

# **2022 BLUEBIRD NEST BOX REPORT**

## **THE WEATHER FAVORED TREE SWALLOWS**

As in the years prior to 2020, bluebird nest boxes were monitored on a weekly basis in 2022. Monitoring restrictions due to the Corona virus were lifted starting with the 2021 season. Weekly monitoring provides accurate data on the number of nesting attempts, as well as the number of eggs, hatchlings and fledglings.

The Refuge staff continued in 2022 to improve wildlife habitat. More fields were mowed. The controlled burning of fields was increased. If continued in subsequent years, more fields will be grassy and less brushy. This should improve the habitat for bluebirds in future seasons.

The bluebird nest box trail had 135 nest boxes that were monitored in 2022. There were 143 nestings (nest with eggs) in these boxes. Twenty nest box pairs had both tree swallow and bluebird nestings during the season. Twenty-seven individual boxes were not used for nesting during the season. Many boxes hosted multiple nestings. Every nest box pair had a nesting.

### **FLEDGLINGS FROM NEST BOXES DECLINE IN 2022**

Below is the summary of nestings and fledglings for the 2022 season versus the averages for 2011 – 2021. Year 2020 is not included in the averages due to incomplete monitoring data.

<b>SPECIES</b>	<b>NESTINGS</b>		<b>FLEDGLINGS</b>	
	2022	10 YR AVE	2022	10 YR AVE
Bluebirds	50	62	146	191
Tree Swallows	68	73	253	252
House wrens	5	11	24	43
House Sparrows	10	6	0	0
<b>TOTAL</b>	<b>143</b>	<b>155</b>	<b>423</b>	<b>486</b>

## **BLUEBIRDS HAVE BELOW NORMAL NESTING SEASON**

The total number of young fledglings from the nest boxes in 2022 was 423. This is below the 10-year average of 486 and was primarily due to the decline in nesting bluebirds and subsequently fledglings.

Bluebirds nested in 53% of the box pairs. Ten bluebird pairs fledged young from two clutches in 2022. One pair laid 3 clutches. One of the three clutches fledged.

Bluebirds had a below average nesting season and fledged the least young since 2015. This is illustrated in Chart 1 that presents the history of Refuge bluebird and tree swallow nestings from 2001 to 2022. A total of 135 nest boxes were monitored in both 2021 and 2022 as shown in the attached maps. The dots on the maps indicate location of a nest box pair. A blue dot marks nest pairs used by bluebirds. A yellow dot means the paired boxes were not used or used by birds other than bluebirds.

A comparison of the two maps along Pleasant Plains Road between the South Gate and Marsden Corner shows that bluebirds nested in 8 nest box pairs in 2021. In contrast only two box pairs in 2022 were used by bluebirds in the same area.

Bluebirds begin nesting and laying eggs in April. A few fields along Pleasant Plans Road were burned in April. This was the likely reason bluebirds did not nest in the above-mentioned box pairs this season. Burning and mowing fields should create grassy fields and improved bluebird habitat over time. Burning fields before the end of March should make them acceptable to bluebirds in April. The grassy areas around the Visitor Center and off Woodland Road are the prime bluebird nesting territories in the Refuge.

## **TREE SWALLOWS FLEDGLINGS AVERAGE IN 2022**

Tree swallow fledged 253 young in 2022. This is essentially equal to the twenty-year annual average of 252 swallow fledglings. Tree swallow nestings had a 21% nesting failure rate. This is 4% less than the average of 25% nesting failures for Refuge tree swallows. Tree swallows recovered from the lower than usual number (25% less than average) of fledglings in 2021. Tree swallows benefitted from the rainy weather in May and early June that resulted in a sufficient flying insect

population for swallows to harvest food to feed their young. It also helped that Pool 1 was not drawn down during the nesting season as it was in 2021.

Tree swallows nested in 83% of the box pairs. One box pair had tree swallows nesting in both boxes at the same time. Usually about 10% of the nest pairs have tree swallow nestings in both boxes at the same time during the season. Bluebird pairs will never nest in both paired boxes at the same time.

## **HOUSE WRENS FLEDGE 24 YOUNG IN 2022**

House wrens had five nestings this season and fledged 24 young. This was an increase over 2021 when house wrens fledged 6 young. Both years experienced a drastic reduction from the average of 74 fledglings from the 2015 to 2020 seasons. The volatility in house wren nestings and fledglings over the last 18 seasons is shown in Chart 2. House wren fledglings from the Refuge nest boxes have ranged from zero in 2010 to 103 young in both 2016 and 2017 seasons.

All five of the house wren nestings this season were successful in fledging young. House wrens have a lower nest failure rate than bluebirds or tree swallows in the Refuge nest boxes. The lower failure rate results from 2 defensive actions taken by nesting house wrens:

- o Destroying the eggs of potential competitors for food resources in their territory.
- o Filling their nest box with sticks to a level above the entrance hole. This deters larger birds and predators from entering and possibly depredating their nest. House wrens are the smallest species to nest in the bluebird boxes.

Four house wren nests were not used to lay a clutch of eggs. They were built by male wrens who then sing to attract a mate. The number of unused (dummy) nests are usually less than the active nestings in the Refuge.

House wrens are plentiful and not a threatened species. Hopefully, house wren nestings in the Refuge will continue at the lower end of their historical numbers. House wrens compete for nesting territory with bluebirds and destroy (peck open) eggs of bluebirds and other birds. Fewer house wrens increase the nesting success of bluebirds.

## **HOUSE SPARROWS LAY EGGS IN THREE NEST BOXES**

Chart 3 presents the history of house sparrow nestings in the Refuge since 2001. House sparrows attempted 10 nestings in 3 nest boxes in 2022. These results are close to their long-term averages of 6 nestings in 3 boxes.

The three nest boxes used by sparrows were all in the proximity of buildings along New Vernon Road. House sparrows usually nest near houses or barns where they can feed at bird feeders or from domestic animal feed. All ten nestings were disrupted as is Refuge practice for this non-native species. The nests and eggs were removed after about a week of brooding and before they hatched. This procedure causes most sparrows to delay renesting. However, one sparrow pair this season laid 17 eggs in 5 clutches in the same nest box. They finally stopped renesting in late July.

One of the box pairs that hosted house sparrows will be relocated. The other pairs will remain in place because both bluebirds and house sparrows used these box pairs of boxes during the past season. Bluebirds fledged clutches from both boxes.

## **FIVE VOLUNTEERS MONITOR NEST BOXES IN 2022**

The current objective of the bluebird nest box trail is to provide nesting habitat for eastern bluebirds to ensure a healthy population of bluebirds exists for the enjoyment of the Refuge visitors. The nest boxes are also used by other cavity nesting native birds such as tree swallows and house wrens.

The trail provides volunteer opportunities for those who wish to work with wildlife. Since the Friends became responsible for maintaining and monitoring the bluebird trail, eighteen different volunteers (7 male and 11 female) have monitored part of the bluebird trail for at least one season. This is a significant commitment of time because volunteers visit their nest boxes once per week from early April through mid-August. Their data (nest, species, eggs, hatchlings, fledglings, and observations) from the visits is entered into a spreadsheet and E-mailed to the coordinator. A weekly report summarizing the key results is distributed to the nest box monitors and other interested individuals.

## **SECOND SUNDAY BLUEBIRD PRESENTATION RESUMED**

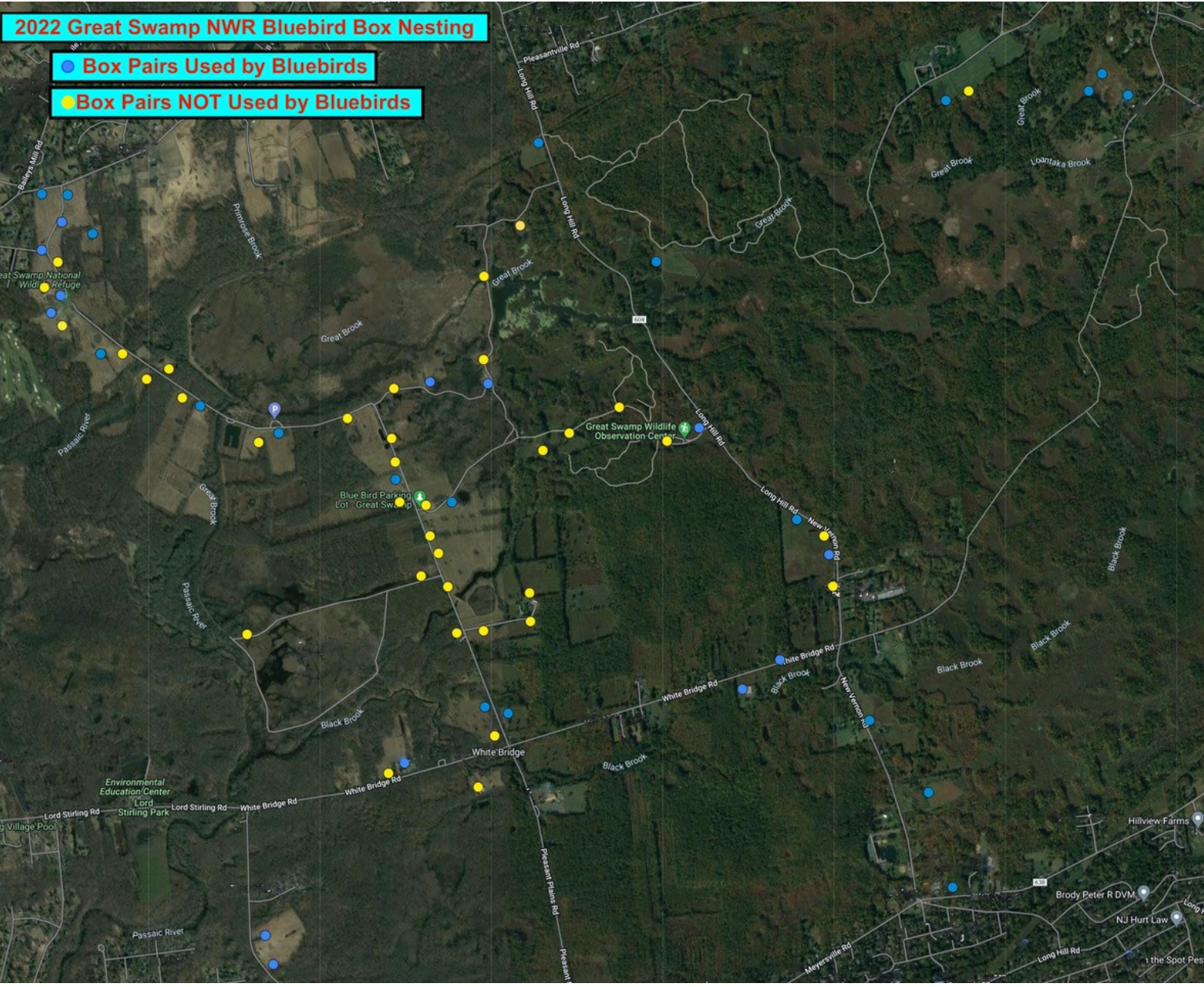
As part of the Friends Second Sunday program a presentation was made in May covering the various aspects of bluebird and tree swallow life cycles observed in the Refuge. This Second Sunday bluebird presentation is usually given on a two-year cycle. However, the 2021 presentation was cancelled due to COVID. A presentation was also made in March to over one hundred attendees at the annual meeting of Pennsylvania Bluebird Society in Bethlehem, PA. The presentation was made at the request of Allan Jackson who is a retired Fish & wildlife employee and currently president of the New Jersey Bluebird Society.

*Many thanks to Jim Mulvey, Nancy Felicito, Tom Gula and Christine Pirog who monitored nest boxes and reported their findings during the 2022 nesting season. Two of the five nest box monitors had cardiac pacemakers surgically installed during the season. They were able to complete the monitoring of their boxes with help from the other volunteers. A special thanks to Tom Gula who helped with maintaining the bluebird boxes as well as recording the GPS locations of box locations and developing the attached Maps.*

Leo Hollein & Tom Gula



**MAP 2021 – DOTS REPRESENT A BLUBIRD BOX PAIR  
(CREATED BY TOM GULA)**



**MAP 2022 – DOTS REPRESENT A BLUBIRD BOX PAIR  
(CREATED BY TOM GULA)**

# BLUEBIRD AND TREE SWALLOW NESTINGS

■ BLUEBIRDS ■ TREE SWALLOWS

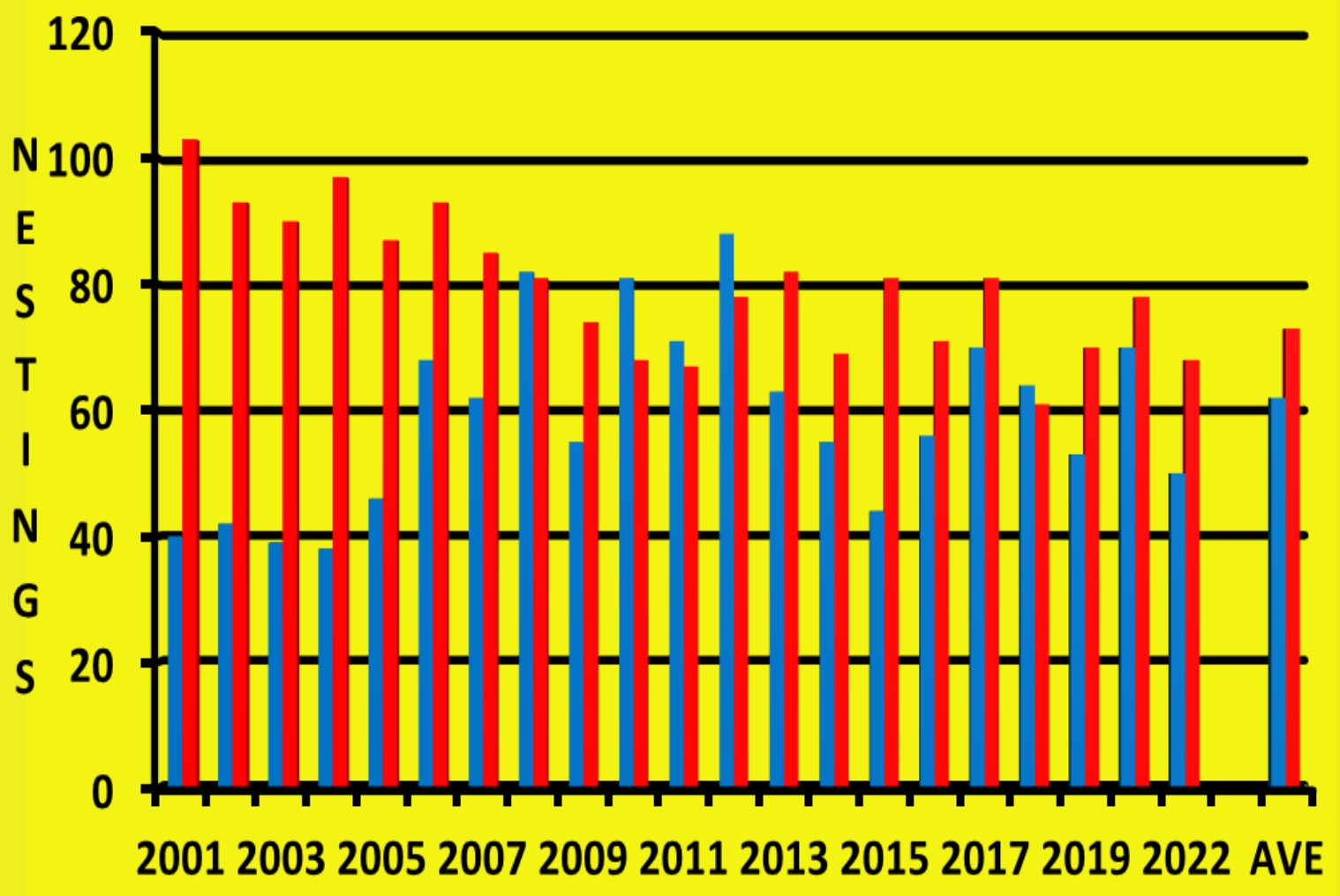


CHART 1



# HOUSE WREN NESTING HISTORY

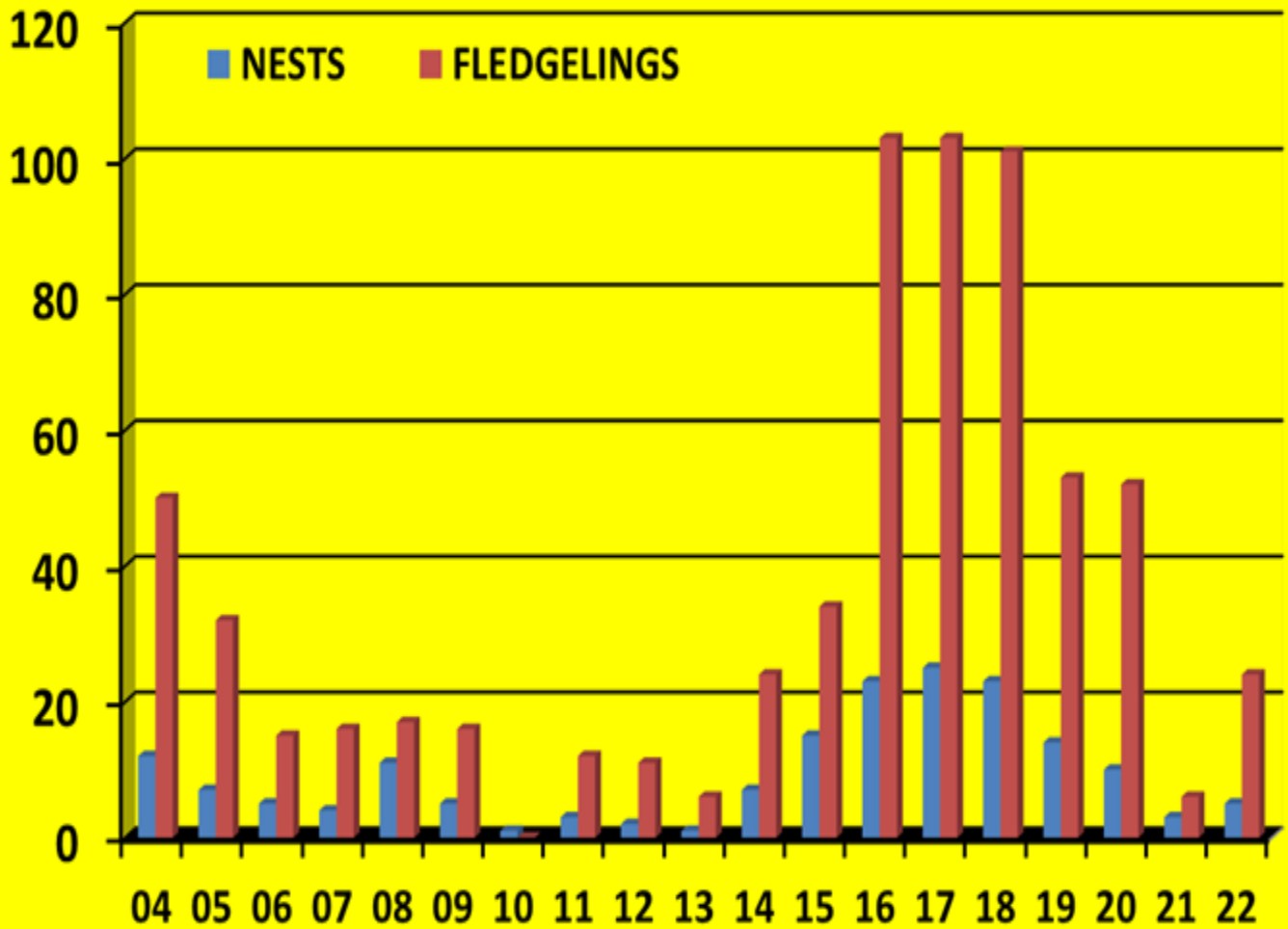


CHART 2

# HOUSE SPARROW NESTING HISTORY

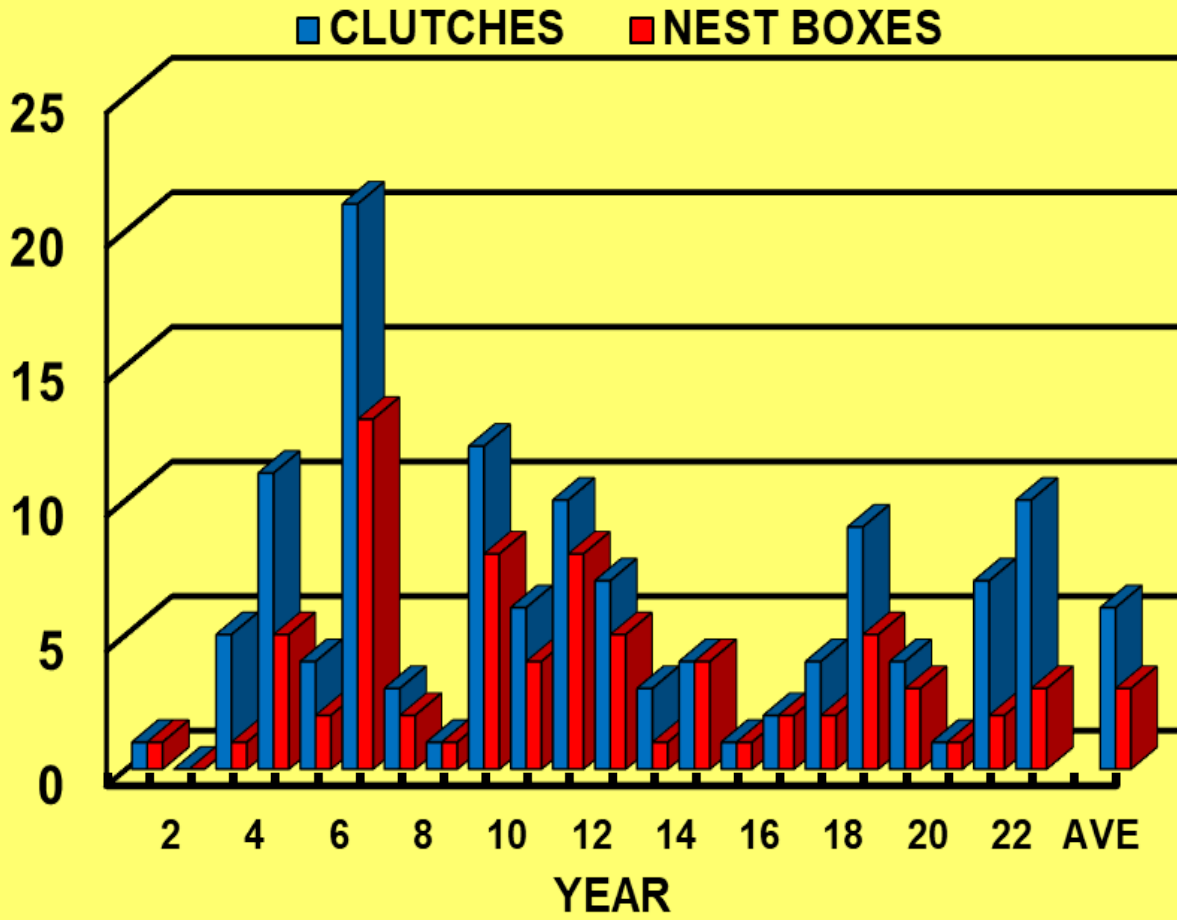


CHART 3



**MALE BLUEBIRD WITH KATYDIDID**