



California Wildlife Center

Patient of the Week

April 12, 2024

Eggcellent Adaptations

While we don't often receive eggs at CWC and don't incubate eggs, we are amazed at the variety of egg size, color, and shape.

Avian reproduction differs from mammals in that the female will lay one or more eggs rather than giving birth to live offspring. After mating, the hard egg forms inside the wild female bird's body within just 24 hours, with the color appearing just hours before the egg is laid. Female birds (such as domestic chickens) produce eggs without fertilization. Wild birds, however, can generally find a mate and rarely lay unfertilized eggs.

Most birds can expel just one egg a day. While Anna's hummingbirds may lay just 1-2 eggs per season, Mallards may lay 8-13 in a nest. Some birds will start incubation by sitting on them immediately to keep them warm and encourage the development of their young, which results in the eggs hatching at different times since they are laid at intervals. Other birds will wait to sit on the clutch until all eggs are laid, which results in the young birds hatching at the same time.

When laid, eggs are generally smooth and laterally symmetrical. However, while we are most familiar with the oval shape of chicken eggs, other species produce a variety of shapes. All eggs are longer in length than width in order to pass through the narrow opening of the female's cloaca when exiting the body. Birds who are dynamic fliers tend to have longer, narrower eggs as their bodies must stay more streamlined for powerful flight. This is why both the albatross (average of 19 pounds) and the hummingbird (average of 0.15 ounces) have similarly shaped eggs, despite being dramatically different in nearly every other way.



A selection of chicken eggs from a local farmer's market.



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The Common Murre's egg is unique in several ways—not only are the color patterns specific to each female (who can also recognize their own eggs), but they are also conical. It was thought that as the Murre lays their eggs on rocky outcrops, conically shaped eggs would not roll off the ledge but rather circle and return to the nest if moved. This has since been debunked and scientists now believe that the conical shape allows the wider end to stay clean, allowing the chicks inside to respire through the shell in an otherwise dirty nesting area.

Eggs can come in two basic range of hues—either blue/green or shades of brown and every bird has the ability to produce eggs in these color ranges, though many do not. They can also be shiny or more matte. Eggs vary based on species and even individual females may have specific patterns, which may change from one egg to another.

So what dictates the color or pattern of the egg? There are several theories. In general, white eggs are laid by birds who either lay them in covered nests (such as in a tree crevice) or who sit on the egg at all times. These eggs don't need camouflage since they're at lower risk or of predation. Eggs that are more visible, such as ground nesters like the California Quail need to be difficult to detect to escape the many animals that would like to eat them. Their eggs are generally cream colored with brown speckles.

As the colors are unique to each female, patterns may help them to identify their own brood and also spot a parasitic layer's egg. A flamboyant egg color may signal to other females to lay their eggs as some species have synchronous breeding, which serves as protection when a predator arrives as they cannot kill all of the eggs at once. A darker color may protect it from UV rays but also might heat the egg too much and damage the chick inside.

The rise in popularity of Oology (the study of bird eggs, nesting, and breeding behavior) in Europe in the 1800s coincided with the expanded ability of the upper classes to travel and an interest in biology (On the Origin of Species by Darwin was published in 1859). Today it is illegal to collect wild bird eggs, thanks to the Federal Migratory Bird Act.



Chicken eggs next to quail eggs.