ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** IICOL0C020
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Amblycheila picolominii*
COMMON NAME: A Tiger Beetle
SYNONYMS:
FAMILY: Cicindelidae

AUTHOR, PLACE OF PUBLICATION: Reiche, 1839.

TYPE LOCALITY:

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: There are over 1500 species of tiger beetles worldwide with about 240 taxa in North America. Four genera including *Amblycheila* are native to North America. The genus *Cicindela* is the most widespread. The Sulphur Springs Valley of southeastern Arizona is famous for its tiger beetle fauna, for within the confines of this large valley over 40 species of tiger beetles may be found, (the largest concentration of different species anywhere in the United States).

DESCRIPTION: Tiger beetles in general are characterized by the following: large, prominent compound eyes and eleven segmented, filiform antennae. The antennae are inserted on the frons above the clypeus and below the eyes. The head, at the eyes, is wider than the pronotum (in most common genera of cicindelids). The tarsi are five-segmented. They are shiny, flattened, with ridged wing covers and are ½ - 1 in (1.2-2.5 cm) long. Their colors can range from brilliant green, violet, orange to grayish and black. They have powerful, sickle-like mandibles. The larvae are S shaped and caterpillar like. This species is large (26 mm) in size. The most common coloration is shiny dark brown, and no other colors or maculation are found on the body.

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: Color photo (Riggins *In* http://www.npwrc.usgs.gov/resource/distr/insects/tigb/az/4.htm)
Color photo of family (*In* http://www.inhs.uiuc.edu/chf/outreach/good/card2.htm)
Color photo of family (Dunn *in* http://members.aol.com/YESedu/biology.html)
Color photo of family (*In* http://www.earthlife.net/insects/cicindel.html)

Color photo of family (Choate *in* http://www.ivyhall.distrcit96.k12.il.us/4th/kkhp/1insects/tigerbett.html)

TOTAL RANGE: California, Arizona, Colorado, New Mexico and Texas.

RANGE WITHIN ARIZONA: Northeastern Arizona (Coconino, Apache and Navajo Counties).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Adults of this species are nocturnal. Tiger beetles are capable of sustaining speeds of 25 mph in short bursts making them the fastest land insects in the world. The adults of most species fly well. To become airborne the beetle squats, leaps into the air and then begins to fly. Most species fly in a relatively low (1 to 3 ft) level, straight path and land 5 to 20 feet away from the source of the disturbance. When they land they are facing into the wind. In cases where there was not a sufficient landing zone they may fly a semicircular pattern landing behind the source of the disturbance.

Birds, ants and wasps all take their toll on Tiger beetle larva but their main enemies are Hymenopteran parasitoids. Members of the Tiphiidae in the genera *Methoca, Karlissa* and *Pterombus* are all specialists on tiger beetle larva. Adult predators are humans, birds, mammals as well as lizards and robber flies.

Larva burrows of tiger beetles are very characteristic. The entrance to the burrow is flush with the surface of the ground, and is clean and smooth. There is no cone of soil particles as the larvae toss this material as far away from the burrow as possible. The larva also periodically plugs the entrance to their burrow with the soil, especially after eating, during rainy weather or droughts, before hibernation or aestivation, before molting and pupation. The larval stage is the longest for the tiger beetles.

REPRODUCTION: For the genus, mating commences when the male approaches the female in a series of short sprints, he then leaps onto her back and clasps her thorax in his mandibles. Males may guard the females for as long as 12 hours after copulation in order to stop other males from mating with her. The eggs are laid in the soil and then covered up, or on a substrate in which the larva will burrow. Tiger beetles have a complete metamorphosis and the larvae live in soil where they make a vertical tunnel to catch arthropods walking along the surface. The larva turns its egg chamber into a tunnel using its head as a shovel to push the soil from the hole after loosening it with its mandibles, the holes can be as much as 200 cm deep by the time the larva has reached its final instar in some species.

FOOD HABITS: Tiger beetles in general eat a wide range of insect prey. They are also known as fluid feeders and use ‘pre-oral digestion’. Digestive juices are secreted onto the prey

while it is held and crushed by the mandibles, which possess a special molar-like tooth to aid in the mastication. It looks like it is squeezing its jaws open and shut at the same time it is sucking in. They also use a stop and go technique in their pursuit of prey. The reason their technique looks like this is that the tiger beetle loses the ability to see after it accelerates towards it prey. When they move too quickly they don't gather enough photons to form an image of their prey. The larvae are highly predaceous as well. The larva feed on passing insects which they grab with their powerful jaws when they come within reach, they have special dorsal hooks on the 5th abdominal tergite (the plates that cover the top of the insect or its back, sternites cover the underneath or bottom) which help the larva to hang on and not be pulled out of its hole by large prey. The prey is eventually dragged to the bottom of the hole where it is eaten. Tiger beetle larvae eat most things that they can get into their holes.

HABITAT: They can be found in dry open rocky country and grassy uplands.

ELEVATION: Unknown

PLANT COMMUNITY: Unknown

POPULATION TRENDS: Unknown

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:
STATE STATUS:
OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1999)

MANAGEMENT FACTORS: Unknown

PROTECTIVE MEASURES TAKEN: Unknown

SUGGESTED PROJECTS: Unknown

LAND MANAGEMENT/OWNERSHIP: Unknown

SOURCES OF FURTHER INFORMATION

REFERENCES:

Available at http://www.inhs.uiuc.edu/chf/outreach/good/card2.htm
Available at http://www.earthlife.net/insects/cicindel.html
Available at http://www.thaibugs.com/Articles/tiger_bettles.htm

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Riggins, J. Available: http://www.npwrc.usgs.gov/resource/distr/insects/tigb/az/4.htm.

USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

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