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periods; distances traveled during feeding; length of feeding dives; recovery times between dives; social interactions during feeding; social interactions during haul-out periods.

These data form a baseline of normal behavior of an undisturbed population of harbor seals. They will permit the monument managers to better determine the impact of increased human presence on the harbor seals in the park and, if necessary, restrict accordingly. An extensive report is being prepared for Glacier Bay National Monument and a shorter paper is in preparation for the *Journal of Mammology*.

SCOTT E. MILLER, Santa Barbara Museum of Natural History
Grant No. 8583—Penrose Fund (1979), \$600. Zoogeography of Cocos Island (Costa Rica) insects.

The fauna of Cocos Island, located approximately midway between Costa Rica and the Galapagos Islands, is of special significance in interpreting the biological and geological history of these islands as well as other parts of Middle America. Analysis of Cocos Island's biotic relationships has been heretofore hindered by poor knowledge of its entomofauna, many insects being excellent indicators of an area's tectonic history.

An analysis of Cocos Island's entomofauna has been undertaken by Dr. Charles L. Hogue of the Natural History Museum of Los Angeles County and the grantee, in collaboration with the Museo Nacional de Costa Rica. Collecting expeditions to the island in 1975 and 1978 produced over 15,000 specimens, a valuable resource for much needed zoogeographic studies. Some 7,000 additional specimens have been loaned or donated by other collectors, allowing good representation of many Cocos Island insect groups.

The first step in analysis is identification of the fauna. When a specialist is available, the appropriate specimens have been forwarded for identification. However, interested specialists are not available for many groups. The funds provided (along with a Smithsonian short-term visitor grant) allowed the grantee, during the summer of 1979, to work at the Smithsonian Institution (Washington, 45 days), American Museum of Natural History (New York, 2 days), Museum of Comparative Zoology (Cambridge, 4 days), and Canadian National Collection of Insects (Ottawa, 3 days). The collections, libraries, and staffs of these institutions were utilized to

make identifications which would have been impossible elsewhere because of the chaotic and elementary state of the taxonomy of Neotropical insects. The work allowed recognition of 95 Cocos Island species of which only 18 were previously known to science (all from the mainland). Sixty-four are being named and described by the grantee and others; most of the rest must await additional material and further study. A detailed progress report on identifications, with literature and collection reviews, has been prepared (Hogue and Miller 1980*a,b*).

Future plans include description of many of the new taxa, identification of additional material, another collecting expedition (concentrating on certain important but poorly sampled groups), and eventual detailed zoogeographic analysis.

HOGUE, C. L. and S. E. MILLER. 1980*a*. Entomofauna of Cocos Island, Costa Rica (including Arachnida and other terrestrial Arthropoda): first progress report on studies. Unpublished report distributed by the authors, Natural History Museum of Los Angeles County. 36 pp.

HOGUE, C. L. and S. E. MILLER. 1980*b*. Entomofauna of Cocos Island, Costa Rica. *Atoll Research Bulletin*.

MILLER, S. E. In preparation. New species of microlepidoptera from Cocos Island, Costa Rica.

PAUL OMAN, SR., Oregon State University

Grant No. 8361—Penrose Fund (1978), \$900. Differences in populations of leafhoppers with flightless females.

This grant supported field studies in and around the Columbia Basin of central Washington and north central Oregon. Sites thought to be ecologically suitable for *Errbomus* populations were investigated. Of the 113 sites examined, 56 harbored populations, samples of which are now in the Oregon State University collection. Many of the productive sites are within the zone of subsequent volcanic ash fallout from Mt. St. Helens.

Members of the genus *Errbomus* (Homoptera: Cicadellidae) occur today as relatively isolated populations in the Rocky Mountains and the Pacific Northwest. Populations in the latter region are thought to be descendants of ancestral populations that were fragmented by Cordilleran glaciation, glacial lake formation and post-Pleistocene catastrophic flooding. Three species complexes are known. Females are brachypterous and incapable of flight; males are short-lived and tend to be sedentary. These constraints, acting