Effects of Off-Highway Vehicles (OHV) on Vertebrate Communities

The Research:
Direct effects of OHV use include noise, compaction, collision, trampling, and simple physical presence of plant and wildlife species, and they can affect a wide array of trophic levels, ranging from primary producers to top predators. OHV use in California is growing along with the burgeoning population of the State. Managing this growth in a manner that is consistent with multiple land management objectives poses a mounting challenge to land managers and the OHV user community. Basic information on how various aspects of OHV use (e.g., presence, sound, physical effects) affect populations and habitat elements of interest and concern have thus far presented a barrier to informed OHV use management. This is particularly true in California, where the number of species of concern in the State is the second highest in the United States, following Hawaii. OHV use -- if not managed properly -- has the potential to jeopardize the long-term persistence of some species.

The purpose of this research is to assess the effects of Off-Highway Vehicles (OHV) on forest-associated vertebrate species and the condition of their habitats. The study will determine how spatio-temporal factors related to OHV use affect vertebrate species, with particular emphasis on shifts in species assemblages, impacts to understory-associated species, the presence of top carnivores (e.g., marten, northern goshawk, and spotted owl), and the abundance and distribution of their primary prey.

Objectives:
• To determine the effects of summer OHV use on the composition and structure of vertebrate assemblages, with emphasis on understory associates, top predators, and their prey
• To determine the differential effects of fragmentation, vehicle presence, and noise on vertebrate assemblages
• To evaluate the effects of proximity and intensity of use on nest site selection for understory bird species, movement of small mammal species, and daily activity patterns of carnivore species
Application of Research Results:
The results of the study will be applied to route designation and the management of OHV use at designated sites. It has already been used to inform the design of wildlife monitoring at OHV use areas.

Location:
The study area is located in the central Sierra Nevada on three National Forests: Lake Tahoe Basin Management Unit, Eldorado NF, and Humboldt-Toiyabe NF.

Publications:


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