ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** IIORT21010
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Daihinibaenetes arizonensis*
COMMON NAME: Arizona Giant Sand Treader Cricket
SYNONYMS: *Ammobaenetes arizonensis*
FAMILY: Rhaphidophoridae

AUTHOR, PLACE OF PUBLICATION: *Ammobaenetes arizonensis* Tinkham, Amer. Midland Nat. 38(1): 130-133. 1947. Renamed in 1962 to *Daihinibaenetes arizonensis* by Tinkham, Great Basin Naturalist 22(1-3):12-29.

TYPE LOCALITY: Sand dunes near Coconino National Forest headquarters. Coconino County, 8 July, 1960.

TYPE SPECIMEN: "There are a total of six paratype and paratotypes distributed between CAS (California Academy of Sciences, San Francisco) and UM (University of Michigan, Ann Arbor) but the number in each is not known. However, several specimens in the Tinkham collection were lost or destroyed, and the number may not reflect the number in these collections" (Tinkham 1962 as cited in Johnson 1992).

TAXONOMIC UNIQUENESS: On the Colorado Plateau in the southwestern United States, *Daihinibaenetes arizonensis* is 1 of 3 species in the genus. All three species (*D. arizonensis*, *D. giganteus*, and *D. tanneri*) are very similar morphologically and all are only known from a few widely scattered localities in an area in which gryllacridids have been poorly collected (includes southern Colorado and Utah, northern New Mexico, and Arizona). Cohn (1992), believes that *D. arizonensis* may represent merely one population of a more widespread species that is reasonably common in sandy habitats. Thus, *D. arizonensis*, *D. giganteus*, and *D. tanneri* may be synonymized into one species.

DESCRIPTION: Cricket-like appearance. Very large, brown, wingless species with body curved rather than flattened as in true crickets. Uniformly pale with rich golden tan on the dorsal areas of the entire body, the posterior dorsal margin of each thoracic and abdominal segment lightly infuscated with brown. The dorsal apical two-thirds of the caudal femora infuscated with a network of broad lines. The antennae are contiguous, or nearly so, at base. Tarsal segments are 3-4-4. Forcipate arms of male subgenital plate long. Dorsal teeth of caudal tibiae normal in size. Five spurs in the sand basket with or without teeth between the fifth and sixth spurs. Ovipositor short, abruptly truncate at apex. The measurements of the

Type Male include: body length 21.7 mm; pronotum 4.5 mm in dorsal median length, caudal femur 13.5 x 5.5 mm in depth; caudal tibiae 11.1 mm (Tinkham 1962). The chief diagnostic features existing, is in the spination of the legs. See Tinkham, 1962 for a lengthy detailed description.

AIDS TO IDENTIFICATION: The species *Daihinibaenetes arizonensis* differs from *D. giganteus* by its smaller size, the smaller teeth on the externo-inferior keel of the caudal femora, the much heavier small dentition on the dorsal keels of the caudal tibiae, the form of the male pseudosclerite, the lack of the dark "X" on the pronotum as well as other minor features.

ILLUSTRATIONS: Line drawing of parts (Tinkham 1962: plate 2)

TOTAL RANGE: *D. arizonensis* is known only from sand dune habitats near Cottonwood Wash, east-southeast of Petrified Forest National Monument Headquarters, Arizona. The distribution of this species is poorly known but the species may occur widely in sand dunes and sandy washes in northern and especially northeastern Arizona (Tinkham 1962, Cohn 1992 as cited by Johnson 1992). The historic and present distribution of this species are likely identical (Johnson 1992).

RANGE WITHIN ARIZONA: See "**Total Range.**"

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: All species in this genus are nocturnal and seem to be restricted to sandy washes and sand dunes. *D. arizonensis* appears to be most active and most abundant in late spring (May and June) and die off during the summer heat, individuals appearing to be rare by July. They are excellent jumpers and wander widely. They are also excellent diggers, burrowing and absorbing moisture from saturated soil. The genus *Daihinbaenetes* makes a peculiar and characteristic trail in the sand, quite distinct from *Ammobaenetes*. They leave claw points and draws or push its body along the sand. In doing so, the rail appears as if made up of alternately placed pieces of pie or sectors of one-eighth size, these sectors are formed when the short and powerful hind legs push the body forward first one side then the other.

REPRODUCTION: Oviposits eggs into the sand.

FOOD HABITS: Detritus feeders.

HABITAT: Burrow is excavated to a depth of about 18 inches, in sand dunes and sandy washes.

ELEVATION: Unknown

PLANT COMMUNITY: Principal plants appear to be sand dune species such as *Sporobolus wrightii* (sacaton), *Ephedra viridis* (mountain joint-fir), and *Atriplex canescens* (narrow-leaved wingscale.

POPULATION TRENDS: Unknown

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1994]
[C2 USDI, FWS 1991]

STATE STATUS:

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1999)
Bureau of Land Management Sensitive (USDI, BLM AZ 2000)

MANAGEMENT FACTORS: There are no known threats to *D. arizonensis* on the Petrified Forest National Park. However, this species probably occurs in sand dune habitats on the Navajo Nation and the Hopi Reservation, where it may be affected by grazing, off-road vehicles, and other forms of habitat modification, all of which are known to greatly damage sand dune systems.

PROTECTIVE MEASURES TAKEN: Unknown

SUGGESTED PROJECTS: Wide area surveys need to be undertaken to determine habitat affinities, abundance and geographic distribution. These surveys should include a search for *Stenopelmatus navajo*, which appears to have similar habitat requirements and ecology.

LAND MANAGEMENT/OWNERSHIP: NPS - Petrified Forest National Park. Probably BIA Hopi Reservation and Navajo Nation.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Borror, D.J. and R.E. White. 1970. Insects: Peterson Field Guides. Houghton Mifflin Co., Boston. p.82.

Johnson, R. 1992. Unpublished status survey report done under contract to United States Fish and Wildlife Service, Arizona Ecological Services, Phoenix, Arizona.

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

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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):58824.

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

Robert Johnson - Biologist under contract to United States Fish and Wildlife Service.

ADDITIONAL INFORMATION:

According to Johnson (1992), this species should be retained as a Category 2 species to obtain more information regarding systematics, distribution, abundance and life history. The information in this report was taken from the unpublished survey report by Robert Johnson, under contract to United States Fish and Wildlife Service. Please see this report for a listing of pertinent literature as well as a list of experts on this taxon. Directions for the Type location reported in Johnson's 1992 report, differ between the text and Table I.

According to Peterson's Field Guide on insects, this cricket is in the family Gryllacridae and subfamily Rhaphidophorinae. "Current taxonomic status is uncertain. It may be synonomized with *D. giganteus* and *D. tanneri* as one species" (Cohn 1992 as cited in Johnson 1992).

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