

LOS
ANGELES
COUNTY
MUSEUM

CONTRIBUTIONS IN SCIENCE

NUMBER 191

MAY 20, 1970

10

STUDIES ON THE FROGS OF THE GENUS *LEPTODACTYLUS*
(AMPHIBIA: LEPTODACTYLIDAE). VI.
BIOSYSTEMATICS OF THE MELANONOTUS GROUP

By W. RONALD HEYER

LOS ANGELES COUNTY MUSEUM OF NATURAL HISTORY • EXPOSITION PARK
LOS ANGELES, CALIFORNIA 90007

STUDIES ON THE FROGS OF THE GENUS *LEPTODACTYLUS*
(AMPHIBIA: LEPTODACTYLIDAE). VI.
BIOSYSTEMATICS OF THE MELANONOTUS GROUP

By W. RONALD HEYER¹

ABSTRACT: Six species are recognized in the Melanonotus group: *dantasi*, *discodactylus*, *melanonotus*, *podicipinus*, *pustulatus*, and *wagneri*. A synonymy, diagnosis, summary of characteristics, and distributional summary are presented for each species. Series of *Leptodactylus* were analyzed from broad geographic and ecologic areas and situations for standard length, ventral pattern, ventrolateral gland development, posterior thigh pattern, and toe disk development. Correlations are evident between 1) larger size and more mesic habitats in *wagneri*, 2) darker ventral pattern and greater annual rainfall in *melanonotus*, 3) lighter ventral pattern and greater ventrolateral-gland extent in *wagneri*, and 4) greater ventrolateral-gland extent and greater annual rainfall in *wagneri*. The hypothesis is presented that character displacement is involved in the sharp differences in size and pattern between populations of *melanonotus* and *wagneri* as well as *podicipinus* and *wagneri* in sympatry. *Leptodactylus melanonotus* is the most primitive of the species, while *discodactylus* and *pustulatus* are the most advanced.

Leptodactylus melanonotus, *podicipinus*, and *wagneri* are associated with old land masses and are species adapted for xeric conditions. *Leptodactylus dantasi* and *discodactylus* are limited to the Tropical Rainforest of the western Amazonian Basin. *Leptodactylus pustulatus* is distributed in the xeric regions of eastern Brazil.

INTRODUCTION

Since the frog genus *Leptodactylus* was proposed by Fitzinger in 1826, it has had an unstable systematic history. No one since Boulenger, in 1882, has treated the group as an entity. The present paper is the first of a projected series attempting to elucidate the biosystematics of each of the species groups within the genus. In the Melanonotus species group, characters of gross morphology and distribution are used to analyze the interspecific relationships, ecological distribution patterns, and geographical distribution patterns of the species.

METHODS

All adult specimens of the Melanonotus species group were examined for size, sex, ventral color pattern, ventrolateral gland development, posterior

¹Research Associate in Herpetology, Los Angeles County Museum of Natural History; and Biology Department, Pacific Lutheran University, Tacoma, Washington 98447.

