

# **Survival, recruitment and immigration processes in four subpopulations of the leaf-eared mouse in semiarid Chile**

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## **Abstract**

The leaf-eared mouse (*Phyllotis darwini*) undergoes periodical population irruptions in semiarid Chile associated with unusual rainfall driven by ENSO (El Niño/Southern Oscillation) disturbances. In this study, we estimated survival, immigration, and recruitment between contiguous subpopulations in opposite-facing slopes of two creeks by means of probabilistic models. Population trajectories were similar in all four subpopulations. However, xeric-habitat subpopulations were larger than mesic-habitat subpopulations in the two creeks studied. On the other hand, survival showed strong temporal effects, but no habitat-type or life-stage effects. The most parsimonious models were those that included seasonal effects on survival rate. Numbers of births and immigrants were correlated with total population changes in both subpopulations of El Cobre creek, but the two subpopulations at El Grillo creek showed juvenile and adult mortality plus emigration as the most important processes contributing to population change. Our study demonstrates spatiotemporal variability in population processes (survival, birth, immigration, and recruitment) between neighboring subpopulations.