

Lifetime Learning Institute, November 18, 2021



Birds as Parents

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There are Two Different Types of Avian Young

These nestling Field Sparrows are an example of altricial young



And this recently hatched Killdeer chick is an example of a precocial youngster



What are Altricial Young?

- ❑ **Altricial young of all species are completely helpless at hatching**
 - ✓ Most emerging from the egg featherless
 - ✓ And unable to thermoregulate (maintain their own body temperature)
 - ✓ The majority are unable to open their eyes for several days
 - ✓ And totally dependent on one or both parents for food and warmth
- ❑ **Examples of birds with altricial young include songbirds, hawks and owls, hummingbirds, and woodpeckers**



A Gray Catbird, a common songbird in Virginia, prepares to feed a nest of altricial young

What are Precocial Young?

- ❑ **All precocial young are mobile almost immediately upon hatching**
 - ✓ Emerging from the egg with open eyes
 - ✓ And bodies covered in insulating down that aids in thermoregulation
 - ✓ Precocial young leave the nest shortly after hatching
 - ✓ And most can feed themselves without parental assistance
- ❑ **Examples of birds with precocial young include ducks, loons, shorebirds, and quail**



A hen Mallard guards her precocial young

Parental Care for Altricial Nestlings

- ❑ American Robins provide a good example of typical parental care
- ❑ The female broods the young for the first several days, including all night
 - ✓ Until the nestlings can maintain their own body temperature
 - ✓ And she also provides continuous protection against inclement weather
- ❑ Both parents provide a protein-rich invertebrate diet to the young
- ❑ And nestlings cooperate with parents to maintain [nest hygiene](#)



In the two weeks that American Robin young are in the nest, the parents provide warmth, protection against the elements, food, and nest sanitation

Identical Care, but Different Diet

- ❑ The American Goldfinch has one of the latest breeding seasons in the U. S.
- ❑ Whereas robins may start nesting in April, goldfinches delay until early July
- ❑ That's because goldfinches feed nestlings an entirely seed diet
 - ✓ And wait to start nesting when thistles begin to bloom in late June
 - ✓ Then use the ripened thistle seeds as a main food source for nestlings



American Goldfinches are one of a few songbird species that feed nestlings seed, primarily from thistle shown in the inset

Mourning Doves Make their own Food For Nestlings

- ❑ Both dove parents feed nestlings for four or five days after hatching
 - ✓ With a protein and fat-rich secretion from their crops often called “crop milk”
 - ✓ And then transition to providing seeds
- ❑ Mourning Doves are quite prolific
 - ✓ Having only two altricial young per brood
 - ✓ But up to four broods per year in our area
- ❑ Breeding starts as early as March
 - ✓ The accompanying photo was taken at Dyke Marsh on April 3, 2020
 - ✓ A day before the young fledged



Note the lack of nest hygiene. The young produce no fecal sacs, and the droppings often accumulate around the nest rim

Owls Are Busy Parents

- ❑ **Most owls have a protracted period of parental care**
- ❑ **The Barred Owl is a classic example**
 - ✓ The altricial nestlings hatch with closed eyes and covered in down
 - ✓ And brooded by the female for two weeks
- ❑ **Young remain in the nest for five weeks**
 - ✓ And parental care may extend for up to five months after the nestlings fledge
- ❑ **A young owl's diet is quite varied**
 - ✓ Consisting of small mammals, birds, reptiles, amphibians, and invertebrates



This photo of an adult Barred Owl with a three-month old fledgling was taken at Dyke Marsh on June 17, 2021. During our daylight observations, we documented the adults bringing Brood X cicadas and birds, including robin nestlings, a Blue Jay, a Gray Catbird, and a Mourning Dove to the three young

Nestling Defense

- ❑ **Altricial young are tied to the nest until fledging**
 - ✓ And most adults attempt to protect them through nest concealment
 - ✓ Or some form of distraction display
- ❑ **Some species, however, can be quite aggressive**
 - ✓ And adults attack any perceived or genuine threat
- ❑ **One of these aggressive species is the Northern Mockingbird**
 - ✓ A bird quite adaptable [to urban living](#)



Nestling Defense and the Feisty Tree Swallow

- ❑ The small cavity-nesting Tree Swallow can be surprisingly aggressive
- ❑ Tree Swallows are aerial foragers
 - ✓ Feeding both young and themselves with flying insects
 - ✓ Meaning that they display incredible maneuverability on the wing
- ❑ When monitoring nest boxes containing Tree Swallows
 - ✓ The birds will dive at me and come within inches of my head
 - ✓ With the intention to intimidate and not to strike or injure



Nesting Tree Swallows normally use natural cavities, but gladly occupy nest boxes as an alternative. The following video shows altricial young in [the nest box](#)

Post-fledging Care of Young

- ❑ **In some species such as American Robins and Mourning Doves**
 - ✓ The male may take care of fledged young for several weeks
 - ✓ While the female begins incubating a new clutch of eggs
- ❑ **Cavity-nesting Prothonotary Warblers use a different strategy**
 - ✓ The breeding pair divides the brood right after fledging
 - ✓ And each adult protects and feeds its half of the brood for up to five weeks



A male Prothonotary Warbler feeds one of two fledged youngsters in his care at Dyke Marsh on July 26, 2020. This species is a neotropical migrant and after breeding will migrate to coastal areas from Mexico to northern South America for our winter.

Helpers at the Nest

- ❑ Some species have the benefit of helpers to raise their young
- ❑ The Florida Scrub-Jay is a prime example
 - ✓ The species is confined only to scrub oak habitat in Florida
- ❑ When fledged young reach adulthood
 - ✓ They often find it difficult to establish their own breeding territories
 - ✓ Because all available habitat is occupied
 - ✓ So many will assist their parents in raising new broods
 - ✓ Until a nearby territory becomes vacant



Florida Scrub-Jays in typical scrub oak habitat. About half of Florida Scrub-Jay breeding pairs have helpers at the nest. Breeding success is higher for pairs with helpers than those without

Cooperative Care for Nestlings Among Hawks

- ❑ Breeding pairs of most hawk species tend to their young alone
 - ✓ But the Harris's Hawk of the southwest U.S. desert is a master of cooperative care
- ❑ A Harris's Hawk breeding pair may have up to five helpers
 - ✓ They can be either young birds from previous broods called gamma helpers that assist parents for up to three years
 - ✓ Or unrelated adult birds called beta helpers
- ❑ Helpers participate in [cooperative hunts](#) and in protection and feeding of nestlings



Cooperative breeding likely developed because of low prey density in the desert. A beta helper can inherit the breeding territory upon the death of the breeding hawk of the same sex

The Colonial Nesting Great Blue Heron

- ❑ Colonial nesting Great Blue Heron pairs care for their altricial young alone
 - ✓ But lay and hatch eggs synchronously so fledging occurs simultaneously
- ❑ I used to help monitor an active Great Blue Heron rookery at Mason Neck
 - ✓ That contained about 1250 nests
- ❑ Parents feed and protect young in the nest for two months
 - ✓ Fledged young can return to the nest to be fed by parents for about three weeks
 - ✓ But become skilled in catching fish and frogs by the end of summer



Great Blue Herons provide impressive nestling defense, consisting of regurgitating and defecating on potential ground predators supported by a volley of uneaten dead fish.

Caring for Young in a Polygamous Environment

- The Red-winged Blackbird nests in marshes
 - ✓ And a male in good condition can have up to 15 female nesters in his territory
- The female alone broods the altricial young
 - ✓ Until the nestlings can thermoregulate effectively at six to eight days old
- A significant contribution of the male is as a sentinel watching for predators
 - ✓ And signaling a warning call to his females and nestlings if danger arises
- Both sexes feed nestlings, remove fecal sacs, and mob predators



A male Red-winged Blackbird feeds a recent fledgling. I am not aware how or if a male prioritizes the feeding of young if he has many female mates in his territory

Polygamy and Caring for Young Alone

- ❑ In many cases of polygamy, a male may mate with many females
 - ✓ And the female raises the altricial offspring alone
 - ✓ Hummingbirds are a prime example
- ❑ The female Ruby-throated Hummingbird feeds her young
 - ✓ A regurgitated mixture of insects, nectar, and pollen
 - ✓ For three weeks when they are nestlings, and for another week after fledging



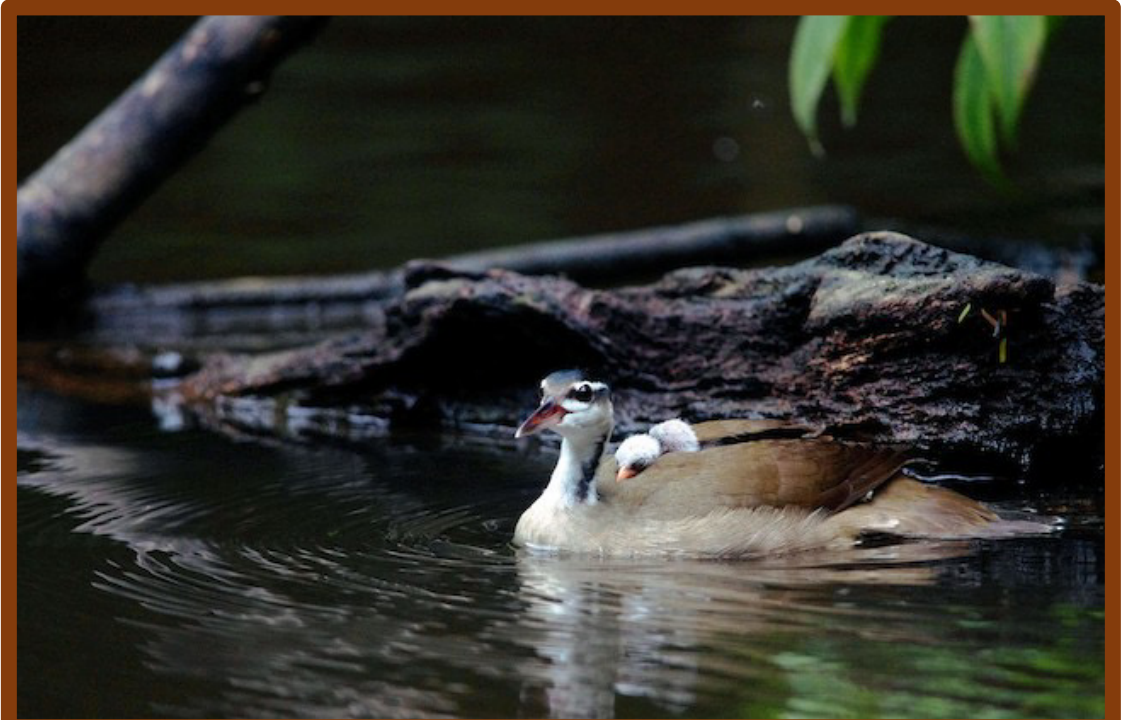
The Ruby-throated Hummingbird usually has only two young. Young help keep the nest clean by defecating over the side. Amazingly, the female feeds her young by sticking her bill right [down their throats](#)

If Birds had a Catering Service



The Male Sungrebe Transports Altricial Young

- The Sungrebe nests along streams from Mexico to South America
- Both sexes incubate the eggs
 - ✓ That hatch after only 11 days
 - ✓ Producing almost featherless altricial young with poorly developed bills and feet
- Then the male takes an unusual role
 - ✓ Transporting the young in pockets under his wings while swimming and even flying
- This is the only avian species that carries young in this fashion**



The Sungrebe is the closest avian equivalent to a mammalian marsupial, except the male carries the young. Developing young will vacate the wing pockets and ride on their father's back as they grow older

A Male Sungrebe Tends to a Growing Youngster



Brood Parasites

- ❑ Brood parasites don't care for their own altricial young
- ❑ The female lays her eggs in the nests of other birds
 - ✓ And the unsuspecting host parents rear the young cowbird(s)
 - ✓ Usually at the expense of their own smaller nestlings
- ❑ Brown-headed Cowbird is North America's best known brood parasite
 - ✓ And host parents tend to rear the often-larger cowbird young well [past fledging](#)



A male and female Brown-headed Cowbird.
A female can lay up to 40 eggs in one year

Brood Parasitism in Europe and Asia

- ❑ **The Common Cuckoo is an abundant brood parasite in Europe and Asia**
 - ✓ And has a breeding strategy like the Brown-headed Cowbird
 - ✓ Laying eggs in the nests of other birds
 - ✓ So that host parents unwittingly raise the cuckoo offspring
- ❑ **The cuckoo nestling has a trick not exhibited by its cowbird counterpart**
 - ✓ It pushes the eggs and the nestlings of the host species out of the nest
 - ✓ To eliminate any competition for food

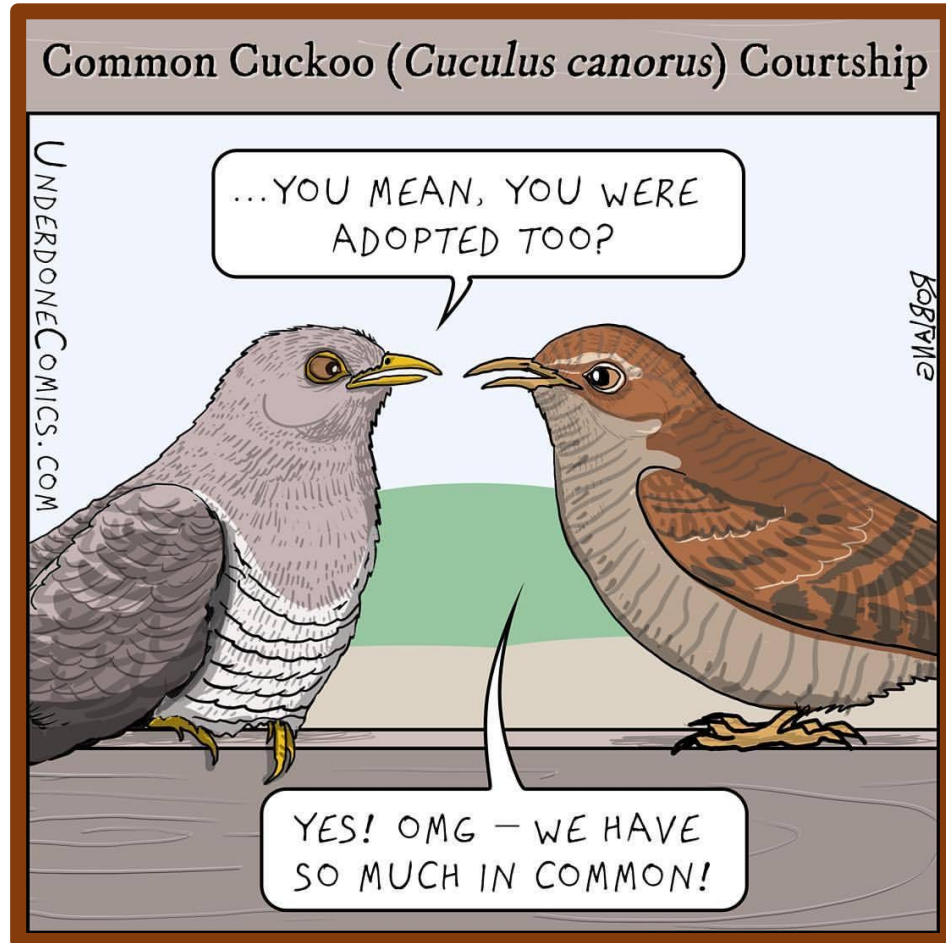


A Common Cuckoo's egg often mimics the background color, the spots, and even the size of the eggs of the host species, an amazing evolutionary development

A Common Cuckoo Nestling Ejects an Egg From the Nest



Common Cuckoo Courtship and Reproduction



Common Cuckoo Parenting, but without Contributing



Honorable Mention to a Laysan Albatross

- ❑ **The Laysan Albatross raises its altricial young on several Pacific Ocean islands**
 - ✓ Including the Hawaiian Islands
- ❑ **Only one young is produced at a time**
 - ✓ And fed a diet primarily of regurgitated fish eggs and squid by both parents
 - ✓ For approximately five to six months until the youngster fledges
- ❑ **A female named Wisdom at 70 is the oldest known breeding bird in the world**
 - ✓ And hatched another chick on Midway Atoll in early 2021



Biologists believe that Wisdom, who was identified and banded on Midway Atoll in 1956, has hatched between 30 and 36 chicks in her prolific life so far

Caring for Precocial Young

- The Canada Goose is the most familiar species that raises precocial young**
 - ✓ Averaging five young per brood
- Young hatch covered in down**
 - ✓ And can walk, swim, and feed immediately
- The primary job of the parents is protection of the vulnerable young**
 - ✓ At close approach, I have had parents hiss and make threatening advances toward me
- Young often stay with parents throughout the following winter**



Large Birds and Extended Care to Precocial Young

- ❑ Many large birds provide extended care to their precocial offspring
- ❑ Such is the case with the Tundra Swan
 - ✓ That breeds in the high Arctic
 - ✓ And raises between three to five young
- ❑ The downy young are mobile soon after hatching
 - ✓ And find foraging on land quite easy, but are too buoyant to feed on ponds efficiently
- ❑ Parental responsibilities include watching for predators and keeping young warm



These newly hatched Tundra Swans are efficient foragers on land but have trouble getting at submerged vegetation in ponds. In such cases, the parents will help to feed them.

The Family that Migrates Together Stays Together

- Tundra Swans migrate in flocks composed of family groups**
 - ✓ Young birds may learn the migration route from their parents
- Some Tundra Swan flocks winter on the Mid-Atlantic coast**
 - ✓ And inland locations like Mason Neck in southern Fairfax County
- Parents protect young in the winter**
 - ✓ From being displaced from foraging areas by competing family groups
 - ✓ And the threat by a different set of predators than found on the tundra



Here two adult white Tundra Swans are followed by a dark gray juvenile. Young migrate south with their parents in fall migration, but break off and go on their own during the trip north the following spring

The Whooping Crane

- ❑ **Whooping Cranes are extremely attentive parents**
 - ✓ Brooding newly hatched young during cold nights
 - ✓ Feeding young for several months
 - ✓ Protecting against predators and other trespassing crane families
- ❑ **The female lays two eggs, but often fledges just a single young**
- ❑ **Like the Tundra Swan, Whooping Crane young migrate south with parents**
 - ✓ And then separate during spring migration



Although this youngster was mobile at hatching, its parents will feed it until it masters the art of foraging on its own. There is only one wild self-sustaining flock of Whooping Cranes in the U.S. and Canada

The Pied-billed Grebe

- ❑ Parental care by smaller species raising precocial young is not so lengthy
- ❑ Newly hatched Pied-billed Grebe young can swim soon after hatching
 - ✓ But prefer climbing back into the nest or riding [on a parent's back](#)
- ❑ Although fully mobile, young are fed by the pair for several weeks
 - ✓ A diet that includes fish and aquatic insects
- ❑ Parental care ends after six to eight weeks after hatching
 - ✓ When young can care for themselves



Young Pied-billed Grebes are mobile when they hatch and although they can swim immediately, seem to tire quickly and enjoy riding on the back of an accommodating parent

The Mallard

- ❑ Only the hen takes care of young
- ❑ Young are mobile soon after hatching and can feed themselves
 - ✓ But the hen is responsible for leading her offspring to aquatic food resources
- ❑ The hen has special calls to communicate with her brood
 - ✓ A contact calls keeps the brood together
 - ✓ While an alarm call causes the young to dash to a safe area and freeze
- ❑ Young become independent when they can fly at 8 to 10 weeks old



A Mallard hen can have over a dozen offspring per brood, but some predation and other forms of mortality are the norm

Aggressive Defense of Young

- The Southern Cassowary is native to New Guinea and northeast Australia
- The male takes sole care of the young
 - ✓ Showing them food sources like fruit
 - ✓ And defending the young with brut force
- A male can kill a human
 - ✓ If he perceives a threat to his breeding territory or young
- The young stay with their father until they become independent at nine months old



A male Southern Cassowary can tend a brood consisting of up to eight young

Using Deception to Protect Young

- ❑ The Killdeer is a shorebird that raises precocial young
- ❑ Both parents provide care until the young can fly at around five weeks old
- ❑ Young are mobile, covered in down, and can feed themselves at hatching
 - ✓ But nesting habitat is in open areas like fields that are easily accessible by predators
- ❑ Killdeer parents use a deceptive injury-feigning display to distract predators
 - ✓ While young seek cover and freeze in place



A typical brood of Killdeer consists of four young

Water Transport in Dry Areas

- ❑ There are 16 species of Sandgrouse that live in dry areas in Africa and Asia
- ❑ The Chestnut-bellied Sandgrouse is found in Sub-Sahara Africa
 - ✓ And parts of the Arabian peninsula and India
- ❑ Young can walk and feed themselves
 - ✓ But usually are far from a water source
- ❑ Adults consequently fly sometimes many miles to available water
 - ✓ And soak their breast feathers and then return to the young



The barbules on the breast feathers of this Chestnut-bellied Sandgrouse are configured like coils so that they can hold water

Young Consume Water Directly from the Breast Feathers



Polyandry and Male Only Care

- ❑ The Red Phalarope nests in the high arctic in both hemispheres
- ❑ The female mates with as many males as possible
 - ✓ And the male provides all parental care
 - ✓ From incubation to brood-rearing of the precocial young
- ❑ The male keeps young warm
 - ✓ And sounds alarm calls to the foraging young when a predator arrives
 - ✓ Any association with the male dissolves at three weeks when young can fly



The colorful female Red Phalarope mates with multiple males if she has a good territory, but plays absolutely no role in parental care

Precocial Red Phalarope Chicks at Hatching



These little guys can do most anything at hatching except fly

No Parental Care

- ❑ The Malleefowl represents a unique group of birds in the family Megapodiidae
 - ✓ That do not build conventional nests or incubate eggs by sitting on them
- ❑ Instead, the Malleefowl builds mounds in semi-arid locations in southern Australia
 - ✓ In which the female will lay up to 24 eggs during a breeding season
- ❑ The male covers the eggs with wet leaf litter that gives off heat as it rots
 - ✓ Acting like a natural incubator for the eggs



A Malleefowl mound can appear huge, measuring over three feet high and over 14 feet across

Devoted to the Mound

- ❑ The male Malleefowl tends to the mound almost ten months of the year
- ❑ He removes or adds material to the mound to regulate its temperature
 - ✓ To prevent the eggs from becoming too hot or too cold
- ❑ Neither male nor female Malleefowl ever see their offspring
 - ✓ When the young hatch, they dig their way out of the mound
 - ✓ And can fly and take care of themselves in just a few hours!



Here the male removes material from the mound to prevent the eggs from becoming overheated

A Question to Answer

- ❑ **Studies have shown that songbird nestlings learn song from their fathers**
 - ✓ And that call or chip notes are innate
- ❑ **That portion of a male nestling's brain dealing with song develops quite early**
 - ✓ And focuses on the song of its father while filtering out songs of other species
 - ✓ The young bird may even begin to practice this song after fledging
- ❑ **So, how do brood parasites like Brown-headed Cowbirds learn a cowbird song**
 - ✓ Rather than the song of the host species?



An adult male Yellow Warbler sings during the breeding season. His male offspring will learn their songs listening to him

A Seemingly Partial Answer

- ❑ **Young Brown-headed Cowbirds join winter flocks of other cowbirds**
 - ✓ And males will learn the cowbird song from other male cowbirds
 - ✓ As they begin to sing the following spring
 - ✓ And brain development for song seems to coincide with the coming of spring
- ❑ **Common Cuckoos are not flock birds**
 - ✓ And British sources believe that the cuckoo song is innate
 - ✓ Without any brain development that would indicate a learning process



The young male Brown-headed Cowbird learns his song from adult male winter flock mates when they begin to vocalize in springtime

A Great Research Topic

- ❑ **If song in the Common Cuckoo is innate as some authorities suggest**
 - ✓ Which means that young males lack a mentor in learning their songs
 - ✓ Then this species is a bit of an outlier in the songbird world
- ❑ **This may be a great topic to research for some aspiring graduate student**
 - ✓ For some **YOUNG** graduate student that is; **NOT ME!**



The song of the Common Cuckoo might be innate

Questions ?

