

A Help Guide for At-Risk Boa Constrictors in Trinidad and Tobago



November 2022



SCHOOL OF VETERINARY
MEDICINE
EXOTICS CLUB



Table of Contents

Introduction	2
Get to Know Your Boa	3
The Boa	3
Life in the Wild	5
The Harmful Pet Wildlife Trade	5
Give Short-term Care	7
Appropriate Housing	7
Healthy Food and Water	10
Handling	12
Regular Cleaning and Bathing	13
Mental Health Support	14
Safety in the Household	15
Veterinary Care	16
Be a Boa Rescuer	19
Action #1: Don't Release This Animal	19
Action #2: Relinquish, or Get a Permit and Give Long-term Care	19
Action #3: Stop Buying Wild Animals	20
Conclusion	22
Special Thanks	23
References	24

Introduction

This guide is intended for anyone who would like to help at-risk Boas live healthier and happier lives in Trinidad and Tobago and the wider Caribbean. It has been produced as a collaboration between the Nurture Nature Campaign (www.nurturenaturett.org), the Trinidad and Tobago Veterinary Association (TTVA), the Veterinary Students Association of Trinidad and Tobago (VSATT), and the Exotics Club at the University of the West Indies School of Veterinary Medicine.

We offer you this guide since Trinbagonian keepers now, unfortunately, participate in a harmful trade in Boa Constrictors spanning the Southern Caribbean. Trade research by the Nurture Nature Campaign indicates that there are sizable populations of Boas now in captivity in Trinidad and Tobago, and many of these snakes suffer from poor sourcing and care practices. In fact, about 90% of wild-caught snakes and other reptiles die in the first year of captivity because of physical trauma prior to purchasing or because their owners cannot meet their dietary and habitat needs (Rataj et al., 2011).

If you want to stop participating in the harmful wildlife trade and maybe help end the trade entirely, then this guide is for you. As you will learn, any keeper who wants to make a change should first “Get to Know your Boa” and learn how to “Give Short-term Care”. And if you are ready, you can even “Be a Boa Rescuer” to best support the welfare of your snake.

Get to Know Your Boa

The first step in helping any at-risk Boa in captivity is to get to know the animal better. With knowledge comes power. You may be surprised to learn that many keepers do not know that there are four species of Boa in Trinidad and Tobago. You may also find it interesting to learn about Boas' natural lives in the wild or how they are unfortunately impacted by the pet wildlife trade.

The Boa

Boa is a name that refers to more than 40 species of snakes that belong to the Boidae family, and 4 species can be found in Trinidad and Tobago: the Red-tailed Boa or "Macajuel" (*Boa constrictor constrictor*), the Brown Rainbow Boa (*Epicrates maurus*), the Tree Boa or "Cascabel" (*Corallus ruschenbergerii*), and the Green Anaconda (*Eunectes murinus*), which is the largest snake in the world by weight. Typically, only the Red-tailed Boa and Brown Rainbow Boa are kept in captivity in the country.



Brown Rainbow Boa (top left), Tree Boa (top right), Green Anaconda (bottom left), and Redtail Boa (bottom right).

Photo credits: Andreshs (top left), Paul Prior (top right), mbeisen (bottom left), and Nurture Nature (bottom right).

Boas are native to tropical Central and South America. They live in a variety of habitats that are generally subject to wet and dry seasons. These heavy-bodied, non-venomous snakes are both terrestrial and arboreal. They are also excellent swimmers, but except for the Anaconda, the species found in T&T prefer to stay on dry land. Their skin colour

and patterns can vary depending on the habitat in which they are raised, making them easy to camouflage.

Boas subdue their prey through constriction before swallowing them whole. Once a Boa has wrapped its body around the prey, it squeezes just enough to stop the heart from pumping blood, which will eventually lead to circulatory arrest and death of the prey. They typically have powerful jaws with small, hooked teeth that help to grab and keep prey from escaping while they wrap their strong, powerful bodies around the prey.

Many Boas, including Rainbow Boas, have heat-sensitive pits on their heads that provide them with a sort of 'thermal imaging.' Red-tailed Boas do not possess these. Instead, they rely on their excellent eyesight and split tongue to collect information about their surroundings. Also, they do not have external ears but are adequately compensated with their acute sensitivity to vibrations.



The skin of Rainbow Boas can slightly refract light to give a rainbow-colour effect.
Photo credit: Mark Gibson.

Red-tailed Boas are typically grey/tan in colour with darker brown spots down their back and sides. At the end of the tail, the spots become a red colour, which is where their common name comes from. Females are generally larger in both length and girth than males. The usual size of mature females is between 7 and 10 ft, whereas males are between 6 and 8 ft. Though information is limited, the suspected life span of this species of snake is 20 years in the wild and up to 40 years in

captivity. An adult Boa Constrictor may weigh between 30 and 60 pounds.

Rainbow Boas are so named because of the iridescent sheen imparted by microscopic ridges on their scales, which act like prisms to refract light into rainbows. The Brown Rainbow Boa is brown or reddish-brown in colour with light brown or tan on its sides and dark brown to black stripes on the top of the head and along its body. Females are also generally larger in length and girth than males. The usual size of mature females is between 4.5 and 5 ft, whereas males typically grow up to 4ft. Though information is

limited, the suspected life span of this species of snake is 10 years in the wild and up to 20 years in captivity. An adult Rainbow Boa may weigh between 10 and 15 pounds.

Life in the Wild

Boas are largely solitary creatures and only interact with other snakes during mating season. They are nocturnal, which means they are most active at night. When temperatures at night are too low, a Boa may bask in the sunlight during the day.

These snakes thrive in a wide variety of environmental conditions, but most prefer to live in tropical rainforests because of the abundance of potential prey, favourable humidity and temperature, and the available protective cover from predators. Being excellent swimmers, Boas commonly inhabit areas around rivers and streams. Burrows of medium-sized mammals also provide protection and safety from potential predators. In Trinidad and Tobago, Boa Constrictors and Rainbow Boas can occupy many different types of habitats—from forest edge and littoral woodlands to savannas and rainforests.

Although rarely dangerous to humans, Boas strike in response to a perceived threat. A snake that is undergoing shedding can be more defensive because they cannot see very well. You can tell when they are shedding since their eyes appear opaque or bluish in colour.

Boas are carnivores. In the wild, their prey can include birds, rodents, wild pigs, or monkeys. They eat anything their powerful jaws can catch, even swallowing whole large prey. Boas adjust their hunting behaviours based upon the availability of prey. If there is plenty of prey around, they wait and ambush any unlucky prey passing by. However, if prey is scarce, Boas tend to hunt and seek out prey.

After the rainy season, male Boa Constrictors and Rainbow Boas seek out mates. Male Boas seek to breed every year while females may not. Female Boas may take one or more mates, and they emit a distinct scent from their cloaca to attract the male. Their gestation period for young is from 5 to 8 months, and the average litter size is 25 snakes. Females give birth to live, independent young. Juvenile Boa constrictors are semi-arboreal, which means they may climb trees in search of prey. As they grow heavier and larger, they start to spend more time on the ground. Sexual maturity is reached at 2-4 years of age.

The Harmful Pet Wildlife Trade

The pet wildlife trade in Trinidad and Tobago and the wider Southern Caribbean causes many harms to Boas as well as local ecosystems. This includes the long-term

mistreatment and premature death of many snakes, as well as the loss of important predator species in the wild.



Up close image of a Red-tailed Boa (left), and Green Anacondas in captivity.
Photo credits: Mark Gibson.

In Trinidad and Tobago, Boas kept as pets are almost always collected from forests or in conflict with human settlements rather than being purchased in pet stores. Unfortunately, many new Boa keepers fail to learn how to adequately house and feed their new “pet” snakes.

Under the Conservation of Wild Life Act, they are considered “protected animals” and require special permits to be kept or sold. Violation of this rule carries a penalty of TT\$5,000.

Give Short-term Care

The next step in helping a captive at-risk Boa is to ensure it receives the bare minimum care necessary to remain healthy and happy in the short term. Unfortunately, in Trinidad and Tobago, many Boas do not ever receive such basic care and can suffer serious traumas, diseases, and early death.

If a Boa keeper wants to do the right thing, we recommend that they pay attention to providing six things in the short-term:

- 1) appropriate housing
- 2) healthy food and water
- 3) regular cleaning and bathing
- 4) mental health support
- 5) safety in the household, and
- 6) veterinary care.

Appropriate Housing

Many enclosure options are available for Boa constrictors. These include reptile terrariums and plastic enclosures. Plastic enclosures are made from high-quality plastic material that can help maintain proper humidity.

As your Boa grows, it will need an increasingly larger cage. Being terrestrial creatures, the floor space of their enclosure is more important than the height. Juvenile Boas may climb, but as they grow older, they tend to spend more time on the ground.



Rainbow Boa in appropriate housing.
Photo credit: Mark Gibson.

Glass aquariums can comfortably accommodate baby Boa Constrictors, but larger Boas will need a custom enclosure. These are very powerful snakes and expert escape artists. Their enclosure must be secure and durable enough to prevent them from escaping.

The recommended dimensions of the first enclosure for a baby Boa should not be longer than 30in in length and 12in in width. This may seem relatively small, but it will make a baby Boa feel secure. At around a year old, you should move your Boa to a larger enclosure. An ideal cage dimension for yearlings would be 36in by 18in.

The minimum size of an adult Boa Constrictor's enclosure is about 10 square feet of floor space. However, a bigger enclosure would be better if you have the budget and space, particularly when you have a larger-than-average Boa. In general, you should always have an enclosure big enough for your Boa to stretch out to its full length, which promotes proper physiological function.

Appropriate heating is very important to consider for your captive Boa. The ideal enclosure would offer a variable temperature gradient across the space to allow the snake to thermoregulate—or keep warm and cool down—by moving from one area of the enclosure to another.

The enclosure should have a warm side (basking area) and a cooler side. These areas should be on opposite ends of the enclosure. The heat source, such as a heat lamp, should be placed in the basking area and not in the centre of the cage. The cooler side of the Boa enclosure should have a temperature of 24-26°C, while the basking area should be maintained at 29-32°C. The basking light should have ceramic housing since it tolerates high heat. It should also have an on/off switch. You should make sure that there is a thermostat to control the enclosure's temperature gradient, one for each heating source or area.

Heat lamps can help provide a natural way to create the appropriate temperature inside the Boa's enclosure. When buying heat lamps, go for white or clear bulbs and steer clear of red, blue, black, or any other colour as studies have shown these coloured bulbs can be harmful to snakes.

A heating device placed under the enclosure will also provide belly heat. There are various types of devices that can provide belly heat for Boa enclosures: under-tank



heaters, heat cables, heat tapes, and heat pads. You will find that your Boa loves coiling over this hot spot. To avoid night drops in temperature, a light-less heat source with a thermostat can provide some supplemental heat during the night. Hot rocks are not recommended because they tend to produce uneven heat over a small area and your Boa can end up with serious burns.

If the Boa enclosure is made of glass, such as an aquarium, make sure that there is proper ventilation around the heat source. If the heat inside the enclosure builds up, the bottom of the glass tank can crack; other materials in the cage may also melt or overheat.

A natural daylight reptile lamp with a low-wattage fluorescent bulb can also be installed in the enclosure to provide a day and night cycle. The light from the lamp will also make it easier to observe your Boa. Boa enclosures don't usually need overhead lighting, but if you want to use this, install it directly over the belly heat source. Overhead lighting can provide additional warmth when the under-enclosure device fails to provide enough belly heat. Make sure to check the temperature of the hot spot when the overhead light is turned on. Take note, however, that overhead lighting or heating device alone won't provide a substitute for an under-cage heating device.

Hide boxes provide places where your snake can go to hide from stressors and perceived threats. Place at least two hides in any Boa's enclosure—one on the basking area and another on the cooler end. If there is only one hide, the Boa tends to stay on one side of the enclosure where the hide is located, and this can affect proper body thermoregulation.

A humid hide is recommended for glass tanks. Your Boa will benefit from the extra humidity provided by the damp moss of the hide.

You may also put in some rocks, twigs, or other reptile habitat accessories, but be sure that there is still enough space for your Boa. Any object or structure that is placed inside the enclosure must be positioned securely.

There are several types of substrate that can be used inside Boa enclosures. The most common ones are paper (like newspaper, butcher paper, wrapping paper), aspen bedding, and cage carpet. You can also use fir and cypress bark or mulch, but these materials attract humidity which can cause the Boa's enclosure to become too damp. Using aspen or a reptile cage carpet will make it easier to spot clean the cage, and a full change can be made only when needed. On the other hand, if you're using paper, all of the substrates should be removed and disposed of each time you clean the cage.

Use a non-porous water bowl to maintain proper humidity inside your Boa's enclosure. Always provide clean water and give the water bowl a good scrubbing at least once a week. Slime can build up in a dirty water bowl. The humidity level inside the cage should be maintained at 60-70% to promote proper shedding. You can use a hand mister for this purpose. Many Boa owners prefer automatic misters because they can save you the task of manually misting your Boa's enclosure regularly.

Healthy Food and Water

Like other species of snakes, Boas are carnivores. In the wild, they rarely eat consistently and so have evolved to have very slow metabolisms. To thrive in captivity, a Boa must have reliable access to prey and supervised nutrition to ensure that they are not over or under-fed.

Common prey for Boas includes rats, mice, guinea pigs, ducks, chickens, rabbits, and hamsters. The size of the snake should be considered when providing prey. Boas should be fed whole prey, the size of which should be no longer than the largest part of the snake's body. There should never be a bulge after eating. Regurgitation may occur after consuming prey that is too large. This is especially common among young Boas.

New-born Boas can be given small rats or furless juvenile mice called "pinkie mice". The ideal frequency of feeding baby Boas is once every 5 to 7 days because they have a faster metabolism than adult Boas. Juvenile Boas should be fed every 10-14 days and may be fed rats, mice, and other smaller prey. Larger prey such as full-grown rabbits or chickens can be given to adults. Feed only one prey at each feeding. The feeding schedule of fully grown adult Boas is once every 3 to 4 weeks. Avoid overfeeding because it can make your Boa obese which can increase its risks for certain health issues or even premature death.



Avoid handling the Boa for at least 24-48 hours after a meal to minimise the risk of regurgitation. This will give the snake enough time to digest its meal.

When you have just brought home a new Boa, give it time to acclimate to its new surroundings (at least 5-7 days) before feeding. Being in a new environment can be stressful to the Boa and feeding it during the transition period can increase the risk of regurgitation.

Prey that has been killed and frozen should first be thawed to room temperature before feeding to a Boa. Frozen prey should never be fed. In addition, heating frozen prey using a microwave should never be done.

Avoid feeding the Boa by hand because of the risk of accidental bites. The snake may mistake your fingers for food. To avoid injury, use a pair of tongs when offering prey to the snake. Make sure to wash your hands thoroughly with soap and water to remove the scent of the prey item.

It is recommended to feed the Boa in a separate box and not in its main cage. When you feed the snake in its main cage, it will learn to associate the opening of the lid or door of the main cage with food. This may cause the Boa to strike at your hand when you reach in to clean or take the snake out for whatever purpose. The box should be placed in a dim and quiet area so there won't be any distractions while the Boa eats. A Boa likes to hide with its meal and needs to stay in the box for several hours before they are comfortable enough to start feeding.

Eating smaller portions of prey more frequently is healthier for Boas than being fed larger portions less frequently. All prey items should be pre-killed for the snake's safety. A Boa could end up with bites and wounds when given live prey.

A water bowl should always be placed inside the Boa's enclosure. It should be filled with fresh, clean water every day. Aside from the Boa's water intake, water also helps maintain proper humidity inside the enclosure. If your Boa defecates or urinates in the water bowl, you should empty the bowl and clean it immediately with soap and hot water.

A hungry Boa Constrictor will exhibit certain behaviours that include the following:

- **Prowling behaviour.** The Boa often moves toward the front of its cage when it is hungry. However, the behaviour can also be seen in Boas that are exposed to stressors and are looking for a way out of their enclosure. If your Boa has been fed recently, frequent prowling to the front of the cage may mean that the snake is trying to escape certain stressful conditions inside the cage.

- **Tongue-flicking.** Like other snakes, Boas flick their forked tongues in and out of their mouths to funnel air particles to their vomeronasal organs so they can smell their surroundings. When your Boa appears to flick its tongue more frequently than usual, it could be searching for prey.
- **Frequently moving between hides.** Boas love to hide in places where they can digest food or sleep without being disturbed. But if you notice your Boa frequently moving between hides in the enclosure, it could be looking for food.
- **Shows more interest in you than usual.** Since you are the one feeding the snake, it is conditioned to associate your presence with feeding.

Handling

After bringing home a new Boa, wait at least a week before you start to handle it. Better yet, wait until it is eating regularly before you try to handle the snake.

Before getting your Boa out of its enclosure, wash your hands thoroughly with soap and water. This will get rid of any odour and remove harmful bacteria, viruses, or parasites that may be on your hands. It is highly recommended to change your clothes if you have a particularly strong smell or have just spent time with another animal. Some experts also recommend rubbing the same type of hand sanitizer on your hands to make sure that the snake will associate you with a distinct scent that is different from food.

Next, let your Boa know that it is time for handling by gently tapping its head with a paper towel roll or snake hook. It is safe to pick the snake up when it is calmly flicking its tongue. When picking up the snake, use a snake hook to grab and lift it initially. Then take out the rest of the Boa's body using your hands. It will be easier to do this with baby Boas, but for a full-grown adult, it would be great to have another person to help you. When lifting the snake, one hand should be placed behind its head, and another supports the rest of the body. A



Proper handling of a Red-tailed Boa..
Photo credit: Mark Gibson.

snake should never be picked by its tail because this can lead to severe spine damage.

During handling, your Boa will use its powerful muscles to wrap around your arms or other body parts for stability, just like they do on trees. When you feel your snake doing

this, remain calm and relaxed, and do not try to restrain or grab it. Instead, use a loose grip so it can move freely, and support the snake's body. Use your free hand to gently guide the snake's head if it is heading in the wrong direction.

Handling a Boa should be avoided during the following situations: if it is feeding day, if it has been fed within two days prior, or if the snake's eyes appear blue or opaque because it is soon to shed. If your Boa is more than six feet long, handling should be done in the presence of another adult person so you will have assistance in case the snake suddenly wraps and/or bites you. If your new Boa is already a young adult or adult, special caution must be observed when handling it until you know the snake's personality.

Boas, like other snakes, tend to be "head shy". If you touch the snake's head, it may quickly jerk back or strike. To prevent unfortunate situations, once your Boa is already comfortable with being handled, gradually get it used to being touched on the head by gently touching or lightly rubbing its head.

Regular Cleaning and Bathing

Spot cleaning of the bedding should be done whenever your Boa defecates. Most Boa enclosures will only need a thorough cleaning at least once a month. This will include throwing out the old bedding and disinfecting the enclosure before putting in a new layer of bedding.

A vinegar and water solution can be used for cage cleaning. A hand-held steam cleaner can also be used for this purpose. You must remove your Boa from the cage before using this device. Soak the snake in water (1-2in deep) while you are cage cleaning to clean the animal itself. Care must be taken when using a steam cleaner as you may burn yourself or melt any part of the enclosure that is made of plastic. Other chemical options for cleaning the Boa's enclosure include a 5% bleach solution, iodine-based solutions, and alcohol-based solutions. After cleaning your Boa's cage, make sure that the enclosure and all the furnishings inside are free of residues or odours before returning your Boa to its cage.

Boas like to spend a considerable amount of time bathing, completely immersing themselves in water. Thus, make sure that the water container inside the enclosure is large enough for your snake to fit in comfortably and sturdy enough to support the snake getting in and out of the water. This is essential for shedding to occur normally and for proper digestion, particularly to ease constipation.

If the water dish is not big enough for your Boa to fit in, you might consider taking the snake out of its enclosure and using a bathtub or shallow plastic basin instead. Fill the container with warm water, about 27-29°C, and gently place the snake in the water. Avoid using chlorinated water as it may irritate your Boa's skin. Soaking should not be more than 30 minutes.

Keep a close eye on your Boa while it is soaking. Once the time is up, gently lift the snake from the water and use a soft, clean towel to wipe off any moisture from its body before returning it to the enclosure.

Mental Health Support

Boa constrictors benefit from physical and mental stimulation for better overall fitness and longevity. Enrichment for your Boa need not be elaborate, expensive, or complicated.

Ideally, a Boa should be housed in a large enclosure that allows it enough space to stretch out fully and move about to exercise. Also, the larger the enclosure, the more hiding places and decor there should be. These will create opportunities and encourage your Boa to engage in natural behaviours. A Boa with a large enclosure will have enough room to dig around in the substrate and explore cage items or furniture, such as a rock, log, or plastic plant. Transferring between the basking spot and the cooler area of the enclosure will also exercise the Boa's muscles. If the enclosure is not so spacious, you can also take the snake out of its enclosure for regular exercise.

Ideal ways to create a more stimulating environment include:

- **Adding Hide Boxes.** Have at least two hide boxes that are smaller than your Boa. This will force the snake to coil itself into a ball to fill up what space is available. Make sure that the hide boxes are regularly cleaned thoroughly to protect your pet from bacteria, fungi, or mites that can cause skin problems. As your Boa grows in size, change the hide boxes to bigger ones. A box that was your Boa's favourite place to hide in when younger can be a death trap once it gets bigger.
- **Varying Cage Décor.** The furnishings inside a Boa's enclosure will play a very important role in the snake's physical and mental enrichment. Exploring these furnishings will stimulate the Boa's senses and encourage it to move. Adding objects of various shapes, textures, heights, and sizes can have your Boa using its senses to explore and investigate these items.

- **Varying Substrate.** When putting a layer of substrate on the floor of the enclosure, create various depths, levels, and types of substrates. Putting in more than one substrate will allow the Boa to slither around on different surface textures to provide tactile stimulation.
- **Adding Fake and Real Plants.** Fake plants can be washed easily and will not be squashed when your Boa sits on them. You can place these plants on the ceiling, back wall, or draped around sticks that are placed across the enclosure, or they could be placed on the floor to mimic small bushes. There are also live plants that you can place in the enclosure of a juvenile Boa. These plants can also provide the snake with stimulating new smells and textures.
- **Adding Driftwood or Logs.** Juvenile Boas love to climb but as they grow older, they tend to spend more time on the ground. Placing real driftwood or a log inside the enclosure will encourage a young Boa to climb and exercise its muscles. Make sure to sterilise any wood from the wild. You can soak it in boiling water or bake it in the oven at about 100°C for 30 minutes and let it cool before putting it inside the Boa's cage. Any wood you add should be free of sharp edges, splinters, or tiny notches where the Boa's scales could get caught.

Avoid exercising your Boa a day or two after it has eaten, and while the snake is shedding or is about to shed.

Safety in the Household

Boas can pose a threat to safety for humans and other pets in the household. Their bites can cause serious injury from the small, hooked teeth that line their powerful jaws. A Boa may let go immediately after biting but some may clamp down their jaws and coil tightly around the arms or legs of a person or animal. A bite could result in tearing and/or damage of the skin and underlying tissues. Boa constrictors are also capable of causing fatalities in humans.

Boas can carry a wide variety of pathogens—bacteria, fungi, viruses, and parasites—that can be transmitted to humans. Touching and handling an infected Boa does not usually lead to transmission. Instead, transmission usually occurs when food or water for humans is contaminated with the bacteria harboured by the snake. One of the most common pathogens associated with snakes and other reptiles is salmonella, a type of bacteria that reptiles carry in their intestinal tract and are passed out in their faeces.

When handling your Boa, extra precautions should be taken in the presence of other pets and even kids. While there is only a slim chance that the Boa might strike at another pet or a child, why take that chance?

Humans can also pose a risk to Boas. Like other reptiles that are kept as pets, many Boa owners are not fully aware of the snake's special dietary and housing needs. Not knowing these basic requirements can increase a Boa's susceptibility to various health issues. Mistreatment and poor handling can trigger a Boa's protective instincts causing displays of aggressive behaviour. Captive-bred Boa Constrictors when released to the wild also often lack the skill and instincts that can help them survive in the wild.



Veterinary Care

A vital component of a Boa's short-term captive care is veterinary support. Your vet has expert knowledge of the species and can not only offer health services but support and guidance on your care plan. Furthermore, a sick Boa requires appropriate veterinary attention so that accurate diagnosis and treatment can be made to address the problem. Having an established relationship with a veterinarian can help them understand what is going wrong.



Your first vet visit will involve a physical exam and health screening to establish a general condition and identify any pre-existing diseases. This baseline is important for you as a keeper so you can monitor any potential changes in health and behaviour. Your vet can also send away laboratory testing such as blood tests and faecal screenings for further investigation.

You should schedule regular check-ups with your vet every 12 months, as there are many medical issues a general keeper will not be able to identify. You should never try to medically diagnose your Boa, as misdiagnosis will delay potentially vital treatment.

Common Medical Conditions in Boas	
Burns	Contact with an unguarded heating device, heat rocks, or using a heat mat with a malfunctioning thermostat or without a thermostat can cause burns, blisters, and open wounds in Boas. If left untreated, burns can quickly lead to secondary bacterial infections.
Dehydration	A Boa that is dehydrated will have wrinkly or saggy skin and its eye caps may appear dented or cracked. If you gently pinch the snake's skin it will stay in place rather than snap back to its normal position. Your Boa will also have trouble shedding.
Inclusion Body Disease (IBD)	Boa constrictors are recognized as the main carriers of IBD. This fatal disease is a common infectious illness of captive snakes. It is a highly transmissible, progressive, and ultimately fatal disease of snakes. The cause of IBD has not been fully established with no treatment or vaccine available. In the early stages, the symptoms may appear like the Boa is suffering from a respiratory infection. But when the IBD is already in its advanced stages, the snake will be unable to control its movements and right itself. The snake will also appear to be looking upside down, a behaviour known as "stargazing syndrome".
Mouth Rot (Infectious Stomatitis)	Mouth rot is a very infectious bacterial disease. It can lead to gum damage, particularly misalignment of the upper and lower jaw. Early detection and diagnosis are very important before the infection can spread to deeper tissues of the mouth and cause serious complications. Symptoms include pinpoint haemorrhages on the snake's gums or thick mucus that may contain blood or pus in the mouth. In advanced cases, the Boa's mouth is severely swollen and there is open mouth breathing and appetite loss.
Regurgitation Syndrome	This disease occurs mainly in new-born and very young Boas and is one of the most common causes of death. It is characterised by regurgitation of undigested food and partially digested prey which can lead to significant loss of fluids and electrolytes. The problem tends to occur between the third and fifth day after a feeding. An inappropriate feeding schedule or

	<p>overly frequent feedings is the most common reason for the problem. Other possible causes include: consuming oversized prey, poor housing conditions, dehydration, stress, internal parasites, bacterial infections, and contaminated prey.</p>
<p>Scale Rot (Necrotizing Dermatitis) and Blister Disease</p>	<p>These two skin problems often occur together and are generally a result of poor husbandry practices. Poor cage conditions such as excess heat or inappropriate humidity, a substrate that's too wet, and unhygienic conditions are important predisposing factors of blister disease and scale rot, a bacterial infection that can develop when the immune system becomes compromised. The belly of a Boa with scale rot has a brownish, yellowish, reddish, or greenish-black discoloration. The scales appear raised and there are blisters and swelling. In advanced cases, the snake's scales are damaged.</p>
<p>Snake Mite (<i>Ophionyssus natricis</i>)</p>	<p>Mites are common ectoparasites of captive Boas. An infestation can lead to skin irritation as they feed on the blood of their host. Heavy infestations can lead to severe anaemia, dehydration, and death. Mites can transmit several types of bacteria, protozoa, and other pathogens, and they may also cause shedding problems. Mites appear like tiny black dots that are often clustered around a Boa's eyes and can be easily seen on the bottom jaw where the snake's skin is lighter. Poor hygiene and contamination from an infected reptile are common predisposing factors of mite infestation (Denardo & Wozniak, 1997).</p>

Be a Boa Rescuer

A third and most important final step in helping a captive at-risk Boa is to start supporting this animal's long-term well-being and that of other snakes. Our advice at the Nurture Nature Campaign is that you consider becoming a "Boa Rescuer" by taking three specific actions.

Action #1: Don't Release This Animal

Do not release this animal into the wild if you think you can no longer care for it. Though Boas retain strong instincts, in many cases they are not yet healthy or fit enough to release into the wild.

Action #2: Relinquish, or Get a Permit and Give Long-term Care

If you are truly committed to giving this animal the best long-term quality of life, you have only two meaningful options.

Option 1 is to relinquish your Boa to a rehabilitation centre, of which there are several in Trinidad and Tobago. In fact, two of our NGO coalition members are wildlife rehabilitation centres: the El Socorro Centre for Wildlife Conservation in Trinidad, and Corbin Local Wildlife Park in Tobago.

Location	Rehabilitation Centre	Phone	Website
Trinidad	El Socorro Centre for Wildlife Conservation	1 868-366-4369	www.wildliferescuett.org
Tobago	Corbin Local Wildlife Park	1 868-327-4182	www.tobagowildlife.org

Option 2 is to commit to legal and high-quality care for the at-risk Boa now in your care. It is possible to apply and receive a government permit to have a Boa, but only if the snake is well cared for. You can contact your local government agency for information on how to apply.

Meanwhile, appropriate long-term care would require that you establish a care plan with a veterinarian and that you obtain an appropriate enclosure and reliable food source.

Location	Office	Phone	Website
Trinidad	The Wildlife Section of the Forestry Division at the Ministry of Agriculture, Land, and Fisheries	1 868-225-3837	https://agriculture.gov.tt/divisions-units/divisions/forestry-division/permits-keep-protected-animals/
Tobago	The Division of Food Security, Natural Resources, the Environment, and Sustainable Development	1 868-639-1966 1 868-639-2234	https://www.tha.gov.tt/divisions/food-security-natural-resources-the-environment-and-sustainable-development

Action #3: Stop Buying Wild Animals

The best way to do justice to your Boa is to make sure that other snakes like it are never again harmed by the wildlife trade. These snakes simply should not be sold or kept as pets and were born to be free.

If you really wish to have a pet animal, consider that there are many incredible dogs and cats just waiting to be adopted at the local shelter. You can contact your nearest shelter by consulting the table on the following page.

Location	Organisation/Shelter	Contact
Trinidad	Animal Welfare Network (AWN)	Phone: 1 868-269-4296 Facebook Direct Message: @AnimalWelfareNetwork
	Animals 360 Foundation	Phone: 1 868-364-7729 Facebook Direct Message: @animals360foundation
	Animals Alive	Phone: 1 868-709-1151 Facebook Direct Message: @AnimalsAliveTT
	Trinidad and Tobago Society for the Prevention	Phone: 1 868-622-1367 1 868-628-1615

	of Cruelty to Animals (TTSPCA)	
Tobago	Trinidad and Tobago Society for the Prevention of Cruelty to Animals (TTSPCA)	Phone: 1 868-639-2567
	Venus Doggess of Love	Email: venusdoggessofoflove@gmail.com Facebook Direct Message: @VenusDoggessOfLove

Conclusion

In closing, there are many ways that you can help at-risk Boas in Trinidad and Tobago.

You can get to know your snake better and appreciate how it is an important part of our natural world or how so many have been harmfully taken from the wild. Few people realise that many Boas live tragically short lives in captivity because of poor care.

You can learn about appropriate short-term care practices to ensure that your own snake is free from any immediate danger. As you may have learned, caring for Boas is complicated and involves many considerations, from providing housing and nutrition to proper handling, cleaning, and mental health support to special safety precautions and veterinary care.

You can also become a Boa rescuer by taking the best steps for your animal's long-term welfare. This includes seeing that the snake receives proper care by establishing a long-term care plan with a veterinarian and by obtaining a government possession permit. You can also make sure you will never again support the harmful trade in Boas by following one simple rule: Don't Buy Wild!

Finally, if you have any remaining questions, we welcome you to contact the Nurture Nature Campaign on Facebook or Instagram, by email (nurturenaturett@gmail.com), or through our website (www.nurturenaturett.org).

Special Thanks

This guide has been developed with the support of many organisations and individuals.

Dr. Mark Gibson, Lauren Ali, Niamh Vaughan, Kristen Clarke, and Adara Jaggernauth with the Nurture Nature Campaign played key roles in shaping the vision and core design of the guides.

Technical support was provided by consulting veterinarian, Dr. Merliza Cabriles, as well as Adam Fifi, Aleeyah Amanda Ali with the Foundation for Heritage Preservation & Legacy Creation, and Ricardo Meade with the El Socorro Centre for Wildlife Conservation.

Review and additional input were provided by the Trinidad and Tobago Veterinary Association (TTVA), the Veterinary Students' Association of Trinidad and Tobago (VSATT), and the School of Veterinary Medicine's Exotics Club. A special thanks goes to Abigail Adiah, Samantha Gopaul, Makella Joseph, Trisha Lalbeharry, Dr. Stacey Ann Ragoobar, and Gabrielle Soogrim.

References

- DeNardo, D., & Wozniak, E. J. (1997). Understanding the snake mite and current therapies for its control. *Fourth Annual Conference of the Association of Reptilian and Amphibian Veterinarians*, 137-47.
- Rataj, A. V., Lindtner-Knific, R., Vlahović, K., Mavri, U., & Dovč, A. (2011). Parasites in pet reptiles. *Acta Veterinaria Scandinavica* 53(1). <https://doi.org/10.1186/1751-0147-53-33>