Vegetation management on levees, especially removal of trees and shrubs, might affect habitat quality for burrowing mammals that are considered threats to levee integrity. We evaluated habitat associations of burrowing mammals in order to assess the effects of levee vegetation management on these species. We surveyed 166 levee segments in the Sacramento area, each 50 meters long, and counted 39,399 burrows, primarily of California ground squirrels (N = 5705) and Botta’s pocket gophers (N = 33,678).

Using burrows as an indirect measure of mammal presence, we found that the presence of trees had a negative effect on the occurrence and abundance of ground squirrels on levees, and also the location of their burrowing activities on the levee slope, probably because visual occlusion caused by tall woody vegetation impedes detection of predators. Similarly, trees had a negative effect on the abundance of pocket gophers on levees and on the location of their burrowing activities on the levee slope, probably because of the effect of tree cover on food availability.

The conversion of woodland habitats to grasslands on levees will probably increase habitat quality for both ground squirrels and pocket gophers, and thereby increase the potential threat that their burrowing activities pose to levee integrity.

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He recently completed research on burrowing mammal habitat associations and characterization of mammal burrows on California’s Central Valley levees. The investigations focused on the distribution and abundance of California ground squirrels in habitats dominated by grasslands and habitats dominated by trees.