

USE OF BLUEBIRD NEST BOXES AT  
THE PHIL SCHNEIDER WILDLIFE MANAGEMENT AREA, 1990 - 2002  
Charlotte C. Corkran, Northwest Ecological Research Institute  
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As part of an ongoing study of Western and Mountain Bluebirds (*Sialia mexicana* and *S. currucoides*) in central Oregon, nest boxes were placed on the Phil Schneider (formerly Murderers Creek) Wildlife Management Area (PSWMA) in Grant County. This report briefly describes the study and summarizes the use of the boxes by bluebirds and other birds since the boxes were put up in the fall of 1989.

Objectives – The original objective of the bluebird study was to investigate potential impacts of large-scale spraying with Malathion to suppress infestations of grasshoppers in Wheeler county. No spray program was carried out in the first few years of the study, and current environmental regulations limit the scope of chemical spray programs. The present study is investigating whether bluebird productivity differs between sites that are predominantly native bunchgrass and those that are predominantly introduced annual grasses, particularly medusahead (*Taeniatherum caput-medusae*) and cheatgrass (*Bromus tectorum*).

Study area – Eight sites, each with 35 nest boxes, were established around the town of Fossil in Wheeler County, in the spring of 1988 (two sites have since been abandoned). At the PSWMA two sites, each with 35 nest boxes, were established on the flats north of Murderers Creek. The nest boxes average about 100 meters apart and are attached 1 to 2 meters high on juniper trees, fence posts, or poles in rock jacks constructed by some high school students volunteering with the Oregon Department of Fish and Wildlife (ODFW) in 1989.

Methods – All nest boxes are usually checked 2 to 6 times during the breeding season (April through July) and once in October for final cleaning and repairs. Since 1999, we have not been able to monitor the boxes at PSWMA during the breeding season. We often miss the beginning and ending of the breeding season, and have rarely been able to visit the nests more frequently than every 10 to 14 days. On each visit, nests are identified to species (if adults are seen) or group (i.e., bluebird, swallow), and number of eggs and/or number and development stage of live or dead nestlings are recorded. For several years we also took observational diet samples, using binoculars to identify prey items delivered to nestlings by the parent bluebirds. Vegetation at each site was characterized by randomly placing 25 square meter habitat plots, and recording the frequency of occurrence of key grass species and types. In addition, a general grass type characterization was made at each nest box.

Results – The majority of data from the bluebird study has not yet been entered into a database, much less statistically analyzed. Following is a preliminary look at some of the raw data.

The number of nest boxes used each year, and the percent of the total boxes available that year, are shown in Table 1. This includes all boxes that had at least one nest (of any bird species) with at least one egg laid. It does not include rodent nests, bird nest starts, or evidence of birds roosting in the boxes. In the first year, only 9 of the 70 boxes (13%) received one or more bird nests. Since the 5<sup>th</sup> year about half of the boxes are used each year, with a high of 77% in 2000.

This rate of usage is less than at our Wheeler County sites, where 24% of the boxes were used the first year, and nearly 75% of the boxes each of the last few years.

Table 1 also shows initial estimates of how many nestlings fledged each year. Because we have not been able to monitor the boxes during the nesting season since 1998, for the years 1999 through 2002, the number is a guess based on the number of fledged nests. Estimates are given for each species and for “total bluebirds” which includes the western and mountain bluebirds plus unknown bluebirds (those that could not be identified to species). The numbers indicate that western bluebirds increased for a few years but may have declined recently, while mountain bluebirds started out at lower numbers but have surpassed western bluebirds in recent years. This same pattern seems to have occurred at our Wheeler County sites. Tree swallows (*Tachycineta bicolor*) and mountain chickadees (*Poecile gambeli*) have used one or 2 boxes sporadically, and ash-throated flycatchers (*Myiarchus cinerascens*) have begun to use a few boxes recently.

In 1997 we looked at bluebird nest success and productivity in different sections of our study sites on the PSWMA. In that year, bluebirds laid slightly more eggs, hatched a greater percentage of eggs, and fledged a greater percentage of eggs in the area that had been repeatedly controlled burned and then partially treated with herbicide in 1997, as compared to the non-treatment areas where medusahead still dominated the vegetation. A brief report was prepared for ODFW.

During the period 1995 to 1999, we participated in the Oregon Breeding Bird Atlas Project. We contributed our incidental findings to the historical section of the project. Increased effort was spent in searching for nests (or other observations of nesting activity) for all birds, and yielded additional species confirmed breeding in the area.

Discussion – We will enter and analyze all of the bluebird data as quickly as limited time permits. We appreciate the interest and cooperation of ODFW and the Bureau of Land Management. The PSWMA has been an excellent study site for our research, and we intend to continue monitoring wildlife using the nest boxes. The PSWMA is also a rich habitat resource for a diverse assemblage of native wildlife species.

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	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
<b>Nest boxes available</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>69</b>	<b>69</b>	<b>68</b>	<b>67</b>	<b>82</b>	<b>75</b>	<b>77</b>	<b>76</b>	<b>76</b>
<b>Monitoring visits / year</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1</b>
<b>Nest boxes used*</b>	<b>9</b> <b>13%</b>	<b>26</b> <b>37%</b>	<b>24</b> <b>34%</b>	<b>24</b> <b>34%</b>	<b>36</b> <b>52%</b>	<b>42</b> <b>61%</b>	<b>37</b> <b>54%</b>	<b>35</b> <b>52%</b>	<b>43</b> <b>52%</b>	<b>38</b> <b>51%</b>	<b>59</b> <b>77%</b>	<b>36</b> <b>47%</b>	<b>33</b> <b>43%</b>
<b>Wn. Bluebirds fledged</b>	<b>25</b>	<b>35</b>	<b>46</b>	<b>72</b>	<b>74</b>	<b>44</b>	<b>47</b>	<b>32</b>	<b>18</b>	<b>-</b>	<b>28</b>	<b>-</b>	<b>-</b>
<b>Mn. Bluebirds fledged</b>	<b>5</b>	<b>14</b>	<b>5</b>	<b>6</b>	<b>29</b>	<b>6</b>	<b>9</b>	<b>43</b>	<b>30</b>	<b>-</b>	<b>166</b>	<b>-</b>	<b>-</b>
<b>Total bluebirds fledged**</b>	<b>45</b>	<b>59</b>	<b>78</b>	<b>86</b>	<b>166</b>	<b>56</b>	<b>105</b>	<b>175</b>	<b>129</b>	<b>130+</b>	<b>205</b>	<b>102+</b>	<b>60+</b>
<b>Ash-throated Flyc's. fledged</b>													<b>12</b>
<b>Tree Swallows fledged</b>	<b>2</b>			<b>2</b>		<b>5</b>							
<b>Mn. Chickadees fledged</b>						<b>5</b>	<b>7</b>						

\* Includes all bird species. Includes only boxes with at least one nest with at least one egg.

\*\* Includes Western and Mountain Bluebirds as well as bluebirds we were unable to distinguish to species.