Hammerhead Worms are Here

Jon Zawislak
uaex.uada.edu/bees

Hammerhead worms, also called broadhead worms, are a complex of species in several genera known as planarians, or terrestrial flatworms. These worms are native to tropical and subtropical Southeast Asia, but have become invasive worldwide. They are thought to have been accidently transported in soil through the global horticultural trade. These flatworms prefer warm climates, and feel right at home in the southeastern United States. Because they require moist conditions, the worms are uncommon in the drier western deserts and mountain regions, but can thrive in greenhouses anywhere that maintain the right conditions.

Multiple species have been introduced into North America since at least 1901, but data on their distribution is spotty in many places. They have been reported in Arkansas for at least a decade. One species known as *Bipalium kewense*, or the Shovel-Headed Garden Worm, has been observed in 10 different counties in Arkansas. Several similar-looking species have also been found in neighboring states, including *Bipalium adventitium*, *B. pennsylvanicum*, *B. vagum* and *Diversibipalium multilineatum.*

Reports of these invasive worms to country agents have become increasingly more common in the last year. Gardeners have become aware of these worms because of photos and stories on social media, and are now more alert and concerned about their presence here. What do these non-native worms do? And what should homeowners do about them?

The most distinctive characteristic of these worms is their broad spade-shaped head. *Bipalium kewense* has a long, somewhat flattened body that typically grow to 8 or 12 inches (sometimes longer). They are light colored, with 1 to 5 dark, thin dorsal stripes. These worms are carnivorous, and will prey on insect larvae, slugs, snails, and various earthworm species. Hammerhead worms are also known to cannibalize each other. They can store food reserves in their bodies and survive several weeks without eating.

Bipalium kewense. Photo by Pierre Gros. CC BY-SA 4.0. https://species.wikimedia.org/wiki/Bipalium_kewense

Many species of hammerhead worms contain a potent neurotoxin called tetrodotoxin, which they use to immobilize their prey and defend against predators. This is the same toxin found in pufferfish and a few other animals. When they secrete this substance, it can irritate your skin if handled, and will sicken pets if eaten. Never handle these worms without gloves!

While generally found in warmer climates, they can survive cold conditions by seeking shelter. They tend to avoid the light, and are typically be found resting in cool, damp locations during the day, while they prefer to move and feed at night. They may be spotted under rocks, logs or thick vegetation.

Hammerhead worms are hermaphrodites, and can mate with any member of their species, but more often reproduce asexually by fragmentation. Like many other planarians, if cut into pieces, these creatures can regenerate each part into a whole fully-developed worm within a couple of weeks. If injured, they can quickly regenerate damaged tissue. These worms regularly break off pieces of their tails as they move along, leaving a bit behind to become a new worm. This ability likely contributes to their success in colonizing or new habitats.

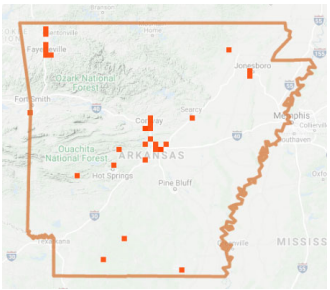
Hammerhead worms are considered highly invasive, and a potential threat to local gastropod and earthworm populations. While earthworms are beneficial to our gardens and lawns, because they aerate the soil, decompose and recycle nutrients, serve as food for birds and other animals, and are handy fish bait, we should remember that many common earthworm species are also introduced to North America from Europe and other places. But these earthworms have been present here for so long, they have integrated into our ecology, and may disrupt its balance if they are removed now.

Due to their cryptic habit, ability to reproduce by fragmenting, and their lack of natural enemies in North America, hammerhead worms will likely prove impossible to control. They disperse slowly on their own, but are probably spread by people more rapidly than we are aware. Worms may be transported with potted plant nursery stock, in truckloads of topsoil, or by construction earthmoving equipment. There is no economically feasible method to monitor, control or eradicate these invasive worms. Hammerhead worms do have the potential to upset the ecosystem by preying on beneficial worms as well as slugs and snails. But since they are also cannibalistic, they may prove to be their own worst enemies.

If you spot a hammerhead worm, don't hesitate to kill it. But you don't want to chop it in half with your garden trowel! Using gloves, place it into a plastic bag or other container with salt and vinegar, then freeze it overnight before disposing of it.

You can report any suspected invasive species to the Arkansas Department of Agriculture's CAPS office: https://www.agriculture.arkansas.gov/plant-industries/regulatory-section/ag-pest-survey-program

While we know that hammerhead worms are present here in Arkansas, relatively few sightings have yet been recorded. iNaturalist.org is a citizen science project attempting to catalog all living things. You can upload your observations and be among the first to help track the spread of this invasive worm. To see their current known distribution, or to learn more, visit https://www.inaturalist.org/taxa/64221-Bipalium-kewense. You can also look up any other plant, animal, bird, fish, insect or fungi. And you submit photos of unknown species, others will help you to identify them.



Reported distribution of hammerhead worms in AR (*source:* iNaturalist.com).

Sources:

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***Bipalium kewense* capturing an earthworm.** Photo by Pierre Gros. CC BY-SA 4.0.
https://commons.wikimedia.org/wiki/File:Figure_07_(PeerJ_4672)_-_Bipalium_kewense_predation.png

Adult *Bipalium kewense* and tail fragment that will regenerate by fission. Photo by Pierre Gros. CC BY-SA 4.0.
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