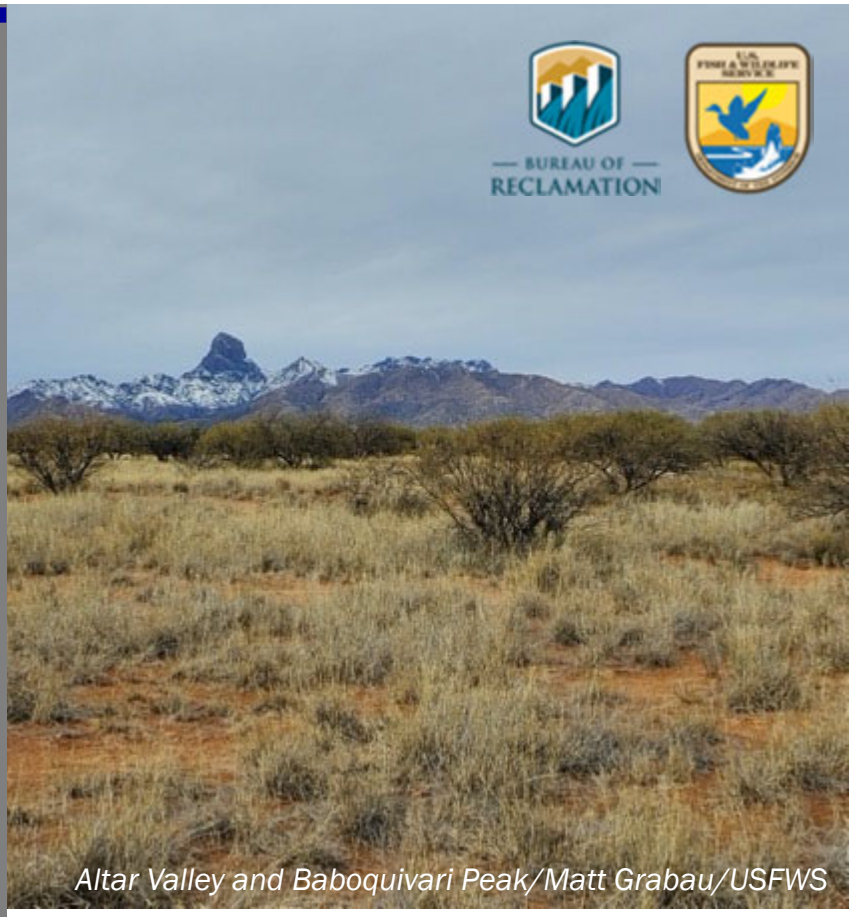
RESTORATION

Conservation of the Masked Bobwhite Quail

The masked bobwhite quail (*Colinus virginianus ridgwayi*) is native to the Sonoran Desert. This species became locally extinct in the United States by 1900. The Buenos Aires National Wildlife Refuge (Refuge) was established in 1985 for masked bobwhite quail reintroductions and for broader restoration of the natural landscape. Wild populations have not been confirmed in Mexico since 2007, but the Refuge is working to reestablish a population through a combination of habitat improvements and strategic release of birds raised in captivity.



Altar Valley and Baboquivari Peak/Matt Grabau/USFWS

KEY ISSUES ADDRESSED

The masked bobwhite quail is endangered due to overgrazing and prolonged drought in the 19th century, coupled with the introduction of non-native buffelgrass (*Pennisetum ciliare*) and Lehmann lovegrass (*Eragrostis lehmanniana*). These drivers reduced the native vegetation needed for masked bobwhite diet, nesting, and shelter. Masked bobwhite breeding is triggered by increasing moisture at the onset of the monsoon season. Increasingly dry monsoon seasons in the Southwest may limit masked bobwhite breeding potential in the wild.

PROJECT GOALS

- Establish viable masked bobwhite populations in the US and Mexico
- Use the best available science to determine how and where to enhance and restore habitat, primarily promoting a mixture of vegetation types that provide cover and food sources
- Raise and release captive masked bobwhite quail

Bobwhite Quail Before Release/Steven Sesnie/USFWS

MULTI-SPECIES BENEFITS

Restoration work benefits not only masked bobwhite, but a multitude of birds as well as pollinating insects.

PROJECT HIGHLIGHTS

Captive Breeding and Reintroduction: Quail are bred in captivity at the Refuge, the George Miksch Sutton Avian Research Center in Bartlesville, Oklahoma, and the Africam Safari in Puebla, Mexico. Initial releases in the 1970s were unsuccessful. Releases were re-initiated in 2017. In 2018, 500 birds were released onto the Refuge between late July and early September. Biologists estimate that 80-100 survived to the summer of 2019. This is comparable to overwinter survival rates for other species of quail, which are typically 20-30%.

Learning from Foster Parents: Sterile Texas bobwhite quail males have been introduced onto the Refuge to help the masked bobwhite quail adapt to their surroundings and learn survival skills. After the foster dad is introduced to newly hatched quail, the group bonds for a week and is released onto the Refuge with a tracking transmitter placed on the foster dad. This technique was successfully re-employed in 2018 after initial releases in the 1970s with foster parents failed to establish populations.

Benefits for Additional Species: Restoration work will benefit not only masked bobwhite, but also Montezuma, scaled, and Gambel's quail which are important game species in Arizona. Habitat improvements can also benefit pollinating insects such as monarch butterflies.

Collaborators

- See online for full list of collaborators

LESSONS LEARNED

While long-term success is to-be-determined, the overwintering of masked bobwhite in 2018-2019 was a result of a combination of factors. Winter precipitation promoted vegetation growth and maintained water sources. Before releases were attempted in 2017, the refuge invested in habitat assessments and a suite of restoration efforts, including revegetation, combating gully erosion, and increasing water availability, to provide suitable habitat. Foster parenting also appears to be improving survival of released birds.

Renovations were needed for the captive breeding facility at the Refuge to improve bird health and survival. Indoor breeding pens were made bigger to prevent aggression and stress. The outdoor flight pens were modified to protect the birds from predators, and misters were added to control high summer temperatures and aid in native plant growth.

NEXT STEPS

- Determine habitat needs and use of habitat restoration sites through analysis of movement and survival rates
- Continue restoring native vegetation, incised washes, and providing supplemental water
- Initiate safe harbor agreement with Altar Valley Conservation Alliance to encourage masked bobwhite habitat improvements on private lands

PROJECT RESOURCES

For more information on this project, contact Lacrecia Johnson: lacrecia_johnson@fws.gov

For additional project resources and case studies, scan the QR code below or visit the CCAST website: WWW.DESERTLCC.ORG/RESOURCE/CCAST

Masked Bobwhite with Chicks/Molly Condit/Great Bear Media

Lead Author: Leah Wilson, Northern Arizona University, September 2020.
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Photos courtesy of US Fish and Wildlife Service and Great Bear Media