

Fossil facts: Then and now.
Fossil Butte National Monument
Nicole Reynaud

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THEN

Species:

†*Messelornis nearctica*

Family:

†Messelornithidae

Order:

Gruiformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



NPS Photo of David Lindgren Specimen



FOSSIL FACTS

Features: A long bill, a small head compared to its body, very long legs, and broad feet.

Max size: 46 cm (18 in) tall

Lifestyle: Shallow water wader. May have probed for food in the mud like modern cranes do.

Environment: Forested creeks and small rivers and along the lake shore.

Climate: Sub-tropical to tropical

What it ate: Aquatic invertebrates, fish and possibly other small vertebrates

What ate it: Crocodiles and alligators

Distribution: The Green River Formation (Fossil Lake, Lake Gosiute, and Uinta Lake) of Wyoming, Colorado, and Utah.

Also found in: Messel, Germany, in deposits from ancient Messel Lake.

Fun fact: *Messelornis* was named for Messel Lake, an ancient lake deposit in Germany. Messel Lake has many organisms in common with the lakes of the Green River formation. This indicates that Europe and North America were closer to each other during the Eocene.



<http://www.cpzbook.com/birds.html>



Common Name:
Sunbittern

Species:
Eurypyga helias

Family:
Eurypygidae

Order:
Gruiformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: Long legs and a long, pointed bill with a slender neck and head

Max size: 46cm (18 in) tall

Lifestyle: Opportunistic predator

Environment: Fresh water streams in rainforest environments. Prefers small rivers and creeks at elevations under 909 m (3000 ft).

Climate: Tropical

What it eats: Fish, insects, and small crustaceans

What eats it: Aquatic predators like crocodylians

Distribution: The Sunbittern lives in Central and South America, with most of the population concentrated in the rainforests of Brazil.

Fun fact: The tail of the Sunbittern has many bright colors on it, including large orange patches on the wings that look like big eyes. These “eyes” are sometimes used to frighten away predators.

THEN

Species:

†*Gallinuloides wyomingensis*

Family:

†Gallinuloididae

Order:

Galliformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



Gallinuloides wyomingensis from Feduccia 1996



FOSSIL FACTS

Features: Short bill, stout legs and relatively small wings.

Max Size: Approx. 45 cm (18 in)

Lifestyle: Arboreal herbivore or omnivore

Environment: Forests and clearings near lakeshores

Climate: Subtropical

What it ate: Probably seeds, nuts, leaves and fruit; may have also eaten some invertebrates or small vertebrates.

What ate it: Larger predators

Distribution: Only a few *Gallinuloides* fossils have been found, all from Fossil Lake.

Also found in: *Gallinuloides* is not known outside Fossil Lake; however, a very similar bird from the same epoch, *Paraortygoides*, has been found in Germany.

Fun Fact: *Gallinuloides* is the oldest known member of the group of birds which includes chickens, pheasants and quail.



Photo © Lynn Bieber-Weir and Ray Bieber



Common Name:
Plain Chachalaca

Species:
Ortalis vetula

Family:
Cracidae

Order:
Galliformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: Short bill, round wings, robust legs, long neck and elongated hind toe

Max Size: 90 cm (36 in)

Lifestyle: Arboreal herbivore

Environment: Open woodlands, forest edges and clearings

Climate: Tropical to subtropical

What it eats: Leaves, seeds, nuts and fruit as well as some invertebrates and occasionally small vertebrates

What eats it: Humans, cats

Distribution: Various species of chachalacas can be found throughout sub-tropical and tropical Central and South America. The Plain Chachalaca is found mainly in southern Texas.

Fun Fact: The windpipe of the male chachalaca has an extra loop which makes the male's voice as much as an octave lower than the female's voice.

THEN

Species:

†*Presbyornis pervetus*

Family:

†Presbyornithidae

Order:

Anseriformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



Painting by Jennifer Pils, 2005



FOSSIL FACTS

Features: Long legs, duck-like head

Max size: 31 cm (12 in)

Lifestyle: Shallow water wader; may have also done some swimming and diving.

Environment: Lakeshore colonies

Climate: Subtropical

What it ate: The curved beak of *Presbyornis* may have been an adaptation for filter-feeding on algae or other microorganisms.

What ate it: Large predators, including possibly birds of prey, crocodylians, and predatory mammals.

Distribution: *Presbyornis* fossils have been found in deposits from ancient Lakes Gosiute and Uinta, as well as from several Fossil Lake localities.

Also found in: *Presbyornis* is the most abundant and widespread bird fossil of the early Cenozoic. Fossils of *Presbyornis* and similar birds have been found in Argentina, Mongolia, Maryland (USA) and England.

Fun fact: *Presbyornis* has characters of several modern birds, including a head like a duck's and long legs like a shorebird or flamingo has.



USFWS Photo



Common Name:
American Black Duck

Species:
Anas rubripes

Family:
Anatidae

Order:
Anseriformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features:	Familiar 'duck' shape, yellow bill, dark body, and dark stripes on buff head	What it eats:	Aquatic and crop plants, heavily supplemented by aquatic invertebrates during the summer months.
Max size:	58 cm (23 in) long	What eats it:	Birds of prey such as hawks and owls, racoons, foxes, and coyotes
Lifestyle:	Dabbling duck. Gregarious in fall and winter; less so during the breeding season.	Distribution:	Eastern U.S. and Canada
Environment:	Ocean coastlines, lagoons, lakes, bogs, and marshes	Fun fact:	The American Black Duck has decreased in numbers over the past 50 years, possibly due in part to competition and hybridization with closely related Mallards (<i>Anas platyrhynchos</i>).
Climate:	Temperate to subtropical		

THEN

Species:

†*Primobucco mcgrewi*

Family:

†Primobucconidae

Order:

Coraciiformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



NPS Photo of USNM 336284



FOSSIL FACTS

Features: Pigeon-like head shape, with a robust beak. Distinctive wing form with a small claw. Moderately developed sternal keel. Septum of nose is not ossified (bony).

Max size: 12 cm (5 in) tall

Lifestyle: Insectivore and predator

Environment: Leaf-littered underbrush

Climate: Sub-tropical to tropical

What it ate: Small insects, reptiles and small fish.

What ate it: Alligators, snakes, and mammals.

Distribution: Green River Formation deposits of Southern Wyoming and northern Utah

Also found in: *Primobucco* is only known from the Green River Formation, though it has relatives that lived in Germany at about the same time.

Fun fact: The label placed on this specimen by the original owner listed its genus and species as “Speedy gonzales” (unfortunately, the ‘front leg’ is actually its wing!). The specimen was later donated to the Smithsonian Museum of Natural History.



Photo (c) Don Robertson. From <http://montereybay.com/creagrus/ground-rollers.html>



Common Name:
Long-tailed Ground Roller

Species:
Uratelornis chimaera

Family:
Brachypteraciidae

Order:
Coraciiformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: Small, rounded wings, a long, pointed tail, long legs, and a slightly curved, sharply pointed bill.

Max size: 47 cm (19 in) long

Lifestyle: Forager, insectivore, and predator.

Environment: Humid forests with sparse vegetation coverings on the forest floor.

Climate: Tropical

What it eats: Large insects and small reptiles.

What eats it: Fossas, mongooses, and humans.

Distribution: Madagascar

Fun fact: The Long-tailed Ground Roller is considered among the world's most elusive birds because of its rarity and its secretive habits.

THEN

Species:

†*Limnofregata azygosternon*

Family:

Fregatidae

Order:

Pelecaniformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



NPS Photo of USNM 22753



FOSSIL FACTS

Features:	Long bill slightly hooked at the tip; wings shorter and feet larger than in modern frigatebirds.	What ate it:	Possibly crocodylians; small mammals may have preyed on eggs or nestlings.
Max size:	1.2 m wingspan (4 ft)	Distribution:	Known primarily from Fossil Lake deposits of the Green River Formation.
Lifestyle:	May have surface-fished from the air like modern frigatebirds; probably also scavenged.	Also found in:	Related groups are found in Germany and possibly Romania.
Environment:	Lakes and lakeshores	Fun fact:	The breeding season of <i>Limnofregata</i> may have been timed to coincide with seasonal die-offs of <i>Knightsia</i> herring, which would have provided easy meals to feed new chicks.
Climate:	Subtropical		
What it ate:	Fish. Its most common prey was likely <i>Knightsia</i> .		



http://www.puntoverde.org.ve/aves/fregata_magnificens.htm



Common Name:
Magnificent Frigatebird

Species:
Fregata magnificens

Family:
Fregatidae

Order:
Pelecaniformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features:	Large seabirds with long, narrow wings and tail, very small feet, and a long bill with a hooked tip.	What it eats:	Fish, shellfish, and jellyfish; will also eat eggs and chicks of other seabirds
Max size:	114 cm (45 in) long; wingspan up to 8 feet	What eats it:	There are no known natural predators of adult frigatebirds; however, the eggs and nestlings may be eaten by feral cats or other seabirds.
Lifestyle:	Kleptoparasitic: they steal most of their food from other seabirds. They also hunt by snatching food from the water's surface while flying low.	Distribution:	Tropical and subtropical coasts of North and South America; also in coastal areas of Spain and western Africa.
Environment:	Coastal and marine	Fun fact:	The Magnificent Frigatebird only weighs about 3 pounds but can have a wingspan of between 5 and 8 feet.
Climate:	Tropical to subtropical		

THEN

Species:

†*Foro panarium*

Family:

†Foratidae

Order:

Cuculiformes (?)

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



NPS Photo of USNM 336261



FOSSIL FACTS

Features: Long legs relative to body size; strong, deep bill with a large nostril;

Max size: Est. wingspan 38 cm (15 in) without feathers

Lifestyle: Generalist groundbird

Environment: Lakeshore

Climate: Subtropical

What it ate: Unknown--may have been omnivorous, as the bill lacks specific adaptations for any particular food item.

What ate it: Possibly snakes, small mammalian predators, alligatorids, or larger birds

Distribution: Green River Formation, Wyoming

Also found in: The genus *Foro* is only known from the Green River Formation.

Fun fact: The type specimen of *Foro panarium* is so well-preserved that tracheal rings (pieces of the windpipe) are present.



Photo by Bill Rydell. From <http://www.montereybay.com/creagrus/hoatzin.html>



Common Name:
Hoatzin

Species:
Opisthocomus hoazin

Family:
Opisthocomidae

Order:
Cuculiformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: A short, robust bill, a blue face with red eyes, a dramatic feather crest on top of the head, and short, rounded wings. The hoatzin is a clumsy flier due to its enlarged crop (gizzard).

Max size: 65 cm (26 in) long

Lifestyle: Folivores with specialized bacteria in their gizzards to break down plant matter.

Environment: Always near fresh water, in marshes and swamps or the shores of lakes and streams.

Climate: Tropical

What it eats: Leaves

What eats it: Few predators will try to eat adult hoatzins because of their strong, manure-like odor. Eggs and chicks may be targets for monkeys and other arboreal predators.

Distribution: The Amazon rainforest of northern and central South America.

Fun fact: Hoatzins are considered very primitive birds because, when young, they have two functional claws on their wings. The hatchlings use these claws to climb away from danger or back to their nest before they are able to fly.

THEN

Species:

†*Prefica nivea*

Family:

Steatornithidae (?)

Order:

Caprimulgiformes

Class:

Aves

Phylum:

Chordata

Kingdom:

Animalia



NPS Photo of USNM 336278



FOSSIL FACTS

Features: Large, wide mouth with a short bill

Max size: 20 cm (8 in)

Lifestyle: Probably ate 'on the wing,' like its modern relatives.

Environment: Open woods and lakeshore

Climate: Subtropical

What it ate: Probably fruit or insects

What ate it: Larger predators

Distribution: The Green River Formation of Wyoming

Also found in: Currently only known from Green River Formation lake sediments.

Fun fact: Like many of the fossil birds from the Green River Formation, the exact relationships of *Prefica* to modern birds are not well known. Some parts of the skeleton suggest that it is related to oilbirds, and other parts of the skeleton suggest that it is related to nighthawks such as whippoorwills and goatsuckers.



Photo by Walter H. Wust. From <http://commons.wikimedia.org/wiki/Image:Guacharo.jpg>



Common Name:
Oilbird

Species:
Steatornis caripensis

Family:
Steatornithidae

Order:
Caprimulgiformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: Large eyes, long wings, stiff tail feathers, and a robust, hooked bill. Plumage reddish with white flecks.

Max size: 48 cm (19 in)

Lifestyle: Nocturnal frugivores

Environment: Feed in forests; roost in caves

Climate: Tropical to subtropical

What it eats: Fruit

What eats it: Roosting in caves protects the oilbird from most natural predators. The fatty nestlings were formerly collected by humans for lamp oil, but the birds are now a protected species.

Distribution: Northern South America

Fun facts: Oilbirds, like bats, roost in caves during the day and use echolocation to find their way around those caves. When outside at night, they use their huge eyes and excellent night vision to find food.

THEN

Species:
(undescribed)

Family:
(uncertain)

Order:
Ratites (?)

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia



NPS Photo of Charlie Nunn specimen



FOSSIL FACTS

Features: Long legs with large feet, a long neck, and a slightly curved bill.

Max size: 40 cm (16 in) long

Lifestyle: Likely a wading bird, based on its long legs

Environment: Lakeshore

Climate: Subtropical

What it ate: Possibly fish or invertebrates

What ate it: Crocodylians

Distribution: The Green River Formation of Wyoming

Also found in: Currently only known from Green River Formation lake sediments

Fun fact: The Green River Formation has such an abundance of fossils that many unique finds, such as this bird, remain undescribed for years following their discovery.



Photo courtesy Jeff Larkin



Common Name:
Limpkin

Species:
Aramus guarauna

Family:
Aramidae

Order:
Gruiformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

BIRD FACTS

Features: Long, heavy bill, long neck, and long legs.

Max size: 70 cm (28 in) tall

Lifestyle: Solitary wading birds

Environment: Freshwater marshes, swamps, shallow streams and pond edges.

Climate: Temperate to subtropical

What it eats: Primarily apple snails

What eats it: Adults are eaten by American alligators, while eggs are commonly preyed upon by raccoons, water rats, snakes, and crows.

Distribution: Temperate South America north to the southeast United States.

Fun facts: The bill of the Limpkin is highly specialized for eating apple snails. The tip is curved to the right to fit in the right-hand coil of the snails' shells, and the lower jaw has a sharpened edge used to cut the snails out of their shells.

THEN

Species:
(undescribed)

Family:
Zygodactylidae

Order:
Piciformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia



NPS Photo of USNM 299821



FOSSIL FACTS

Features: A very small bird with a short, narrow bill

Max size: Approx. 10 cm (4 in) wingspan without feathers

Lifestyle: Probable insectivore

Environment: Forested areas around lakes

Climate: Subtropical

What it ate: Probably insects

What ate it: Snakes, mammals, larger birds

Distribution: Fossil Lake sediments of the Green River Formation in Wyoming

Also found in: Currently only known from Green River Formation lake sediments

Fun fact: The family this bird belongs to is named for the type of toes they have--two toes pointing forward and two toes pointing backward on each foot.



NPS Photo



Common Name:
Downy Woodpecker

Species:
Picoides pubescens

Family:
Picidae

Order:
Piciformes

Class:
Aves

Phylum:
Chordata

Kingdom:
Animalia

Features: Small, black-and-white checked bird with zygodactyl feet, pointed tail feathers and a short, narrow bill.

Max size: 17 cm (6.7 in) long

Lifestyle: Active insectivore; hunts through tree bark

Environment: Open woodlands

Climate: Temperate

What it eats: Insects, other arthropods, fruit, seeds, sap

What eats it: Hawks, kestrels, owls, rat snakes, domestic cats

Distribution: Throughout North America

Fun facts: Downy Woodpeckers don't normally 'hammer' on trees when hunting. The loud, rapid drumming or hammering heard in the woods is actually a way for the woodpecker to signal to other woodpeckers, and may help the bird to defend its territory.