

# **Proposed Bobwhite Quail Research and Management Initiative for Oklahoma**

## **Introduction**

In Oklahoma, bobwhite quail populations as well as the number of quail hunters have been in long-term decline. Unfortunately, this is also the trend across the entire bobwhite's range. The Oklahoma Department of Wildlife Conservation (ODWC) is committed to dedicating the resources needed in an attempt to reverse the decline in quail and quail hunter numbers in Oklahoma.

The last ODWC quail research project was conducted on Packsaddle Wildlife Management Area (WMA) from 1991-2001. The study primarily looked at effects of feeders and documented types and rates of nest and quail predation. The project revealed new findings about quail behavior and biology, including individual quail movements of over 20 miles, the gypsy hen theory where some hens laid a clutch of eggs and then initiated a second nest while the cock incubated the first clutch. There are still many factors that remain poorly understood regarding quail population dynamics in Oklahoma. Therefore, the ODWC is proposing further research in an attempt to gain better knowledge of quail management and causes of decline.

The ODWC has been an active partner with the Northern Bobwhite Conservation Initiative (NBCI) which is a national initiative through the Association of Fish and Wildlife Agencies (AFWA) to restore bobwhite quail populations throughout their former range. The NBCI plan employs a dynamic, interactive web-connected geographic information system database, the NBCI Conservation Planning Tool (CPT). This innovative new tool combines satellite imagery, landscape databases and professional biological judgment in order to identify priority areas for bobwhite restoration. The ODWC expects to continue working closely with NBCI plan partners to help turn around the nationwide decline in bobwhite quail.

## **I. Research**

### **OSU Research**

The ODWC is cooperating with Oklahoma State University (OSU) to investigate a number of bobwhite quail population dynamic issues. The ODWC intends to intensively study bobwhite quail and habitat on the Beaver River and Packsaddle Wildlife Management Areas. These two areas are considered by many to be some of the best public lands quail habitat left in the United States. Possible research topics include:

#### **1. Study the Dynamics of Reproduction, Recruitment and Movement of Quail Populations**

The ODWC intends to implement a well-designed, long-term telemetry project to study factors affecting production/recruitment and survival and mortality of bobwhite quail during the annual cycle. Research will particularly focus on factors affecting survival, movements, and distribution of quail during the fall shuffle period in late summer and early fall into the winter period. This is the perceived time frame of the rumored "disappearance" after what initially appeared to be a good quail crop.

## **2. Predators**

The ODWC intends to investigate seasonal impacts of predators on quail populations. What are the impacts that avian, mammalian, reptile and even human predation have on the quail population? The ODWC would like to investigate the effects of hunting on quail populations by regulating relative hunting pressure on portions of the selected WMA's through ODWC's controlled hunt program. Hunter harvested quail will be used to determine relative body condition, crops removed for food habits, and age structure of harvested quail determined from wing plumage. The effects of hunting will also be measured using radio telemetry equipment to see if quail movements change relative to various levels of hunting pressure.

## **3. Aflatoxicosis**

The ODWC intends to investigate the lethal and sub-lethal impacts of aflatoxins on quail and the potential impacts on reproductive success. Also, investigate impacts of feeders and various supplemental feed types on exposure of quail to aflatoxins and how feeders influence quail predation. The ODWC also intends to solicit research proposals to test commercially available wildlife grains for aflatoxins as well as collect native seeds to determine relative levels of aflatoxins.

## **Texas Research**

Researchers in Texas have teamed together to turn their attention to the possible roles of disease, parasites, contaminants, and toxins in the decline of bobwhite quail. This research, dubbed "Operation Idiopathic Decline", will be taking place in the rolling plains region of Texas including on the Rolling Plains Quail Research Ranch near Roby, Texas where the habitat is similar to western Oklahoma. Biologists with the ODWC will be cooperating closely with this research group and will be submitting samples of quail from western Oklahoma for extensive testing for disease, contaminants, toxins and parasites, including sick or freshly-dead found birds. Some of the many disease issues that are going to be investigated include West Nile Virus, Avian Influenza, and Coccidiosis. Contaminants, such as herbicides and insecticides, will also be tested to determine occurrence in sample birds. One of many toxins to be looked at is aflatoxin to try to determine effects on quail.

## **II. Weather/Habitat**

In combination with research efforts and habitat manipulations, the ODWC plans to intensively monitor weather and the response of plant communities and quail populations to weather cycles. ODWC will be installing weather stations to monitor weather events on the two selected areas. Since research shows that weather plays a major role in quail production it is going to be important to look at weather events that are happening over the entire WMA to determine which weather variables and events influence annual quail population fluctuations. The ODWC will monitor these weather events on different levels to determine the effects at WMA, county, and regional scales. County and regional level monitoring will involve monitoring and evaluation of data from the Oklahoma Mesonet system.

### **Intensive Habitat Management - ODWC**

The ODWC will intensify current management of the two focal Wildlife Management Areas, Packsaddle and Beaver River. Research will be conducted to evaluate the effectiveness of practices such as patch burning, strip disking, regulating grazing intensity, and brush management.

### **Monitor Response to Habitat Manipulations - OSU**

In concert with ODWC's intensive habitat management, researchers will monitor the status of quail populations before and after the use of intensive habitat management practices. Research efforts will include monitoring vegetation and quail responses to the various habitat manipulations. This will assist ODWC in prioritizing which habitat manipulations practices are most beneficial to quail.

### **Population Monitoring**

Researchers will investigate methods to monitor bobwhite populations in order to more accurately index quail population status on an annual basis. This will help ODWC to create an improved season outlook for Oklahoma sportsmen and women.

## **III. Facilities, Manpower, Funding and Communication**

The ODWC seeks to partner with researchers and donors to find answers to questions posed by quail hunters, landowners, and biologists as to what is causing the decline in bobwhite quail populations. The goal is to get more quail "on the ground." Field stations on Beaver River and Packsaddle will be established as research centers and for extension and education areas for field days to educate landowners and land managers as to what are the best management practices for quail. The ODWC plans to use license dollars matched with federal aid funding as base level funding while actively seeking funding partners in the private sector and from conservation organizations to assist with making this major quail restoration initiative possible. A key component for the success of this initiative will be obtaining sufficient funding for additional manpower to undertake this personnel intensive effort.

The ODWC will also be making a concerted effort to communicate effectively with quail hunters and landowners. Input from hunters and landowners will be an important component for helping direct quail management efforts and reversing the decline of bobwhite quail in Oklahoma. This may include developing a web site for quail hunters and landowners, incorporating them as a part of quail survey efforts in the fall, and encouraging them to introduce new hunters to the sport.

### **Conclusion:**

In short, ODWC recognizes the decline in the quail population and will be renewing efforts to determine possible causes of the decline and is committed to upland game restoration.