

Greater Rhea

Rhea americana

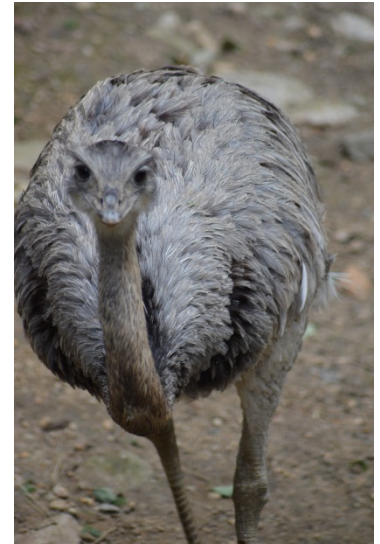
Class: Aves **Order:** Struthioniformes (AKA Ratites: cassowaries, emus, kiwis, ostriches, and rheas)

Suborder: n/a **Family:** Rheidae

Other names: none

Other subspecies: Five subspecies of greater rhea are recognized, based on variations in size and in the extent of black on the neck, although the exact characteristics and ranges of several of these subspecies are tentative [1]

Other Relatives: Lesser rhea (*Rhea pennata*). The greater rhea can be distinguished from the other rhea species, the lesser rhea, by its longer legs, lack of white spotting on the plumage, the more greyish than brownish coloration, and feathering on the legs which does not go below the tarsal joint [1]



Zoo Rhea 0.1

'Charlie' AKA 'Little C' 0.1 – female

DOH: 05/06/2009 AQ: 05/16/12 she weighs about 24.5kg/~56 lbs

About 'Little C'

Hatched at the Smithsonian National Zoo, later transferred to the Elmwood Park Zoo before coming to Brandywine.

Status

Near threatened [2]

Geographic Region

North-east and south-east Brazil, east Bolivia, Paraguay, Uruguay and north-east and east Argentina south to 40°S [1]



Habitat

Occurs in pampas, campo cerrado and open chaco woodland, normally in areas with some tall grassland and other vegetation, but also in open grassland and cultivated fields, at elevations up to 1,200- 2,000 m [1]

Characteristics

Size: Head-body length: 1.5 to 1.7 m [3] **Weight:** 20 - 25 kg, about 50-55 lbs [1]

Longevity: Wild 15 years

Captivity

Physical Description

- The largest bird on the American continent [2]
- Belongs to the '**ratites**', which lack the **keel** of the breastbone to which the flight muscles attach in flying birds [2]
- The plumage of the greater rhea is generally greyish-brown, with darker patches on the neck and upper back, and whitish feathers on the thighs and abdomen [2]
- Young birds are greyish, with dark stripes [1]
- During the breeding season, a prominent black ring develops at the base of the neck [2]
- Their grey legs are long and powerful, with strong toes, and are adapted for running and for ranging over large distances
- The greater rhea's feathers, not needed for flight, are long and plume-like [1]

Dimorphism

Males: The male greater rhea is slightly larger and greyer in color than the female, with a more pronounced dark patch on the neck and upper back [2]

Females:

Diet: Omnivore

Diet in the Wild: Rheas prefer broad-leaved plants and clover. However, they eat a variety of seeds, roots and fruits. They also eat insects, including grasshoppers, and small vertebrates, such as lizards, frogs, small birds and snakes. Rheas continuously move as they feed.

Diet in the Zoo: grain for ratite, omnivore biscuits, leafy greens, mixed fruit and vegetables

Behavior

- Diurnal, day-active

- Rheas are flightless birds. Their strong legs carry them up to speeds of 60 kilometres an hour (37 mph), and they use their large wings like an airplane to help them bank and turn quickly. They are surprisingly also good swimmers. [1]

Feeding Behavior

- Rheas also commonly swallow pebbles, which help to grind down food in the gizzard [1]
- Can often be seen feeding alongside herds of pampas deer, guanacos, or domestic livestock [1]
- Rheas drink by extending their necks to scoop water with their bills, pulling out about six inches, then thrusting their heads forward to capture the water pulled into the air by the backward movement. They eat in a similar movement. If the water surface is too small, they will drink using pecking motions. [5]

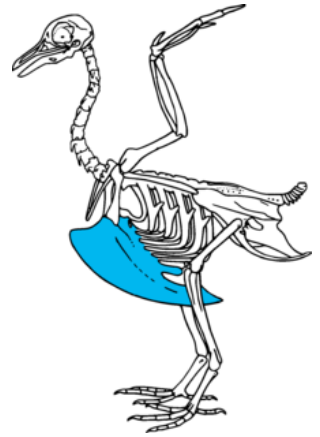
Social Structure & Communication

- Rheas lose most vocal capabilities by the age of seven weeks. As the trachea grows, the internal tympanic membranes intrude less into the bronchial passages, contributing to the deterioration and ultimate silencing of the adult rhea's voice. During breeding the male gives a low-pitched, two noted boom or roar, which can be heard for up to 1 km. An alarm call is a "hoarse grunt". [3]
- When they do vocalize, rheas have a deep, resounding call, which resembles the roar of a mammal more than the call of a bird. Mainly produced by the male during courtship, the sound of this call gives the rhea its local name spanish, "ñandú" [2]
- Males attempts to attract a group of females into their territory by performing an elaborate courtship display that involves calling, running around the females with feathers ruffled and wings spread, and then standing beside the females with the neck lowered, shaking the wings [1]
- During the spring, male rheas are solitary, and females form into small groups. Yearlings form a flock until they are two years old, which is when they are ready to breed. At the end of the summer, males, females, and chicks come together to form large flocks of up to 30 individuals for the winter months. The flocks formed after the breeding season contains twenty to thirty and sometimes as many as one hundred rheas. [1] [3]
- During the non-breeding season rheas forage in mixed flocks of 4-35 male and female birds of all ages [5].
- Young keep together in a group by means of plaintive contact whistles, and may shelter under the male's wings if threatened, or if too hot or too cold. The male may even 'adopt' chicks that have become separated from other groups [1] When chicks vocalize, the adult male responds with "light bill snapping" [3]
- The young generally remain together in a group long after the period of parental care is over, until reaching sexual maturity at around two years in females, and three years in males [1]

Reproduction

- For breeding, it prefers areas adjacent to rivers, lakes and marshes [1]
- Their breeding season is from August to January, depending on the region [3].
- The Greater Rhea exhibits a suite of reproductive behaviors that are unusual among birds. They have one of the strangest mating systems of all birds, and is one of the few species with exclusive paternal care.
- Harems of females lay communally for a series of males, and occasionally surround a male to perform cooperative group copulation solicitation displays [5].
- Males court two to twelve females.
- Females in a single harem sometimes perform a complex cooperative copulation solicitation display in a closed circle around the male. Females copulate and lay eggs in a nest built by a single male, then wander away with no further role in reproduction. A male must defend his nest site and harem, build a nest, perform courtship displays, incubate the eggs, and care for the chicks alone. This system has been described as **simultaneous polygyny** with **sequential polyandry**, in which a harem of females lays consistently in the nest of one male then moves to lay consistently in the nest of another, associating exclusively with a sequence of up to twelve different males [5]. . [3]
- Females copulate and lay eggs in a nest built by a single male, then wander away with no further role in reproduction. A male must defend his nest site and harem, build a nest, perform courtship displays, incubate the eggs, and care for the chicks alone. Females are inseminated by a succession of males and eventually lay in whatever nests are available to them, not necessarily those of the males they have most recently copulated with [5].
- Once mating has occurred, the males build nests, which are shallow holes in the ground with a rim that is surrounded by twigs and vegetation. Each of the females lay one egg in the male's nest every other day for a period of seven to ten days. After the first two or three days of egg laying, the male stays with his nest and eggs and begins incubating them. A male usually incubates ten to sixty eggs for 35-40 days. [1][3]
- Males incubate and care for the chicks alone, although occasionally a younger subordinate helper will incubate the first clutch ostensibly fathered by the older dominant male, freeing him to establish and incubate a second clutch. Joint nesting sometimes occurs, in which two males nest less than a meter apart and peacefully steal each other's' eggs, sharing the duties of parental care upon hatching [5].
- Eggs are elliptical and shiny in texture. Fresh eggs are golden in color, but become white after being exposed for 5-6 days to the sun. Average mass of the egg is 605 g (1.3lbs) [4]

- When male rheas are taking care of their young, they will charge at female rheas and humans who come too close to the chicks. [3]
- The chicks hatch within thirty-six hours of each other. The male takes care of the chicks by himself for the next 4-6 months. [1][3]
- This promiscuous system of communal laying across several nests and extensive extra-pair copulation results in a high degree of parental uncertainty and effective cooperative care.



Conservation

- **Use & Trade:** Rhea feathers are used to make feather dusters in South America. Their skins are used for leather, their meat and eggs are consumed by man and dogs. [3]
- **Threats:**
 - The rhea's habitat has become limited due to agricultural progress. Rheas are a pest to farmers and are eliminated near agricultural areas because they will eat almost any agricultural crop. [3]
 - The rhea population has declined considerably and is considered to be near threatened. In 1980, over 50,000 skins were traded; however a permit is now needed for their export and import. [3]
 - Rheas and their eggs are eaten by local people. They are also killed to be used as dog food. [3]
- **Predators:** Rheas are subject to high predation throughout their lives. [4]
 - Observed predation on adult wild rheas occurred during harem formation and courtship (July-August). Reduced vigilance during the breeding season may put rheas at greater risk of predation during this time [5].
 - Rhea chicks are threatened by many predators, including puma and jaguar. [3] [5]

Did You Know?/Fun Facts

- Rheas are distinguished from ostriches by their three-toed feet (those of the ostrich have two), their lack of fine plumes, and their brownish color. Rheas frequently associate with deer or guanacos, forming mixed herds like those of ostriches, zebras, and antelopes in Africa. [4]
- Rheas will take dust baths to help remove external parasites. [5]

Glossary: List of definitions of the most important recurrent technical terms used in the text.

Keel - is an extension of the sternum (breastbone) which runs axially along the midline of the sternum and extends outward, perpendicular to the plane of the ribs. The keel provides an anchor to which a bird's wing muscles attach, thereby providing adequate leverage for flight.

Ratites -The *Struthioniformes*, also called Ratities, are a diverse group of flightless birds. They include the Cassowary and Emu of Australia, the Kiwi of New Zealand, the Ostrich of Africa, and the Rhea of South America. Unlike other flightless birds, the ratites have no keel on their sternum. Without this to anchor their wing muscles, they could not fly even if they were to develop suitable wings. Their legs are strong and don't have air chambers, except for femurs. They have no crop. Most ratites share a communal nest.

References

- [1] ARKive, "Greater rhea (*Rhea americana*)," ARKive, 2015. [Online]. Available: <http://www.arkive.org/greater-rhea/rhea-americana/>. [Accessed February 2015].
- [2] IUCN Red List, "Rhea americana," The IUCN Red List of Threatened Species, 2012. [Online]. Available: <http://www.iucnredlist.org/details/22678073/0>. [Accessed February 2015].
- [3] C. Hodes, "Greater Rhea (*Rhea americana*)," Neotropical Birds Online (T.S. Schulenberg, Editor): Cornell Lab of Ornithology, 2010. [Online]. Available: http://neotropical.birds.cornell.edu/portal/species/lifehistory?p_p_spp=55956. [Accessed February 2015].
- [4] M. Schommer, "Rhea americana," Animal Diversity Web, 1999. [Online]. Available: http://animaldiversity.org/accounts/Rhea_americana/. [Accessed February 2015].
- [5] Encyclopedia Britannica, "Rhea," Encyclopedia Britannica, 2015. [Online]. Available: <http://www.britannica.com/EBchecked/topic/501053/rhea>. [Accessed February 2015].