

# THE FOOD OF TROUT IN NEW SOUTH WALES.

1934-1935.

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THIS paper contains the results of the investigation into the food of trout in New South Wales carried out during the season 1934-1935, and gives details of the stomach contents of 83 Rainbow Trout (*Salmo irideus* Gibbons), 67 Brown Trout (*Salmo fario* Linnæus), and 8 Loch Leven Trout (*Salmo levenensis* Walker).

The earlier results of this investigation have been presented in two papers<sup>1</sup> which should be consulted by those interested in the conservation of trout.

Considerable interest in the investigation has been evidenced throughout New South Wales, Victoria, and New Zealand. In Victoria the need for, and the economic value of, such an investigation are becoming evident, and it is to be hoped that research will be carried out in other States along these lines.

When the present investigation was commenced no information was available with regard to the food of trout in Australia, although considerable research had been carried out in New Zealand, which was being applied in a practical manner in an endeavour to improve the conditions prevailing in the streams of the Dominion. We now know, subject to climatic and other variation, the principal insects and other animals constituting the food of our trout; this is a step in the right direction, but as the investigation has progressed it has become more and more apparent that the laboratory work must be correlated with field research. A quantitative survey of the principal trout streams is essential for the solution of a number of problems which have presented themselves during the course of the work. We know that certain insects are taken as food by the fish, but we do not know whether other insects, etc. are present in the streams but are distasteful to the trout, nor do we know the relations between those species which have been proved to be of value as fish food. Caddis are present in the streams in varying numbers through the season. At some periods the caddis constitute the most important food item, but they may suddenly decline in numbers in the stomachs, although individual fish may be still taking them in large numbers. At the periods of diminution in numbers of the caddis there is usually an increase in the quantity of terrestrial insects taken, e.g., Scarabæidæ. It is important to discover in this and other cases whether the fish have a preference for the beetles and abandon the caddis in their favour, or whether the change in food is due to some sudden decrease in the number of the caddis. This aspect is apparent in the case of other insects. This is but one problem among many, but the solution can be obtained only by careful research in the field, and definite conclusions of value to the future of the Australian trout streams arrived at by the correlation between laboratory and ecological methods. I feel that this aspect cannot be too strongly stressed.

<sup>1</sup>McKeown.—Notes on the Food of Trout and Macquarie Perch in New South Wales. Rec. Aust. Mus., xix, 2, (March 26, 1934), pp. 141-152, pl. xvii; The Food of Trout in New South Wales, 1933-1934. Rec. Aus. Mus., xix, 3, (September 28, 1934), pp. 184-213.