



Vancouver Avian Research Centre

Research - Conservation - Education

Introduction

Mountain Bluebirds occur fairly commonly, but according to the North American Breeding Bird Survey, populations have declined. They benefited from the spread of logging and grazing in the late nineteenth and early twentieth centuries, when these practices created open habitat for foraging. The waning of these industries, coupled with the deliberate suppression of wildfires, led to a dwindling of open acreage in the West and the decline of the species.

More recently, as land-use practices have stabilized, so have Mountain Bluebird populations. However, in areas where trees are too small to provide natural nesting cavities, and where forest and agricultural management practices have reduced the availability of suitable nest sites, bluebird populations are still declining. Among birds that nest in cavities but can't excavate them on their own, competition is high for nest sites. House Sparrows, European Starlings and House Wrens also compete fiercely with bluebirds for nest cavities. Construction of nest boxes in suitable habitat can provide a population boost.

Background and Objectives

To this end, the Vancouver Avian Research Centre (VARC) is undertaking a Mountain and Western Bluebird nest box monitoring program in Merritt, BC. Originally established by citizen science individuals, VARC took over the program in 2018 when box numbers in the project area totaled over 400 boxes. The ultimate objectives of this project include:

- To establish long-term monitoring and research to provide invaluable data for regional conservation initiatives and international migration monitoring efforts;
- To initiate community outreach by involving citizen science individuals and groups as well as schools to ultimately provide conservation education by way of monitoring boxes;
- To colour band bluebird (Mountain Bluebird as well as Western Bluebird) nestlings using nest boxes in order to document dispersal, site fidelity and population dynamics.

Coloured metal bands have been produced for other programs in response to leg injuries caused by celluloid-plastic colour bands (Koronkiewicz et. al. 2004). Additionally, federally issued bands can be anodized directly and used in combination with other bands to mark individuals or used to uniquely mark nestlings hatched in a given year. By directly anodizing federally numbered bands, it limits the number of bands required to uniquely mark individuals. Anodized metal bands have shown to resist colour fade, reduce leg injuries and are stronger than plastic to better withstand wear and damage.

VARC team member and bander, Kerry Kenwood, has many years' experience with the method of anodizing federal numbered bands on projects studying Southwestern Willow Flycatchers for the USGS, Colorado Plateau Field Station in Arizona (Kenwood and Paxton 2001) and the USGS, San Diego Field Station in California (Kenwood and Kus 2007). Colouring federal bands would be done at a local metal anodizing

shop, each set of bands anodized a separate solid colour. This would allow researchers to colour band bluebird nestlings with a single band (rather than two bands) marking each year's brood with a specific colour.

Methodology

As it was the preliminary year of study, the originally established boxes were monitored 3 to 4 times over the season in 2018. VARC became familiar with the project area, assessed the state of the boxes, recruited volunteers and implemented a preliminary box monitoring protocol. In 2019, boxes were thinned according to landowner requests for removal, condition of boxes, appropriate habitat type and appropriate placement. Box spacing was closely considered to deter competition between bluebirds and other species and where possible, box distance from one another measures less than 10 feet or more than 300 feet apart.

Box routes have been separated into sites and assigned to volunteers to monitor. Boxes at most sites will be checked every 10 days to 2 weeks. Volunteers will assess nest stage, age of nestlings and nest outcome, if possible. With this data, permitted VARC banders will band bluebird nestlings at the optimal age of 10 to 12 days old. Nestlings will be banded with a federally numbered band which has been anodized a unique colour that corresponds to the year it was born.

Our volunteers on the ground will document birds with colour bands seen using boxes and the area in subsequent years therefore documenting survival, population dynamics, site fidelity and distribution of each year's brood. Each year VARC plans to even further refine the project in order to maximize box productivity and community involvement.

References

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