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LITTORINA UNIFASCIATA GRAY AND *L. PRAETERMISSA* MAY
(MESOGASTROPODA, LITTORINIDAE) IN SOUTH AUSTRALIA

by

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SUMMARY

The Gastropod Genus Littorina Ferrusac is represented in South Australia by two species L. unifasciata Gray and L. praetermissa May. These two species are sympatric in the same supralittoral fringe and have somewhat similar ecological relationship. However, the latter species tends to occupy more sheltered areas and crevices of the habitat than the former.

The shells of Littorina unifasciata and L. praetermissa are easily distinguishable, but the two species are so similar ecologically that the snails might not be regarded as valid species on their shell characteristics alone. Therefore, a study was made to determine the morphological characters which might show the snails to be two distinct species. The inner morphology of the shell was also studied by thin sectioning and differences are observed in the formation of the lamellae on the columellar axis. Differences between the two species are also found in the penile anatomy, the radula and the colour of the male and female gonads. These are the characteristics of littorinids on which specific differences are usually based.

The snails are easily maintained in the laboratory, so their breeding habits have been studied in laboratory experiments and comparisons are made with other littorinid species. Both species release planktonic egg capsules but differences between the species are observed in the structure of the egg capsules, their development time from zygote to veliger larva and in the structure and the

degree of development of the hatched veliger larva. Furthermore, Littorina unifasciata breeds throughout the year, whilst L. praetermissa breeds only for a few months in the winter.

The population of Littorina praetermissa is relatively small compared to that of L. unifasciata. A study on the distribution of the two species was made along the South Australian coast. Both species were found along the whole coastline. However, three small areas were found (Fishery Bay (Eyre Peninsula), Coobowie (Yorke Peninsula) and Cape Du Couedic (Kangaroo Island)) where some rocks or cliff faces were found to be shaded from direct sun through the whole of the day. In all three of these sites, the two species were present in more or less equal numbers and in some cases numbers of L. praetermissa slightly exceeding those of L. unifasciata. Usually however, L. unifasciata and L. praetermissa were present in numbers with ratios of about 4:1. The latter species being mostly in the more sheltered areas and crevices in the environment.

This suggests strongly that there is a difference in tolerance to desiccation between the two species, Littorina praetermissa having the lower tolerance. This was shown to be the case in the desiccation experiment; L. unifasciata surviving for much longer periods in low relative humidities and high temperatures than L. praetermissa.

DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma at any University, and, to the best of my knowledge contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

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