

## Western Ecological Research Center

# Publication Brief for Resource Managers

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## Diet Composition of Common Ravens Across the Urban-Wildland Interface of the West Mojave Desert

Common ravens are human-subsidized scavengers and predators in the Mojave Desert. They have increased dramatically in numbers in recent years and have been implicated as contributors to the decline in desert tortoise populations. Patterns of increased fledging success near human developments suggest that ravens are benefiting from anthropogenic resources. In a study published in the *Wildlife Society Bulletin*, USGS researcher Dr. William I. Boarman and collaborators Dr. William B. Kristan of California State University, San Marcos, and John J. Crayon of the California Department of Fish and Game, compared diets of nesting ravens near different types of human developments, predicting that the ravens' diet would reflect differences in available food subsidies.

The study took place on and near Edwards Air Force Base in the West Mojave Desert from 1999–2000. The contents of pellets found beneath raven nests, which were being monitored as part of a concurrent study on nesting success, were dissected and analyzed to determine diet composition. A total of 1,142 food items from the 560 pellets that were gathered from beneath 98 nests were identified. Food items were then placed into broad categories (mammals, birds, reptiles, amphibians, plants, arthropods, and trash). Diet content was expressed as the percentage of pellets that contained each food type, and a matrix of nests and food item composition was created. Diet composition of birds at each nest was then related to the distance to the nearest road and the distance to the nearest point subsidy (such as ponds, landfills, developments).

The researchers found that ravens nesting close to point subsidies and far from roads had the greatest incidence of trash in their diets, while those nesting near roads

### Management Implications:

- Ravens are opportunistic foragers as well as predators. Their generalist diet allows them to take advantage of different kinds of foods that are associated with different human developments.
- Raven diets having a greater incidence of human-provided foods were associated with increased fledging success; these effects decreased with distance from developments.
- Improved management of waste at landfills and fencing along highways to reduce the incidence of road-kills may help slow the growth of raven populations in the West Mojave Desert.

but far from point subsidies had low incidence of trash and higher incidence of mammals and reptiles (presumably road-kills). Ravens nesting far from roads and point subsidies had more plant material and arthropods in their diet, and ravens close to both roads and point subsidies had more birds and amphibians in their diet. In contrast to diet composition, diet diversity was not related to either distance of nests to roads or distance to point subsidies. Furthermore, fledging success was significantly higher for ravens whose pellets contained trash, which indicates how important human subsidies are for ravens to reproduce successfully. Ravens whose diets consisted of vegetation and arthropods, for example, were at an apparent reproductive disadvantage compared to those that received a “free lunch” from anthropogenic sources.

*Kristan, W. B., III, W. I. Boarman, and J. J. Crayon. 2004. Diet composition of common ravens across the urban-wildland interface of the West Mojave Desert. Wildlife Society Bulletin 32:244–253.*