

Western Ecological Research Center

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Black-Crowned Night-Heron Nesting on Alcatraz Island: a 13-Year Study on “the Rock”

Since 1990, USGS scientists, working closely with National Park Service (NPS) biologists, have documented temporal changes in nesting chronology, habitat use, colony use, hatching, and fledging success for black-crowned night-herons nesting on Alcatraz Island in San Francisco Bay. Results of this 13-year investigation appear in the March issue of *Waterbirds*. Although black-crowned night-herons have nested on Alcatraz Island since at least the early 1980s, their reproductive success had not been evaluated until this study. Anticipating increasing numbers of human visitors to Alcatraz, the NPS requested an assessment of potential effects of increased visitation on the nesting birds.

To estimate night-heron reproductive success, the scientists visited the island an average of 11 times a year to monitor nests. Following a peak of 341 in 1996, the total number of nests declined each year to a low of 68 nests in 2001, followed by an increase to 141 nests in 2002. Since 1993, the numbers of nesting western gulls, an interspecific competitor with night-herons on the island, have generally increased. During the study, night-heron nest productivity has been low, with an average of 0.5 to 1.3 chicks fledged per monitored nest (2 fledged chicks per nest are the suggested requirement for a sustained population). Based on relatively low levels of contaminants in eggs, a high hatchability rate, and low levels of observed embryotoxicity, contaminants appeared not to have significantly affected night-heron reproduction.

Factors that have likely affected night-heron reproduction at Alcatraz include: predation, especially by two native species, the common raven and western gull; interspecific competition with the western gull; habitat changes; and human disturbance.

Management Implications:

- Managing populations of western gulls on Alcatraz Island may reduce competition with night-herons for nesting sites and reduce predation on night-heron chicks.
- Managing common ravens on Alcatraz Island may reduce predation on night-heron eggs.
- Continuing the practices of closing sensitive nesting areas during the breeding season and not permitting major human disturbances to occur on the island during critical nesting periods could benefit night-heron nesting success.
- Continuing the planting of vegetation could improve night-heron nesting habitat on the island.

An example of significant human disturbance occurred during late May and early June 1996 in association with the premiere on Alcatraz Island of the motion picture *The Rock*. Apparently in response to this event, nesting by both western gulls and night-herons was reduced, both in 1996 and in subsequent years, especially in areas near the site of the premiere. Overall, numbers of western gull nests began to increase again in 1999, while the numbers of night-heron nests continued to decline until 2002.

Despite reduced numbers of nests in recent years, the Alcatraz Island heronry has been one of the most important sites for black-crowned night-herons in North San Francisco Bay, comprising an average of about one-third of the North-Bay population over the past 10 years.

Hothem, R. L., and D. Hatch. 2004. Reproductive success of the Black-crowned Night Heron at Alcatraz Island, San Francisco Bay, California, 1990–2002. Waterbirds 27:112–125.