Lessons Learned and a 5-year Plan to Move Masked Bobwhite Conservation Forward

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History and Current Status

History

- 1967-1973 Roy Tomlinson
- 1974-1979 Dave Ellis
- 1985-Buenos Aires NWR
- 2008-2015 no USFWS supported surveys in Mexico
- 2005 last release

Current Status

- Efforts have proved unsuccessful
- No verified wild populations
Criticisms

• Absence of science and monitoring outcomes

• Absence of effective habitat management

• Reliance on captive-reared birds

• Deficiencies in collaboration between U.S. and Mexico

• Inconsistent attention, support, communication and accountability
5-year Restoration Plan

Wild Populations

- Surveys to determine the status of the masked bobwhite and habitat condition in Sonora, Mexico
- Phylogenomic study of northern bobwhite in southern Arizona and Mexico
- USFWS to work with U.S. and Mexican partners to purchase/manage land, if birds are located
- Research and natural history studies

Habitat Management

- Remote sensing, vegetation plots and field-based quail habitat surveys to determine habitat condition and target restoration and release sites
- Habitat restoration implementation plan
5-year Restoration Plan

Captive Populations

• Pre-release and post-release conditioning
• Monitoring of released birds (survival, habitat use, limiting factors)
• Establish second U.S. captive population
• Assess captive population heterogeneity and develop contemporary pedigree

Binational Collaboration

• Recovery Team and USFWS to advise and assist habitat and population management in Mexico
• Seek Mexican involvement in status surveys
• Work with Mexican breeding facility to create a framework for how they and U.S. facilities will contribute to recovery
Objectives: Surveys to Determine the Status of Masked Bobwhite Quail In Sonora, Mexico

- Determine presence of wild masked bobwhite quail
- Evaluate habitat condition, location and abundance
Methods

AN ANALYSIS OF MASKED BOBWHITE COLLECTION LOCALES AND HABITAT CHARACTERISTICS

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ABSTRACT

We evaluated the collecting locales of 231 masked bobwhite (Colinus virginianus ridgwayi) specimens in museum collections. Eighteen were from 4 sites in Arizona—all collected by Herbert Brown. The vast majority (93%) of specimens were from the Mexican state of Sonora. We visited and photographed each of the Arizona collection locations and most of the sites in Sonora. Collector descriptions indicate the bird’s principal habitat affiliations were with tall grass-wood pastures, savannas, and farm fields. All historic localities visited were either in grass-wood habitats along drainage or in present or former savannas adjacent to woody cover and/or agricultural fields between 249 and 1,000 m elevation. Three sites were remarkably similar to other bobwhite habitats in subtropical South Texas and Oaxaca, Mexico. Masked bobwhite habitat was a diverse ever-subtropic grassland within or adjacent to dense woody cover (monsoon forest) and/or farmland. These habitats experienced alternations and loss of the tall grass-wood component due to livestock browsing. Some historic habitat sites appear to have recovered, however, and restoration of the subspecies might be possible if suitable stock exists. Unfortunately, this bird may now be functionally extinct.


Key words: Arizona, Buenos Aires National Wildlife Refuge, Colinus virginianus ridgwayi, domestic quail, endangered species, grass, ground, masked bobwhite, monsoon forests, savannas, Sonora

INTRODUCTION

“It is doubtful properly a Mexican species, which extends northward for only a short distance beyond the Arizona line, and southward into Mexico for an unknown distance, where possibly—we may almost say probably—it merges into C. graysoni.”

J. A. Allen. 1886a: 287

Few events generated more interest within the ornithological community than discovery in Arizona of the masked bobwhite by Herbert Brown on 6 March 1884 (Brown 1884; Getelli 1884; Allen 1886a, b, c; 1887). That all of the U.S. specimens of this unique subspecies of a favorite American bird originated with Herbert Brown, and that his identification was twice challenged by Robert Ridgway of the U.S. National Museum, created an aura of mystique that continues to this day (Ridgway 1884, 1886). Especially intriguing to naturalists was the bird’s isolation from other bobwhite populations and restricted range in 1 U.S. and 1 Mexican state (Alfred and Davill 1955). This isolation, coupled with the bird’s disappearance from Arizona by 1900, generated a number of conservation efforts, none of which succeeded.

Describing masked bobwhite habitat requirements is difficult since the bird’s original habitats have been greatly altered. Only one scientific study of wild birds has been conducted (Tomlinson 1972), and that of a relict population discovered in Sonora after the bird was thought to have vanished (Gallego et al. 1967). This population also appears to have vanished, and reintroduction attempts on and off Brown’s Buenos Aires National Wildlife Refuge in Arizona, appear to have been unsuccessful (Unpublished reports, U.S. Fish and Wildlife Service, Albuquerque, NM, USA). Locating wild birds and maintaining a wild population of masked bobwhites are essential if the taxon is to survive.

We reviewed the key to locating any relict populations of masked bobwhite depends on being able to define and locate suitable habitats where birds may survive. That such an evaluation remains possible is due to the bird’s
Methods

• Autonomous Recording Unit (ARU)
  – Increase spatial and temporal coverage
  – Captures other species (e.g., Cassin’s, Botteri’s and Rufus-winged)
• Weather data (temp, humidity, and wind)
• Detection probability
• Vegetation
Restoration Advancements

• If birds are located, a suite of restoration options can be considered such as research studies, translocations and management of the birds in place

• Clear area for releases

• Quantitatively rank habitat attributes within areas surveyed and relative to sites at BANWR to target restoration and releases sites
Objectives: Habitat Rehabilitation

- Prioritize restoration and release sites
- Identify specific restoration needs
Methods

- Vegetation composition
- \( n = 446 \) plots
- Stratified random
Methods

Landcover Map

Management Unit Groups
Restoration Advancements

- Identification of priority sites for habitat rehabilitation and releases
- Foundation for a habitat implementation plan to include landscape level planning
Objectives: Conditioning of Captive-reared Masked Bobwhite

• Promote survival of released birds through conditioning

• Determine post-release survival, habitat use, and limiting factors
Methods

- Covey-box (Hardy and McConnell 1967; Ellis et al. 1978)
- Utilized from 1970s-1990s (population estimate 300-500)
- Monitoring
Restoration Advancements

• Conditioned birds will be released in concert with effective habitat management

• Determine difference in survival, assess habitat use and limiting factors

• Guide decision on conditioning technique to be routinely implemented as part of the restoration program and inform habitat rehabilitation
Concluding Remarks

• Recovery efforts to date have proven unsuccessful

• Correction of shortcomings

• Incorporating lessons learned, new ideas and approaches into a science-based 5-year plan for recovery

• To ensure the best path forward we are seeking your comments, recommendations, criticisms and questions
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