

Many-lined Skink

Dave Leatherman

“Hey, Grampa, look!” So began on 12 August 2013 my grandson’s experience at the age of almost 10, and mine at 64, with a lizard named many-lined skink. Trey discovered it under a dry cowpie in a pasture of the Western Unit of the Pawnee National Grasslands in Weld County, Colorado (Fig. 1). We found a second one in the same manner later that afternoon. Why were we intentionally flipping bovine dung, you ask? One of us (you guess) wanted black widow spiders to take home as pets, of course.

Plestiodon (formerly *Eumeces*) *multivirgatus* is one of three Colorado species in the lizard subset called skinks (family Scindidae). Its range in our state roughly includes the plains of eastern Colorado north of the Arkansas River. It is distinctly more common in the northern part of this area. In the United States, the totality of its range extends north and east from Colorado to southeastern Wyoming, southern South Dakota, and Nebraska. Our other two skinks are the Great Plains skink (*E. obsoletus*), mostly found on our southern plains, and the variable skink (*E. gaigaeae*), which some consider a subspecies of many-lined skink, found in the extreme south-central and southwestern parts of the state (Hammerson 1999).

Worldwide, the slightly over 1,000 species of skinks populate tropical, subtropical, and temperate habitats. They spend most of their daylight hours under cover. Most are covered with smooth, circular scales. All of North America’s 16 species lay eggs, as opposed to some species in the Old World that are live-bearing (Hammerson 1999).

The October 2015 installment of this column (*Colorado Birds* v. 49, no. 4) chronicled the larder of an individual Loggerhead Shrike found on the eastern plains of Colorado. No skinks were mentioned in that treatise. Interest in this subject on the part of me and many others has since fleshed out (sorry) the roster of prey for this predatory songbird, which now includes both Great Plains and many-lined skink. No doubt much more will be learned. But for certain, Loggerhead Shrike experience with the many-lined skink predates that of me and my grandson, probably by several decades, if not centuries.



Fig. 1. Many-lined Skink adult found in late morning by Trey Leatherman under a dry cowpie in Weld County, Colorado, on 12 August 2013. All photos by David Leatherman



Figs. 2, left, and 3. Adult male showing orange jaw acquired in breeding season (left) and adult female (pregnant), both impaled through the neck or upper back, both alive in Weld County when pictured.

On 21 May 2016 I found my first shrike-impaled many-lined skinks, three of them. This was on Weld County Road (CR) 37 north of the Central Plains Experimental Range Headquarter buildings between CRs 114 to the south, 122 to the north. On 30 May in this same area were over 20 many-lined skinks hanging on the barbed wire in various degrees of wholeness. Thus, on one day in a stretch of about a mile, Loggerhead Shrikes increased my experience with many-lined skinks over tenfold!

Many trips to this portion of the Pawnee Grasslands in the summers of 2016 and 2017, including several with friend Rachel Hopper and other enlightened amateur naturalists from the northern Front Range, have shown many-lined skinks to be a staple of Loggerhead Shrikes. At least this is true during years when they are plentiful and/or another preferred prey, large grasshoppers, are in short supply.

Many-lined skinks are almost invariably impaled through the neck or upper back. On several occasions I have found them hung in this manner, and still alive!

There is an art to sticking a live object on a thorn, branch stub or wire barb. If one of the primary reasons for doing so is storage for consumption at a later hour or day, obviously the impaler wants the prey to be as fresh as possible when it comes back for its meal. Alive is really fresh. But how to do this without the impalee wriggling off the hook? To learn the answer, all one has to do is look at dozens upon hundreds of stuck objects. There are discernible patterns and methods for each group of prey. As examples, for many hard beetles, it is



Fig. 4. Many-lined skink atypically impaled thru the mid-body. Weld County, Colorado.



Fig. 5, left. An adult missing both head and tail. Weld County, Colorado. Fig. 6. A skink missing all but the head and front portion of the body. Weld County, Colorado.



Fig. 7. Entire many-lined skink on Weld CR37 north of CR122. Note, tail shows the even coloration of an original.

through the front of the head or thorax. For skinks it is through the side of neck (Figs. 2 and 3).

Many lizards, particularly skinks, are famous for being able to separate themselves from their tails. This is called “caudal autotomy” in the literature. The benefit of this is increased escape from predators (Daniels 1983, Chapple 2002, Vitt and Cooper 2011). The cost, especially during breeding season, may be a loss of energy-rich lipids, which are stored in the tail (Chapple 2002, Vitt and Cooper 2011). Likewise, species displaying caudal autotomy are capable of regenerating a new tail. At least half the skinks found on the Pawnee impaled by shrikes had no tails. This is either the result of autotomy during capture or, more just as likely, being eaten by the shrike as an hors d’oeuvre preliminary to the main entrée. Several impaled skinks I have found were missing both head and tail (Fig. 5). Many impaled skinks sport regrown tails, as evidenced by their yellow color (Fig. 9). As with juvenile skinks that tend to have brightly-colored tails, often blue, the contrasting color is thought to be a distraction for predators resulting in greater escape (Vitt 1986).

Little is known about many-lined skink population trends in Colorado but based on limited studies, it is thought to be holding it own within its historic range (Hammerson 1999). Females apparently produce one clutch of 3–7 eggs per year (Hammerson 1999). Among other arthropods, this skink eats grasshoppers and ant eggs/larvae (Taylor 1935). Prior to this account, one of the only known

predators was an American Kestrel, which when shot, was found to have one of these skinks in its talons (Taylor 1935).

Not a lot is known about the life history and daily movements of many-lined skinks. Activity is probably from late March to October. Based on observations of captive individuals, they are inactive at night, being most energetic in morning and late afternoon, perhaps coming out at other times of the day when it is cloudy/rainy (Heyl and Smith 1957). When they are away from cover, they can be extremely quick and hard to catch, zig-zagging among vegetation to hiding places. They hide under cowpies and probably burrow in the sand.

Colorado's primary herptile handbook states, "This lizard is secretive and somewhat difficult to detect without labor-intensive pitfall trapping" (Hammerson 1999). Obviously, shrikes neither utilize this method nor find detecting skinks difficult. So, how do shrikes find them? Do they sit like raptors on trees, wires, fences, or bushes early and late in the day, or during particularly cloudy periods, watching for movements on the prairie floor? Do they disturb the edges of likely hiding places, like cowpies, hoping to flush one? Do they even flip small, dry cowpies? After many hours of observation, I can only hold out hope for miniaturized camera technology, and a shredding shrike fitted with same, to provide answers. Whatever their methods of skink detection, and all prey for that matter, shrikes are good at them.

Only twice have I seen shrikes handling skinks. Both encounters were along Weld CR122 east of CR37. On 1 August 2017 I was hop-



Fig. 8. A juvenile many-lined skink missing its blue tail tip on Weld CR114 east of CR37. Juveniles not shown in common field guides. Note dark, stripeless body and orange jaw.



Fig. 9. Parent Loggerhead Shrike delivering whole many-lined skink to nestlings in Weld County, Colorado, on 1 August 2017 (note yellowish regenerated distal portion of tail).

ing to observe food deliveries to a nest that started with four eggs and at the time held two feathered young. After a long period of inactivity, a parent shrike brought in a pristine, entire many-lined skink (Fig. 9). This lizard was obviously fresh-caught and presumably consumed whole by whichever of the lucky youngsters got it. I could not see exactly what happened due to four-wing saltbush branches and foliage obscuring the nest. Regardless, the phrase “lizard veal” came to mind, considering how soft and smooth this species of skink is.

I can say with certainty that it appears, at least locally, Loggerhead Shrikes can exert considerable pressure on many-lined skink populations. This appears to be particularly true of years when their normally predominate prey of large grasshopper species like those in the genera *Xanthippus* and *Arphia* (probably others) are low. Since grasshopper populations are highly variable, and that it is likely at least a few species (and large crickets) suitable for use by shrikes are present most years, skinks and other lizard populations (lesser earless and short-horned) temporarily suppressed out of necessity by shrikes, should be able to rebound. Hopefully this version of “crop rotation,” driven in part by availability, is a sustainable situation.

All this brings up many questions, mostly about the skinks themselves. How do they live their lives? What is a typical skink daily activity pattern? Do skinks utilize rodent burrows (Shipley 2006)? What brings them in contact with shrikes? What other predators utilize them, or are shrikes their top enemy? Just how complex is the prairie cow dung “ecosystem,” replete with scarabs and other beetles, crickets, lizards, and even small rodents in, or under, it?

LITERATURE CITED

- Chapple, D.G. 2002. Distribution of energy reserves in a viviparous skink: Does tail autotomy involve the loss of lipid stores? *Austral Ecology* 27:565–572.
- Daniels, C.B. 1983. Running: An escape strategy enhanced by autotomy. *Herpetologica* 39:162–165.
- Hammerson, G.A. 1999. *Amphibians and Reptiles in Colorado*. 2nd edition. University Press of Colorado and Colorado Division of Wildlife, Denver.
- Heyl, D.H., and H.M. Smith. 1957. Another unicolor many-lined skink from Nebraska. *Herpetologica* 13:12–14.
- Shipley, B.K. 2006. A comparison of herpetofauna and small mammal diversity on black-tailed prairie-dog (*Cynomys ludovicianus*) colonies and non-colonized grasslands in Colorado. *Journal of Arid Environments* 66:27–41.
- Taylor, E.H. 1935. A taxonomic study of the cosmopolitan scincoid lizards of the genus *Eumeces* with an account of the distribution and relationships of its species. *University of Kansas Science Bulletin* 23:1–643.
- Vitt, L.J., and W.E. Cooper Jr. 2011. Tail loss, tail color, and predator escape in *Eumeces* (Lacertilia: Scincidae): Age specific differences in costs and benefits. *Canadian Journal of Zoology* 64:583–592.