

THE REJUVINATION OF THE ELSON BLUEBIRD TRAIL

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Introduction

The Elson Bluebird Trail was originally established, maintained and monitored by Elson Olorenshaw as a way to encourage the nesting of mountain bluebirds (*Sialia currucoides*) in Central Alberta. The trail was last monitored over both the spring and summer seasons in 2002 (unpublished data) and now, a decade later, 290 boxes at six locations have been established. The purpose of the new grid is to promote the nesting of mountain bluebirds within Alberta while allowing successful banding of chicks and adults for long term monitoring.

Mountain bluebirds are secondary cavity nesters and must compete for nest boxes with other secondary cavity nesting passerines, including tree swallows (*Tachycineta bicolor*) and house wrens (*Troglodytes aedon*) (5, 6). Pairing nest boxes has been found to alleviate some of this competition (1), however other environmental factors play a more important role. Surrounding habitat and nest box specifications and placement are crucial in box choice by these three birds (3, 4). Munro and Rounds have found distinct differences in preferred habitat surrounding boxes chosen indicating that the placement of boxes may influence the presence of competitive species and thus the success rate of breeding mountain bluebirds.

Previously it has been shown that mountain bluebirds prefer boxes located in or near grazed or wooded pasture with livestock present, away from high perches and utility lines. Tree swallows prefer areas with taller grass away from wooded pasture, and house wrens choose boxes in small open spaces near tall bushes and forest. House wrens also appear to choose boxes based mostly on location rather than box type or specifications which plays a larger role for mountain bluebirds and tree swallows (3, 4).

Beginning on May 01 2013 and ending August 31 2013 monitoring of the the new trail began to establish baseline data to determine usage by species to tailor the grid to mountain bluebirds thus alleviating interspecific competition with tree swallows and house wrens.

Method

Field work was conducted at six separate locations: three locations around Elk Island National Park (East, West and North), an area East of Fort Saskatchewan, and area South of Highway 16 and North of Tofield, and an area surrounding the Beaverhill Bird Observatory (BBO). Usage data was collected from all boxes, and brooding data was taken for 191 of the total boxes at four of the locations (BBO trail, South of highway 16, East Elk Island, and East of Fort Saskatchewan). A standard box style used extensively in the mountain bluebird range, with a round hole, was chosen to replace missing or broken boxes. Old boxes which were either occupied or not in need of repair were left for the 2013 season.

Boxes were placed in a variety of locations based on available fence lines and existing boxes

along the grid. Boxes were placed singly, in pairs or in groups of three or more, facing multiple directions.

Data was collected periodically through the season by a team of three interns with banding supervised by board members of the BBO. Data collected in 2013 was compared only to the 2002 data for the corresponding areas.

Results

In comparison to the data collected in 2002 by Elson Olorenshaw (Table 1), box occupancy in 2013 (Table 2) by mountain bluebirds has decreased in the last decade, and thus number of fledglings has also decreased. In 2002 mountain bluebirds occupied 50.5% of boxes on the grid, but has decreased to 12.6% of the grid in 2013. Both tree swallow and house wren occupancy have increased since 2002. Tree swallows occupied 38.9% of boxes in 2002, and now occupy 53.4% in 2013. House wrens nested in 2.5% of boxes in 2002, and 17.3% in 2013.

In 2002 there were six boxes occupied by house sparrows (*Passer domesticus*), taking up 3.0% of boxes on the grid, while in 2013 no house sparrows were found (data not shown).

While total number of mountain bluebird nests has decreased, number of fledglings per nest has decreased only from an average of 4.27 fledgelings per nest to 4.0 fledgelings per nest, which is not a significantly different value at $p=0.05$. Similarly, tree swallow and house wren fledging rates were not significantly different between 2002 and 2013, with 4.88 to 4.16 fledgelings per nest for tree swallows, and 4.60 to 4.45 fledgelings per nest for house wrens.

Discussion

There are many reasons why the number of nesting pairs of mountain bluebirds has declined along the Elson Bluebird Trail including habitat change, new box placement and predation. Because the new boxes along the grid were placed in a variety of habitat, the environment preferred by mountain bluebirds was not specifically targeted. The presence of utility lines may have played a negative role in mountain bluebird nesting as it has been shown previously that American kestrels (*Falco sparverius*) use these high perches as stages to hunt from. Boxes placed near utility lines have been shown to be prone to predation by kestrels (3). By choosing areas with wooded and grazed pasture, free of utility lines and away from roads and relocating boxes to this type of area mountain bluebird nesting may be encouraged.

Mountain bluebirds also prefer naturally weathered boxes (3), therefore it is plausible that the new boxes appeared unattractive and will only be chosen as nest sites in later years. It must also be taken into consideration that the new boxes were only added in early May, however mountain bluebirds arrive in Alberta in mid March (2). Because of this box choice by mountain bluebirds would have been limited to those older boxes already present, thus whether weathered boxes are preferable will only be notable in the next breeding season.

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