

# Data Cards for Modern Penguins and Pedro

The trait variation data used in this lesson were compiled and merged from the following two resources.

- supporting online material published along with Clarke, J. A., Ksepka, D. T., Salas-Gismondi, R., Altamirano, A. J., Shawkey, M. D., D'Alba, L., Vinther, J., DeVries, T. J., & Baby, P. (2010). Fossil evidence for evolution of the shape and color of penguin feathers. *Science*, 330(6006), 954–957. <https://doi.org/10.1126/science.1193604>
- appendix published along with Clarke, J. A., Ksepka, D. T., Stucchi, M., Urbina, M., Giannini, N., Bertelli, S., Narvaez, Y., & Boyd, C. A. (2007). Paleogene equatorial penguins challenge the proposed relationship between biogeography, diversity, and Cenozoic climate change. *Proceedings of the National Academy of Sciences*, 104(28), 11545–11550. <https://doi.org/10.1073/pnas.0611099104>

## King Penguin

**Height:** 2.3-3.3 ft (70-101 cm)

**Weight:** 21-40 lb (9.5-18 kg)



Ben Tubby CC BY 2.0

**Deep diver**

**Swims close to shore**



Fir0002/Flagstaffotos CC BY-NC 3.0

**Diet:** fish such as lantern fish, krill, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas and giant petrels

**Predators (adults):** seals, killer whales

**Sexual maturity:** 5-6 years

**Nesting month(s):** November-January

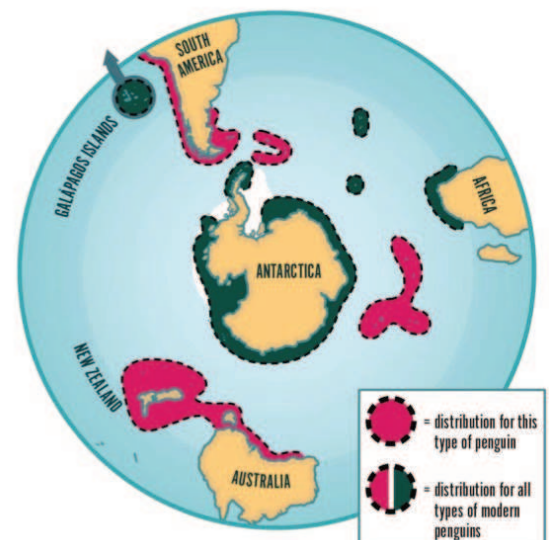
**Number of eggs:** 1

**Incubation:** in 1- to 2.5-week shifts (both→ female→ male) for 50-60 days

**Nest:** none; incubate egg on top of feet

**ALIVE TODAY**

**Estimated # of breeding pairs in the population:** 2,300,000



# Fiordland Penguin

Height: 1.8-2 ft (54-61 cm)

Weight: 5-11 lb (2.3-5 kg)



Francesco Veronesi CC BY-SA 2.0

Unknown depth  
Swims close to shore



Thomas Mattern CC BY-SA 3.0

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 2-3 years

**Nesting month(s):** July-August

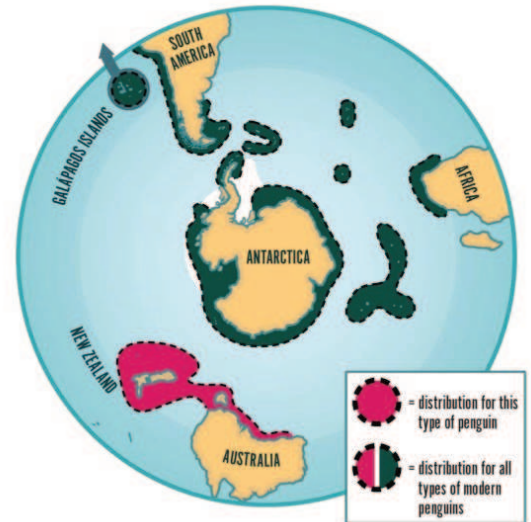
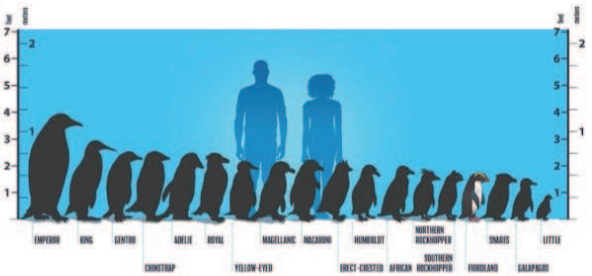
**Number of eggs:** 2 (different sizes)

**Incubation:** in three equal shifts (both→ female→ male) for 35 days

**Nest:** in forest under vegetation or rocks; in caves

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 2,500**



# Northern Rockhopper Penguin

Height: 1.7-1.8 ft (52-55 cm)

Weight: 5-6 lb (2.3-2.7 kg)



Brian Gratwicke CC BY 2.0

Shallow diver  
Swims close to and far from shore



Brian Gratwicke CC BY 2.0 (cropped)

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 4 years

**Nesting month(s):** July-August

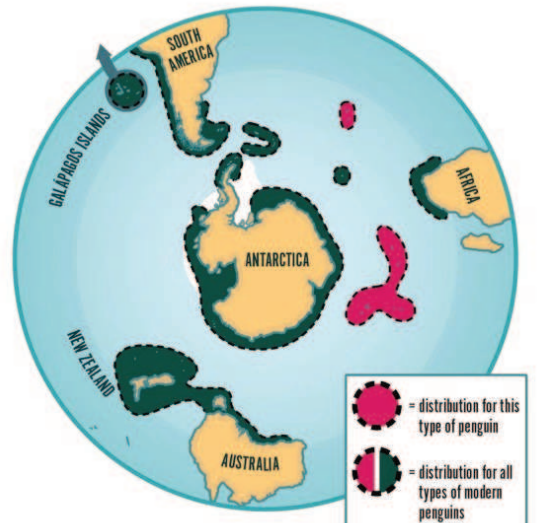
**Number of eggs:** 2 (different sizes)

**Incubation:** in three equal shifts (both→ female→ male) for 36 days

**Nest:** built from tufts of grass, peat, and pebbles

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 350,000**





# Southern Rockhopper Penguin

**Height:** 1.7-1.8 ft (52-55 cm)

**Weight:** 5-6 lb (2.3-2.7 kg)



Dr. Raju Kasambe CC BY-SA 3.0

**Shallow diver**

**Swims close to and far from shore**



Ben Tubby CC BY 2.0

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 4 years

**Nesting month(s):** October-November

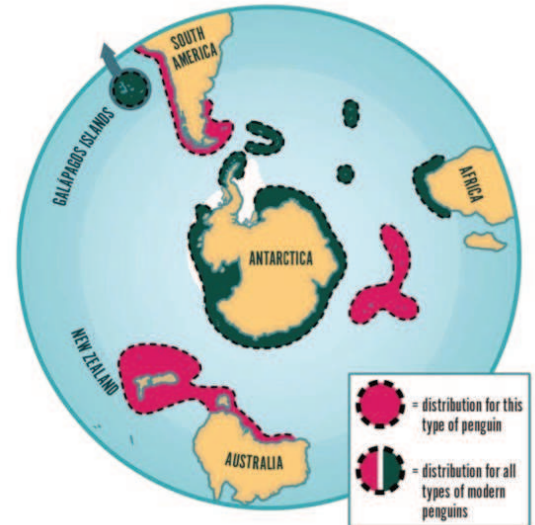
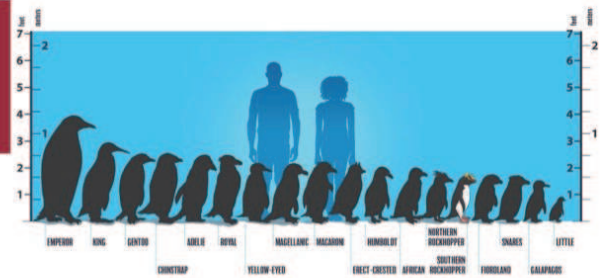
**Number of eggs:** 2 (different sizes)

**Incubation:** in three equal shifts (both→ female→ male) for 36 days

**Nest:** built from twigs, bones, rocks, plants

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 500,000**



# Macaroni Penguin

**Height:** 1.7-2.3 ft (52-70 cm)

**Weight:** 7-14 lb (3.2-6.4 kg)



Andrew Shiva, CC BY-SA 4.0

**Shallow diver**

**Swims far from shore**



Elizabeth Oliver CC BY-NC 2.0

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas and giant petrels

**Predators (adults):** killer whales, seals such as leopard seals and fur seals

**Sexual maturity:** 5-6 years

**Nesting month(s):** November

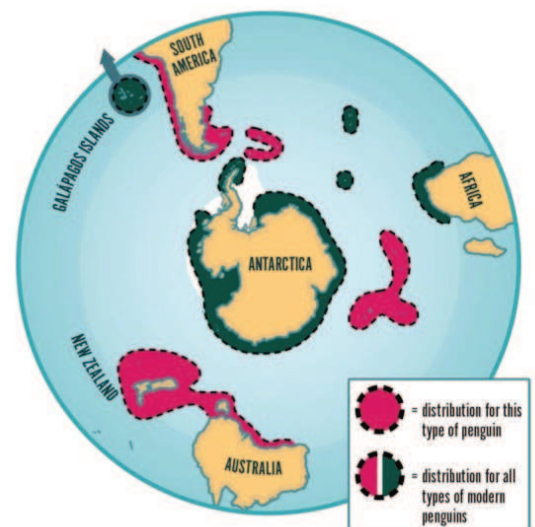
**Number of eggs:** 2 (different sizes)

**Incubation:** in three equal shifts (both→ female→ male) for 35 days

**Nest:** built from pebbles, mud, and sand; bare rock

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 11,800,000**





# Gentoo Penguin

Height: 1.7-2.9 ft (52-88 cm)

Weight: 10-19 lb (4.5-8.6 kg)



Photo © Samuel Blanc CC BY-SA 3.0

**Deep diver**  
**Swims close to shore**



Liam Quinn CC BY-SA 2.0

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas and giant petrels

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 2-3 years

**Nesting month(s):** October

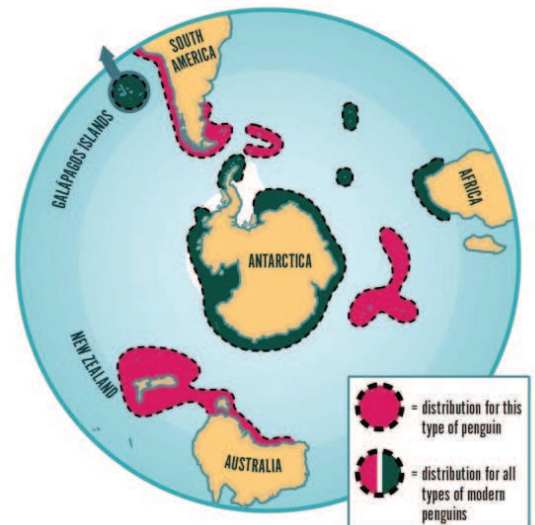
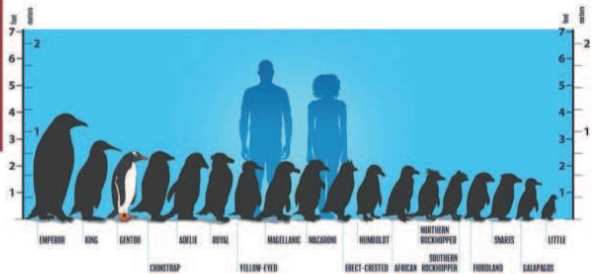
**Number of eggs:** 2

**Incubation:** shared by monogamous parents who switch daily for 34-36 days

**Nest:** circle pile of stones or tufts of grass

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 600,000**



# Emperor Penguin

Height: 3.6-3.9 ft (110-119 cm)

Weight: 50-100 lb (22.7-45.4 kg)



Ian Duffy CC BY 2.0

**Deep diver**  
**Swims close to shore**



Christopher Michel CC BY 2.0

**Diet:** fish, krill and other crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 5-6 years

**Nesting month(s):** May-June

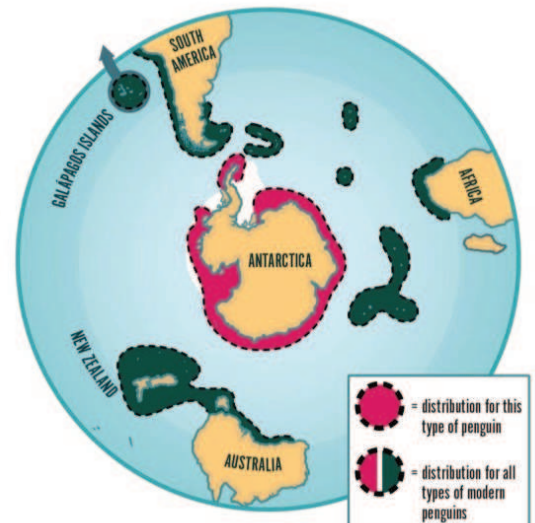
**Number of eggs:** 1

**Incubation:** by male for 65 days

**Nest:** none; incubate egg on top of feet

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 220,000**



# Adélie Penguin

Height: 1.5-2.3 ft (46-70 cm)

Weight: 8-13 lb (3.6-5.9 kg)



Andrew Shiva, CC BY-SA 4.0

Medium diver

Swims far from shore



Akulovz CC BY-SA 4.0

Diet: fish, krill

Predators (eggs and chicks): carnivorous birds such as skuas and giant petrels

Predators (adults): seals, killer whales, sea lions

Sexual maturity: 3-4 years

Nesting month(s): December

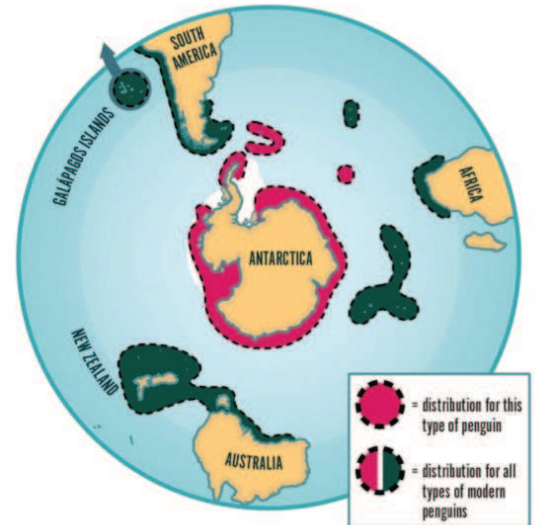
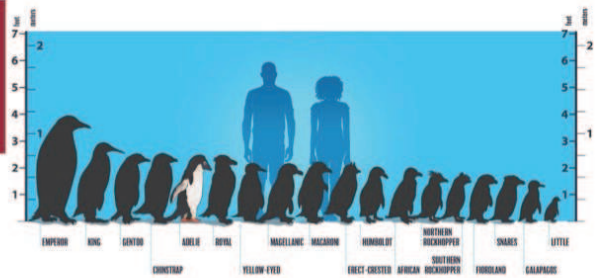
Number of eggs: 1-2

Incubation: by both parents for 36 days

Nest: stones piled together

**ALIVE TODAY**

Estimated # of breeding pairs in the population: 3,800,000



# Chinstrap Penguin

Height: 2.2-2.5 ft (67-76 cm)

Weight: 7-12 lb (3.2-5.4 kg)



Liam Quinn CC BY-SA 2.0

Shallow diver

Swims far from shore



Christopher Michel CC BY 2.0

Diet: fish, krill

Predators (eggs and chicks): carnivorous birds such as skuas and giant petrels

Predators (adults): seals, killer whales, sea lions

Sexual maturity: 3 years

Nesting month(s): November

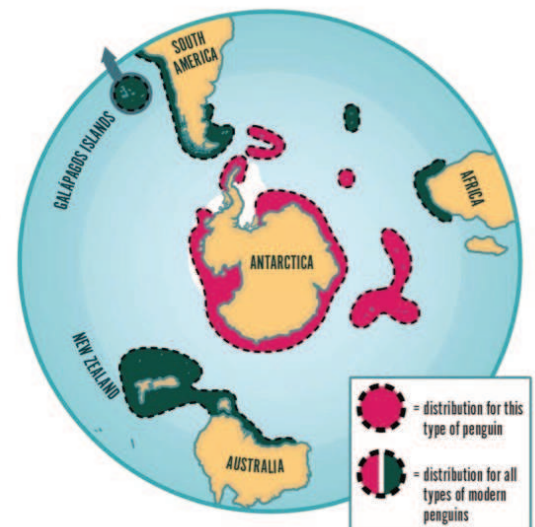
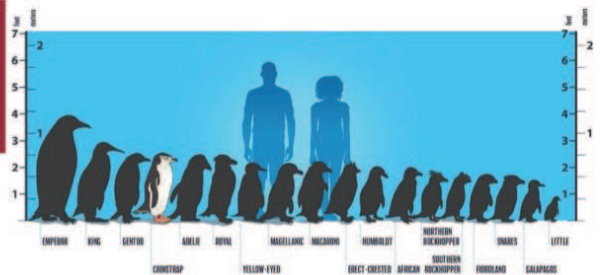
Number of eggs: 2

Incubation: by both parents in 6-day shifts for 37 days

Nest: circular nests built from stones

**ALIVE TODAY**

Estimated # of breeding pairs in the population: 8,000,000





# Snares Penguin

Height: 1.6-2 ft (49-61 cm)

Weight: 5.5-8.8 lb (2.5-4 kg)



COOch Thomas Mattern CC BY-SA 3.0

Shallow diver

Swims far from shore



Akulovz CC BY-SA 4.0

Diet: krill, fish, squid

Predators (eggs and chicks):  
carnivorous birds such as skuas and  
giant petrels

Predators (adults): seals, sea lions

Sexual maturity: 4-9 years

Nesting month(s): September-January

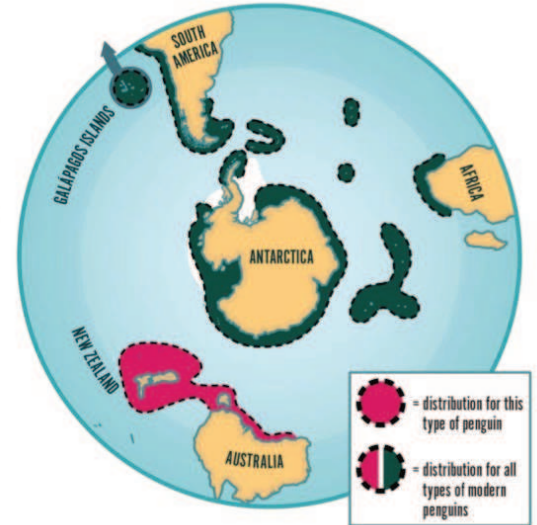
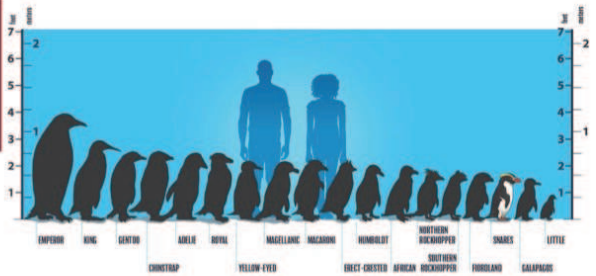
Number of eggs: 2 (different sizes)

Incubation: in 3 equal shifts (both → female → male) for 31-37 days

Nest: shallow hole with grass, leaves, twigs, pebbles built in forests or on rocks

**ALIVE TODAY**

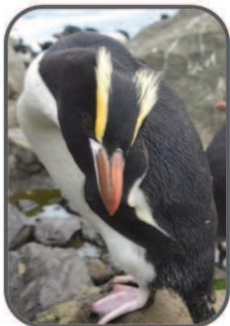
Estimated # of breeding pairs in the population: 25,000



# Erect-crested Penguin

Height: 1.7-2.3 ft (52-70 cm)

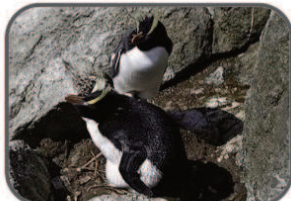
Weight: 5-13 lb (2.3-5.9 kg)



Kyle W. Morrison

Unknown dive depth

Swims close to shore



COOch Thomas Mattern CC BY-SA 3.0

Diet: fish, krill, squid

Predators (eggs and chicks):  
carnivorous birds such as skuas,  
possibly mice

Predators (adults): sea lions

Sexual maturity: 4 years

Nesting month(s): October - February

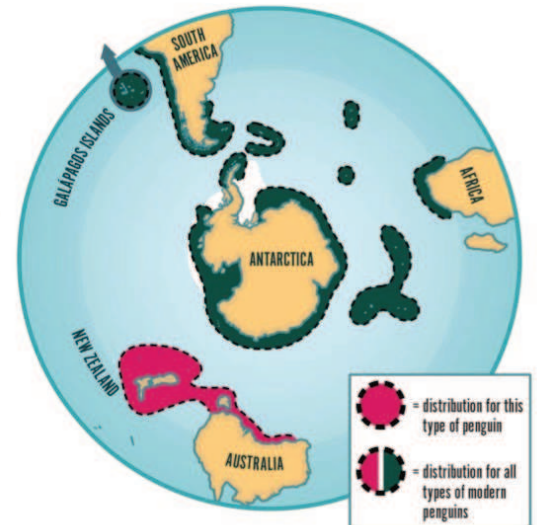
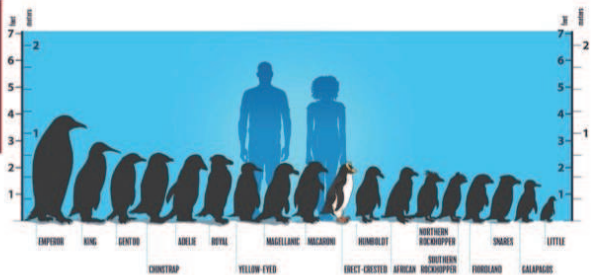
Number of eggs: 2

Incubation: shared by monogamous parents, about 35 days

Nest: on rocks, with little to no nesting material to line nests

**ALIVE TODAY**

Estimated # of breeding pairs in the population: 68,500

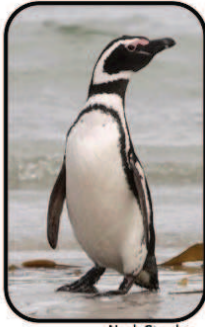




# Magellanic Penguin

**Height:** 2-2.5 ft (61-76 cm)

**Weight:** 8-14 lb (3.6-6.4 kg)



Noah Strycker

**Shallow diver**

**Swims far from shore**



Guglielmo Celata, CC BY-SA 2.0

**Diet:** squid, fish such as cuttlefish, krill and other crustaceans, jellyfish, and they ingest seawater with their prey

**Predators (eggs and chicks):** foxes, rats, cats such as pets or pumas, carnivorous birds such as skuas, gulls

**Predators (adults):** seals, killer whales, sea lions, carnivorous birds such as giant petrels and fulmars

**Sexual maturity:** 4-5 years

**Nesting month(s):** September-April

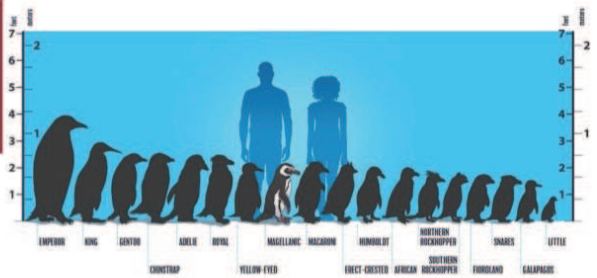
**Number of eggs:** 2

**Incubation:** shared by parents, lasting 39-42 days with parents taking 10-15 day shifts

**Nest:** built under bushes or in burrows

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 200,000**



# Humboldt Penguin

**Height:** 1.8-2.3 ft (55-71 cm)

**Weight:** 8-13 lb (3.6-5.9 kg)



Thomas Tolkien

**Shallow diver**

**Swims close to shore**



Murray Foubister CC BY-SA 2.0 (cropped)

**Diet:** squid, fish such as sardines and anchovies

**Predators (eggs and chicks):** foxes, gulls

**Predators (adults):** seals, killer whales, sharks

**Sexual maturity:** 3 years

**Nesting month(s):** March-December, August-September

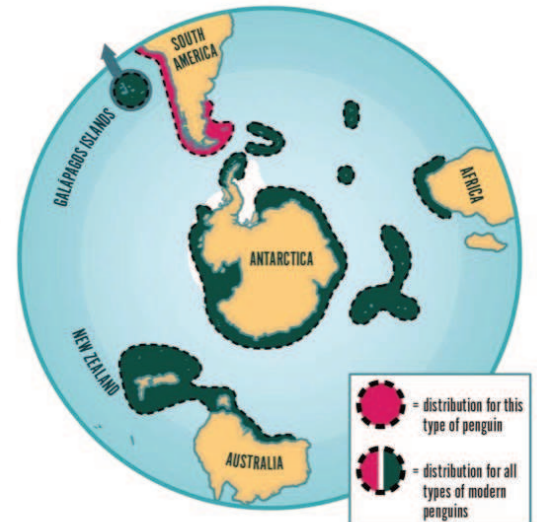
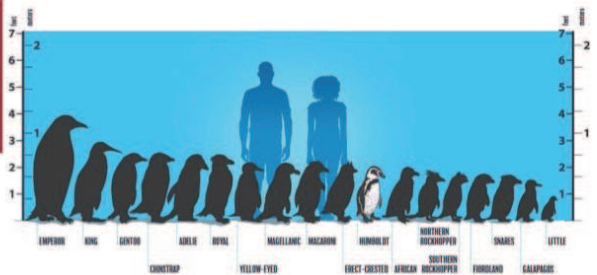
**Number of eggs:** 2

**Incubation:** shared by parents, changing duties regularly for 40-42 days

**Nest:** cliff tops, burrow or cave

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 12,000**

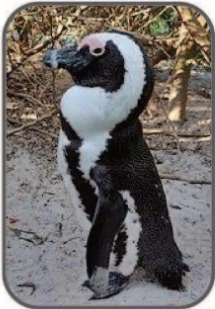




# African Penguin

Height: 2-2.3 ft (61-70 cm)

Weight: 4-11 lb (1.8-5 kg)



Blizz4rd-editor, CC BY-SA 4.0

**Medium diver**  
**Swims close to shore**



Diego Delso, delso.photo, License CC-BY-SA 4.0

**Diet:** squid, krill and other small crustaceans, fish such as sardines and anchovies

**Predators (eggs and chicks):** gulls, cats such as pets or caracals, cat-like animals such as mongoose or genet

**Predators (adults):** seals, sharks

**Sexual maturity:** 2-3 years

**Nesting month(s):** March-May

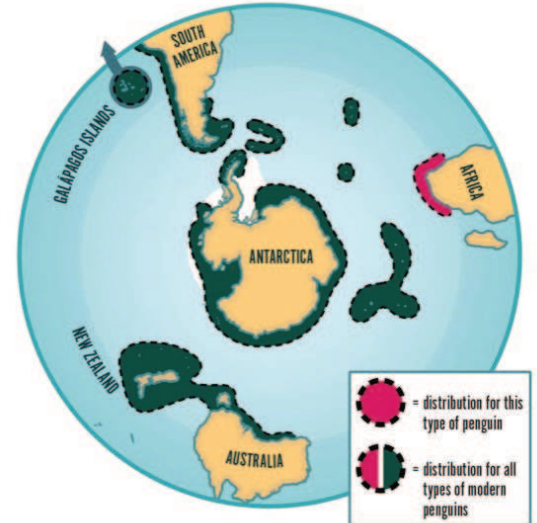
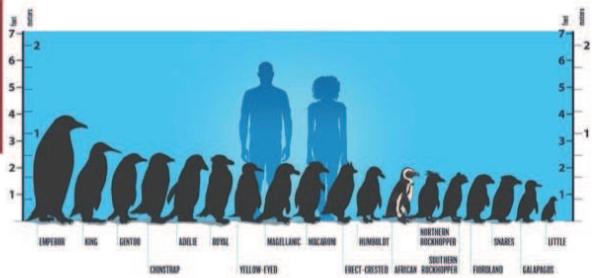
**Number of eggs:** 2

**Incubation:** shared equally by both parents for 40 days

**Nest:** built in burrows dug in guano or scrapes in the sand under boulders or bushes

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 55,000**



# Little Penguin

Height: 1-1.1 ft (30-34 cm)

Weight: 2-3.5 lb (1-1.6 kg)



JJ Harrison, CC BY-SA 3.0

**Shallow diver**  
**Swims close to shore**



Francesco Veronesi CC BY-SA 2.0

**Diet:** krill and other crustaceans, squid, small octopus, fish such as sardines and anchovies

**Predators (eggs and chicks):** rats, dogs, cats, carnivorous birds such as skuas, gulls, sheathbills

**Predators (adults):** seals, killer whales, sea lions

**Sexual maturity:** 2-3 years

**Nesting month(s):** July-February

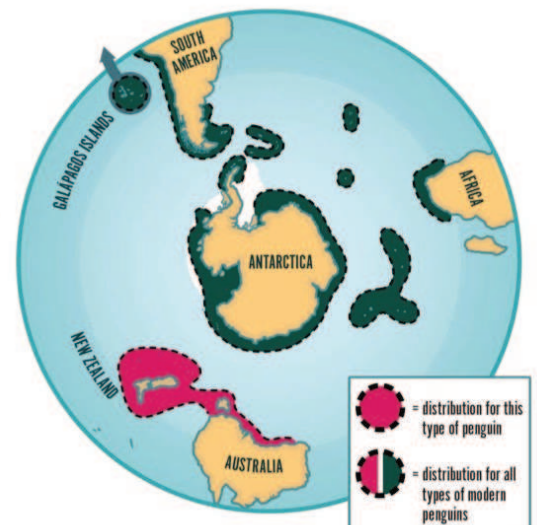
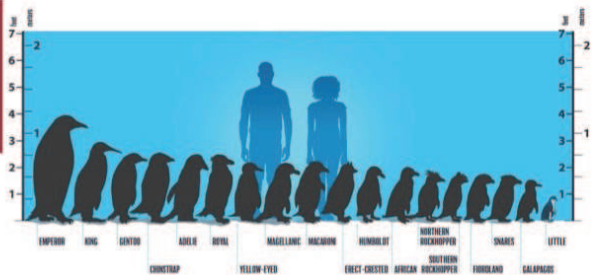
**Number of eggs:** 2

**Incubation:** by both parents for 35-36 days

**Nest:** situated close to sea, dug out burrows or caves, crevices, logs

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 250,000**





# Yellow-eyed Penguin

Height: 1.8-2.6 ft (55-79 cm)

Weight: 8-19 lb (3.6-8.6 kg)



Philip Griffin

**Deep diver**  
**Swims close to shore**



Steve from Bangkok, Thailand, CC BY-SA 2.0

**Diet:** squid, jellyfish, fish such as red cod, opal fish, sprat

**Predators (eggs and chicks):** cats, dogs, weasel-like animals such as ferrets or stoats

**Predators (adults):** seals, sharks, sea lions, fish such as barracouta

**Sexual maturity:** 3-10 years

**Nesting month(s):** August-March

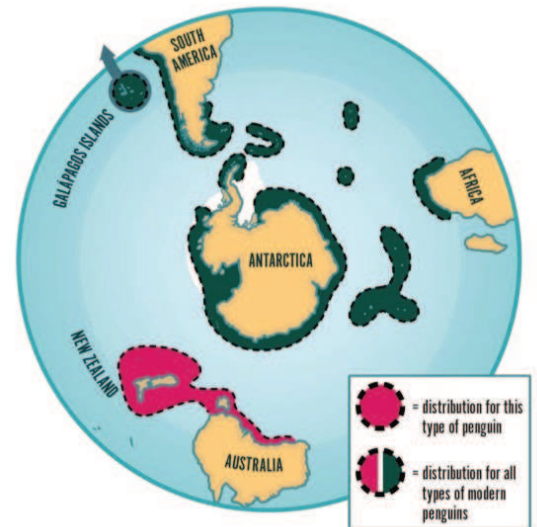
**Number of eggs:** 2

**Incubation:** by both parents for 43 days

**Nest:** shallow scrapes of leaves, twigs, grass

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 1,700**



# Royal Penguin

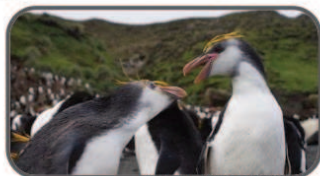
Height: 2.1-2.5 ft (64-76 cm)

Weight: 6.6-17.6 lb (3-8 kg)



M. Murphy

**Deep diver**  
**Swims close to shore**



Kimberley Collins CC BY 2.0

**Diet:** fish, krill and other small crustaceans, squid

**Predators (eggs and chicks):** carnivorous birds such as skuas

**Predators (adults):** seals such as elephant seals and fur seals

**Sexual maturity:** 7-9 years

**Nesting month(s):** September-February

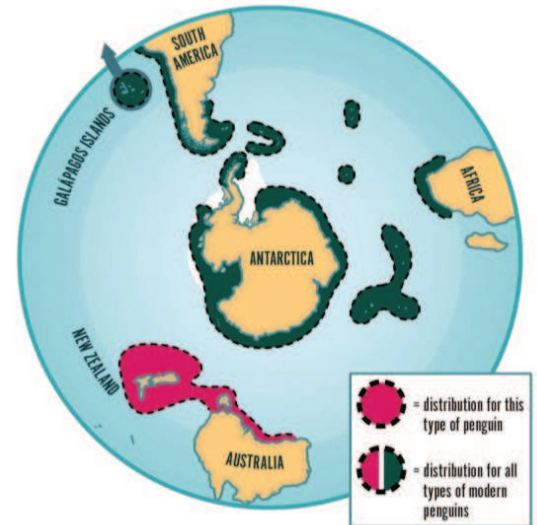
**Number of eggs:** 2

**Incubation:** by both parents in 12-day shifts for 35 days

**Nest:** built from small pebbles and scraping out mud or sand; bare rock

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 850,000**





# Galápagos Penguin

Height: 1.6-1.8 ft (48-55 cm)

Weight: 3.7-5.7 lb (1.7-2.6 kg)



putneymark, CC BY-SA 2.0

**Shallow diver**  
**Swims close to shore**



Peter Swaine, CC BY 2.0

**Diet:** anchovies, sardines, mullet, crustaceans

**Predators (eggs and chicks):** crabs, snakes, rice rats, cats, Galapagos hawks, short-eared owls

**Predators (adults):** sharks, fur seals, sea lions

**Sexual maturity:** 3-6 years

**Nesting month(s):** May-January

**Number of eggs:** 1-2

**Incubation:** by both parents in shifts lasting several days for 38-40 days

**Nest:** built in cracks in lava and in beaches near sea level

**ALIVE TODAY**

**Estimated # of breeding pairs in the population: 1,000**



# Water King Penguin / Pedro

Height: 5 ft (152 cm)

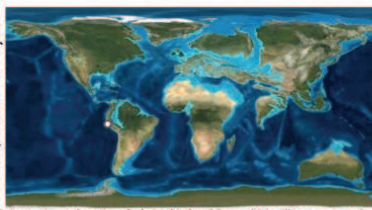
Weight: [estimated] 100-200 lb (45-91 kg)



Claribelab/Katie Browne



Paleogeographic maps by C.R. Scotese, PALEOMAP Project



© Approximate location of where this fossil formed 36 million years ago (mya)

**Suspected Deep Diver**  
**Unknown dive location**

**Diet:** unknown

**Predators (eggs and chicks):** unknown

**Predators (adults):** unknown

**Sexual maturity:** unknown

**Nesting month(s):** unknown

**Number of eggs:** unknown

**Incubation:** unknown

**Nest:** unknown

**LIVED ~36 Million years ago (mya)**

**Estimated # of breeding pairs in the population: unknown**

