

Geographical variation in the use of intertidal rocky shores by the lizard *Microlophus atacamensis* in relation to changes in terrestrial productivity along the Atacama Desert coast

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Summary

1

The movement of materials and organisms between ecosystems is a common process in nature.

2

In the present study we investigate the hypothesis that the movement of consumers between ecosystems depends not only on the differences in productivity between ecosystems and prey availability, but also on these animals' biological characteristics.

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To address this hypothesis we investigated the changes in abundance, habitat utilization and diet of the lizard *Microlophus atacamensis* along its geographical range on the coast of the Atacama Desert. Within this range, intertidal rocky shore communities do not show important variations in their species composition and abundance, but terrestrial communities show a steep gradient of productivity associated with the increase in rainfall from north to south.

4

Our results show that the use of intertidal habitats and the consumption of intertidal prey by *M. atacamensis* change within its geographical range: in the North, the species uses intertidal areas and behaves as an herbivore consuming mostly algae, whereas in the South it spends most of the time in terrestrial habitats as a carnivore mainly of arthropods.

5

Our study gives new evidence for cross-ecosystem connections created by consumer movement between habitats of contrasting but variable productivity levels.