ODONATA FROM THE AZORES AND MADEIRA[1]

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I am indebted to Professors Per Brinck and Erik Dahl for the opportunity of reporting on the Odonate larvae collected from the Azores and Madeira in 1957.

All the species previously recorded from the Azores are represented [Navas (1933), Valle (1940) and Gardner (1959)]. From Madeira three species are not represented — *Anax imperator* Leach, *Sympetrum fonscolombei* (Selys) and *Ischnura senegalensis* (Ramb.). Of special interest is the discovery of *Sympetrum nigrifemur* (Selys) larvae from the mouth of the Ribeira do Faial on the north coast of Madeira.

ZYGOPTERA

COENAGRIIDAE

Ischnura pumilio (Charpentier).

Azores. Faial, Pool 1 km. ESE of Cabeço do Fogo, 4.IV.57. (Loc. 90). 2 ♂♂ adult larvae.

Azores. Santa Maria, Valverde, 20.III.57. (Loc. 49). In stream. 1 ♂ penultimate instar larva.

Azores. Pico, 10 km WNW of Lajes, 9.IV.57. (Loc. 102). Freshwater pool. One 6th, three 7th and two 9th instar larvae.

Azores. Flores, Central plateau S and SE of Caldeira Comprida, 14.IV.57. (Loc. 109). In freshwater pool. 1 ♀ adult larva.

Madeira. Faial, at mouth of Ribeira do Faial, 21.IV.57. (Loc. 116). 1 ♀ immature larva.

A widely distributed species extending throughout Europe to the Near East. It breeds in bogs, marshes and seepages.

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1) Report No. 9 from the Lund University Expedition in 1957 to the Azores and Madeira.

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Ischnura senegalensis (Rambur)

Azores. Santa Maria, Valverde, 20.III.57. (Loc. 49). In stream. 1 ♀ larva, judged to be in penultimate instar by body length.

Azores. Flores, Central plateau, Lagoa Branca, 14.IV.57. (Loc. 110). Lake. 2 ♀♀ adult larvae and 26 immature larvae, 3 of which are in the antepenultimate instar. I judge these to be *senegalensis* by size and from the dark suffusion at the base of the abdominal segments on the lateral margins and the dark suffusion on the lateral margins of the thoracic segments.

A common African species, its distribution extending from Senegal to the Philippines. Breeds in still pools and streams from sealevel to nearly 8,000 ft.

ANISOPTERA

AESHNIDAE

Anax imperator Leach.

Azores. Faial. Pool 1 km ESE of Cabeço do Fogo, 4.IV.57. (Loc. 90). 2 larvae (10th and 12th instars), 1 ♂ larva (14th, antepenultimate instar), 1 ♀ larva (15th, penultimate instar).

Azores. Pico, 10 km WNW of Lajes, 9.IV.57. (Loc. 102). Freshwater pool. One 6th, two 8th, four 10th and four 11th instar larvae. — Pico, W side, ca. 800 m., 8.IV.57. (Loc. 97). Freshwater pool. Four 11th instar larvae.

A common species widely distributed in Europe, Madeira, Canary Islands, throughout North Africa to Western Asia. Breeds in still water ranging from lakes, ponds to small artificial pools. Many larvae of all sizes were dredged from a small ornamental pool in a garden on the outskirts of Funchal, Madeira, by the author in December, 1957.

LIBELLULIDAE

Sympetrum fonscolombei (Selys).

Azores. Faial. 3 km WNW of Pedro Miguel, 5.IV.57. (Loc. 92). In a pool. 3 adult larvae (♂,♀♀). All with wing-pads swollen and tissues of labium retracting through sheath of larval prementum. This indicates that the eclosion of the perfect insect is near. — Faial. 3 km WNW of Pedro Miguel, 5.IV.57. (Loc. 92). Freshwater pool. 2 ♂♂ adult larvae approaching eclosion of imagines.

Azores. São Miguel. Lagoa do Pau Pique, 7.III.57. (Loc. 15). Mountain lake. 10 antepenultimate instar larvae, 3 instar prior to antepenultimate.

Azores. Santa Maria. 1 km W of Praia. Pond I. 20.III.57. (Loc. 46). 2 adult larvae. Pond II. 20.III.57. (Loc. 46). 1 ♀ imago. Teneral condition, evidently freshly emerged. 32 adult larvae, several near eclosion of imagines. One penultimate instar larva was positively identified as a male. — Pond III. 20.III. 57. (Loc. 46). 1 ♀ antepenultimate instar larva.

Azores: Pico, 10 km WNW of Lajes, 9.IV.57. (Loc. 102). Freshwater pool. 3 presumed 8th instar larvae, one 9th and four 10th instar larvae.

Azores. Flores, Central plateau S and SE of Caldeira Comprida, 14.IV.57. (Loc. 109). In freshwater pool. One 7th, 8th, 9th and 10th instar larvae.

Azores. Pico, Volc. Pico, W side ca. 800 m., 8.IV.57. (Loc. 97). Freshwater pool. Four 10th and one 11th instar larvae.

A migrant species found throughout the greater part of the Old World and the African continent. Breeds in lakes, ponds and marshes. From the one teneral imago represented in this collection it is not known if the material is referable to the subspecies *azorensis* Gardner (1959) described from 1 ♂,2♀♀ taken by Dr. J. D. Carthy from a pond on the east slope of Pico at 3,500 ft., 17.VIII.52.

Sympetrum nigrifemur (Selys).

Madeira. Faial, at mouth of Ribeira do Faial, 21.IV.57. (Loc. 116). 1♀ adult larva, 1 penultimate instar and 1 antepenultimate instar larvae.

An endemic species. Reputed to occur on the Canary Islands but the records have not been substantiated.* These specimens represent the first known larvae to be taken and are also of interest as previously *nigrifemur* has only been known from the south of Madeira in the vicinity of Funchal. They were swept at the mouth of the Ribeira do Faial where the valley is fairly broad and where the river has split up into a number of small branches in addition to the fairly broad main stream. Many of the smaller branches were filled with comparatively dense vegetation and the water at the time of collecting was fresh. The larvae were taken with other typical freshwater fauna among rich vegetation. Since the northern storms bring salt water over a good deal of the outer parts of the valley it would appear that the larvae are able to survive in brackish conditions.

During the Classey and Gardner expedition to Madeira during December, 1957, evidence was obtained of *nigrifemur* breeding in a small ornament-

al pond on the outskirts of Funchal. The species was flying in some numbers at Palheiro Ferreiro at 616 m., on the sunny slopes bordering a Pine wood. Eggs were obtained and the complete life-history has been worked out. The larvae can be identified by the short mid-dorsal abdominal spines which are absent in *fonscolombei*.

Methods: All larvae except *Ischnura senegalensis* have been compared with bred specimens in my collection. Instars have been determined by comparing head width, total length, labial armature and length of wing pads. Measurements made with eye-piece micrometer and vernier callipers.

* Since reporting on this collection I have been able to examine 4 ♂♂ and 1 ♀ *Sympetrum nigrifemur* taken at Barranco, Tenerife, 24-25.III.1947. My thanks are due to Dr. M. A. Lieftinck of the Leiden Museum for the loan of this material.

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