# Metaleptea

The ORTHOPTERISTS' NEWSLETTER

Vol. 14, No. 3 | THE ORTHOPTERISTS' SOCIETY | July 1993


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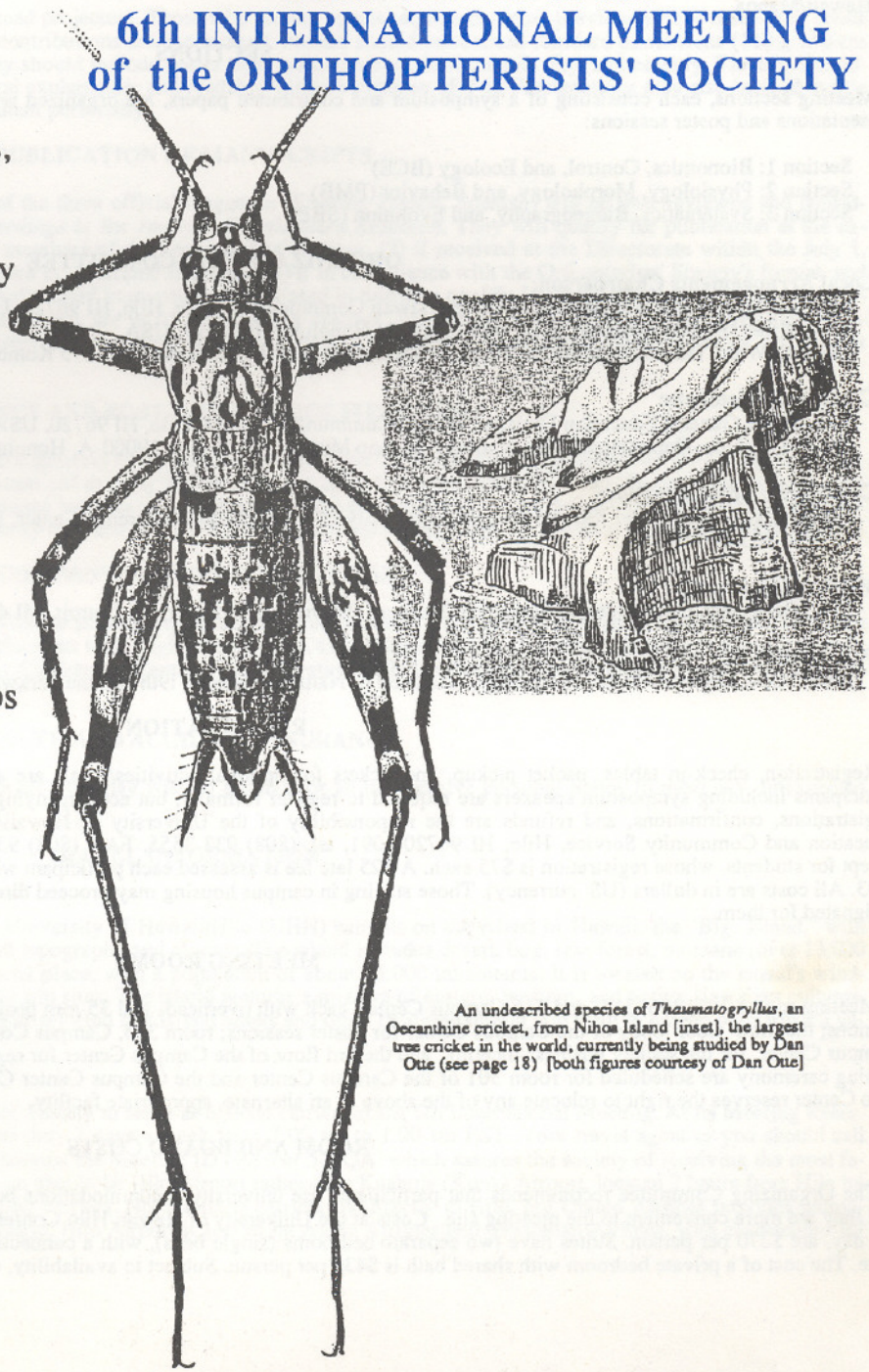
## PROGRAM of the 6th INTERNATIONAL MEETING of the ORTHOPTERISTS' SOCIETY



An undescribed species of *Thaumatogryllus*, an Oecanthine cricket, from Nihoa Island [inset], the largest tree cricket in the world, currently being studied by Dan Otte (see page 18) [both figures courtesy of Dan Otte]

cludes six known species and two possible new species (needing further study) which are mostly distributed along the Western Pacific Ocean from the north-east of Australia to New Guinea, the Solomon Islands, Indonesia and the Philippines, extending to Micronesia and the southern coast of Taiwan.

A key to the known species of *Megacrania* is presented. Morphological studies and geographical distribution are discussed.

## 61. DIVERSITY AND EVOLUTION OF THE ORTHOPTERA OF THE GALAPAGOS ISLANDS, ECUADOR

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The Galapagos Islands are an equatorial, volcanic, oceanic archipelago, about 4 million years old at most, and lying in the Pacific Ocean about 1000 km west of the coast of Ecuador. They are famous as a living laboratory of evolution. The low islands are semiarid. The high islands have the following life zones: littoral, arid, transition forest, humid forest, and sedge-fern "pampa". The last overview of Galapagos Orthoptera was by Morgan Hebard in 1920 (*Proc. Cal. Acad. Sci.* 4th ser. 2(2): 311-346) based on collections made in 1905-1906. At that time 16 species in 12 genera and 3 "families" were known. Continued field work and taxonomic change has brought the faunal total to 24 species in 14 genera and 7 families. Of these, 19 species (and 2 genera) are endemic, 1 is native (naturally occurring elsewhere in tropical America), and 4 are presumed to have been introduced by humans. Of the endemic species, 74% are flightless. It is assumed that ancestral colonizations were by flighted ancestors through the air, or by flightless ancestors (Nemobiinae and Mogoplistinae) by rafting and ocean surface transport. Considering the richness of the Orthoptera in mainland Ecuador, the fauna of the islands is impoverished. Island evolution in the Orthoptera is modest when compared to other plants and animals in the Galapagos biotas. Some specialization occurs in moist montane and cave habitats. The purpose of this presentation is to seek advice on a taxonomy for the species (especially in the Nemobiinae), and to indicate the research opportunities. The fauna is compared with that of other oceanic archipelagos (Hawaiian, Canary, Balearic, California Channel Islands, and Florida Keys).

## 62. CHROMOSOME EVOLUTION AND SPECIATION IN THE *PEDIODECTES* (ORTHOPTERA:TETTIGONIIDAE: TETTIGONIINAE)

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*Pediodectes* species are distributed in southwestern North America. The chromosome system of the *Pediodectes* is polymorphic at the inter- and intra-species level. The chromosome number of the species ranges from 2n=28 to 2n=31 in the male. Seven types of karyotypes are found in the genus. The species with the odd chromosome numbers are XO and the species with the even numbered are neo-XY. In *P. haldemani* three karyotypes are found.

Chromosome rearrangements, such as centric and tandem fusions, have played an important role in chromosome evolution at inter- and intraspecies level in *Pediodectes*. The probable pathways of chromosome evolution and speciation are discussed.

## 63. AN OVERVIEW OF NEW ZEALAND ORTHOPTERANS

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NEW ZEALAND

Some elements of the New Zealand orthopteran fauna are still relatively poorly known and many genera and species are yet to be formally recognized. New species are still being found. This overview, checklist in part, summarizes the present state and indicates interesting points of the fauna. Included are all families of Orthoptera, Grylloptera, and Blattodea and those groups which are most likely to have major changes in their constitution or understanding in the future are examined in detail.

## 64. THE KARYOTYPIC AND PHENOTYPIC FEATURES AS THE MARKERS OF GRASSHOPPER EVOLUTION

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The reconstruction of grasshopper evolution and phylogeny may be characterized as a complicated problem, especially in connection with the absence of sufficient paleontological data.

The karyotypic and phenotypic investigations of present grasshopper taxa allow us to understand and explain some periods and paths of their evolution. Now it is evident that the different parts of a population system of each species have their own evolutionary and ecological significance.

The comparative investigation of model taxa allows us to describe the "parallelism" pattern or main phenotypic and karyotypic characters. Often we can describe more or less identical pattern of their variability. The latter may be connected with the evolutionary specificity of each taxon. For example, two main groups of *Chorthippus s. lat.* (*Chorthippus s. str.* and *Glyptobothrus*) coincide with the variability of two types of color morphs. On the contrary, the similar pattern of this variability of *Chorthippus s. str.* and the katydids of *Metrioptera*-group shows their similar evolutionary history.

Our data show that all investigated taxonomic groups of grasshoppers may be interpreted as integrated and stable evolutionary units, the formation of which is connected with specific areas of Holarctis. Gomphocerini may be characterized as the forest-steppe and steppe group in recent history and with significant variability. Podismini, Chrysochraontini, and Bryodemini are connected with stable landscapes of the Holarctic Region.

## 65. [Information not Available- ed.]

T. Wang

## 66. TAXONOMIC VALUE OF CUTICULAR STRUCTURES OF THE STOMODEUM IN ACRIDOMORPHA (ORTHOPTERA)

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