**ARIZONA GAME AND FISH DEPARTMENT**
**HERITAGE DATA MANAGEMENT SYSTEM**

**Invertebrate Abstract** **Element Code:** IIEPH67010
**Data Sensitivity:** No

## CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

**NAME:** *Neochoroterpes kossi*
**COMMON NAME:** A Mayfly
**SYNONYMS:** *Choroterpes kossi*, *Choroterpes* sp. 1
**FAMILY:** Leptophlebiidae

**AUTHOR, PLACE OF PUBLICATION:** R.K. Allen. Ca. Entomol. 106: 161-168. 1974.

**TYPE LOCALITY:**

**TYPE SPECIMEN:**

**TAXONOMIC UNIQUENESS:** There are 120 genera in this family and 900 species known worldwide. In North America there are 9 genera and 74 species.

**DESCRIPTION:** For the family, the larvae have a body length of 4-15 mm (mature larvae, not including antennae and tails). There are no thick, plate-like gill protectors on the abdomen. Gills are present on the top of most abdomen segments at the sides. Different species within this family have three types of gills: elongate and forked without any fringe, round to oval double layers with one long pointed filament, or tufts of small filaments.

**AIDS TO IDENTIFICATION:** See "**Description**"

**ILLUSTRATIONS:** Color drawing of larvae (Voshell 2002: Plate 56)

**TOTAL RANGE:** Arizona, SW New Mexico, and SW Texas.

**RANGE WITHIN ARIZONA:** Northern and eastern Arizona including Apache, Coconino, Gila, Greenlee, and Navajo counties.

## SPECIES BIOLOGY AND POPULATION TRENDS

**BIOLOGY:** Mayflies date from Carboniferous and Permian times and represent the oldest order of the existing winged insects. They are unique among the insects in having two winged adult stages. As adults they generally live from 1 to 2 hours to a few days, and spend most of

their life in the aquatic environment, either as eggs or nymphs. Because of their winged adult stage and a propensity for drift as nymphs, mayflies are often among the first macroinvertebrates to colonize virgin habitats. They are primarily crawlers and are very poor swimmers. Young larvae of this family exhibit a behavior pattern known as phototaxis, which means they move away from the light. During the day, the larvae hide within the substrate where they live. At this time they feed on fine detritus that has settled into spaces within the substrate. At night they move to the upper surfaces of their habitat to feed upon the algae that grows there. When the larvae have finished developing and it is time for them to emerge as subimagoes, their phototactic response becomes reversed and they crawl toward the light.

**REPRODUCTION:** Swarming is a male activity. The female's fly into these swarms, and mating occurs almost immediately and usually in flight. Swarming may take place over the water itself, over the shore area, or even away from the water. Mayflies in this family oviposit their eggs by descending to the water and releasing a few eggs at a time, by dipping their abdomen into the water. Mayfly eggs have a variety of attachment structures that enable them to adhere to submerged objects or to the substrate. Differences in egg morphology have enabled the construction of identification keys, purely on the basis of eggs.

**FOOD HABITS:** They do not feed as adults, but as nymphs they eat detritus and periphyton (algal communities on stones and plants).

**HABITAT:** For the family they are found in primarily lotic-erosional, and some lentic-littoral habitats. Most species are common in shallow, fairly rapid streams of small to moderate size. Although the larvae live in all sizes of flowing waters, they occur only in protected areas because they are poorly adapted for fast current. Places where they are found include the undersides of large stones, among pebbles and gravel, in moss or other aquatic vegetation, in tangles of woody debris, and near the bank in accumulations of leaves or exposed roots of terrestrial plants.

**ELEVATION:**

**PLANT COMMUNITY:**

**POPULATION TRENDS:**

## SPECIES PROTECTION AND CONSERVATION

**ENDANGERED SPECIES ACT STATUS:** None
**STATE STATUS:** None
**OTHER STATUS:** None

**MANAGEMENT FACTORS:**

**PROTECTIVE MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Life history, population status, and distribution studies need to be performed.

**LAND MANAGEMENT/OWNERSHIP:**

## SOURCES OF FURTHER INFORMATION

**REFERENCES:**

Allen, R.K. 1974. Ca. Entomol. 106: 161-168.

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Resh, V.H. & R.T. Carde. 2003. Encyclopedia of Insects. Academic Press. New York, New York. Pp: 373-380.

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Voshell, J.R. 2002. A guide to Common Freshwater Invertebrates of North America. The McDonald & Woodward Publishing Company. Blacksburg, Virginia. Pp: 282-283, Pl 56.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

**ADDITIONAL INFORMATION:**

Because of the wide range of dissolved oxygen requirements among species, mayflies are very important in biological monitoring of streams.

**Revised:** 2004-06-11 (AMS)