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Illegitimate Bites from Eastern Massasauga (*Sistrurus catenatus*) in 2014

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INTRODUCTION

- Death from snakebite is largely not a prevailing concern in the United States, given the access to prompt medical care.
- A legitimate bite occurs when the bite was truly accidental, such as unknowingly stepping on the snake, but most bites are illegitimate, where the bite could have been prevented and the snake was unnecessarily handled^[1].
- The Eastern Massasauga (*Sistrurus catenatus*) (Fig. 1) is a small, secretive rattlesnake native to the midwestern and eastern United States as well as southern Canada. This species is protected across its entire range and inhabits wetlands as well as upland areas.
- Bites from this non-aggressive snake are rather rare. While very rarely fatal, any bite from a massasauga is serious and should be treated as such. Here, I report on two cases of illegitimate snake bite involving the Eastern Massasauga that occurred in 2014.

CASE REPORT #1- MICHIGAN

A ~30cm (sub-adult) massasauga was discovered by children under a kayak in a campsite at the Upper Manistee Campground near Frederic, MI on 28 June. A 56 year old male restrained the snake with a stick behind the head and placed it into a coffee can. He later went to show the snake to other campground residents, and it bit him on the left thumb when he attempted to restrain the snake a second time (Fig. 2). Swelling of the left hand and arm began soon after envenomation (Fig. 3).

After being bitten, the man was not going to seek medical treatment and iced the area of the bite. However, he later did pursue medical attention and was given one vial of antivenin (often referred to as anti-venom) at a local hospital in Grayling, MI. Needing more antivenin, he was rushed to a medical facility in Traverse City, MI and an additional three vials were administered.

24 hours post-bite, swelling of the left hand continued (Fig. 4). Bruising of the posterior forearm (Fig. 5a), anterior forearm and palmar region (Fig. 5b), as well as the axillary region (Fig. 5c) developed 96 hours post-bite. He developed serum sickness three weeks following the incident in response to antivenin therapy. Symptoms of this condition include fever, malaise, lymphadenopathy, as well as edema and develops in an estimated 16% of patients who receive four or more vials of antivenin^[2]. He has since recovered from the incident.



Figure 2) Immediately post-bite.



Figure 3) 1.5 hours post-bite.



Figure 4) 24 hours post-bite.



Figure 5a) 96 hours post-bite.



Figure 5b) 96 hours post-bite.



Figure 5c) 96 hours post-bite.

CASE REPORT #2- INDIANA

A massasauga was discovered in a mulch pile by a 42 year old male by a channel of Oliver Lake, IN around 21:30 on 16 August. He lifted the snake into a bucket with a pair of barbecue tongs and called the local Department of Natural Resources (DNR) office. While on the phone with wildlife officials, he reached into the bucket to grab the snake again with the tongs and was bitten on the distal end of the middle finger, just above the fingernail on the right hand (Fig. 6). The DNR official came to the residence, confirmed it was a rattlesnake and called 911. He was transported by ambulance to Parkview Hospital in LaGrange, but this facility had no antivenin. He was transferred to Parkview North in Fort Wayne, IN, arrived around 00:30 and underwent antivenin therapy beginning around 02:00 on 17 August. He was released on 18 August and returned to work on 19 August.



Figure 6).

IS THAT REALLY A RATTLESNAKE?

The obvious way to tell a rattlesnake apart from other snakes is the presence of a rattle. However, these fragile warning devices can break off, and multiple midwestern snake species, including Watersnakes (*Nerodia* spp.) (Fig. 7), Eastern Milksnake (*Lampropeltis triangulum*) (Fig. 8), Eastern Hog-nosed Snake (*Heterodon platirhinos*) (Fig. 9) and Fox Snakes (*Pantherophis* spp.) (Fig. 10) all may resemble the pattern and coloration of the Eastern Massasauga. In some areas, melanistic (very dark or nearly black) massasaugas (Fig. 11) occur and may be difficult to tell apart from “normal” color phases.



Figure 1) Eastern Massasauga (*Sistrurus catenatus*)



Figure 7) Northern Watersnake (*Nerodia s. sipedon*)



Figure 8) Eastern Milksnake (*Lampropeltis triangulum*)



Figure 9) Eastern Hog-nosed Snake (*Heterodon platirhinos*)



Figure 10) Eastern Foxsnake (*Pantherophis vulpinus*)



Figure 11) Melanistic Eastern Massasauga

AVOIDING AND TREATING SNAKEBITE

- Keep yards (especially edges) mowed short and remove rocks and brush piles.
- If a snake is observed, simply let it move on and don't handle any venomous snake.
- Know what snake species, especially venomous ones, may be in your area. Indiana is home to four species of venomous snake- the Eastern Massasauga, Timber Rattlesnake (*Crotalus horridus*), Northern Copperhead (*Agkistrodon contortrix mokasen*), and the Western Cottonmouth (*Agkistrodon piscivorus leucostoma*). Only the massasauga can be found in northern Indiana.
- Killing, harming or harassing Eastern Massasaugas is illegal.
- If bitten, immediately go to the nearest hospital.
- Do not apply ice, drink alcohol, apply a tourniquet, or cut or suck the puncture marks.
- The best snakebite kit is a cell phone and car keys.

LITERATURE CITED

1. Russell FE: *Snake Venom Poisoning*. Great Neck, New York, Scholium International, 1983, p 252-255, 260.
2. Hankin, F.M., Smith, M.D., Penner, J.A., and Louis, D.S. 1987. Eastern Massasauga Rattlesnake Bites. *Journal of Pediatric Orthopedics*. 7:201-205.