

# The Masked Bobwhite at Buenos Aires NWR

by Brian Czech



## Endangered Species on the National Wildlife Refuge System

The National Wildlife Refuge System Improvement Act of 1997 states that the Refuge System will provide for the conservation of "biological integrity, diversity, and environmental health." This law complements the Endangered Species Act (ESA), which called for the conservation of species and the ecosystems upon which they depend. Pursuant to the ESA, 57 national wildlife refuges have been created expressly for the purpose of conserving federally listed threatened and endangered species. Many more of the 536 refuges also play a significant role in species conservation, and approximately 181 listed animals in the United States reside in whole or in part on refuge lands. In this edition of the *Bulletin*, we launch a series of features on selected endangered and threatened animals found on refuges.

The masked bobwhite (*Colinus virginianus ridgwayi*) is a subspecies of northern bobwhite found primarily in grassy, level areas in the Mexican state of Sonora and in the Altar and Santa Cruz Valleys of southern Arizona. It may never have had a wide distribution in Arizona, being limited to desert grasslands in the southern part of the state, but it was probably present in other valleys and at higher densities prior to the conversion of grasslands to desert scrub caused by overgrazing of cattle (Hollon 1966). The species has been imperiled throughout its range for most of the past century.

Buenos Aires National Wildlife Refuge in southern Arizona was established primarily for the purpose of masked bobwhite conservation, and it encompasses nearly the entire remaining U.S. range of this bird. Conservation efforts on the refuge have included the release of pen-reared chicks and subadults, livestock removal, and habitat improvement with encouraging results.

Population estimates are hard to come by for the masked bobwhite, partly because of the diminutive size and cryptic habits of the bird, but also because quail biologists in the Southwest do not typically discuss populations in terms of individuals. Instead, they discuss population status as numbers of coveys, according to Ron Engel-Wilson, Gamebird Specialist with Arizona Game and Fish Department. The recovery goal, however, is to establish and maintain a viable self-sustaining population of at least 500 birds on the refuge.

Bill Kuvelsky, Wildlife Biologist at Buenos Aires NWR, says refuge biologists classify about 127,000 acres (59,690 hectares) as bobwhite habitat, including about 55,000 acres (22,260 ha) that do

not appear to be occupied by the bobwhite. The carrying capacity for quail at Buenos Aires is probably in the thousands in a typical year. However, the Sonoran region is characterized by great variability in annual precipitation, which is one of the most important factors affecting quail populations (Guthery 1988). Carrying capacity is also affected by fire. In some years, therefore, carrying capacity at Buenos Aires might be higher or lower by an order of magnitude.

Kuvelsky estimates the refuge's current population at 500. Historically, reproduction at Buenos Aires has been practically negligible, with most of the population consisting of survivors from the ongoing raise-and-release program. However, there are recent indications of reproductive success. If this trend continues, with the habitat provided on the Buenos Aires NWR, the masked bobwhite will have a relatively secure future in the United States.

## Literature Cited

- Guthery, F. S. 1988. Line transect sampling of bobwhite density on rangeland: evaluation and recommendations. *Wildlife Society Bulletin* 16(2):193-203.
- Hollon, W. E. 1966. *The great American desert: then and now*. Oxford University Press, New York, New York. 284pp.

---

*Brian Czech is a Conservation Biologist in the National Wildlife Refuge System's Division of Natural Resources in Arlington, Virginia (703-358-2485; brian\_czech@fws.gov).*