

Trout (*Salmo trutta*) were not observed in Purau Stream, although there is evidence of their presence in various sea arms around Banks Peninsula. Hobbs (1948, p. 25) presents records; and in correspondence mentioned seeing trout netted at Port Levy on numerous occasions. The author has seen two specimens netted in Menzies Bay. About 1930, the late Mr H. Gardiner, of Purau Valley, liberated some 1,700 young fry in Purau Stream, but this was apparently unsuccessful.

It is suggested that the apparent absence of trout from Purau Stream is associated with the unsuitability of the bed as a spawning ground. Spawning grounds usually consist of fairly uniform, small, loosely-packed stones which can be shifted readily by trout in making their redds. Examples of these can be seen in the Selwyn River, the upper Avon River, and in Slovens and Winding Creek near Cass. As noted previously, Purau Stream shows great discontinuity in the size of its bed components. It would be difficult for trout to find areas of gravels or stones suitable for making redds.

#### 5. Symbionts, Parasites and Predators

A vorticellid ciliate and a species of sessile rotifer were found attached to the abdominal tergites of Purau Stream nymphs. A few small nematodes were noted in the developing gonads of both Purau and Cass nymphs. One male imago taken at Cass (December 12, 1950) had a red larval mite of the family Trombididae well embedded in its head. This was identified by Mr H. Womersley of the South Australian Museum, Adelaide. The length of the mite was 1.5 mm. The following list of predators has been compiled from field observations, and the literature.

NYMPH. 1. *Archichauliodes dubitatus* larvae Purau Stream, June 24, 1952. 2. *Gobiomorphus gobiodes* Wellington streams (Phillips, 1929, p. 27). 3. Adult *Galaxias* sp. (Percival, 1932, p. 17). 4. *Salmo trutta* Horokiwi Stream (Allen, 1951, p. 139). 5. *Anguilla dieffenbachii*, length 18.5 cm, Purau Stream, March 25, 1952. 6. *Anguilla australis*, length 30.0 cm, Purau Stream, October 25, 1952. 7. *Salar salar*, Waiau River, Southland (Phillips, 1931, p. 403).

SUBIMAGO. Chaffinch (*Fringilla caelebs*) Purau Valley, October 24, 1952.

IMAGO. 1. Spider (*Orsinome herbigrada*) Cass, December 19, 1950. 2. Predatory fly, Cass, December 19, 1950.

#### DISTRIBUTION IN THE CASS BASIN, CANTERBURY

During 1950 and 1951 the distribution of *Coloburiscus* nymphs was examined in the Cass Basin in the Southern Alps (Fig. 1). Nymphs were found consistently only in four of its water courses, all on the basin floor. These were: Grasmere Stream, draining Lakes Grasmere and Sarah. 2. The original outlet stream of Lake Grasmere, now joining Grasmere Stream below Lake Sarah. 3. Winding Creek, draining Lake Pearson. 4. A small stream leaving "Power Line Gully" (viz., between Mts Misery and Horrible) and following a south-westerly course to discharge into the Cass River.

The basic feature of these four streams seemed to be that they were "stable"; that is, not affected greatly by flooding or scouring. Probably Lakes Grasmere, Sarah and Pearson act as buffers against such abrasive action in the first three streams. During heavy rains the numerous water courses draining the steep basin sides (e.g., Ribbonwood and Craigiern Streams) become swollen and discoloured and carry much suspended sand and silt. Since the carrying capacity of water is proportional to the third or the fourth power of its velocity (Twenhofel, 1950), much of this suspended matter drops when these water courses discharge into the lakes on the valley floor. These lakes are large (Fig. 1), and