

# Over 47,000 songbirds were fledged in the 2010 season: Annual Report II

A total of 47,403 songbirds were fledged from the 9,632 nest boxes reported to me for the 2010 season for an average of 4.9/box. Our total production increased by 4.2% this season (up from 45,489 last season), but production/box dropped by 5.2% (down from 5.2/box). It is thought that this drop in production/box occurred primarily because of weather plus the total number of new boxes placed out for the first time.

In 2010, bluebirds accounted for 64.8% of all birds fledged (Table 1), up from 63.3% in 2009. Tree Swallows increased by 1.4% in 2010, wrens dropped by 1.5% and chickadees increased by 1.7%.

Tree Swallows led nesting success with 83.4%, followed by bluebirds (81.7%), wrens (80.7%) and chickadees (72.3%). Through the years, chickadee nest success has been lower than other species. From our extensive experience with chickadees on the Audubon Bluebird Trail (ABT), there appears to be a clear explanation for this continuing low success: 1) nest boxes are not placed in ideal chickadee habitat, so as a result, severe limitations are placed on successful nesting and 2) the larger openings allow bluebirds and Tree Swallows to build on top of chickadee nests. For example, in the 2009 season, bluebirds on the ABT trail built on top of chickadee broods in 7 different nest boxes, killing them all.

This can be prevented by placing an adaptor plate with a 1" hole, over the regular hole, when chickadees begin their nests (used by Madison Audubon Society and others).

Consistent with nesting success, chickadees had the greatest total egg & hatchling mortality (32.2%), followed by Wrens (29.3%), bluebirds (26.2%) and Tree Swallows (21.6%). In all cases, egg mortality was greater than hatchling mortality, although individual trails showed considerable variation. Chickadees were striking as 82.6% of their total mortality was in the form of eggs. I interpret this result to be due to predation that often sets in early in the nesting cycle. It should be noted that wren data are the least reliable of all species monitored, due to the difficulty in monitoring their nests.

Table 2 has been developed from data taken from the new Form 21. These data have not been available before, so there are no comparisons available from previous years. About 2/3 of all hatchlings were fledged from 1<sup>st</sup> fledged broods (66.3%), about 1/3 from 2<sup>nd</sup> fledged broods (31.3%) and 3<sup>rd</sup> fledged broods were quite rare (2.4%). Nesting becomes more successful as the season progresses (79.5% 1<sup>st</sup> fledged; 85.7% 2<sup>nd</sup> fledged and 88.0% 3<sup>rd</sup> fledged). Generally speaking, overall mortality of eggs and hatchlings follow this same trend, with a slight reversal in the 3<sup>rd</sup>

fledged mortality (20.9%) compared to the 2<sup>nd</sup> fledged mortality (20.0%) Egg mortality is consistently higher than hatchling mortality in all fledged broods. It is interesting to note that mortality is greater for hatchlings in 3<sup>rd</sup> fledged broods than in 2<sup>nd</sup> fledged broods. I have no hypothesis to explain this increase.

Fig. 1 shows the number of bluebirds fledged per county for the 2010 season. There were 16 counties (with enough nest boxes) that averaged over 4 bluebirds produced/box. Ten of these were in the western part of the state and nine of these ten were in the SW corner. In contrast, most of the Lake Michigan coastal counties averaged less than half of this production, mostly 2-2.5 bluebirds/box. Exceptions were Ozaukee Co. (3.24 bluebirds/box) and Kewaunee (2.97 bluebirds/box). I suspect these counties show that careful habitat selection can overcome some of the constraints imposed by Lake Michigan.

And what is the major constraint that Lake Michigan poses? Tree Swallows! Figure 2 shows the number of bluebirds fledged for each Tree Swallow fledged in WI counties. All of the 10 western counties mentioned before have large numbers of bluebirds produced for each Tree Swallow fledged (4.06-23.4). In contrast, counties along Lake Michigan ranged from 0.90 to 2.18 bluebirds produced per

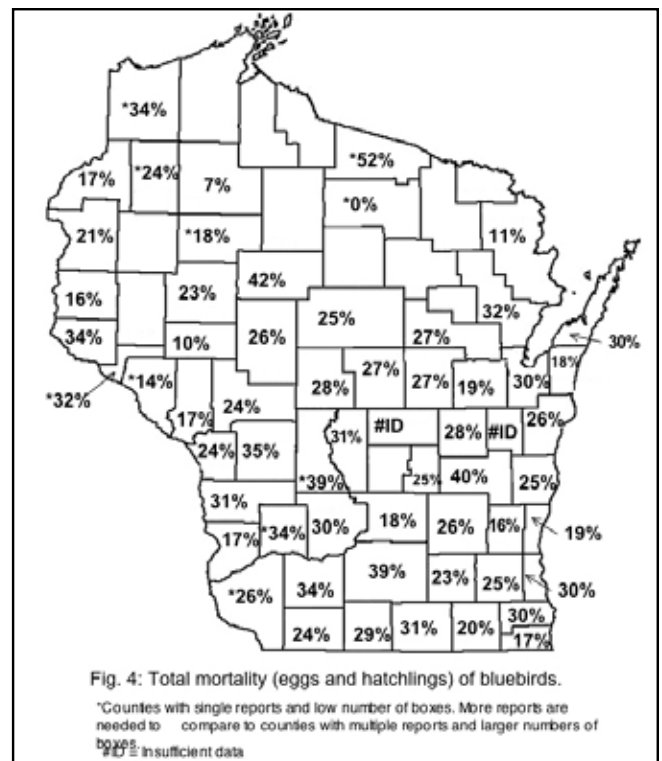
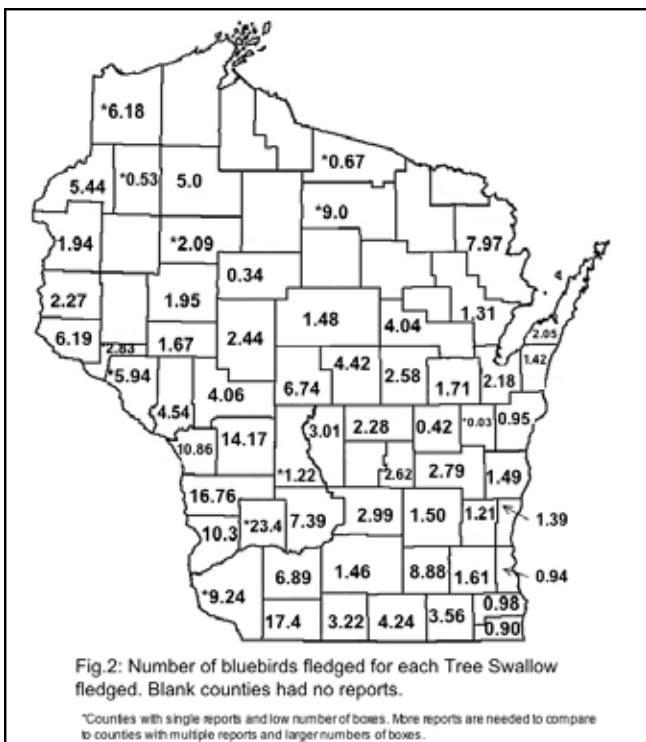
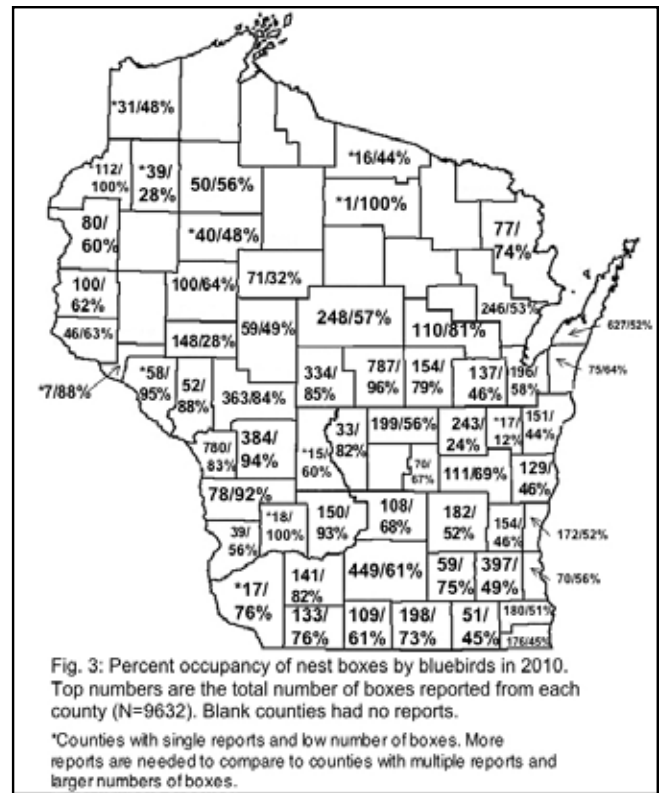
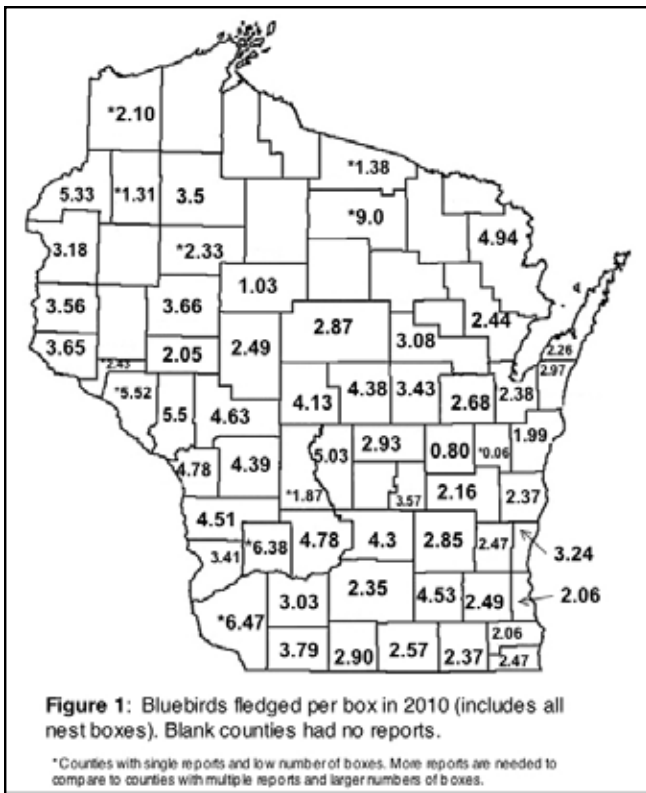
**Table 1.** Total fledglings, nesting success and egg & hatchling mortality for the four common songbirds found in nest boxes.

Species	Total Fledged	Successful Nests	Total Mortality	Egg Mortality	Hatchling Mortality
EABL	*30,716 (64.8%)	81.7%	26.2%	17.3%	8.9%
TRES	12,267 (25.9%)	83.4%	21.6%	12.6%	9.0%
HOWR	3,557 ( 7.5%)	80.7%	29.3%	17.0%	12.3%
BCCH	863 ( 1.8%)	72.3%	32.2%	26.6%	5.6%

\*47,403 total songbird fledglings in 2010

**Table 2.** Nesting in 1st, 2nd & 3rd bluebird broods.

Brood	No. Fledged	Successful Nests	Total Mortality	Egg Mortality	Hatchling Mortality
1st	20,365 (66.3%)	79.5%	28.9%	18.3%	10.6%
2nd	9,614 (31.3%)	85.7%	20.0%	15.2%	4.8%
3rd	737 ( 2.4%)	88.0%	20.9%	14.1%	6.8%



Tree Swallow fledged. Simply put, southwestern Wisconsin has very few Tree Swallows compared to eastern (and northern) WI.

To overcome this reality, there is only one major thing that can be done in eastern & northern Wisconsin: "Ideal habitat selection". Many monitors are already doing this in SE WI and Brown County. Golf courses & parks are

being targeted to increase production potential. By using such habitat selection, Ozaukee Co. is experiencing the highest production along the Lake Michigan shore, 3.24 bluebirds/box (slightly above the state average).

Fig. 3 further clarifies the problem with bluebird production: You must attract bluebirds to your nest boxes to produce them. Once again, the SW

counties average 80-90% occupancy while the Lake Michigan coastal counties average about 50%. From the information I have received from monitors, I suspect the following scenario in addition to the higher number of swallows in the east: 1) The proximity to Lake Michigan keeps the shoreline counties cool resulting in

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later nesting onset in bluebirds than in western & central Wisconsin. 2) This weather anomaly means that “eastern county” bluebirds lack the 2-3 week nesting advantage over Tree Swallows that exists further west. 3) By the time bluebirds start to nest, Tree Swallows are already seeking nesting sites and are competing more favorably with bluebirds for nest boxes.

Table 3 lists the counties with the most boxes and their production rates. One can see from Portage and Monroe Counties that large numbers of boxes do not necessarily result in lower occupancy rates.

The final ingredient in nest box production is found in Table 4: Mortality of eggs and hatchlings. As previously stated, statewide mortality was 26.2% (17.3% eggs/8.9%

hatchlings). On the eastern shore of Lake Michigan, 5 of 11 counties with Lake Michigan shoreline had mortalities above average, 6 of them below average, so no distinct trends were seen along the shoreline.

A cluster of seven counties in western Wisconsin had above average mortalities, however: Dane, Iowa, Sauk, Richland, Vernon, Juneau & Monroe. Table 4 shows that all but Iowa County had an unusually high percentage of hatchling mortalities. Even more instructive is that these hatchling mortalities were largely experienced during the first fledged brood attempts. I received weekly reports from 213 of the nest boxes from Monroe Co. (Ft. McCoy). In one case, a route of 41 boxes reported the loss of 40 chicks in one week. Another route at Ft. McCoy fell from an average of 7.4 fledglings/box in 2009 to 4.4 this season. Likewise, heavy mortalities were experienced on a nest box trail I installed in Vernon Co.

**Table 3.** Nest box totals (and occupancy rates) for the top 11 Wisconsin counties.

Counties	No. of Nest Boxes	Percent Occupancy
Portage	787	96%
LaCrosse	780	83%
Door	627	52%
Dane	449	61%
Waukesha	397	49%
Monroe	384	94%
Jackson	363	84%
Wood	334	85%
Marathon	248	57%
Oconto	246	53%
Winnebago	243	24%

I interpret the data in Table 4 this way. In general, these counties experienced early nesting. On May 7 the last snowstorm of the season hit central and western WI. For the next 10 days the weather was unseasonably cold, with rains. Food was scarce

for the adults attending nests. Chicks that died were usually in the 7-14 day old range, exactly the time when growth is exponential and demand for food is greatest. This situation was incompatible with survival and large numbers of chicks perished.

### Dane County, a unique situation.

If one looks at the data for Dane County, one sees that all counties surrounding it have: 1) larger numbers of bluebirds fledged per box 2) more bluebirds produced per fledged Tree Swallow 3) higher bluebird occupancy of nest boxes (tied with Green Co. and higher than Dodge Co.) and 4) have a lower total mortality rate. Bottom line: it is very difficult to raise a bluebird in Dane Co.

I have helped install several trails in the Madison area. Few of these trails have been very successful in spite of selecting habitat that normally would have been productive in other settings. These results are in spite of the fact that Dane County has the 4<sup>th</sup> largest number of nest boxes and 3<sup>rd</sup> largest number of monitors. I have concluded that the major lakes in the area attract large number of Tree Swallows, making box competition for bluebirds more difficult than in surrounding counties. The Dane County monitors deserve great credit for continuing their bluebird efforts “against all odds”.

For the 2010 season, bluebird monitors in Wisconsin had an unprecedented success as a group. If early nesting is not interrupted by a severe cold snap as it was this season, we could fledge several thousand more bluebirds than we did this season.

**Table 4.** Egg & hatchling mortalities in selected counties from western Wisconsin (Dane is centrally located)

Counties	Total Mortality	Egg Mortality	Hatchling Mortality	Hatchling Mortality First Fledged Brood
Dane	39.0%	21.4%	17.6%	17.6%
Iowa	34.1%	25.7%	8.3%	10.9%
Juneau	39.2%	19.6%	19.6%	21.4%
Monroe	34.7%	23.7%	11.0%	13.8%
Richland	33.9%	9.4%	24.5%	24.1%
Sauk	29.8%	15.1%	14.7%	18.7%
Vernon	30.7%	12.6%	18.1%	26.8%