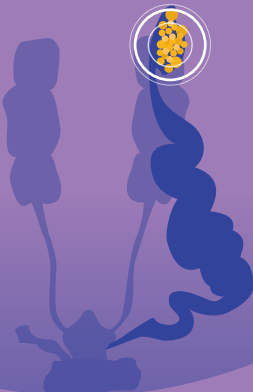




Purple Martin Development

Our Purple Martins spend the majority of their time on their wintering grounds in South America. When they migrate to North America, they have to accomplish a great deal, in a short amount of time—finding a nesting site, a mate, laying eggs and raising young. We only see what happens outside but what exactly goes on inside that nest?

Cloacae System



After a long break on their wintering grounds, the Purple Martins make their way up to North America to breed and nest. Once a cavity has been found, and a mate selected, nest building occurs. Both sexes will bring in nesting material, twigs, straw, pine needles; and then top off the nest with a layer of green leaves. While this nest building is happening, the eggs have begun development inside the female's reproductive tract.

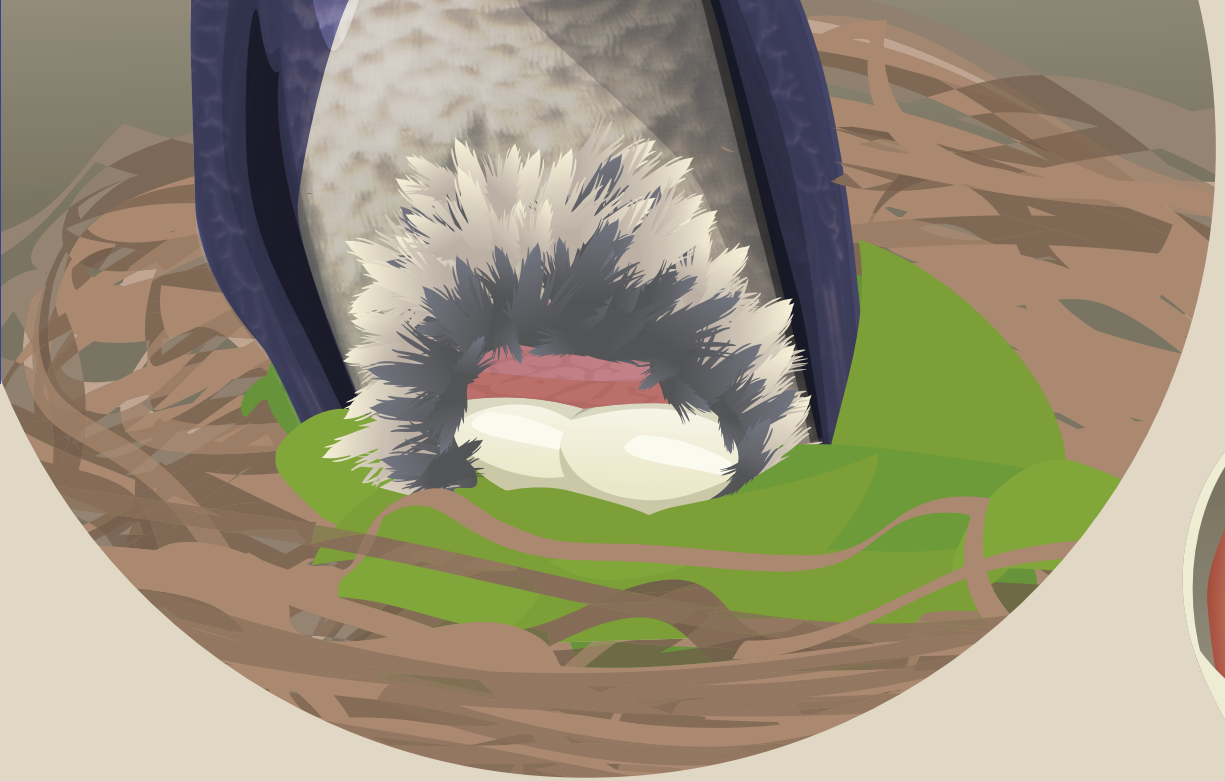
Unlike mammals, birds do not have external genitalia. They have a cloacae, a common opening for both reproduction and excretion. Copulation only lasts a few seconds and within-pair copulation usually occurs inside of the nesting cavity.

Once the male and female mate and the egg is fertilized, the egg continues down the reproductive tract, getting four layers of albumin (egg white).

The yolk, which is the ovum, develops into the embryo and is surrounded by a yolk sac. The yolk provides nutrition for the developing embryo and the remnants of the yolk continue to nourish the nestling during the first few days after they hatch.

The yolk is slowly deposited over several days and has alternating yellow and white layers which correspond with the number of days that it was deposited.

The albumin contains microscopic fibers that provide shock absorption, provide water, and buffer against abrupt temperature fluctuations. The shell provides protection while still allowing oxygen and carbon dioxide to flow in and out of the egg. It is comprised primarily of calcium carbonate, chalk, with small amounts of magnesium and phosphate.



The female has a brood patch, a small featherless area with increased blood flow on the underside of the bird, which transfers heat to the eggs. Only the females have this brood patch, allowing them to incubate the eggs. Males may sit on the eggs to help keep them warm and protected while the female is out foraging, however they are not able incubate the eggs.

One egg is laid per day, usually early in the morning. The eggs are incubated for 15-16 days, and incubation begins with the penultimate (next to last) egg.

Shortly before hatching, the chick develops an egg tooth, a small spike on the top of its beak to help break the egg, and a muscle on the back of their neck to provide the strength to hatch. First the chick breaks through the internal membrane into the air cell inside the shell. This process is called pipping. Then, the rest of the egg is eventually broken by body movements and the nestling emerges! The egg tooth is absorbed and the hatching muscle atrophies.

Purple Martins are an altricial species, they are born featherless and cannot leave the nest, unlike precocial birds such as chickens, which emerge from the feather feathered. The parents begin feeding shortly after hatching, and in 26-30 short days, the nestling will take its first flight!

