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## A Large Temporary Roost of Common Ravens

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The communal roosts of a variety of corvids are well known to be traditional, occurring year after year at about the same time at or near the same location. For example, some winter roosts of the American Crow (*Corvus brachyrhynchos*) apparently span at least several human generations (Madson 1976).

Roosting behavior of Common Ravens (*C. corax*) is less well known than that of many other birds, although roost fidelity over many years is well documented (Cushing 1941, Temple 1974, Stiehl 1981). In Idaho and Oregon, several hundred to more than 2,000 ravens roost annually on power lines in the desert at predictable locations (L. S. Young and K. A. Engel unpubl. report). The numbers of birds occupying any one roost increase and decrease in a semipredictable manner throughout the season. There are spring, summer, fall and winter roosts, each with their own annual predictable schedules of occupancy. In the forests of Maine and Vermont, on the other hand, roosts rarely exceed 80 individuals, and roost locations and times of occupancy often are highly erratic (Heinrich 1988, Marzluff et al. 1991). Little is known about how raven roosts form and how the individuals in them react to each other.

We here report on observations of approximately 1,500 Common Ravens that appeared en masse, roosted communally in one area where they returned individually and in small groups each evening for 36 days, and then all left overnight and did not return. The observations were made in the Mojave Desert just north of the foothills (elevation 1,140 m) of the San Gabriel Mountains along the Antelope Valley Highway between San Bernardino and Palmdale, California. Vegetation near and on the site is less than 3 m tall, consisting of Joshua tree (*Yucca brevifolia*), juniper (*Juniperus* sp.), and creosote (*Larrea tridentata*). Ground cover consists of sage (*Salvia* sp.), desert buckwheat (*Erigeron deserticola*), yucca (*Yucca* sp.), cholla cacti (*Opuntia* sp.), and sagebrush (*Artemisia* sp.). To the north and east of the site, the land falls away to desert scrub and, beyond the foothills to the south, the Joshua and juniper give way to pine (*Pinus* sp.).

There is a wide panoramic view of the area from the residence of the first author (V. C.), who made extensive notes about the birds from their arrival on 8 November 1987 until they left on 15 December. No other raven aggregations were seen in the vicinity in nine years before. Since 1987 two small gatherings of ravens have been observed, both in chaparral shrub. From 30 November to 3 December 1991, 100 to 150 ravens attempted to roost about 1.5 km to the east of

the 1987 roost area. The birds were subjected to shotgun blasts causing them to rise, circle, and re-settle nearby, when they were disturbed again. After four nights of this harassment they left. In 1992 another group of slightly over 100 birds roosted 4 to 5 km to the northwest. These birds were apparently not harassed, and they stayed from 4 to 27 November.

On the 36 nights that the ravens were observed in 1987, they arrived at the site near dusk flying singly or in small groups of less than 10. In addition, long lines of 30 to 40 birds came from all directions, although generally fewer from the south (the mountains) than from the other directions. The birds were highly vocal when gathering, but then quieted down after dark. Before light in the morning, they were always gone. The ravens settled into a different spot (mapped nightly by V. C.) each night that, however, was within the same 4 by 5 km area.

On the night of 14 December 1987, the birds appeared to come earlier than usual (almost daily notes were kept), and on the next evening (15 December) they were for the first time vocal until midnight, whereas on all previous nights they were vocal only until 2000 MST at the latest. They left before dawn as usual, but none returned the next day.

These observations suggest that the birds may have communicated before departing from their roost not to return to it. Our observation raises unanswered questions about raven communication, raven mass movements, and roost dynamics.

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