

# Population dynamics of two sympatric rodents in a variable environment: rainfall, resource availability, and predation

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Precipitation plays an important role in the dynamics of species found in arid and semiarid environments. However, population fluctuations generally are driven by a combination of multiple factors whose relative contribution may vary through time and among species. We monitored fluctuations of species in three trophic levels for <17 years at a semiarid community in north-central Chile. The region is strongly affected by the El Niño Southern Oscillation, resulting in high variation in rainfall that triggers dramatic changes in food resource availability, with strong effects on upper trophic levels. We focused our analyses on the role played by endogenous and exogenous (climatic) factors on the dynamics of two important rodent species in the community, *Octodon degus* and *Phyllotis darwini*. We documented population fluctuations of several orders of magnitude in response to wet and dry episodes of different strength and duration. *P. darwini* reached similar maximum densities, regardless of t