Lizards in the Aire. On rotten horses and other disgusting things

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Abstract: Temporal changes in the observed adult sex-ratio might be due to differences in survival or dispersal probabilities. However, in natural populations, it might also be due to an unequal detection probability due to sex-specific behaviour. To separate these hypotheses, observations should be analysed using an analytical framework that includes the probability of detection, or recapture, of males and females. We analysed data from an intense capture-mark-recapture study conducted during the spring 2004 at the isle of Aire (Balearic Archipelago) and investigated the demographic mechanisms underlying the observed spring sex-ratio. We used capture-recapture models to simultaneously estimate survival (/f/), proportion of transients (/p) /and the probability of recapture (/p/). We then estimated population size using open population models for individually-based data and compared these with the observed values to validate model estimates. Results indicated that males had a higher probability of recapture than females, but this was not sufficient to generate the observed sex-ratio. The proportion of transient was decreasing during the spring which suggested that sex-dependent movements, most likely linked to the availability of ephemeral resources, were responsible for the observed difference in the number of males and females. Potential and limitations of the capture-recapture analysis and the influence of individual heterogeneity will be discussed.