

B R E V I O R A

Museum of Comparative Zoology

CAMBRIDGE, MASS.

10 JUNE, 1969

NUMBER 323

ON THE EARTHWORMS OF ASCENSION AND JUAN FERNANDEZ ISLANDS¹

G. E. Gates²

ABSTRACT. Recent collections enable addition of several species to lists of earthworm faunas of the two oceanic islands. As all species are widely distributed anthropochores, differences in the two faunas may be due mainly to climatic factors.

ASCENSION ISLAND

Ascension is a small island in the South Atlantic with an area of only 38 square miles. Green Mountain, reaching a height of 2,817 feet, is surrounded by a table land with a height varying from 1200-2000 feet. The island was discovered by Joao da Nova in 1501 but probably was first settled only in 1815 when Napoleon was exiled to St. Helena, some 500 miles distant, the nearest land. Previously the island was bare except for vegetation at the summit of Green Mountain.

Only two megadrile species had been recorded (Sims, 1964) from the island. Through the efforts of herpetologist Arthur Loveridge, who retired to St. Helena, a small collection was secured from Ascension.

LUMBRICIDAE

Allolobophora Eisen, 1874

Allolobophora sp.

The aclitellate worm (Sims, 1964) was not further identified.

¹ From research financed by the National Science Foundation.

² Zoology Dept., University of Maine, Orono, Maine.

MEGASCOLECIDAE

Pheretima Kinberg, 1866*Pheretima californica* Kinberg, 1866

Green Mountain, 30 August 1962, (3?)-1-6. John Packer *per* A. Loveridge.

Pheretima hawayana (Rosa, 1891)

Green Mountain, 30 August, 1962, (3?)-1-1. John Packer *per* A. Loveridge.

Pheretima morrisi (Beddard, 1892)

Three of the four specimens of this species previously available (Sims, 1964) were from garden soil.

OCNERODRILIDAE

Green Mountain, 30 August, 1962, 2-0-0. John Parker *per* A. Loveridge.

Setae, closely paired. Gizzards, probably lacking. Calciferous glands, long, seemingly extending through ix-x, deeply constricted by 9/10, opening into the gut posteriorly in x, the anterior half more firm. Prostates, one pair, very long, external apertures unrecognizable. Spermathecae, none found.

These worms (*ca.* 1mm thick) were so softened that further information was unobtainable. No other ocnerodrilid is known to have glands of the kind indicated above. Although reference to any known genus is impossible, the worms obviously were ocnerodrilid.

Remarks. The pheretimas are widely distributed anthropochores. They almost certainly were brought from the Orient to the island, directly or indirectly, by man. Any lumbricids on the island probably were brought, also by man, from England. Evidence to be presented elsewhere suggests that the pheretimas may be better adapted than the lumbricids to the climates of tropical islands such as Ascension.

P. californica and *hawayana* have been collected on St. Helena, the nearest land. *P. morrisi* was once recorded from St. Helena but was not present in any of the various collections which were made on that island by Loveridge and others during the last twenty years.

REFERENCE

SIMS, R. W.

1964. Oligochaeta from Ascension Island and Sierra Leone including records of *Pheretima* and new species of *Dichogaster*. *Ann. Mag. Nat. Hist.*, (13) 7: 107-113.

THE JUAN FERNANDEZ ISLANDS

The Juan Fernandez islands, all small, are three: Mas a tierra (36 square miles), Mas Afuera (33 square miles), and Santa Clara. The first is inhabited. The islands were discovered by the man for whom they are named in 1563. The first settlement to become permanent was in 1877.

Prior to Dr. Y. Kondo's visit, four species had been recorded from Juan Fernandez: *Allolobophora caliginosa* (Savigny, 1826), *Dendrobaena rubida* (Savigny, 1826), *Eiseniella tetraedra* (Savigny, 1826), *Eukerria saltensis* (Beddard, 1895). In the absence of any indication to the contrary, all presumably were found on Mas a tierra. Collections made by Dr. Kondo on Mas a tierra, enable the listing of three more species.

LUMBRICIDAE

Allolobophora Eisen, 1874

Allolobophora tuberculata Eisen, 1894

Quebrada, Portozuela East, 200m, 2.xi.1966, 4(+25?)-5-2.
No. 31, 11. xi. 1966, 5-0-1.

A. tuberculata is one of at least four species long retained in a classical congeries known as *A. caliginosa*. Worms previously recorded from Juan Fernandez as *A. caliginosa* may well have been *A. tuberculata*.

Dendrobaena Eisen, 1874

Dendrobaena octaedra (Savigny, 1826)

No. 31, 11. xi. 1966, 1-0-2.

Dendrobaena sp.

Asondalan, 29. x. 1966, 1-0-0.

This small juvenile is not of *D. octaedra*, but its condition was too poor to permit a positive identification, and it may be of *D. rubida* (Savigny, 1826), previously recorded from the island.

Octolasion Oerley, 1885

Octolasion tyrtaeum (Savigny, 1826)

No. 31, 11. xi. 1966, 2-0-1.

MONILIGASTRIDAE

Drawida Michaelsen, 1900

Drawida bahamensis (Beddard, 1892)

No. 31, 11. xi. 1966, 0-1-1.

The left copulatory chamber, of one of the posterior amputees, is everted and the penis is protruded. Apertures of the other three chambers are tightly closed.

Gizzards, in xii-xiv (1), in xiii-xiv (1). Ovisacs, confined to xii.

DISCUSSION

Mas a tierra is only two square miles smaller than Ascension. Both islands are in the Southern Hemisphere. The Atlantic island has a known megadrile fauna of five species, and the Pacific island has seven; each island has one ocnerodril. *E. saltensis* originated in southern South America, but in which part is unknown. The Ascension ocnerodril could have evolved in South America or even in Africa. Ascension pheretimas, like the San Juan moniligastrid, originally were from the Orient. Lumbricids, of course, came from Europe.

Each species of the two islands is more or less widely distributed throughout the world. Each very probably was brought to the islands accidentally by man. Lumbricids, so far as can be indicated by the samples, seem to be dominant on Mas a tierra. Megascolecids, according to a smaller sample, seem to be dominant on Ascension. The Juan Fernandez Islands are well south of the tropics, Ascension well within them. The difference in dominance may, then, be due to climatic factors. Nevertheless, the pheretimas, like the lumbricids, probably are from the Temperate Zone of the Northern Hemisphere.

(Received 4 March 1969.)



Gates, G. E. 1969. "On the earthworms of Ascension and Juan Fernandez Islands." *Breviora* 323, 1-4.

View This Item Online: <https://www.biodiversitylibrary.org/item/25368>

Permalink: <https://www.biodiversitylibrary.org/partpdf/31544>

Holding Institution

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Sponsored by

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.