On the Relationship between Herbaceous Cover and Vigilance Activity of Degus (*Octodon degus*)

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Abstract

A number of studies demonstrate that plant cover provides prey animals with refuges to decrease vulnerability to predators. However, others suggest plant cover to visually obstruct detection of predators or conspecifics. We suggest these seemingly conflicting results can, to some extent, be resolved if overhead vs. lateral cover are distinguished. We recorded seasonal variation in vigilance activity of a natural population of degus (*Octodon degus*), a diurnal, semi-subterranean and social rodent from central Chile. We used these data to determine whether cover provided by herbaceous vegetation is mostly obstructive. The height of herbaceous vegetation in the habitat of degus varied seasonally, and the ability of degus (estimated from human observers) to detect potential predators decreased when herbaceous vegetation was high. This effect was more important for degus using quadruped postures and when dealing with terrestrial simulated predators. Accordingly, degus adjusted the quality rather than the quantity of their vigilance activity: male and female degus allocated similarly more time to bipedal vigilance when the height of herbs was high. Such increase in bipedal vigilance seemed to occur at the expense of quadruped vigilance instead of foraging time. Collectively, these results support the hypothesis that cover of herbaceous vegetation is mostly obstructive to degus when active above ground, a finding that contrasts with previous evidence supporting that shrub cover provides refuges against predators. The differential effects of shrubs and herbs on degu vigilance are likely linked to differences in the costs and benefits associated with each cover type. For degus, shrubs may provide more overhead (protective) than lateral (obstructive) cover.