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SNAKES

Eastern Pinesnake

Pituophis melanoleucus

Pituophis melanoleucus is a stout, diurnal, burrowing snake from the south-eastern USA, where it lives in sandy pine woods and open scrub. It grows to 120-210 cm, is pale with dark blotches and has a pointed snout built for digging. When threatened it hisses loudly and vibrates its tail like a rattlesnake. It is hardy and feeds willingly, but it is large and strong and a skilled escape artist.

Family: Colubridae Former name: *Coluber melanoleucus; Pityophis melanoleucus*

KEY FACTS

THE ANIMAL

Adult size	**120-210 cm** total length incl. tail
Lifespan	**10-20 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Savanna and temperate woodland and meadow**
Difficulty	**Intermediate**

CARE

Min. enclosure	**120 × 60 × 45 cm** L × W × H for 1 adult
Temperature, day	**24-29 °C**
Basking spot	**30-34 °C**
Temperature, night	**18-24 °C**
Humidity	**30-50%**
Water	**Water dish**
UVB	**Not required**
Diet	**Vertebrates**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**36-48 months**
Clutch size	**3-24 eggs**
Clutches per year	**1**
Incubation	**64-79 days** at 26-28 °C

PROTECTION AND PAPERWORK

CITES	**Not listed**
EU annex	**Not listed**
IUCN	**Least Concern (LC)**

About the species

Pituophis melanoleucus is a large, heavy and muscular, non-venomous snake. The head is small in relation to the body and has a pointed snout with an enlarged rostral scale, which the snake uses to dig in loose soil. The back has keeled scales in 27-37 rows, and the animal has four small scales at the front of the head, where most other North American snakes have only two. The ground colour is pale, from white and cream to greyish brown, overlaid with black, brown or reddish brown blotches. In the form from the northern part of the range the forebody is clearly black and white, and the rear body is brown-blotched. In the form from Florida and Georgia the colour is grey to rusty brown with indistinct blotches, and in the form from the south-western Gulf Coast the animal is almost entirely black with a reddish snout. Young are duller and acquire their full colours after the first shed.

Adults are 120-210 cm long including the tail, and a few animals reach over 230 cm. The sexes look alike. Newly hatched young measure 33-45 cm. The species is one of the largest snakes in eastern North America.

The species name is composed of words for black and white and points to the contrasting pattern. Three subspecies are used in the literature: *P. m. melanoleucus*, *P. m. mugitus* and *P. m. lodingi*. Recent genetic studies show that the subspecies do not correspond to separate lineages, but grade into each other, so the division is under revision. Formerly the western forms also belonged to the species, but they are now placed under *Pituophis catenifer*, and *Pituophis ruthveni* is regarded as a separate species. Animals in the trade may therefore have been sold under many names; the care is the same for all of them.

The animals are strong and demand respect. Captive-bred animals usually become calm with regular handling, but they hiss loudly and can strike out, especially as young.

Read more: Buying animals: captive-bred, wild-caught and transport

Distribution and habitat

Pituophis melanoleucus lives in the south-eastern part of the USA. The range runs from southern New Jersey and western Virginia across North and South Carolina, Georgia and Florida to Alabama, Mississippi and eastern Louisiana, and north to Tennessee and southern Kentucky. The population is split into several separate sub-areas, some of which lie far from the main range, for example in southern New Jersey and in the mountains of Virginia and West Virginia. In Georgia and Alabama the forms grade into each other.

> **Native range:** United States.

HABITAT

Pituophis melanoleucus lives on dry, well-drained and sandy soils with little ground vegetation: pine woods, sandy mixed forests of pine and oak, open scrub, old fields and dry, rocky ridges. Many of the habitats burn regularly, and this keeps them open. The species is found from sea level up into the lower parts of the mountains.

The snake is diurnal and active from March or April to October or November. It spends much time underground, in self-dug tunnels or in tunnels made by rodents, where it finds prey and hides from cold and strong summer heat. It eats rodents, ground squirrels, moles, birds and bird eggs and kills prey by squeezing it against the tunnel wall. The winter is spent in dens, in some areas communally, in others alone. In Florida the winter is so mild that the animals do not hibernate properly. Eggs are laid in self-dug chambers in loose sand or under stones and logs.

Care

THE ENCLOSURE

Relatively little care knowledge exists on *Pituophis melanoleucus* itself, because animals in the trade are often sold under other names. It is kept like its closest relatives, *Pituophis catenifer* and *Pituophis ruthveni*, and the figures not known for the species itself are borrowed from the genus.

An adult snake needs a terrarium of at least 120 × 60 × 45 cm (length × width × height). Floor area is more important than height, because the species digs and investigates, but rarely climbs. The largest animals need more space. Young can start in a small box of about 30 × 20 cm and be moved up as they grow. The species is kept singly. Snakes of this genus rarely eat their own kind, but males can fight, and problems can arise without warning.

Use a 5-10 cm deep, dry and loose substrate of, for example, aspen shavings, which the snake can dig in. Avoid cedar, whose oils can harm the snake, and corn cob, sand and bark mulch, which can cause impaction or retain moisture. The substrate must be dry, because persistent damp causes scale rot. A layer of newspaper under the shavings makes cleaning easy. Put at least one close-fitting hide at each end, so that the snake can stay both warm and hidden. Snug hides are used more than large ones. Provide a few branches, cork tubes or stones for the snake to push against. Feed on a flat stone, a tile or in the hide, not on loose substrate.

The terrarium must be lockable. The species is very strong, pushes at lids and finds every gap, so all openings must have a lock or screw lid.

TEMPERATURE

By day the terrarium should be 24-29 °C with a warm zone of 30-34 °C under the heat source and a cool end down towards 24 °C, so that the snake can choose for itself, especially after a meal. At night the temperature falls 3-8 degrees, to 18-24 °C. Constantly high temperature for weeks burdens the snake and reduces male fertility, so a daily fluctuation and a seasonal

rhythm are healthy.

Use a heat mat under a third of the floor, a heat bulb or a ceramic heater, all controlled by a thermostat. The heat mat should not be hotter than about 32-34 °C on the surface. Never use hot rocks, which can cause burns. Bulbs and heat sources must be positioned so that the snake cannot touch them.

A temperature that is too low can cause poor digestion, regurgitation and loss of appetite. A sudden drop in temperature can cause regurgitation. A snake that constantly lies by the heat is too cold. A snake that lies in the water bowl or constantly tries to escape is too hot. Measure with a digital thermometer or an infrared thermometer.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 30-50 %. *Pituophis melanoleucus* comes from dry, sandy habitats, and the substrate must be kept dry. Provide a heavy water bowl with fresh water that cannot tip over, and change the water regularly. The water bowl must be large enough to drink from, but not so large that it fills with droppings.

During a shed, which shows as dull scales and bluish eyes, the snake and the nearest substrate can be misted lightly every other day until the skin is off. A humid hide with slightly moist sphagnum can help, but remove it afterwards, so that the substrate stays dry. After the shed, check that the eye caps and tail tip have come off. The snake is prone to retaining them, and remnants are removed carefully with a damp cloth or in a short, lukewarm bath.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

Pituophis melanoleucus is diurnal, but rarely basks and does not need UVB light to stay healthy. An ordinary day-night rhythm of about 12 hours of light and 12 hours of darkness controlled by a timer is enough. If the terrarium is placed by a window, the short days in autumn can make the snake stop eating, because it perceives this as the coming of winter. This can be used deliberately before breeding, but if the animals are to be active all year, the light must be on at least 12 hours a day. Place all bulbs out of the snake's reach.

Read more: Lighting and UVB

FEEDING

Pituophis melanoleucus lives on rodents, and in captivity it is given frozen and thawed mice and rats. Chicks and quail can give variety. Do not give live rodents, which can bite the snake. The prey must be no wider than the snake's widest point. Give two small prey items rather than one large one, because a meal that is too large causes regurgitation. Thaw the prey slowly, and offer it with long tongs, so that the snake does not mistake hand for food.

Young are fed every 5-7 days with 1-2 suitably sized prey items. Adults get a small adult rat every 5-7 days and at most two a week. Switch to rats as soon as the prey is large enough, so that the snake does not need 5-10 mice a week as an adult. Females that have laid eggs or are about to hibernate may need slightly more.

The animals easily become too fat. Overweight causes egg binding and shortens life. The snake should be round and firm with no visible spine, and growth must not be forced with large meals. It is normal for the snake to take a break from food for 3-5 weeks for no visible reason; if it is otherwise healthy, the pause can be waited out. Vitamin supplements are unnecessary if the prey animals are healthy and well fed, and if they are used, it should be lightly and at most at every third or fourth feeding.

Read more: Calcium, vitamins and supplements Read more: Common diseases and signs of illness

BEHAVIOUR AND HANDLING

Pituophis melanoleucus has a dramatic defence. When threatened it hisses very loudly, amplified by a cartilage flap in front of the windpipe, vibrates its tail, flattens the head and strikes in a sweeping movement. It looks like a rattlesnake, but the animal is not venomous. Wild-caught animals are often aggressive, while captive-bred animals usually calm down with regular, brief handling. Young are the most nervous and may nip.

Take hold from below, and support the whole body, so that the snake does not dangle. Do not handle an animal during a shed, right after a meal or when it is ill, and let new animals settle before they are handled. The animal is strong and moves quickly, so always keep an eye on locks and lids.

Breeding

SEXUAL MATURITY AND SEXING

The sexes look alike externally, and sexing requires a probe or experience and is left to an experienced keeper or a vet. The snakes become sexually mature after 3-4 years. The animals must be strong and healthy before they are put to breeding, and growth must not be forced in order to reach breeding size more quickly.

MATING

The species mates in the wild in spring, typically April-May, and the males fight over the females. In captivity breeding normally follows a cool period in winter. Feeding is stopped until the gut is empty, and light and heat are lowered gradually; only fresh water is given. Temperature and duration are not documented for the species itself, but as for *Pituophis catenifer*, about 13 °C for a few months suits. In spring heat and light are raised over a few days, and the animals are fed generously.

After the female's first shed after the rest, the male is introduced to the female, preferably in her terrarium. Courtship can be violent, so space is an advantage. The male holds the female by the neck, and mating can last from half an hour to over an hour. Once mating is secured, the animals are moved back to their own enclosures.

EGG-LAYING AND CLUTCHES

In the wild the eggs are laid in June-August. The clutch is normally 3-24 eggs, on average about 8. The eggs are white, leathery and large, up to about 66 mm long, and they stick together. The female normally lays one clutch a year. Give the female a laying box with moist sphagnum or vermiculite, and feed her generously afterwards.

INCUBATION

The eggs are moved to a box with moist vermiculite, where water and vermiculite are in equal parts by weight, and incubated as a clump. If they must be separated, they are carefully cut apart. The temperature must be 26-28 °C. The eggs hatch after 64-79 days. If the eggs are collapsed, it is too dry, but too much moisture cannot be corrected. Let the young come out by themselves, and do not slit the eggs too early.

REARING THE YOUNG

The young are 33-45 cm long at hatching and often hiss and strike from the first day. They shed within a week, and after that they can have their first meal. Rats as a first meal cause fewer problems with fussy young later than mice; most take thawed prey without further ado. Keep them singly in small, ventilated boxes with a hide, dry substrate and water. Feed every 5-7 days with whole, suitably sized prey. The young grow quickly in the first three years.

Health and common mistakes

Pituophis melanoleucus is hardy, and most problems are caused by incorrect temperature, humidity or feeding. The typical mistakes are:

- Too low a temperature, which causes poor digestion, regurgitation and loss of appetite.
- A damp substrate and poor ventilation, which cause scale rot and skin infections.
- Overfeeding, which causes obesity, egg binding and a shorter life, and meals that are too large, which cause regurgitation.
- Stuck shed, especially eye caps and tail tip, which must be removed carefully after a shed.
- Mites and ticks. Mites show as small black dots on the animal and in the water bowl and can cause anaemia. Treat with products from the vet, and clean the terrarium thoroughly. Ticks are removed carefully with the head.
- Impaction from swallowed substrate, if the animal is fed on loose substrate.

Signs of illness are lethargy, regurgitation, absent or altered droppings, heavy or open-mouth breathing, wrinkled skin and mucus from the nose or mouth. New animals are quarantined for at least 60 days. Seek a vet with experience of reptiles if the snake does not eat for several weeks and also seems ill.

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.

The full guide with map and updates: herpy.org/en/snakes/pituophis-melanoleucus