



Observations on the Eastern Blackneck Garter Snake
(*Thamnophis cyrtopsis ocellatus*)

By

Jack Jeansonne



Adult male Eastern Blackneck Garter Snake - *Thamnophis cyrtopsis ocellatus*
Photo by Jack Jeansonne

The dull serpent pushes its way from a crevice between several limestone boulders. It has been waiting a few feet below the ground for months. At the onset of winter, she searched the hillside for a comfortable resting place. She spent the winter with two other snakes, several salamanders and a toad in a small cavern that never cooled enough to freeze. Two weeks ago, the surface warmed enough to cause some stirring below the ground. This snake, being an amphibian-eater, devoured the toad nestled nearby. It had been a long winter, the cold lasting nearly five months, and as the air around her warmed, she grew hungry.

Now she is emerging for the first time this year, her scales lightly dusted with fine limestone powder. As she pushes through the wet mud that has collected near the entrance of the crevice, she adds several clots and some minor leaf debris to her scales.

She tastes the air with her tongue, that sensitive organ testing for the hint of danger...or food. She proceeds haltingly forward, unsure of the temperature, unsure of her safety. When the snake is comfortable enough, she glides, seeming effortlessly, down the rocks and swims quickly across the wide creek. She knows where she wants to go, but she needs to do it with speed. Sharp-eyed predators also inhabit this shallow creek canyon. She crosses to a shaded place out of the direct sun. She climbs to a sunlight-dappled shelf to curl and warm her body.

The swim having washed away clinging debris, she is an attractive snake – almost three feet of rippling black and gold, with a handsome orange stripe slashing down the crest of her back. After her molt, she will again be shiny, each scale a glittering jewel. She will feast on frogs and toads, her coloration, attractive as it is, providing a cryptic appearance in her leaf-strewn home. She is an Eastern blackneck garter snake, one of the most alluring species of snake in North America.

Soon, she will be approached by a male, or perhaps several. She will need to eat first, and shed her skin so that the pheromones on her fresh, bright new hide attract a mate. All of this will happen in the next few weeks, but for now, she simply waits, stone-still, eyes glittering, for the solar heat to power her for the day's activities.

The *Thamnophis cyrtopsis* complex has 2 subspecies: *cyrtopsis* and *ocellatus*. In laymen's terms, the Western and Eastern blackneck garter snakes. I am fortunate enough to live in an area where the Eastern subspecies is common, and I find them gorgeous creatures. I am certainly speaking from prejudice when I say that they are the most attractive serpent species in Central Texas. For the rest of this article, I will refer to them simply as 'blacknecks.'

DESCRIPTION AND COLORATION

The largest adult blackneck I've seen was a 3-foot-plus female basking in a rock wall in the Austin botanical gardens. She was truly impressive in size, and few others I've seen have been anywhere near that large. She had 2 large lumps in her belly, meaning she had just feasted on not only one but 2 large anurans. Her meals were most likely toads, but possibly leopard frogs, as she was near a pond.

Females can get quite a bit longer and larger than males. Most males top out at less than 20 inches, but females commonly reach lengths of 30 inches. Males, however, often display more brilliant coloration, while females with size tend to dull a bit.

The body shape is consistent with most garter species. A triangular head is set off from the body by a thinner neck and throat.

The color scheme of the Eastern blackneck garter snake is fairly complex. Told simply, the snake has an orange dorsal stripe, bordered by wide black stripes, and turning yellow-white at the lower sides and belly. However, the arrangement of black blotches

along the back and sides creates a dynamic combination that gives the snake an artistic, fluid look.

The most apparent coloration on a blackneck's body is the brilliant orange stripe from the base of the skull to the tail tip. This stripe can vary slightly in thickness, but rarely is wider than 2mm, and rarely less than 1mm wide. We have seen specimens with broken stripes, but only in hatchlings we've produced. Perhaps the stripe thickens and solidifies in those specimens with age, as I have yet to see an adult with similar markings.

The crown of a blackneck's head is generally an attractive shade of blue-gray. The sides of the head are black with white lip scales. Some older snakes' crowns are a brownish gray or dark gray, and some hatchlings actually start off with the darker "look".

Directly behind the head along the dorsal surface and neck are two prominent black blotches, separated only by the orange stripe- thus the name 'blackneck garter snake'.

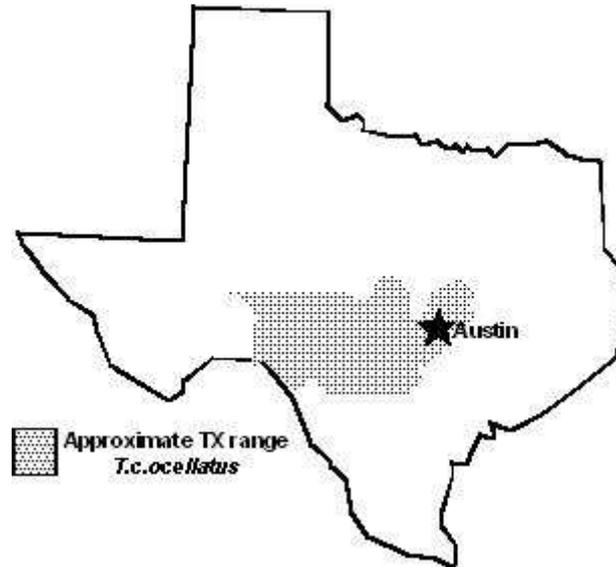
Sometimes a rosy wash appears in the yellow base color on the snakes' lower sides. This is not always the case and it is just a subtle hint of color, but very beautiful.

The belly is a uniform shade of pale yellow-green.

RANGE

T. c. ocellatus is restricted to the Edwards Plateau of Central Texas, and for good reason. Blacknecks prefer fairly dry, rocky habitat near a steady water supply. Washes, canyons, and creek edges, particularly those sprinkled with limestone boulders and rock piles, are ideal places to locate these snakes. The limestone foundation of the Edwards Plateau is full of subterranean cracks and caves, which most of the endemic fauna uses frequently. Consequently, hillsides with exposed rock surfaces and fissures seem to provide more a home for these snakes than a flat site, although they must and do roam creek bottoms in the dry summer months.

These snakes are not picky about their water source. Any water from a backyard sprinklers to lakes will suffice as a water supply, and as long as they can drink a bit every few days, they are fine. I have never found a blackneck actually in the water, and though they sometimes must enter ponds and creeks to hunt at times, I feel that they would prefer to stay dry. In fact, they are notoriously absent in the lightest of rains. I have found them at such times wedged under rock ledges several feet from exposure and in the "dry spot" under stones in a dry creek bed.



Range Map for the Eastern Blackneck Garter Snake
Thamnophis cyrtopsis ocellatus in Texas



Prime examples of *Thamnophis cyrtopsis ocellatus* habitat on the limestone-strewn edges of a creek

Photos by Jack Jeansonne

MOVEMENTS AND HABITS

I have spent many hours actively searching for these snakes for several years and recording my findings. Under normal circumstances, they begin to appear in late February through late March, weather permitting. In temperatures above 60F, blacknecks are alert. Whether or not they appear aboveground depends on several factors. In most cases, my captive snakes that roam in temps below 70F will not eat. In fact, at low temperatures, they seem extraordinarily shy of food items, staying as far away as possible in the enclosure. However, they will move around restlessly. Since temperatures in subterranean crevices remain fairly steady, I suspect that these animals will rove around quite a bit, perhaps in search of more comfortable surroundings, pockets of warmer air, or to investigate scents and vibrations. It is also likely that the movement of invertebrates and other moving creatures frequently disturbs them.

During the warmer months, the blackneck is a fairly common sight during the day, since they are predominantly diurnal, but there are times when they are notoriously absent. In the best conditions, sometimes I will not see one for weeks. The prevailing theory is one that Eastern blacknecks are uncommon. My idea is that they are locally common, but frequently hidden. Their bright colors are surprisingly cryptic, and I have passed within several feet of them, and noticed them only when they moved.

Generally, *cyrtopsis* are seen moving around in drying streambeds, in limestone crevices, or through leaf litter. However, they have been known to take to low limbs in order to bask and presumably to escape notice of possible predators. One scourge of their range is the invasive fire ant. Warming on a branch could give them a respite from these voracious insects and other animals. Coral snakes have been known to feed on blacknecks occasionally, which is another good reason for staying slightly above ground.

As an interesting side note, a hatchling escaped its enclosure and was found climbing a nearly vertical power cord, proving their climbing ability to me once and for all.

At least one large female I know of has been found over a half-mile from the nearest limestone outcropping. It is possible that blacknecks will stray from "their habitat" at times if there is available foodstuff. Toads, certainly, range away from stony crags and cracks; so opportunistic garters may follow, slowly moving farther away from their familiar haunts.

Other predators of these snakes include raccoons, opossums, foxes, crows, and birds of prey. However, the blackneck is a shy and cryptic creature, which stays near a retreat, so predation on adults is likely to be rare. Juveniles fall prey to many other creatures, including large frogs.



Garter Snakes sometimes enter neighborhoods in search of water and prey
Photo by Jack Jeansonne

ACCLIMATION AND HANDLING

As with many garter snakes, wild-caught Eastern blackneck garter snakes are flighty, nervous animals. When initially captured, they will often musk and even defecate while flailing wildly. Sometimes the larger ones will try several attempts at lunging or biting, as well, but with several seconds of calm steady handling, they settle down and simply try to escape.

After the first discharge of musk (which is very unpleasant), they are out, having seemingly exhausted their supply. It will rebuild in several hours, however, so a daily “muskings” is familiar to those who keep and handle their captives.

Another tactic I’ve seen larger blacknecks use is the strategy to appear larger. When cornered, whether in a cage or in the wild, a large blackneck may flatten its body and spread the bones in its skull, sometimes while raising the front part of the body off of the ground. This response to predation is somewhat effective. I have seen it scare away a domestic cat.

As in many snakes, these garters are particularly grumpy when in ecdysis. When their eye caps are fully ‘blue’, they will strike out at any object that nears them.

Captive-born blacknecks, though, are very tame, if squirmy, when handled. I have not yet been musked by a captive-born baby, except when I was sexing them. Hatchlings tend to calm quickly, and, of course, are no threat of injury if they should strike. In addition, short, quick movements attract the little ones. It no doubt triggers a feeding response, but they are fun to watch when they get interested in a moving object. They raise their heads up to investigate the movement. This behavior leads us nicely into our next subject.

FEEDING PREFERENCES AND RESPONSES

Blacknecks typically feed near a water source. This is because their preferred food is amphibians. Cliff chirping frogs, and gulf coast toads are their prey of choice. I'd guess that the frogs are the main food they eat, since after the toads get any appreciable size, they have large toxin reservoirs in their neck glands. However, in the summer, there are millions of young toads in the leaf litter that probably provide plenty of nutritious food for blacknecks, and water snakes. Blacknecks will also readily eat cricket frogs and leopard frogs if given the chance, but as those species tend to inhabit the water's edges, blacknecks don't get them as often.

Slimy salamanders play some part in their diets as well. Especially in early spring, when blacknecks are first emerging, salamanders, which are still above ground, might make a welcome snack. A slimy salamanders' skin produces a copious, sticky slime, which hardens like glue. Blacknecks don't particularly seem affected by this slime, though, as they have been documented feeding on slimy salamanders with apparent relish.

Last on the list of choice food items is fish. In a case where amphibians are not as abundant as normal, blacknecks will hunt fish. However, this is probably so rare that many blacknecks could go a lifetime without catching a fish at all.

Fortunately for keepers, the blackneck can be weaned onto mice thru scenting. Scenting is accomplished by rubbing frog or toad skin on a small mouse's nose so that the mouse will smell like the amphibian. Frog and toad guts work even better, for the non-squeamish. What I have done is find a road-killed toad or a live one, then freeze it in a little bit of water. When you thaw it out again, the toad scent is in the water. If you sit a mouse carcass in that water or rub the dead amphibian on the mouse all over, the chances are good that the garter will be fooled into taking it. After several tries with scenting, you can back off on the amount of scent used until they eat unscented mice readily. The entire process should not take more than 4 or 5 feedings.



Adult female *Thamnophis cyrtopsis ocellatus* eating an adult frozen/thawed mouse
Photo by [Jack Jeansonne](#)

Garter snakes hunt by sight and smell, in tandem. About half the time, they are following quick movements that they have seen. The types of movements I'm talking about are ones made by amphibians. A short hop or two, and then statue-still. Nothing grabs a garter snake's attention quicker. The short darting movements by fish will work nearly as well. After a garter sees the movement, its tongue begins flicking out and the hunt is on.

Garter snake teeth are like curved needles, but very tiny. The teeth are so small, that prey items can pull free unless the teeth are 'set' like hooks on a fisherman's line. To prevent this from happening, the garter attacks in a certain way almost every time.

When the prey is located, the garter will lunge at it as hard as it can. This may seem like overkill, but remember the prey is typically quick and slippery. A garter must make his strike faster than a frog can jump. Once the garter bites the prey, the snake thrashes its head from side to side, thereby ensuring a firm grip with all of his little teeth. This may serve to stun the 'fight' out of its prey as well. The garter will then drag its prey back to a more comfortable or hidden place to devour it.

Hatchlings operate in much the same way, but they are far too small to eat a scented mouse of any size. Most hatchlings are only around 7-9" long and about half as thick as a #2 pencil. I have to trick them.

As I said, blacknecks do not choose fish first as a rule, but hatchlings will accept them, since they have little experience. Here's what I do: Find a lidded deli cup and place feeder guppies of other small fish inside, in water. Keep the lid on, and place some strips of cut up fish on the closed top. The movement will get the snakes curious and the fish smell will attract them to feed on the fish pieces. You can find frozen fish (rather like sardines), called silversides, at aquarium supply stores. Simply chop these into manageable bite-sized pieces.

RELATED GARTER SNAKES

Eastern blacknecks are similar to many other garter snake species in feeding and behaviors, and of course very similar to their close relatives, the Western blacknecks.

To the Western edge of its range, *T. c. ocellatus* comes into contact with the western subspecies, *T. cyrtopsis cyrtopsis*. I have gotten reports of the western blacknecks actively hunting in water, and also of their being found miles from the nearest water. From this I speculate that the western blackneck is a more opportunistic feeder. Not having a rostral scale suited to digging up spadefoot toads or the like, the western blacknecks may actually feed on insects and young rodents from time to time.

The western subspecies is less vibrantly colored, certainly, and their patterning is a bit less complex. The one obvious dissimilarity is that the lower stripe on the western species is straight, not oscillated. In the range of the Western blackneck, the landscape is notably more arid. Although the watercourses may be as numerous, they tend to dry out more quickly as well. In the Trans-Pecos region of Texas and Westward, though, spring and summer are referred to as 'monsoon season', and it is almost a daily occurrence to have isolated heavy downpours lasting only a few minutes at a time. This provides some

moisture to the region, but on the flatlands, the ground dries quickly. Suffice it to say that the western subspecies is adapted to live in xeric conditions.

BREEDING

Though few official records are available on the mating habits of the Eastern blackneck, I have unofficially compiled several records through reports and personal observations.

Brumation occurs throughout most of the colder months. Blacknecks begin refusing to feed in captivity when the daylight hours grow shorter and the nighttime temperatures begin to consistently drop below 50 F. In Central Texas, this is roughly mid September to mid-October. Garters may move in a hibernaculum or cage when temperatures reach above 65F, but usually do not care to feed. When temperatures begin to rise in the spring, it takes several feedings before the female sheds her skin and begins emitting the pheromones and hormones that make her receptive and desirable to males. Two-Year-olds snakes are ready to breed, however females may not be of size for a successful brood until their 3rd year.

Mating in the wild has been observed as early as mid-March, when a pair of young adults was found under a board. On 7, April, a captive female shed and instantly bred.

Gestation in garters typically last around 75 days, though can go up to 15 days longer.

Females typically bear their young in July. Larger females can bear more than 20 young, which erupt from their embryonic sacs almost immediately and shed within a few hours.

HUSBANDRY REQUIREMENTS

Blacknecks make good display animals once they acclimate to people passing their enclosure. If you place the enclosure in an out-of-the-way place, your garter will likely be out roaming most of the day. They will also locate their favorite spots and stay there peeping out for hours, only their head and neck exposed.

As with all caged animals, and especially snakes, a tight-fitting lid is crucial. The ability of snakes to escape a loose lid is almost legendary. Garters snakes are good climbers, and if there is a way for one to reach the top of a cage with a loose lid, you will be fortunate to ever see it again.

With garter snakes, floor space is more important than height. A typical garter snake can be comfortable in about 144 square inches of space. A slightly larger or smaller enclosure is acceptable, but if you make it too large, you may not see your snake as often.

If using a glass aquarium, a 20-long tank is suitable for a single or a pair of garters.

Being a cold-blooded animal restricts the snake's activity. If the enclosure is too cool, the snake will be inactive and probably hiding. Use an under-tank heater (UTH) for best results. A heat lamp above the tank is slightly less optimal, but perfectly acceptable.

Place the heater on one end of the enclosure and give your snake a place to hide at both ends of the cage so it can regulate its temperature itself by choosing where to hang out. A “safe place” or two for it to conceal itself when it is stressed goes a long way in helping the snake feel secure.

Garter snakes will also need a water bowl with clean water. I change the water more than once a week so the bacteria build-up will remain low.

There is no need to light the enclosure unless you prefer it that way. Planted terrariums are another story.

Another consideration is the type of substrate you’ll use. Many breeders recommend nothing more elaborate than newspaper or paper towels for lining the enclosure. However, you may be more concerned with aesthetics. Most bedding material sold at pet shops is fine. Watch out for cedar bedding, however. It can be toxic to many animals, including reptiles.

Any natural items (branches, twigs, rocks) placed in the cage should be well cleaned, then boiled or baked at about 200F for 30 minutes to kill any harmful parasites.



Local hardwood mulch makes a great substrate for *Thamnophis cyrtopsis ocellatus*
Photo by Jack Jeansonne

HUMAN IMPACT

Eastern blacknecks are widespread through the Texas Hill Country, and through the limestone cracks and fissures of the eastern Edwards Plateau. However, they are seldom seen as DORs on roadways. This is due both to their diurnal behavior and their choice of habitat.

Humans impact garter snake habitat by development and by the spillage or dumping of toxic chemicals. Development has not greatly impacted the eastern blackneck due to their preference of rocky hillsides and cliffs. The populations in inaccessible areas will be unaffected by development for years to come. Chemical pollution is another story. Since the anuran prey that blacknecks rely on are often negatively affected by human chemical dumps (i.e.: fertilizer and pesticide runoff, oil, gas, etc.), the garter population is doubtless affected as well, either directly, by lack of prey, or indirectly, by absorbing toxins from their prey. As stated, cliff chirping frogs provide a large part of the blackneck's diet. The limestone cracks and fissures are porous to some degree, but many spots are untouched by runoff and chemical dumps.



An example of human impact on urban blackneck habitat

Photo by Jack Jeansonne

Gulf coast toads, common throughout much of the range, seem largely unaffected by typical runoff pollution. I know of one particular spot in Austin where homeowners on the edge of a “protected” greenbelt routinely empty swimming pools over the edge of the hill into the creek. The affected area is awash with dusty suds and is somewhat discolored, but it actually provides water in an often dry area. This particular spot actually provides habitat for insect larvae and small fish, which feed toads, which feed herons, raccoons, ribbon snakes, water snakes, garter snakes and other wildlife.

ACQUIRING A GARTER

Garter snakes in general are largely regarded as beneath notice of keepers and breeders for some reason. Perhaps their subtle beauty and few available morphs do not compare with flashy commercially sold snakes, like ball pythons, or maybe their small size makes them less exciting. Could it be that their sheer common-ness is why they are not considered as “special”?

Most garter snakes are among the common species in their areas. They are good feeders, produce a large quantity of offspring, and are tough and inquisitive. Most species of garters also inhabit areas around water, which is always a good place to locate food. If you are hunting for garters, watersides are great places to check first. Check a field guide to see what animals frequent your area.

Having said that, however, I cannot recommend grabbing a wild garter over a captive-bred one. First, wild snakes often are infected with parasites or disease, which can affect other captive animals. Second, wild snakes are much harder to acclimate and get feeing than captive born ones. Third, wild snakes are less likely to be handle-able, and require calm, steady handling before they stop musking or biting.

Pet shops rarely carry captive garters, whatever they tell you. Really, the most reliable place to find captive-bred garter snakes is on the internet. Late spring and summer are good times to search for young garter snakes online. There are several sites that specialize in garters or single garter species. To locate a blackneck, I suggest doing a search of the internet or joining your local herpetocultural society and asking around there. There are a number of online forums available as well on which you can post questions and receive many opinions and answers to your questions

Few breeders focus on the Eastern blacknecks. There are but a handful of people in the U.S. working with them, and most live in the blacknecks’ range. It turns out that these little snakes are still relatively unknown, and in many circles have a reputation as being difficult to feed. I consider them project animals that require just a little more careful observation and attention.

I’ve found that keeping these snakes is an endlessly rewarding experience. They make great display animals, and there are few times I don’t see one roaming its enclosure. I find myself learning new tidbits about them almost constantly, and they have become one of my favorite species.

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