

## Hoffman's Two-Toed Sloth

*Choloepus hoffmanni*

**Class:** Mammalia **Order:** Pilosa (sloths and anteaters) **Family:** Megalonychidae (two-toed sloths)

**Other names:** *Prezoso de dos dedos* is used in many Spanish-speaking countries ("*perezoso*" means "lazy")

**Other subspecies:**

**Other Relatives:** One of two species in *Choloepus*. The two species of *Choloepus* (*Choloepus hoffmanni* and *Choloepus didactylus*) are partially sympatric (overlap partially) in the Andean regions and western Amazonia. A good way to distinguish *C. hoffmanni* from *C. didactylus* (Linnaeus' Two-toed Sloth) is that the former lacks dark shoulder and forearm markings [1]. Both overlap with three-toed sloths [2].



## Zoo Sloth 1.0

'Cali' 0.1 – female

DOB: 10/25/1999, AQ: 11/29/2000

### About Name

Cali was born at the Virginia Zoo, where she lived before coming to Brandywine. Her weight ranges between 22-27lbs.

### Status

Least concern [3] It is included in CITES Appendix III for Costa Rica.

Occurs at densities of 1.05-6.5 animals per hectare [2]

### Geographic Region

*Choloepus hoffmanni* has two disjunct populations. The northernmost population ranges from Nicaragua south into western Venezuela. The southern population is found from north-central Peru through extreme western Brazil (south-western Amazonas and probably Acre states) to central Bolivia [3].

### Habitat

Lowland and montane, moist tropical forest, both deciduous and mixed-deciduous, ranges from sea level to 3,300 m [3]. Found in primary and secondary forests, and is even able to use cocoa plantations (*Theobroma cacao*) as habitat [3]

### Characteristics

**Size:** *Body length:* 22-27" *Weight:* 10-20 lbs.

**Longevity:** **Wild** 10-15 years [2] **Captivity** up to 30 years [2]

### Physical Description

- Sloths have two coats, a softer inner coat and an outer coat that is longer and coarser in texture. The hair varies in color from dark brown to pale yellow. Hair covering the abdominal region grows from the midline laterally so that the hair is parted. This serves as an efficient means to expel run-off water since sloths spend the majority of their time hanging upside down [1].
- The limbs are relatively long and the forelimbs are slightly longer than the hind legs. The forefeet have two **syndactylous** digits which are tightly bound with skin. The hind feet have three digits. All digits have long, 8-10cm, hook-like claws used for suspension from branches. Soles of the hands and feet are bare and equipped with thick-skinned, hairless pads[1].
- They have rounded heads and flattened faces. The small snout is naked and protrudes from the flattened face. Ears are round and thickened, almost always covered with hair. Their hearing is poor, but they have a well-developed sense of smell [1] [2].
- The tail is **vestigial**, unlike the 3-toed sloth, which have stout tails [2].
- Unlike most other mammals, who typically have 7 cervical vertebrae, *Choloepus hoffmanni*, can have anywhere between 5-8 vertebrae in their necks, and, more oddly, this number differs on an individual, rather than species or regional, basis. Shortening of the neck (fewer than 7 cervical vertebrae) in conjunction with thick musculature around the neck region and a robust clavicle provide the rigidity that is needed to support the head while inverted [1].
- *Choloepus hoffmanni* lacks **deciduous teeth** and, instead, have 10 upper teeth and 8 lower peg-shaped, ever-growing **hypsidont** teeth. They have no enamel coating their teeth [1] [2].

### Dimorphism

Males and females are *monomorphic*, no differences between genders. Gender must be confirmed by blood test or physical exam.

## Diet: Herbivore

**Diet in the Wild:** Primarily folivores. They eat a variety of leaves, twigs, buds and fruit. Sloths may also derive nutrition by absorption or ingestion of algae that grow in the hair. Rarely, a sloth will eat rodents or insects. Their slow metabolic rate means that they don't have to have much nourishment. Sloths seldom drink; moisture is obtained from plant matter and dew on leaves. Their food has low energy content and may even contain poisonous compounds that require low rate of absorption for detoxification which is possible due to the sloth's slow metabolism (passage of food through gut takes 6-21 days). Young leaves digested at highest rates, only mature leaves of certain species can be digested quickly enough to avoid starvation [2]

**Diet in the Zoo:** Leaf-eater biscuits, carrots, corn, greens, yams, cucumber, tomato, pear, banana

## Behavior

- *Nocturnal*, night-active
- Sloths sleep 15 to 18 hours per day, and spend about 6 hours per night foraging [2].
- Sloths are largely arboreal and hang upside down in trees. Essentially all normal activity – eating, sleeping, mating and giving birth – occurs hanging upside down. An exception to this is urination and defecation, which occurs on the ground once a week.
- Movement is slow in trees, but even slower on the ground because sloths cannot truly walk. Instead, they can only drag themselves using their forearms and claws for a short distance.
- Unlike most mammals, sloths' body temperature varies with temperature of environment and is lower than most mammals 33-36 °C (91.4 - 96.8°F). They regulate their body temperature by moving about canopy — seeking shade or sun, and though their undercoat is insulating, they may have difficulty maintaining their body temperature on cool or rainy days. They cannot shiver to keep warm as other mammals do because of the unusually low metabolic rates and reduced musculature. They have the lowest muscle mass relative to overall body weight of any mammal [2].
- Excellent swimmers. May drop from a tree into a river and swim to shore [2].

## Social Structure and Communication

- Generally silent; they will hiss in defense or utter low bleats in distress. Sloth ear appears designed for low-frequency sounds [2]
- The female may also vocalize via a high-pitched scream to advertise to males she is ready to mate [1].
- These sloths are rather solitary [3].
- Females occasionally associate in groups or will forage in the same trees, but males are typically solitary. Young will stay with mother for nine to twelve months, depending on the species [2].
- If a young sloth is frightened, it can make its hair stand on end to appear larger. Adults will hiss and can even give a terrible bite with its sharp canines if frightened.
- When threatened, they will charge suspected aggressor, pull objects to their mouth with forearm and bite — sharp teeth are like canines of carnivores
- Males scent mark on tree branches from a gland near the anus [2]

## Home Life

- Sloths do not build nests, but sleep upside-down in the trees [2]. Most two-toed sloths change to a different tree each night [2].

## Ecosystem Roles

- Sloth fur is populated by colonies of moths, beetles, and cockroaches to ciliates, fungi, and algae [4] [5].
- It's popularly believed that sloths have symbiotic relationships particularly with the algae (*Trichophilus welckeri*) that inhabits its fur and serves as excellent camouflage. This species of algae is host specific and has not been found to occur in any other environment. The algae is passed directly from mother to offspring, and newborns are typically 'inoculated' by the time they're a few weeks old [5].
- Furthermore, it has been suggested that the moths that colonize the sloths' coats may indeed be helping the sloths, by somehow feeding the algae in their fur, which the sloths in turn might be eating to supplement their diet. The moths, in turn, rely on the sloths' weekly fecal movements on which to lay their eggs [4].

## Reproduction

- Their mating system involves a mixture of *polygyny* with *promiscuity* [3]
- Females in estrus appear to initiate mating [2]
- Reproductive rates are typically once every 15 months. Gestation lasts about 10 months. Single births are most common [2]
- Neonates cling to the hair on the mother's stomach. Nursing occurs for typically the first month. Young first hang upside down at 20 to 25 days after birth and begin to feed away from the mother five months after birth [2].
- Young may continue to associate with their mother for up to least two years after birth [2].

## Conservation

A major threat for Hoffman's two-toed sloth is deforestation. There is much fragmentation of their habitat due to urban expansion, agricultural expansion, and logging. This fragmentation limits sloths' abilities to breed successfully. They are also hunted for their meat and pelts. Their main predators include harpy eagles, anacondas, jaguars, and ocelots.

- **Use & Trade:** In some parts of its range, *C. hoffmanni* is hunted for food and to be sold as a pet to tourists [3].
- **Threats:** ongoing deforestation, especially for the northern population (nominated subspecies) of this species could potentially be assessed as Near Threatened [3].
  - They are hunted by indigenous communities. Wild-caught individuals, especially offspring, are sold as pets to tourists in Colombia. This illegal trade is increasing and represents a cause of concern due to its impact on the wild population [3].
  - **Predators:** harpy eagles, anacondas, jaguars, ocelots and, of course, humans [2]
  - Excellent camouflage and slow movement help them elude predators

## Did You Know?/Fun Facts

- Its average speed in the trees is 6-8 ft. per minute, but if distressed, it can move up to 15 feet per minute.
- Species in this genus are easily identified by the presence of two claws on the forelimb. The other **extant** genus of sloths, three-toed sloths *Bradypus*, have three claws on the forelimb, but are rarely seen in captivity [1].
- Two-toed and three-toed sloths were formerly placed in the same family but the two genera have profound behavioral and anatomical differences and are believed to come from two different fossil lineages. They are now placed in separate families [2]
- Sloths are more closely related to anteaters than armadillos [2].

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

**Deciduous teeth** - known as *milk teeth*, *baby teeth*, *temporary teeth* and now more commonly primary teeth, are the first set of teeth in the growth development of most mammals.

**Extant** - still in existence; surviving.

**Hypsodont** - high-crowned teeth and enamel extending past the gum line, providing extra material for wear and tear.

**Syndactylous** - An animal, especially a bird or mammal, that has two or more fused digits.

**Vestigial** - refers to genetically determined structures that have apparently lost most or all of their ancestral function in a given species, but have been retained through evolution

## References

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