

# BLUEBIRD NEST BOX REPORT - 2014

By Leo Hollein, August 29, 2014

## Tree Swallows Thrive – Bluebirds Struggle

Weather has a major impact on wildlife including birds. However, not all nesting birds in the Refuge were impacted in the same way this season. The winter of 2013/14 was very harsh. It was bitterly cold with many significant snow falls. The weather even had a negative impact on the US economy as the Gross National Product (GNP) actually decreased in the first quarter of 2014. Both tree swallows and house wrens are migratory and spend the winter far to the south. Their nesting populations were not negatively impacted by the winter weather. House wren nestings actually increased significantly this season. Bluebirds are partial migrants. Some spend the winter in the Refuge and others are short distant migrants. The harsh winter evidently reduced their population significantly as the number of pairs of nesting bluebird pairs in the Refuge declined by about 20% versus the previous nine years. The biggest decline in bluebird nestings from 17 to 7 occurred in the boxes in area around the Visitor Center. This area has the best bluebird habitat. More bluebirds may have tried to over winter in this area and not survived. Figure 1 is a female bluebird found dead in nest box in March.

There were 140 boxes monitored during the season. These nest boxes had a total of 135 nestings (nests with eggs) as listed below by species. This is the first time in at least 11 years that there were more nest boxes than nestings. This was due to the smaller bluebird breeding population and efficient (reduced nest failures) tree swallow nesting. Thirty nest boxes had no nestings in 2014. Nearly 79% of the nest boxes had at least one nesting during the season. Every nest box pair had at least one nesting. As usual, some boxes had multiple nestings during the season. Tree swallows nested in 86% of the nest box pairs while bluebirds nested in 64% of the pairs. Both tree swallows and bluebirds nested in 41% of the box pairs.

Here is the summary of nestings for the 2014 season:

<b>SPECIES</b>	<b>NESTINGS</b>	<b>FLEDGLINGS</b>
Bluebirds	55	184
Tree Swallows	69	306
House wrens	7	24
House Sparrows	4	0
<b>TOTAL</b>	<b>135</b>	<b>515</b>

The notable events during the nesting season were:

1. Three orphan tree swallow hatchlings about a week old were received from the Raptor Trust and successfully raised in our boxes.
2. Tree swallows had their most efficient nesting year since at least 2000. Only 12% of the tree swallows nestings failed. This is less than half of the average loss rate.
3. House wrens rebounded from nesting lows over the last few years and had the most nestings since 2008.

## TREE SWALLOWS SUCCEED AS FOSTER PARENTS

On June 11 the Raptor Trust received a small clutch of three partially feathered tree swallow hatchlings. They were turned over to the Refuge to be raised in our bluebird boxes. Since tree swallows synchronize their nest timing, it was easy to find three nest boxes with the same size hatchlings. The three hatchlings were placed in three different nest boxes. When placed in with the existing hatchlings, they climbed around to find a resting space. All three orphan hatchlings survived and fledged. As was the case in 2013 with orphan bluebirds, the adult tree swallows either did not know they were orphans or are willing to raise any hatchlings in their nest.

## TREE SWALLOWS HAD VERY SUCCESSFUL NESTING SEASON

Tree swallows had a very productive nesting season in 2014. They fledged 306 young including the three Raptor Trust orphans from 69 nestings. This was the highest number of tree swallow fledglings since 2006. Below is a comparison of key items with long term averages:

<b>Year</b>	<b>2014</b>	<b>AVERAGE (2004-14)</b>
Total Nestings	69	80
Eggs Hatched, %	91	81
Eggs fledged, %	85	72
Nest Failures, %	12	25
<b>Fledglings</b>	<b>306</b>	<b>283</b>

Tree swallows were efficient nesters in 2014 because of the lowest rate of nesting failures and highest percentage of eggs that hatched and fledged in 11 years. Nesting failures were less than half (12%) of the 11 year average (25%). Loss of clutches from nest abandonment and predation were both lower than normal. Only 8 tree swallow nests failed. Two nestings were abandoned and the eggs did not hatch. Nest failures due to abandonment were only 3% versus the long term average of 10%. The significant rain fall in May and June helped the tree swallows to find sufficient enough flying insects to raise their young. There were 6 total predations from bears (2), raccoons (2) and unknown (2).

## BLUEBIRDS FAIL TO FLEDGE 200 YOUNG

For the first time in five years bluebirds fledged less than 200 young. The main reason was the reduction in bluebird nesting pairs. Chart 1 compares bluebird and tree swallow fledglings for the past 13 years.

Below is a comparison of the 2013 bluebird breeding season with the average for the 2004-14 season as well as the best results for that period:

<b>NESTING STATISTICS</b>	<b>2014</b>	<b>2004-14 Average</b>	<b>Best</b>
Bluebird Nesting Pairs	33	39	51
Bluebird Nestings	55	64	88
Eggs Laid	245	272	381
<b>Fledglings</b>	<b>184</b>	<b>212</b>	<b>280</b>
<b>EFFICIENCY STATISTICS</b>			
Eggs That Produced Fledglings, %	76	77	90
Pairs Attempting Second Nestings, %	66	61	81
Pairs fledging two clutches, %	38	35	48
Failed Nestings (No Fledglings), %	22	19	8

As shown in the above comparisons, most of the efficiency statistics for 2014 were close or exceeded the average except for nest failures. Bluebird pairs compensated to some extent for their small numbers by attempting a high percentage of second nestings and fledging a higher percentage of two clutches. Three bluebird pairs laid three clutches of eggs. They all lost one clutch but successfully raised the other two clutches. The Refuge summer season is not long enough for bluebirds to raise 3 clutches in a year.

The failed nesting percentage of 22% was just several percentage points below the highest rate observed in 11 years. There were 12 failed nestings in 2014. Six were due to predation. Six nests were abandoned and the eggs did not hatch. The predation rate was close to average. However, the abandonment percentage was about double the average.

## **NESTING ACTIVITY WAS HIGHER FOR HOUSE WRENS AND HOUSE SPARROWS**

In 2014 both house wrens and house sparrows increased their nestings. There were seven house wren nestings in 2014. This equaled the total number of house wren nestings in the prior 4 years. Chart 2 presents the history of house wren nestings in the Refuge since 2001. The number of house wren eggs and fledglings were the largest since 2008. House wrens fledged 24 young in 2014. This was well above the eleven year average of 19 fledglings. There is no explanation for the increased house wren nestings in 2014. It may be natural variation as the totals are within the historical data range for house wrens in the Refuge.

House sparrows attempted four nestings in four different nest boxes in 2014. These nest boxes were all in the proximity of occupied buildings but were not close to one another. These nestings were disrupted as is Refuge practice for this non-native species. The eggs were removed before they hatched. Only one pair of house sparrows attempted to nest in a Refuge bluebird box in 2013. Attempted nestings by house sparrows vary widely from year to year. House sparrows on average have attempted 6 nestings in 4 different boxes since 2001.

A nest box with a horizontal slotted opening and a small area where a nest could be built was placed where sparrows tried to nest in 2013. This slotted box was reputed to discourage house sparrows from nesting. However, sparrows returned to use this slotted box in 2014. A number of box designs have been tried over the years to prevent house sparrows from nesting in bluebird boxes. None have been totally successful. Our experience with a number of so called house sparrow resistant boxes suggests that if a bluebird can nest in a box so will a house sparrow.

## **BLACK BEARS WERE PRIMARY NEST PREDATORS**

For the third consecutive year black bears took down a number of bluebird boxes. Bears took down 6 in 2014 versus 5 in 2013 and a record 7 in the 2012 nesting season. As usual the boxes were pulled down in April, May and early June. Presumably there are more sources of food as the summer progresses or the bears have learned there is not much nutritional content in the nest boxes by then. All the boxes taken down in 2014 had nesting birds. Two pairs of boxes had both of their boxes predated at the same time. Bears predated nesting bluebirds 3 times while tree swallows were predated twice. One house wren nest was also predated. Black bears accounted for 50% of all the nest box predations in 2014.

Bears were more careful in predated boxes in 2014. Only one nest box had to be replaced. In most cases the bear bent the nest box post to the ground to get at the contents. These posts were pulled up and reused without further maintenance. Three of the six boxes predated by bears were subsequently used and fledged clutches later in the season. In two of the three cases the original pair of birds reused the box.

## **IMPROVEMENTS PLANNED FOR 2015 SEASON**

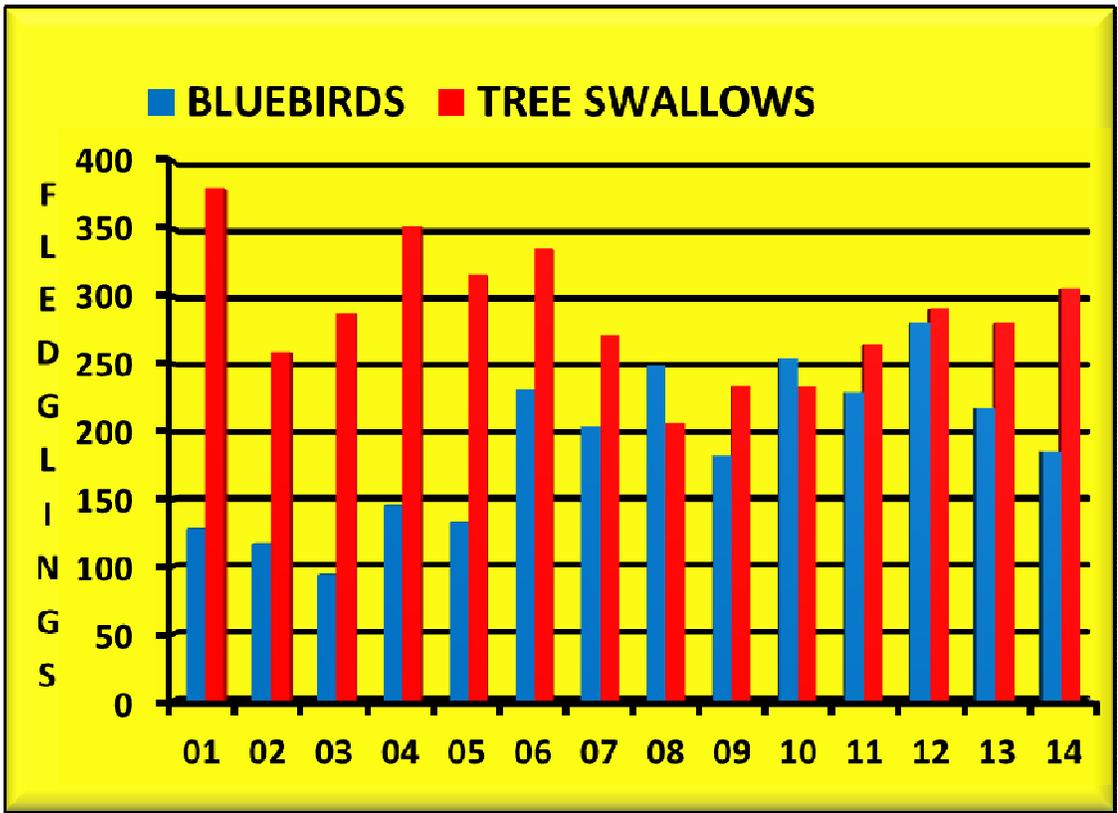
As is done every fall, a number of nest box pairs located in areas no longer attractive to bluebirds and/or surrounded by tall perennial vegetation will be relocated. One pair of boxes will be relocated because of the difficulty in accessing them. Any nest boxes or box tags damaged during the season will also be replaced in the fall. The plan is to monitor a maximum of 140 song bird boxes during the 2014 season.

*Many thanks to Roz Mytelka, Nancy Felicito and Lou Pisane who monitored nest boxes and reported their findings on a weekly basis during the 2014 nesting season that lasted over 4 months. Thanks to the group for their help in maintaining and modifying the nest box trail during the off season. Thanks to Paul Ford for building new boxes and repairing others for the trail.*

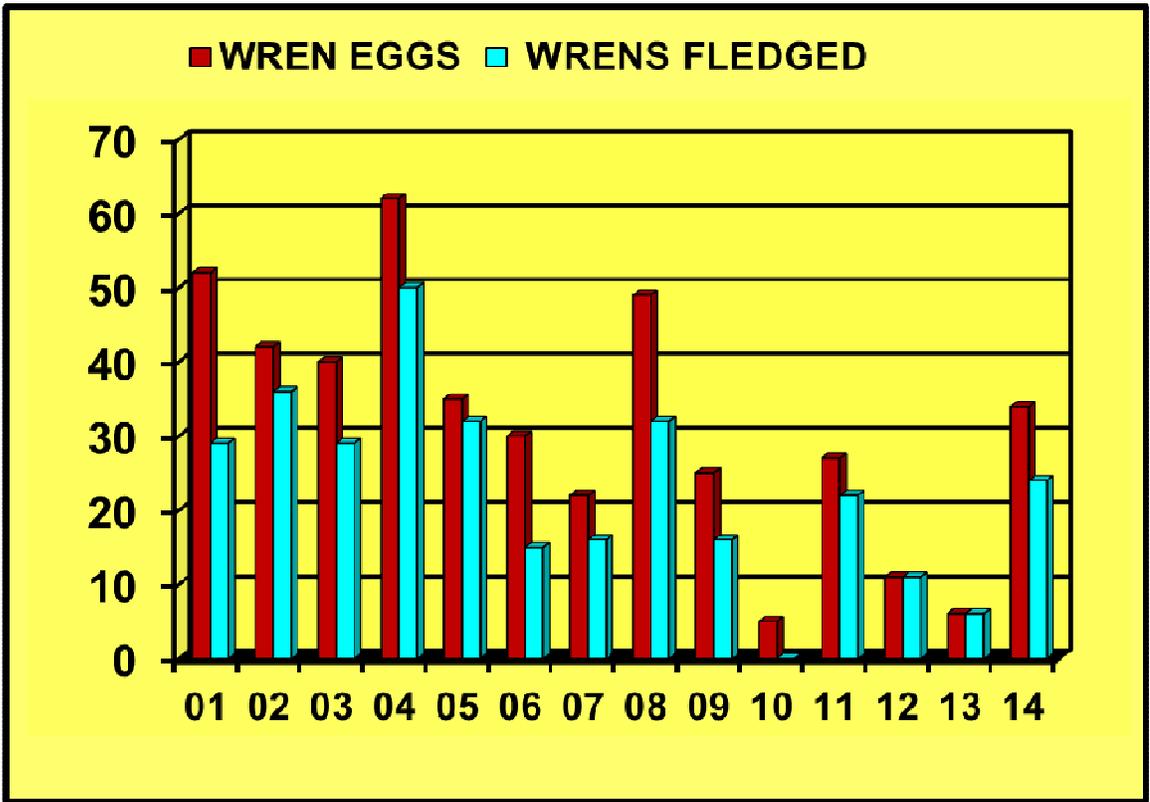
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**FIGURE 1 – FEMALE BLUEBIRD VICTIM OF HARSH WINTER**



**Chart 1 – History Of Bluebird And Tree Swallow Fledglings**



**Chart 2 – House Wren Nesting History**



**FIGURE 2 – THESE SWALLOWS PREFER TURKEY FEATHERS**



**FIGURE 3 – HOUSE WRENS HAD A GOOD NESTING SEASON**