



WAITE AGRICULTURAL RESEARCH INSTITUTE

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PRIVATE MAIL BAG.

ADELAIDE.

SOUTH AUSTRALIA.

21st May, 1946.

The Registrar,
The University of Adelaide,
North Terrace,
ADELAIDE.

Dear Sir,

In accordance with the Regulations of the Degree of Doctor of Science set out on page 188 of the Calendar, I would like to seek the approval of the Faculty to submit certain of my published works for examination for the Degree of Doctor of Science.

The papers are all relevant to the general subject of insect ecology, more particularly the influence of the physical environment upon the distribution and abundance of insects.

The papers numbered 1 to 6 describe laboratory experiments which were undertaken in relation to particular ecological studies of certain species of insects. In particular certain aspects of the physiology of diapause and the resistance of water loss in grasshopper eggs have been studied.

The papers numbered 8 to 13 are ecological studies in which field observations, meteorological records and the results of laboratory experiments have been used to interpret the distribution and abundance of two species of Acrididae, one a locust, the other a plague grasshopper.

Number 7 is a review dealing with certain aspects of the biology of locusts and grasshoppers. The literature was examined in the light of a new theory which had emerged from my studies of Acrididae. The theory deals with certain fundamental physiological and ecological differences between locusts and grasshoppers.

Numbers 3, 11, and 12 were published in collaboration with Mr. L. C. Birch who was at that time a research student working with me. Mr. Birch accumulated most of the data for these papers except for the section on "Mortality Rate under Desiccation" in Number 3 and the data for table 1, table 3 and figure 3 of number 11. The planning of the work and the analysis and interpretation of the data were in all cases a joint effort. Number 14 was published in collaboration with Professor J. Davidson and Mr. D. C. Swan. The share contributed by each of us is set out on page 5 of this paper.

Except for number 6 which was done while I was working in the Department of Agriculture, Western Australia, and numbers 4 and 5 which were done while I was working in the Melbourne University School of Agriculture, these papers are all the result of work done in the Entomology Department, Waite Agricultural Research Institute, under the leadership of the late Professor James Davidson.

I append a list of titles of the papers I wish to submit. The reprints have been numbered on the top right hand corner of the cover.

Yours faithfully,

H. G. Andrewartha

(H. G. Andrewartha).

LIST OF PAPERS PUBLISHED BY H. G. ANDREWARTHA.

1. Diapause in the Eggs of Austroicetes cruciata, Sauss. (Acrididae) with particular Reference to the Influence of Temperature on the Elimination of Diapause.
2. The Influence of Temperature on the Elimination of Diapause from the Eggs of the Race of Austroicetes cruciata, Sauss. occurring in Western Australia.
3. (With L. C. Birch). The Influence of Moisture on the Eggs of Austroicetes cruciata, Sauss. with Reference to their Ability to survive Desiccation.
4. On the Effect of Temperature and Food upon Egg Production and the Length of Adult Life of Thrips imaginis, Bagnall.
5. On the Effect of Soil Moisture on the Viability of Pupal Stages of Thrips imaginis, Bagnall.
6. The Bionomics of Otiorrhynchus cribricollis, Gyl.
7. Some Differences in the Physiology and Ecology of Locusts and Grasshoppers.
8. The Environment of the Australian Plague Locust (Chortoicetes terminifera, Walk.) in South Australia.
9. The Distribution of Plagues of Austroicetes cruciata, Sauss. in Australia in Relation to Climate, Vegetation and Soil.
0. Air Temperature Records as a Guide to the Date of Hatching of the Nymphs of Austroicetes cruciata.
1. (With L. C. Birch). The Influence of Drought on the Survival of Eggs of Austroicetes cruciata, Sauss. in South Australia.
2. (With L. C. Birch). The Influence of Weather on Grasshopper Plagues in South Australia.
3. Significance of Grasshoppers in some Aspects of Soil Conservation in South Australia and Western Australia.
4. (With J. Davidson and D. C. Swan). Vegetation Types associated with Plague Grasshoppers in South Australia.
5. The Small Plague Grasshopper (Austroicetes cruciata, Sauss).

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