

TRANSACTIONS  
OF THE  
ROYAL SOCIETY OF NEW ZEALAND

ZOOLOGY

VOL. 2.

No. 25

NOVEMBER 30, 1962

Studies on Ephemeroptera  
II.—*Coloburiscus humeralis* (Walker); Ecology and  
Distribution of the Nymphs

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[Received by the Editor, May 30, 1962.]

*Abstract*

THE physical conditions and associates of *Coloburiscus* nymphs in Purau Stream, Banks Peninsula, N.Z., are described. It is suggested that the apparent absence of trout (*Salmo trutta*) from this habitat is associated with a lack of suitable spawning beds. Streams and a river subjected to periodic flooding and scouring in the Cass Basin, Canterbury, were apparently uninhabited by nymphs. The four streams in which nymphs were abundant were "stable"; i.e., not affected greatly by flooding. The probable buffering action of lakes in maintaining these conditions locally is discussed. In the Selwyn River, Canterbury, the abundance of nymphs appeared to vary with the nature of the substratum. Nymphs were not found where flood scouring had produced a hard bed with very few loose stones; but they were abundant where the bed consisted of undisturbed loosely-packed, small stones, provided surface water was present all the year. It is suggested that *Coloburiscus* nymphs are indicators of stable conditions; and that when an abundance of nymphs is found in a substratum of small, loosely-packed stones, the area is probably suitable for redd making, spawning and the subsequent development of young trout.

INTRODUCTION

DURING an investigation of the early life history of *Coloburiscus humeralis* (Wisely, 1962) it was noticed that although this species was often found associated with trout in fast-running rivers and streams, there were some anomalous exceptions. *Coloburiscus* was abundant in Purau Stream but trout were apparently absent; some streams in the Cass Basin contained both *Coloburiscus* and trout, but others lacked the former. Parts of the Selwyn River bore large trout populations but *Coloburiscus* was not found. The present paper describes some aspects of the ecology and distribution of *Coloburiscus* nymphs in these habits, and attempts to outline their distribution in other New Zealand rivers and streams.

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