wildlife Service.

USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 56(225):58832.

USDI, Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 59(219):59023.

USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species. Federal Register 61(40):7596-7613.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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Kirk Young - Arizona Game and Fish Department, Phoenix, Arizona.

ADDITIONAL INFORMATION:

"Wiggins (1977) remarks that *Metrichia* recognized by some authors as a genus, was placed as a subgenus of *Ochrotrichia* by Flint (1972) to a large extent because larvae of the two groups were indistinguishable. Taxonomy of adults was reviewed by Denning and Blickle (197). In the original description of *Metrichia volada*, Blickle and Denning (1977) state that *Metrichia* will not be considered a subgenus of *Ochrotrichia*. They state that *Metrichia* males differ from *Ochrotrichia* in the number of antennal segments, in the pilosity of the wings, antennae, spurs and tegula. The genitalia differ radically in the ninth terga, the tenth terga, and in the aedeagus. The female genitalia differs in the eighth sternum, the ninth terga, in the branching of the anterior apodemes into a third apodeme and in the bursa copulatrix" (Raisanen 1991).

From collections of larvae and pupae made in June of 1993, subsequently grown under laboratory conditions to adulthood, Moulton et al. have confirmed that *O.(M). volada* and *O.(M). nigritta* are synonymous (Moulton et al. 1994).

Revised: 1992-06-22 (DBI)
1995-01-09 (DBI)
1997-03-02 (SMS)

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Arizona Game and Fish Department. 19XX **(= year of last revision as indicated at end of abstract)**. X...X **(= taxon of animal or plant)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.

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