

# Spatial variation in molluscan assemblages from coralline turfs of Argentinean Patagonia

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## ABSTRACT

Patterns of spatial variation of molluscan communities associated with coralline algal turfs were evaluated over 1,000 km of the coast of Argentinean Patagonia. A hierarchically-nested experimental design was used to determine the relative importance of molluscan assemblage variation at three different spatial scales (shores, sites and cores). Hypotheses were also tested about the potential role of habitat variables (frond density, frond length, sediment and epiphytes) for determining molluscan community structure. In total, 38 molluscan species were found comprising 16, 18 and 4 species of bivalves, gastropods and polyplacophorans, respectively. Densities of molluscs in coralline turfs reached ca 77,000 individuals per m<sup>2</sup> and were dominated by mussels, especially *Perumytilus purpuratus*. Multivariate and univariate analyses of assemblage structure consistently showed that variation at scales of metres and hundreds of kilometres dominated, with sites 20–50 m apart always contributing less than 24% of the total. Significant associations between molluscan community structure and both frond density and frond length demonstrated the potential importance of habitat structure in determining community structure at local scales. Variation in molluscan assemblages at the scale of shores, however, did not appear to correlate with latitudinal, temperature or wave exposure gradients, indicating that other processes must be operating. The compositions of molluscan assemblages in coralline turfs on the coast of Argentina were similar to those reported for central Chile. Comparisons of the richness of these South American assemblages to other parts of the world revealed some striking biogeographical patterns that warrant further investigation. Overall, this work highlights the general importance of small-scale variation in molluscan assemblages on rocky shores and the consistent influence of habitat complexity in determining the structure of diverse molluscan communities associated with mat-like habitats.