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POPULATION DENSITY ESTIMATES OF THE MONTEZUMA QUAIL IN WEST TEXAS

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ABSTRACT

In Texas, USA, populations of Montezuma quail (*Cyrtonyx montezumae*) can be found scattered across mountain ranges in the Trans-Pecos region, including the Davis and Guadalupe, and farther east into the Edwards Plateau region. Abundance and distribution information to assist land managers in the enhancement of Montezuma quail populations is scarce due to the species' secretive behavior and unknown abundance. We aimed to provide population density indices to fill this information gap by using a search path technique. We searched for quail in the winter of 2018–2019 in West Texas at 6 study sites: 5 private ranches and Elephant Mountain Wildlife Management Area (EMWMA). We chose survey locations based on previous quail sightings and our perception that an area contained suitable Montezuma quail habitat. We searched small watersheds using at least 2 dogs while walking along contours. The average search path length was 1.82 km (range = 0.80–4.30). We produced a hexagonal grid with a cell size of 1 ha such that no pair of coveys can be encountered on the same cell. The area associated to each search was the sum of the areas of all hexagonal cells intersected by the search path. For density index, we directly used the definition of density (birds encountered divided by area searched). Mean covey density was 1.51 ± 2.53 (\pm standard error) coveys/km² (range = 0.50–4.17), although abundance data were overdispersed. The highest density estimate was for EMWMA. Mean covey size was 6.55 ± 0.61 birds/covey. These data yielded an estimate of 10.07 ± 17.45 birds/km². As we did not account for imperfect detection, our quail density estimates are lower bounds of actual density. These quail density estimates are lower than estimates for Arizona, USA but higher than density estimates reported for the Edwards Plateau and central Mexico. A prevailing concern regarding the harvest of the Montezuma quail among some wildlife professionals and the public in Texas is the perception that Montezuma quail are scarce. Therefore, our density estimates suggest that abundance of Montezuma quail in West Texas may not be as low as perceived and that Montezuma quail populations may be appropriate for an open hunt season.

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Key words: abundance, *Cyrtonyx montezumae*, Montezuma quail, population density, west Texas

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