

The Influence of Habitat on Travel Speed, Intermittent Locomotion, and Vigilance in a Diurnal Rodent

Rodrigo A. Vásquez, Luis A. Ebensperger, and Francisco Bozinovic

Abstract

We studied effects of habitat structure on routine travel velocities, intermittent locomotion, and vigilance by the degu (*Octodon degus*), a diurnal rodent of central Chile. We predicted that travel speed, pauses during locomotion, and vigilance would be greater in open (riskier) than in shrub (safer) habitats. Video recordings of marked individuals in the wild were used to measure speed and other variables of spontaneous locomotion not triggered by predatory attack or any other noticeable stimulus during nonforaging periods. Time spent vigilant while foraging was also measured. Because degus use bare-ground runways for distant movements (e.g., between burrow openings and/or food patches), data on locomotion decisions were not confounded by effects of obstructive vegetation cover and/or resource abundance. When moving across the habitat between different feeding places, degus showed an intermittent pattern of locomotion, interrupting running events with short pauses. As predicted, travel speed and the duration of pauses between locomotion bursts were significantly greater in open habitats. Further, the duration of locomotion bursts between feeding sites or between feeding sites and burrows was significantly longer in open habitats. Our assumption that pauses and velocities are independent decisions was supported by the lack of correlation between pauses and speeds during locomotion events. During foraging, degus devoted more time to vigilance in open than in shrub habitats. The static position adopted by degus during pauses, the speeds attained during movements, and the concordance between pausing behavior and vigilance across habitats suggest that pausing has an antipredatory role and is not limited to orientation and/or physiological recovery. Our results support the view that degus perceive higher predation risk in open areas and that flexible movement behavior reflects an adaptive antipredator response.

Keywords: Antipredator behavior, degus, *Octodon degus*, pausing behavior, predation risk, travel speed, vigilance.