

## THE VIZCACHA-BURROW BOA

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Boas and pythons, the largest serpents in existence, have always stimulated man's imagination. There are many stories that tell of giant sea serpents, fearsome and legendary like dragons, capable of destroying a ship. Boas were one of the American species that inspired the most awe in European travelers and conquistadores and Schmidl devotes several paragraphs of his story to his encounter with an anaconda 'about 25 feet long and as big around as a man,' a giant devourer of indians.

Reality, although less spectacular, is surprising nevertheless: the Asian python reaches more than nine meters in length, the South American anaconda reaches eight and in general all boas, even the shorter species, are thick, vigorous and are equipped with a powerful musculature with which they can squeeze until death results.

The Vizcacha-burrow boa, also known as the 'Lampalagua' or 'Ampalagua', although barely reaching two and a half meters in length, is quite capable of suffocating and swallowing a pair of vizcachas at each meal.

### PROWLING IN BURROWS

In spite of being found in southern Paraguay too, the Vizcacha-burrow boa is a characteristically Argentine species and has a very large range in our territory: it is found in the provinces of Jujuy, Salta, Catamarca, La Rioja, Tucuman, Santiago del Estero, Formosa, Chaco, San Juan, San Luis, Mendoza, Cordoba, Santa Fe, La Pampa and long ago probably extended into the provinces of Buenos Aires.

Adaptable to semi-humid, semi-arid and distinctly arid regions, it finds an environment suitable for life in the 'Chaco' area of these provinces, in the forests of red quebracho and white quebracho, in meadows and also in salt flats.

Although it is a good swimmer, the Vizcacha-burrow boa is not usually associated with water, unlike other members of the same zoological family, like the anaconda or 'Curiyu'. Its habits are decidedly terrestrial. When it needs refuge it generally seeks cracks, natural holes or burrows of rodents, like the vizcacha, which also happens to be its preferred food. The deeply rooted habit of hunting in vizcacha burrows earned it the name by which it is commonly known.

### SLOW BUT IMPLACABLE

Like all snakes, the boa lacks feet, although the two ventral claws or spurs that lie on each side of the cloaca as an extension of the pelvic girdle are undeniable proof that its ancestors

possessed limbs. Nevertheless, the boa's locomotion now depends exclusively on that meticulous crawling mechanism that characterizes ophidians: the ventral plates, each of them with a vertebra and a pair of ribs, grip the irregularities of the ground and the undulation of the spine allows the rectilinear or sinuous advance of the long body. Unlike the vipers, which add to these two slow movements a kind of lateral whip-like motion with which they add bursts of speed to their advance, boas move slowly and deliberately.

To climb trees they coil their body around the trunk and utilize their tail, which is more or less prehensile according to the species.

The slow movement of the Vizcacha-burrow boa in no way diminishes its skill as a hunter. The ease with which its brownish and white-hued skin mimics the ground, the silence surrounding its movements and the remarkable conviction and energy of its attack make it an implacable enemy.

## THE DEADLY EMBRACE OF THE CONSTRICTORS

The Vizcacha-burrow boa, like all snakes, is a carnivore and a hunter. It mainly feeds on rodents, especially vizcachas, guinea-pigs, tuco-tucos and field-mice. It also attacks birds such as chickens, partridges, and several species of pigeon, even when the prey is small. In captivity it accepts mice, rats, guinea-pigs, doves and chicks.

To trail prey it relies primarily on its flicking, forked tongue with which it gathers particles from its surroundings which, when placed in contact with its sensors, the so-called Jacobson's organs located in the palate, provide it with useful information to find its way, and also (it relies on) a series of thermosensitive structures located on the upper lip whose subtle perception allows it to locate warm-blooded animals, mainly rodents, that make up its diet.

Generally the boa goes out to hunt at sunset or at night when the overall drop in temperature facilitates the function of its thermoreceptive structures; but it is not unusual to see it active during the day.

Boas lack venom. Their solid teeth are incapable of injecting poison like the viper, but they are powerful and since they are curved backward they produce very serious lacerations in their victims. However, the most remarkable of the Boa constrictor's weapon is the powerful musculature of its long body. When the prey is small the teeth suffice and swallowing begins immediately with the movement of each mandible. However, when the prey is large (boas often attack and devour prey three or four times larger in diameter than their own head), a typical behavior appears - constriction.

First the boa moves its head forward with its mouth open, biting hard and holding the prey with its teeth; then it wraps it up with its body, forming coils around it. Advancing little by little over the surface it envelops, it gradually tightens its coils and squeezes the victim implacably until death results. Next it uncoils and begins to ingest the prey, always beginning with the head to keep the fur or feathers from interfering with swallowing.

The boa is capable of swallowing bodies several times thicker than its own. The fact that the lower jaw is divided at the chin and attached to the cranium by a very movable bone explains how snakes can open their mouths so disproportionately wide. Since the glottis is located in the bottom of the buccal cavity and can be extended forward, respiration is ensured in the course of the sometimes difficult act of swallowing.

A generally slow digestion follows. Although the metabolism depends on the prevailing environmental conditions, the large mass of food ingested sometimes takes a week to be dissolved by the powerful gastric juices which are the only agents to break down the food, since ophidians do not chew.

The powerful musculature and respectable size of the Vizcacha-burrow boa make it in turn a difficult quarry. Although the puma, the greater and lesser ferret, the wildcat and the plains fox are its natural enemies, often the prey-predator relationship is reversed: all that is required is that the boa succeed in coiling around its attacker's body for it to become the victim. The same thing happens to birds of prey that attack large juveniles. The small, extraordinarily aggressive boas fight vigorously for their lives and often wind up preying on their would-be predators.

### THE BOA'S HISS

Like all snakes, the boa lacks vocal cords. Mute and silent, sounds are not its means of communication. It can, nevertheless, produce them on occasion by the rapid expulsion of air from its lungs. When annoyed, when pursued, when stimulated (as happens with the female during courtship), or when it feels threatened, the boa hisses (somewhat imaginatively Father Lozano spoke of the 'fearsome hisses with which the anaconda, relative of the Lampalagua, 'filled forests and jungles' when driven by hunger).

### WINTER LETHARGY

Being a cold-blooded animal (poikilotherm), like the rest of the reptiles, the boa must develop behaviors that allow it to combat both excessive cold and excessive heat. Crepuscular and nocturnal habits spare it the rigors of mid-day, and hibernation helps it to endure the cold.

Since it lives in temperate zones, the Vizcacha-burrow boa must face winters with quite low temperatures. For this reason starting in the months of April or May it seeks refuge in abandoned caves, cracks or holes in which to doze until the arrival of spring.

During this period it seldom takes food since its metabolism drops to a minimum and does not require it. At times in the middle of the day it leaves its refuge and suns itself a while to increase its body temperature; afterwards, it returns to its shelter and continues its long annual sleep.

### HOW THE BABIES ARE BORN

Like all snakes, the Vizcacha-burrow boa is solitary and the meeting of individuals only takes place during the breeding season. In spite of the fact that it is not known with certainty at what time of year the Vizcacha-burrow boa comes into heat in the wild, it is known that in captivity the male and female breed between the months of November and March.

The male examines the female's skin with frequent, rapid tongue flicks. He runs the claws or spurs on his underside up and down her flanks, gliding over and over again down the length of her body, sexually stimulating her.

Approximately one hundred and twenty to one hundred and eighty days after copulation the young are born. Unlike pythons, which lay eggs, boas are ovoviviparous or viviparous. In the former case the young are born wrapped in a weak, protective, gelatinous membrane that breaks shortly after birth. The eggs, with the embryo inside, have remained in the mother's oviducts until completing their development, so they don't need the protection of a shell. During its life within the oviducts there is no connection between the mother and the embryo; the latter obtains all its nourishment from the egg. In the latter case the

mother and the embryo possess structures that connect them. Sometimes when the young are born they still have the umbilical cord and the vitelline sac on their ventral area for a time.

The Vizcacha-burrow boa has from six to thirty young; Haedo Rossi recalls that in 1950 at the Buenos Aires Zoo a female gave birth to thirty young.

The mother helps the young get free of the prenatal sac and ten hours after birth the boas are perfectly clean. They measure 39 to 50 cm in length and weigh 70 to 85 g. They are lighter than adult specimens, generally yellowish brown, and the skin patterns are more mottled. The eyes are usually prominent and spherical, almost transparent, and without a vestige of an iris, from which one might suppose that they do not distinguish shapes. They all have noticeable spurs.

Remarkably more aggressive than the adults, the young Vizcacha-burrow boas immediately develop their attack behavior and are soon capable of killing small prey in their coils.

Two weeks after birth they undergo their first shed and at four months of age they have already doubled their initial size, which is why the sheds follow each other in rapid succession in this first period. Although snake's skins are extremely elastic, the outermost layer, the epidermis, does not grow along with the animal; when it gets too small it comes off, generally without breaking, and the animal comes out of it as if it were taking off a transparent shirt that reproduced in every detail its external anatomy.

Considering that snakes do not stop growing while they are alive, and boas can live up to thirty years, sheds occur as a regular periodical event throughout their lifespan.

#### A SPECIES WORTHY OF PROTECTION

Although the current state of Vizcacha-burrow boa populations is not known with precision, there is no doubt that they are in decline. On one hand, the spread of agriculture has brought about the progressive destruction of its natural habitat. On the other, it is indiscriminately hunted for its skin which is attractive and sought-after in the leather industry.

Since its presence, like that of many other ophidians, acts as an effective biological control on many rodent populations, its decline has brought with it a proliferation of species that are agricultural pests. Suffice to say that an adult specimen of Vizcacha-burrow boa can dispatch ten or fifteen field mice in one sitting, preying on both adults and young.

Some provincial governments have already taken steps to protect the species. In San Luis and Santiago del Estero, for example, hunting it has been prohibited since 1940. Currently it has begun to be protected in Tucuman too, where it is already on the brink of extinction: the Office of Natural Resources and the Lillio Foundation undertake the release of all specimens that come into their possession. Under National Law 22.421 for the Protection of Fauna and Resolution 144/83, the boa is considered an endangered species and hunting and export are prohibited.

Strange as it may seem, boas can be domesticated and can become tame. Avalos relates that there are warehouses in which they are used instead of cats to control rodents.

ANTHROPOLOGICAL NOTES

*Mother of Serpents*  
*Mother of Springs*

The Vizcacha-burrow boa, Lampalagua or Ampalagua, as it is called in the interior of the country, has traditionally been exploited by man for economic gain. To begin with, there are those who eat its meat. For example, the Guaranis (a tribe) of the Northeast and the Matacos of El Chaco do. The Tobas of the latter region, on the other hand, have a strict taboo regarding it: they kill the animals to get their hide but they cannot eat them. Nevertheless, for religious reasons they carefully prepare the remains of the cadaver, which they bury or wrap up to keep it safe from scavengers; they believe that otherwise they would incur the wrath of Nowet, a mythological being closely linked with hunting activities. Iberian creoles, on the other hand, consume with great pleasure the back of a relative of the Lampalagua, the anaconda or water boa, with which they prepare steaks and stews. The strong, brightly colored hides of these giant serpents have had many uses, both ornamental and utilitarian, among the indians. The Matacos, for example, made bowstrings



Foto 1: Boa constrictor constrictor.  
Foto P. Schiereck.

out of them not long ago. Currently Tobas, Matacos and other indians of the area, as well as many creoles, hunt them to sell their skin, sometimes for a mere exchange of merchandise at a very low price.

The boa has contributed different elements to popular medicine. Its 'pelecho', or shed skin, along with that of vipers, has been used to cure migraines by tying it firmly to the patient's head. However, greater medicinal value has been found in the animal's fat. The mestizo healing science makes a distinction between 'cold' and 'hot' maladies and remedies. Boa fat is considered 'cold', unlike that which is obtained from birds and lizards (categorized as 'hot'), and within this type it is the kind that enjoys the best reputation. Generally the accumulation of fat in the tail is used to various ends: it works in the treatment of tumors and wounds, and is highly recommended for treating rheumatism. For this last application it is recommended that one take the fat from a living animal and release it afterwards with an open wound. Furthermore, it is recommended that one rub children with this substance as a way of making them vigorous by a magical transference of the boa's strength.

Moreover, the shape of the animal implies phallic associations and it is believed that a man can increase his sexual potency by rubbing his penis with fat from a Lampalagua's tail, which is a technique widespread in northeastern Argentina, Bolivia and Peru.

The boa occupies a respectable place in local mythology. To some Guarani factions it is, along with a jaguar and a bat, one of the three sacred guardians that watch over the entrance to Paradise.

According to the Tobas, Walain, the boa is the Mother of Serpents; she lives underground and protects her 'daughters' from unnecessary attacks by men. In one myth Walain's husband was killed by the hero Carancho, who discovered his furtive romance with a girl. In reprisal the widow turned the cause of the tragedy into an iguana.

In the Mataco myths Tokuah, the transformer, made hitherto harmless serpents venomous by warming their mouths with fire. Some vipers, among them the boa, were not willing to subject themselves to the treatment and that is why they lack poison today. It was also Tokuah who taught the indians to utilize the meat and hide of this animal.

Among the creoles this disturbing reptile gave rise to a series of beliefs. First of all it is maintained that it frequently visits gatherings of witches and devils: one of the tests that must be faced by those attending a witch's sabbath for the first time is to endure being squeezed in the coils of a big boa.

It is also thought that the animal has special powers to attract its victims in order to swallow them; in the 18th century the chronicler Florian Paucke maintained that 'it has the power to bring birds down from the trees with its breath; it makes deer and other wild animals and also men stand still so they cannot go on and they become the serpent's prey'. It is also believed that it has, like other serpents, hidden feet; it shows them on certain occasions, ill-fated for whoever witnesses it, since it brings about his death. The basis for the first claim is that, as Rosenberg explains, in some animals that are crushed to death it is not unusual for the double penes to stick out and be confused with feet; in the case of the Lampalagua the presence of its 'claw' (an actual vestigial limb) reinforces the popular misconception.

In Santiago del Estero tradition recommends that in order to obtain an amulet that gives 'marksmanship and a clear shot' one must cut off 'a little ball that moves in the Lampalagua's head when it is about to swallow'" a procedure which undoubtedly requires the very virtues that the talisman promises. In the same province weather predictions are based on the attitude of these animals: if they come out of their caves and remain motionless, it is a sign of rain.

This association with water is frequent. In addition to the usual confusion with the anaconda, that has aquatic habits, it is held that the Lampalagua is the Mother of Springs; as a consequence killing boas can cause wells to dry up.

Moreover, a number of taboos revolve around the killing of boas. As with other snakes, it should not be hunted by a man with an unborn child: the child would be unable to walk and would have to drag itself. It also brings bad luck to cut the animal with a knife or machete; the proper way in Santiago del Estero and neighboring areas is to use a 'caspi machajuero' a hollow reed with which one presses on the neck of the animal. Killing a sleeping boa is unlucky: it drives away luck at gambling and turns a man into a coward. On the other hand, if one is killed in good faith, by fighting with it, the victim's strength can be acquired. Afterwards, however, one must abstain from skinning the body; in this case the effect would be the opposite: the man would become weak and his life would be nothing more than a drifting towards death.

## TECHNICAL NOTES

### Common name

Vizcacha-burrow boa, Lampalagua, Ampalagua, Boa constrictor

### Scientific name

*Boa constrictor*, Philippi 1873

### Taxonomic classification

Class: *Reptilia*; Subclass: *Lepidosauria*; Order: *Squamata*; Suborder: *Ophidia*; Superfamily: *Booidea*; Family: *Boidae*; Subfamily: *Boinae*; Genus: *Boa*; Species: *Boa constrictor*; Subspecies: *Boa constrictor occidentalis*, *Boa constrictor amarali*, *Boa constrictor constrictor*, *Boa constrictor melanogaster*, *Boa constrictor imperator*, *Boa constrictor orophias*, *Boa constrictor sigma*.

### Dimensions

Length: about 250 cm (although there are specimens that reach 300 cm). Diameter (at midbody): between 10 and 15 cm.

### Weight

Between 8 and 15 kg (varying according to season)

### Coloration

Adult: General coloration from light brown to dark grey. Large, round, light-colored spots with a white edge, often with a pink hue, along the body's median line, elongated and oriented in the direction of the spine. Large round spots in the lateral region resembling the preceding ones, and another series of indistinct spots that are sometimes fused to each other. Yellowish-white venter more or less covered with dark brown spots. Young: generally yellowish-brown. Square or rhomboid dorsal spots from neck to tail. A nearly continuous lateral series of spots with a hexagonal-trapezoidal shape.

### Prominent morphological characteristics

The head is small but differentiated from the neck and covered with generally small, variable-sized, irregular round scales (lorials and supraoculars usually larger). The rostral scale is almost square. The maxillary teeth grow smaller from front to back. The relatively small eyes have vertical pupils.

The body is robust and cylindrical or weakly laterally compressed. It is covered by small, smooth scales. The dorsals are small and increase in size towards the flanks. There are between 227 and 258 ventral plates. As with most boids, it has two spurs or 'barbs' on both sides of the cloaca.

The tail is short, blunt and more or less prehensile. There are 35 to 58 subcaudals.

Sexual dimorphism: The males have 'barbs' or spurs that are larger and morphologically different from those of the females.

#### CLASS: *REPTILIA*

Reptiles evolved from a group of primitive amphibians (*Stegocephalia*) that became independent of the aquatic environment 250 million years ago thanks to the development of eggs that were incubated in the ground and the acquisition of pulmonary respiration.

Modern members of this class, like their ancestors, generally live in warm regions since they are exothermic animals (poikilotherms) whose body temperature varies and depends to a large degree on external factors like exposure to the sun.

The external appearance is not very homogeneous in the different groups, and although they are primarily tetrapods (having four feet) there are those that lack limbs. Species with legs have them attached laterally and use them mainly to push the body and crawl, from which the name of the class is derived.

The skin is thick, dry and lacking glands, with horny scales or plates (osteoderms) located deep in the skin, as occurs in the crocodiles. In reptiles with scales and in the tuatara periodic shedding is typical, which is when the outer layer of the stratum corneum separates from the younger, inner layer.

The skeleton is almost completely ossified. The cranium is more or less flattened and the most highly developed parts are the mandibles and facial bones. The vertebral column has a variable number of vertebrae, according to the species, and likewise with the number of ribs. The sternum is rudimentary or absent.

With the exception of the turtles, which possess a horny covering on their jaws, all reptiles have teeth, generally abundant and similar in shape (homodontia), albeit with different sizes. They lack a true masticatory function and serve to grasp the food, which almost all reptiles swallow whole. They primarily consist of carnivorous animals, although there are also others with diverse feeding habits.

The tongue has quite variable characteristics: in some reptiles (crocodiles) it can hardly move, while in others (snakes) it is forked and remarkably mobile. Different types of glands can be found in the buccal cavity, among them the venom glands that some species possess, which are considered modified salivary glands.

The stomach is spacious and the intestine short. After eating, reptiles rest without moving until digestion is completed and they can withstand months without food.

Reptiles primarily breathe through lungs. They generally possess two, but in elongated species the left lung is absent or atrophied, as happens in some saurians and ophidians.

The heart presents two completely separate auricles and a ventricle that is usually semidivided, except in crocodiles, where it is completely divided.

The kidneys are in general very voluminous and lobular, diverse in shape, and open into the intestines and genital ducts in the cloaca. The nervous system is better developed than in fish and amphibians. The eyes are normally small, with an upper and lower eyelid, which in some cases fuse together and become transparent. In certain species there exists also a transparent nictitating membrane that projects out from the inner angle of the eye to protect it without interfering with vision.



The ears retain a structure similar to that of amphibians; an outer ear is lacking, but there may be a tympanic membrane. Snakes lack external auditory orifices, but they can perceive vibrations transmitted through the ground via their skeleton.

The skin is well supplied with tactile organs and organs of taste are found in the mouth. Some reptiles possess a chemoreceptive organ (Jacobson's organ) that performs a mixed olfactory and gustatory function as occurs, for example in ophidians.

For the most part reptiles are hatched from eggs which they lay in natural cavities or cavities excavated by the females that are usually abandoned. The duration of incubation depends on the species and the ambient temperature.

In some species the eggs remain in the mother's uterus until the end of their development (ovoviviparity). Truly viviparous reptiles are uncommon; in these cases the embryo's develop within the mother and obtain their nutriment from close contact with maternal tissues. Males have copulatory organs associated with the cloaca; in crocodiles and turtles they are single, whereas in snakes and lizards they are double and in the tuatara are absent.

The most important characteristic to be considered in reptile classification is the location in the cranium of the openings between the temporal bones (located on the side of the head behind the eye).

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