Cladistic Analysis

Newton and Franz (unpublished data) listed 38 genera in the Cyrtoscydmini, which includes nearly half of the Scydmaenidae genera worldwide. No phylogenetic analysis of the relationships of the genera within the Cyrtoscydmini has been published, and I have yet to see any genera that could be considered as particularly closely related to *Lophioderus*.

The cladistic analysis was based solely on morphological features. Because there is only slight variation in body form, color, and size among the species, the characters used in this analysis were based largely on aedeagal structure and modifications of the male antennae. Among the aedeagal characters, the loss of parameres, the presence of either macrospines or microspines in the aedeagal armature, the shape of the dorsal lobe apex, and the relative length of the apices of the ventral lobe were used to define the species groups and interpret differences between them. The shape of the microspine clusters or macrospines was used to define species.

Procedure. Character states were polarized as primitive or derived by functional-ingroup and functional-outgroup comparison (Watrous and Wheeler 1981). Several genera within the Cyrtoscydmini were examined as representatives of outgroups: *Stenichnus, Euconnus*, *Neuraphanax*, *Neuraphes*, *Sciacharis*, and *Homoconnus*. Because the higher phylogeny of Cyrtoscydmini has not been worked out, secondary outgroup analysis (Maddison et al. 1984) could not be used.

Data were analyzed using the Hennig86 computer program (Farris 1988), with the hypothetical outgroup taxon coded entirely as plesiomorphic.