

NR6/125.13/1998/FALL  
c.2

1998 FALL COMPENDIUM OF WILDLIFE APPRECIATION



# Colorado's Wildlife Company

16 September  
Milk snake  
non-venomous

red on yellow  
I'm a dangerous  
fellow  
red on black  
I'm a friend  
of Jack

white

red  
black

mimics  
Coral  
Snake

A PLACE  
FOR SNAKES

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A place for snakes



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# WHAT IS A SNAKE?

By Mary Taylor Gray

Try to describe a snake and you come out sounding like a gunslinger hurling insults in a B western: *You limbless, slithering, fork-tongued, cold-blooded, scaly-skinned reptile!* Perhaps we are both fascinated by and fearful of snakes because they are so different from us. Most obviously, they lack limbs, though a few species such as the rubber boa, which has been reported in western Colorado, have tiny remnant legs called spurs. Snakes have an unblinking stare, which isn't due to a Clint Eastwood-style machismo but to a lack of eyelids. If you've ever found a snakeskin you know that snakes shed their worn outer skin all in one piece. Though a snake's skin is scaly, people are frequently surprised to find many snakes feel smooth, dry and often warm.

Calling a snake cold-blooded is, of course, a reference to its thermodynamics rather than its emotions. Snakes are *ectothermic*, literally "outside heating," meaning they can't regulate their body temperature internally. Their temperature, and thus their activity, fluctuates with the environmental temperature. Snakes bask in the sun — on rocks, paved roads and other warm places — to raise their body temperature, moving into the shade when the sun is too strong. In Colorado, snakes are found in the greatest diversity and numbers in warmer, lower elevation habitats, particularly the southeastern part of the state. A few snakes can handle higher elevations, the smooth green snake up to 9,000 feet and the wandering garter snake to 11,000 feet.

Dropping temperatures in fall trigger snakes to move into hibernation dens until the ground warms in spring, when they emerge and begin seeking a mate. So tied are some snakes to the cycle of seasons that they can't breed until after undergoing a period of cooling and lowered metabolism.

## Dating And Mating

We may not relate snakes to romance, but male snakes do court females, which helps overcome her predatory instincts so she will mate with rather than attack the male. Male rattlesnakes spar with each other in pushing and shoving contests (though hitting below the belt is hard to determine). Most snakes lay leathery-shelled eggs in a nest but some bear live young. Some species retain the eggs within a shell inside the mother. Garter snake embryos go even further and develop a placenta with the mother.

## Serpentine Hunters

All snakes are meat-eaters. Considering they have no arms, legs, wings or talons, snakes are surprisingly diverse in their strategies for catching and killing prey. Rattlesnakes, of course, paralyze their prey with venom injected with a bite. Racers dart after their prey, grabbing small animals with their jaws. They may pin prey to the ground with a loop of their body. Western hognose snakes dig toads and lizards out of the ground with their shovel-like snouts. Bullsnares are constrictors, grabbing prey with their jaws, then wrapping their coils around the animal and crushing it until it suffocates.

## Look Ma, No Hands

A lack of limbs hasn't kept snakes from doing much. They may not play baseball, but they can climb trees, swim and move extremely fast across the ground. Most snakes have a single line of scales on their undersides that works as a set of contact points for locomotion, sort of like a tank tread. Rhythmic contractions along the snake's body allow it to push along a surface by lifting parts of the body and pushing off from the contact points. The familiar serpentine motion involves a continuous forward "S" movement. In concertina locomotion, the animal lifts and reaches out with the head and leading part of the body, then brings the rest of its body up to join it. A sidewinder (none inhabit Colorado) lifts and moves the curves of its body, rather than its head, in the direction of travel. Snakes climb trees by lifting from the ground and finding contact points on the tree trunk. They swim by lifting and pushing themselves quickly across the water, much as a swimming person stays afloat by exerting energy across the water surface.

## Pits And Tongues

Have you always wondered why snakes flick their tongues in and out? They "smell" the air with their tongues, picking up tiny odor particles that they transfer to a highly sensitive chemical receptor, the Jacobson's organ, in the roof of the mouth. Some snakes also "see" heat (infra-red light) using sensitive organs located in pits on their faces. Rattlesnakes, which belong to a family known as pit vipers, are so sensitive to heat they can detect a temperature change of .003 degrees Celsius in a tenth of a second, very handy for detecting warm-blooded prey.

## Don't Get Rattled

"Kill it!" is a common response upon seeing a snake, but killing animals just because they frighten us doesn't make sense. Even poisonous snakes have a role to play in Colorado's ecosystem and

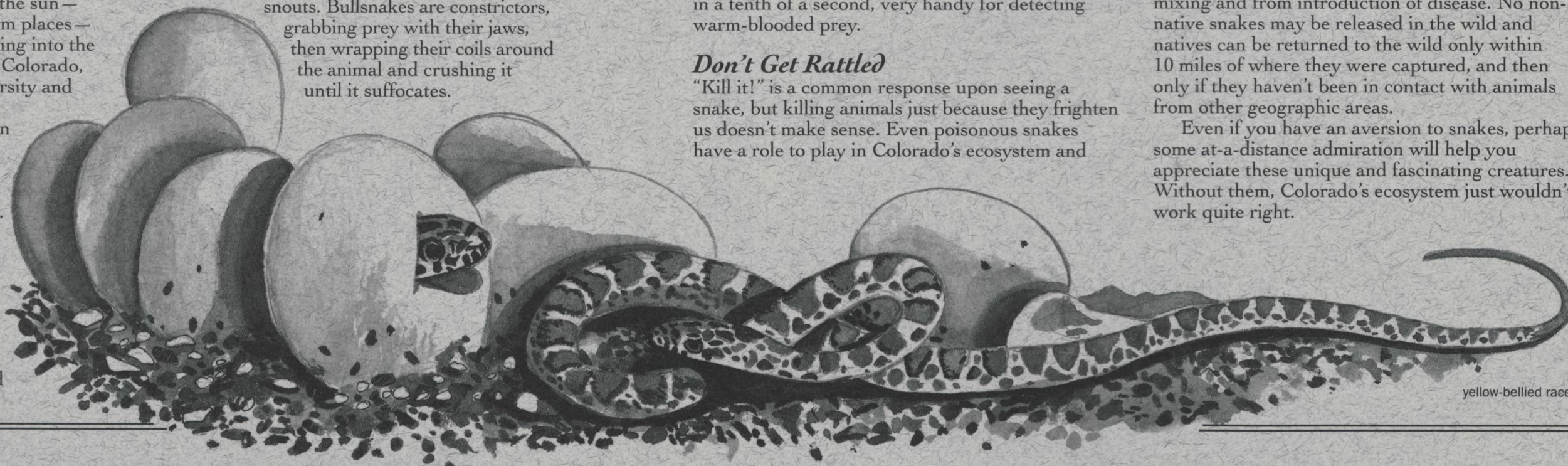
are part of our state's natural heritage. Not only are the majority of snakes harmless to people, they actually benefit us by eating pests that destroy crops and stored food. Garter snakes eat insects while bullsnares help by eating rodents. In turn, snakes (and their eggs) are eaten by many other species, from skunks to great blue herons to eagles.

The popular focus on snakes as venomous is out of proportion to the actual threat. Only two species of poisonous snakes inhabit Colorado — the western rattlesnake (with two subspecies, the prairie and midget faded rattlesnakes) and the massasauga (pronounced *mossa-sogga*). While venomous snakes present a danger and people should be aware and cautious when in rattlesnake habitat, the aggressive pursuit and killing of snakes is not only unsound ecologically, it is illegal. A statutory provision allows for the killing of rattlesnakes if they are felt to be an imminent threat to human life or safety. Killing a snake just because it is venomous is against the law. It is also illegal to kill a protected snake, like a bullsnake, even if you mistake it for a rattler.

## Give Snakes A Break

All snakes in the state of Colorado except the prairie rattlesnake are nongame species and protected by state law. It is illegal to kill them or take any of them from the wild for barter, sale or any commercial purpose. Up to four individuals of the following species, not to total more than 12 animals, can be collected to be kept as pets: racer, western hognose snake, bullsnake, western terrestrial garter snake, plains garter snake. The rules also strive to protect native snakes from genetic mixing and from introduction of disease. No non-native snakes may be released in the wild and natives can be returned to the wild only within 10 miles of where they were captured, and then only if they haven't been in contact with animals from other geographic areas.

Even if you have an aversion to snakes, perhaps some at-a-distance admiration will help you appreciate these unique and fascinating creatures. Without them, Colorado's ecosystem just wouldn't work quite right.



yellow-bellied racer



# Fear Of The Serpent

What is your reaction to snakes? Are you frightened or fascinated? Few people seem to be neutral on snakes, even those who have never actually encountered a live snake. But where do those feelings come from?

"The mind is primed to react emotionally to the sight of snakes," writes renowned biologist E.O. Wilson, "not just to fear them but to be aroused and absorbed in their details, to weave stories about them." Conditioning helps sway whether we end up afraid or fascinated. The tendency to fear snakes, says Wilson, can be heightened by scary stories and experiences in childhood. "Human beings have an innate fear of snakes; more precisely, they have an innate propensity to learn such fear quickly and easily past the age of five." Ophidiophobia is the term for the fear of snakes.

In an informal poll, Denver Zoo reptile curator Rick Hueffner found that of some 100 people reporting a snake phobia, only two had had a traumatic experience with snakes. Children who show a great interest in snakes at an early age can, in a short period, do a complete reversal and develop a fear of them, says Hueffner, most likely the result of peer pressure and negative images in movies and television.

Chimps and gorillas exhibit a fear of snakes, says Bill Turner of the Denver Zoo. Their response to snakes, even rubber ones, was at one time used in zoos to manage them. Studies on rhesus macaques found that monkeys raised in laboratories with no previous exposure to snakes showed the same fear response as wild monkeys, though weaker. The serpentine shape and distinctive movement patterns were the key stimuli to which the monkeys responded.

The inborn awe of snakes and their role as symbols of various powers, motivations and phenomena is demonstrated in the ancient and worldwide representation of serpents in art, religion and myth. Though in western culture the serpent is lowly, earth-bound and evil, in many cultures it is linked to learning, sexual power and fertility.

Cultural conditioning, peer pressure and media images tend to direct our innate snake sensitivity into fear. But education focusing on snakes as a part of the ecosystem seems to be changing things.

"Lots of older people are terrified of snakes," Turner reports, "but I think there are definitely fewer kids automatically afraid of snakes than there used to be."

**T**he **bullsnake**, shown above, is a valuable predator of rodents, yet many bullsnakes are killed each year because they are mistaken for rattlesnakes. When threatened, a bullsnake shakes its tail and hisses, mimicking a rattlesnake. Found across Colorado in a variety of habitats up to 8,500 feet, bullsnakes may reach a length of over eight feet.

**F**our species of garter snake inhabit Colorado, all of them usually found near water, though they also roam into drier habitats. The **western terrestrial garter snake** is the most widespread, found nearly statewide below 11,000 feet. The **plains garter snake** inhabits the eastern plains. Garter snakes have pale stripes down their backs.

## TIPS FOR SNAKE WATCHERS

Snakes are secretive animals and seeing them is often a matter of chance. A little effort and knowledge will increase your snake-watching success. Snakes are active only from late spring through fall. In Colorado, May and June are usually the best times to see them. Since they must retreat from both cold and hot, snakes are most active on warm days and evenings. After a heavy summer rain is also a good time to see snakes.

Walk slowly along ponds, lakes and streams with shallow, vegetated edges. Check rocky ledges and cliffs. When you spot a snake, don't approach it but stop and observe its behavior.

You can try searching under rocks and logs, but be very cautious in

rattlesnake habitat. Always return rocks and other objects to their original position as these hiding places are critical protection for the animals. Wear heavy pants and boots and never put your hands or feet anywhere you have not checked first visually. Never handle a snake unless you know what you are doing. Even non-poisonous snakes will bite defensively.

On warm summer nights, you may find snakes warming themselves on little-traveled country roads. If you find a snake on the road, coax it off the pavement so it won't be run over. Thousands of snakes are killed every year by cars. Be vigilant of other traffic, always pull off the road to stop and don't leave your doors open.

**N**o animal typifies our frightening image of snakes quite like the **western rattlesnake**. Rattlesnakes are found in every non-aquatic habitat across the state, including plains grassland, piñon-juniper woodlands, shrublands, open coniferous forests and riparian areas, up to an elevation of 9,500 feet. Though rattlesnakes are dangerous and will strike if harassed, they are not aggressive and if offered an escape route will usually rattle defensively then crawl away to hide.

**W**ith its turned-up snout, the **western hognose snake** looks as if it ran into a wall. This small (maximum 35 inches) snake of eastern grasslands uses an interesting defense mechanism. If hissing and striking (usually without biting) don't deter a predator, the hognose "plays dead" by rolling on its back, vomiting and lolling its tongue out of its mouth. But flip it upright and the "dead" snake immediately rolls back over on its back.

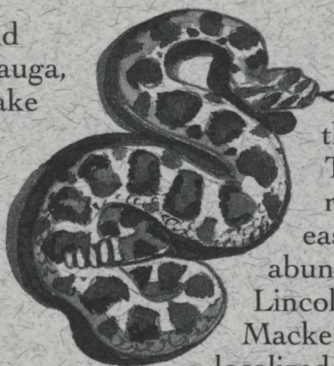


# DOW WORKING FOR WILDLIFE

## Snake Search

..... Determining the status and distribution of the massasauga, a small species of rattlesnake native to southeastern Colorado, was a main focus of a recent survey of reptiles and amphibians (known collectively as herptiles). The massasauga has suffered because of collection for the pet trade, loss of habitat and persecution as a poisonous snake. Conducted from 1995 to 1997, the survey was funded by the Colorado Division of Wildlife and the Great Outdoors Colorado trust fund. The Department of Biological Sciences at the University of Northern Colorado in Greeley conducted the survey under the direction of Dr. Stephen P. Mackessy.

The status of reptile populations can serve as an "early warning" of greater environmental change that may affect other wildlife and eventually humans, Dr. Mackessy states in his final report. Why limit the survey to southeastern Colorado? Though it encompasses only about one quarter of the state's area, it is home to 77% of the state's amphibian and reptile species.



Over the three field seasons, researchers made 9,150 observations and collections of a total of 46 herptile species. Of these sightings, 453 were of massasaugas. This recent data expanded the known range of the massasauga to the south and east. "The massasauga is much more abundant in the focal areas—Kiowa and Lincoln counties—than we ever thought," says Mackessy. "But since the populations are very localized, they are somewhat fragile to habitat disruptions and human disturbance." Nearly half the massasauga sightings, 200 of them, were of road-killed animals. Auto traffic is a major threat to snakes, says Mackessy. "A two-foot-long snake trying to cross Highway 287 when truck traffic is high has about as much chance of making it as of winning the Colorado lottery."

The massasauga differs from the prairie rattlesnake in size—the massasauga measures less than two feet in length—and its grayish rather than green or brown coloration. "You can tell a massasauga unequivocally by the scale pattern on top of the head," Mackessy explains. Most of us, however, hope we never get that close.

## ENROLL IN THE NEXT WATCHABLE WILDLIFE VIEWING SKILLS WORKSHOP

"Wildlife Watch" is an 8 to 10 hour, family-oriented workshop covering where, when and how to see wildlife; wildlife identification; ecosystems; how to use binoculars and spotting scopes; ethics; the basics of wildlife management; and a field trip. Price is \$30 per person or \$40 per family (not recommended for children under 12 due to length and intensity of class sessions). Workshops will be held around the state. To find out about classes, call (303) 291-7258 or fax (303) 291-7110.

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