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**LETTER**

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## HOW MANY EGGS IN THE NEST?

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The number of eggs that a bird will lay in a clutch varies widely from species to species. The clutch size is dependent on how many young a bird species can successfully raise. While most duck species lay 10-12 eggs in a clutch, other birds like the Mourning Dove (*Zenaida macroura*) only lay two. The high mortality rate for ducklings dictates the need for large clutches in order that some ducklings

will survive to become adults. Ducklings are capable of feeding themselves upon hatching. Therefore, ducks do not need to expend effort to feed their large brood. While ducks strive to raise a single clutch, Mourning Doves raise multiple clutches in a year. Mourning Doves are seed eaters. They do not eat or feed live food to their young. Therefore, the timing of nesting activity is not dependent on the availability of live food.

Birds in the same species vary the number of eggs they lay in a clutch. The age, health and experience of a particular nesting pair will impact the clutch size. However, there are other factors affecting clutch size that are not related to variations due to specific individuals. These include weather and food availability. This is illustrated by data from the nest boxes in the Great Swamp National Wildlife Refuge (GSNWR).





Eastern Bluebirds (*Sialia sialis*) and Tree Swallows (*Tachycineta bicolor*) are the most common nesters in the Refuge songbird nest boxes. While these species nest in the same size nest box in the same habitat, they employ quite different nesting strategies. Bluebirds will attempt to raise multiple clutches in a season and have laid eggs from March through July in the Refuge. Tree Swallows strive to raise a single, but usually larger clutch. They have been observed laying eggs only in May and June. Bluebirds in the GSNWR typically attempt to raise two broods. If they lose a clutch, a bluebird pair may attempt three clutches in the hope of raising two. Once in twelve years a pair of bluebirds fledged three clutches in the GSNWR. In southern areas where the breeding season is longer, Eastern Bluebirds have sufficient time to raise three clutches.

Eastern Bluebirds typically lay four or five eggs in a clutch. On occasion clutches

may contain two, three or six eggs. Clutches with six eggs are rare and occur in about two percent of the bluebird nestings. Only one bluebird clutch with seven eggs (below) was observed in over 700 nests in the Refuge. This was the exception that proves that bluebirds are monogamous. A bluebird pair defends its nesting territory against other bluebirds. In the seven bluebird egg nest there were two females that jostled to brood the eggs and likely each laid part of the clutch. All of the eggs hatched and fledged. It is

likely that the females were related. They could have been siblings or a mother/daughter pair.



Tree Swallows typically lay five or six eggs (next page). However, they sometimes have clutches with two, three, four or seven eggs. About four percent of their nests have seven eggs.



The chart (page 4) presents the average number of eggs laid in a clutch by Eastern Bluebirds and Tree Swallows by month. The month indicates when the first egg in the clutch was laid. In the Refuge bluebirds usually start their first clutch in April or May. Twice in twelve years, a bluebird pair began nesting in March. If April is relatively warm, most nestings (nests with eggs) will begin in April. If not, more nestings will start in May. Bluebirds evidently begin nesting when they sense there will be an adequate food supply when their eggs hatch. If they are wrong, their young may starve. In the Refuge bluebirds typically start their second clutch in late June or early July as they spend up to several weeks feeding their young after they have fledged. If their first nesting fails, bluebirds will renest earlier.

As shown in the chart there is a difference in clutch size with time. The average bluebird clutch size in April and May is about 4.4 eggs. The size decreases to 3.8 eggs in June and even lower to 3.4 eggs in July. The reduction in the number of eggs is related to food availability and the increase in ambient temperature in June and July. Songbirds lay their entire clutch before they start brooding their eggs. This procedure results in all eggs hatching in a short period of time.

Therefore, all the hatchlings have an equal chance of fledging.

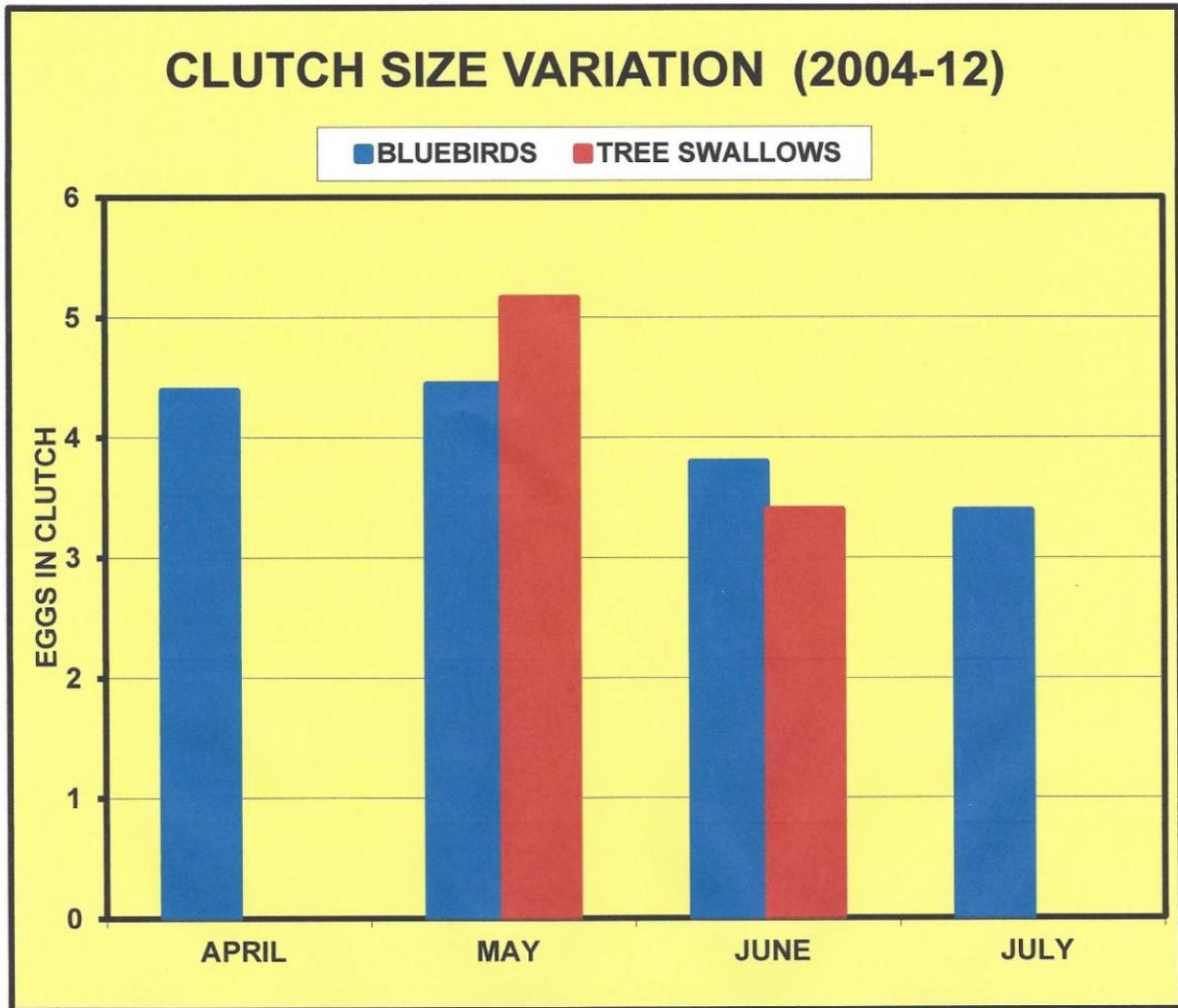
Eggs remain viable and do not start to develop if the temperature is below 70° F. As the ambient temperature increases, there is a greater probability the eggs will begin developing improperly without being brooded under controlled conditions. Bluebirds and other songbirds lay fewer eggs in hot weather to minimize the period of potential improper egg development prior to the start of brooding. In the case of bluebirds the food supply is also not as abundant as the season progresses.

The chart also presents the clutch size data for Tree Swallows.

The average Tree Swallow clutch is 5.2 eggs in May and 3.4 eggs in June. Some of the reduced size is due to higher ambient temperatures. However, food availability is the primary reason for the significant reduction in clutch size for June. Since Tree Swallows nest once a season, they select the optimum timing to nest. For Tree Swallows this is mid-May. Consequently the swallow eggs hatch in late May or early June when there are long daylight hours and the flying insect population is at its peak. This enables swallows to capture sufficient insects to feed their large brood.

If a Tree Swallow pair loses their first clutch due to predation or other reasons, then they will renest in an attempt to fledge young before the season ends. However, these swallows have missed their optimum breeding window. They will lay fewer eggs in anticipation of a reduced insect population when their eggs hatch. As the Refuge becomes hotter and drier in late June and July, the population of flying insects that swallows feed upon declines. Thus the swallows have a difficult job of finding sufficient food to feed their young and opt for a smaller clutch.

Even with the smaller clutch size Tree Swallows only fledge young from about 60% of the clutches that are laid in June.



**ART EXHIBIT BY ALAN MESSER**

Society past-president and bird artist Alan Messer has an exhibit of his artwork on display at the Arsenal Gallery in Central Park. The show is titled *Conserving Our City of Nature: The Artwork of Alan Messer*. It is presented by NYC Audubon at the Arsenal, 830 Fifth Avenue (at 64<sup>th</sup> Street) on the third floor. The Exhibition will be open from March 5, 2015 – April 23, 2015.

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