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RESPONSE OF NORTHERN BOBWHITES TO HABITAT IMPROVEMENT ON PRIVATE LANDS IN THE ROLLING PLAINS OF TEXAS

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ABSTRACT

Northern bobwhites (Colinus virginianus) in the Rolling Plains of Texas have experienced significant declines in recent years. Examination of the Texas Parks and Wildlife Department Quail Roadside Counts reveals a steep decline since 2007 in the Rolling Plains of Texas. Biologists only detected 2.91 birds/counting route in 2013. This number marked 2 years in a row of record lows (counts started in 1978) below the long-term mean of 19.7 birds/route (Texas Parks and Wildlife 2015). These numbers are not surprising given the historically damaging drought Texas has suffered. Texas Parks and Wildlife Department counts improved to 7.5 bobwhites/counting route in 2014. This increase is linked to improving precipitation levels preceding and during the 2013 and 2014 breeding seasons. Though population growth is controlled primarily by rainfall (Jackson 1962), a reduction in the acreage of suitable habitat has also played a role in the bobwhite decline. Many areas on the Rolling Plains of Texas have become choked with invasive brush species, such as honey mesquite (Prosopis glandulosa) and juniper (Juniperus spp.), because of excessive grazing and a lack of fire (McPherson et al. 1988, Ansley et al. 1995). Asner et al. (2003) estimated woody cover increased as much as 500% in some areas of northern Texas between 1937 and 1999. Mesquite and juniper encroachment can occur to the point they become a steady-state, dominant vegetation that shades out grasses and other vegetation (Ansley and Weidemann 2008). Woody cover encroachment exceeding 70% canopy cover is not uncommon (Mirik and Ansley 2012). This heavy brush cover is not suitable habitat for bobwhites and limits population expansion even in years of adequate rainfall (Jackson 1969, Kopp et al. 1998). The millions of acres of brush-dominated rangeland in Texas represent areas that can become usable habitat for bobwhites when brush coverage is reduced to suitable levels. Mechanical removal using a dozer or track hoe is a common method of reducing canopy coverage of mesquite and juniper. This method allows a manager to selectively remove brush in the quantity and distribution that is desired while leaving beneficial shrub species such as lotebush (Ziziphus obtusifolia) or skunkbush sumac (Rhus trilobata) undamaged. We received funding from a Texas Parks and Wildlife Habitat Enhancement Grant to mechanically remove excessive brush cover on private lands with the objective of expanding bobwhite populations. We selected treatment sites that were currently inhabited by quail or were adjacent to sites inhabited by quail, but whose populations appeared to be limited by excessive brush cover and unable to expand or increase. These sites were located on ranches enrolled in The Quail-Tech Alliance research program. We treated 404 ha spread across 7 different properties during 2014 and 2015. Depending upon the site, brush removal was accomplished using either a bulldozer or track hoe to mechanically grub mesquite and juniper trees or in some instances a combination of both tree species. In some instances landowners used their own equipment while in others private contractors were hired to accomplish the reduction project. We worked with individual landowners to incorporate their overall wildlife management objectives. Consequently, the pattern and canopy coverage of brush remaining after mechanical reduction varied among projects and was influenced by the brush density of the treatment area. Some landowners removed strips of brush while others left brush mottes throughout the landscape. All projects resulted in increased acreage of suitable bobwhite habitat with a resulting brush canopy coverage ranging from 5% to 30% depending upon the project. The soil disturbance and subsequent beneficially timed rainfall caused treated areas to be revegetated with desirable forbs and grasses within 60 days posttreatment. Bobwhites were observed using the treatment areas within a few months of treatment. Though favorable rains in 2014 and 2015 played a role in this response, it would not have been possible for bobwhites to use the treatment areas before brush reduction. Bobwhite populations will positively respond to mechanical brush removal treatments in the Rolling Plains of Texas. This project increased the acreage of suitable habitat for bobwhites; showing the value of habitat restoration programs.


Key words: brush reduction, Colinus virginianus, habitat management, northern bobwhite, Texas

LITERATURE CITED


