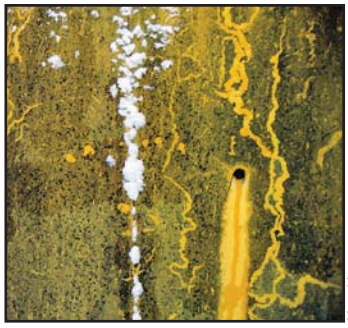
West Virginia Land Snails
Little Wonder

By Ken Hotopp

Everywhere in the woods and fields and backyards of West Virginia are small invertebrate animals of fantastic shapes and weird habits. Among these flying, running, crawling and squirming creatures are the land snails, tiny mollusks with hard shells and slimy bodies.

There are more than 150 kinds of land snails in the "wild and wonderful" state, ranging from the size of a quarter to the size of a pinhead. Extending from their shell of calcium carbonate is their head, with four tentacles, and a muscular foot for crawling.

The four tentacles are sensitive chemoreceptors, "noses" basically, although the top tentacles have weak eyes at the tips. Land snails and slugs (snails that have lost their shells through evolution) detect food and each other in their mostly dark environment by "smell."



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Snail feeding tracks

Although they first emigrated from the water millions of years ago, land snails still need to stay damp. Slime keeps their skin moist, and they can retreat entirely into their shell when the weather turns too dry. During most of the day land snails hide beneath leaves and rocks, emerging only when it is wet, or dark and humid.

You can look for the larger forest snails on plants and logs in early morning or after a rainstorm. Slugs may raid your garden peas or petunias at night and disappear by morning, but they can be found by looking beneath nearby rocks or wood.

In any weather you can see the wiggly "feeding tracks" of land snails and slugs on smooth-barked trees such as American beech and red maple. These tracks are where snails have rasped algae from the bark surface. The snails have a "radula" covered with tiny teeth that tear away particles of food. If you place a land snail gently on your hand it may "taste" your skin, a harmless sensation that feels like a cat's licking.

There are a plethora of land snails in West Virginia, and the southern Appalachian Mountains in general, in part because its forests were not scraped away by the giant ice sheet that covered the northern latitudes between 40,000 and 12,000 years ago. Sheltered valleys and foggy mountain slopes with humid climates were excellent breeding grounds for new forms.

Among these are the Spruce Knob threetooth, first found at the state's highest point. The word "tooth" refers to the bumps of


POLYGYRID LAND SNAIL by Bruce Felton

calcium carbonate in the snail's shell aperture, or opening. These teeth appear to keep predatory ground beetles from squeezing into the shell to attack the snails, and may also help the snail balance the shell while crawling. Whatever theirfunction, the shape and number of a snail's "teeth" can help experts identify the kind of snail.

Other home-grown land snails include the Virginia bladetooth, which lives mostly in West Virginia, and the Cheat threetooth (also known as flat-spired three-toothed land snail) a threatened species found only in the Cheat River Canyon. You can see this latter animal's dramatic, rocky habitat if you visit Coopers Rock State Forest near Morgantown.


Craig Stihler


Craig Stihler

The threatened Cheat threetooth snail and its rocky habitat (right) found in the Cheat River Canyon.

Land snails are generally classified as decomposers, though they eat a variety of green plants, rotten wood and leaves, algae and fungi. They also eat sap, animal scat, dead animals, tiny worms and even each other. The gray lancetooth tracks down another snail by the slime trail that all snails leave while crawling. The lancetooth enters its victim's shell and latches onto its flesh, then drags its prey to a sheltered spot where it can feed in safety.

Reproduction for land snails is a two-way street as most species are hermaphroditic -- meaning both male and female. That also means that after mating, both animals can lay a dozen or more of their small, pale and rubbery eggs under damp leaves.

Snails and slugs serve in turn as food for a variety of larger animals such as beetles, turtles, small mammals and birds, including thrushes, ruffed grouse and wild turkey. Snail shells are consumed by other animals as a valuable source of the nutrient calcium. Snails and slugs can also carry wildlife parasites.

Some land snails are eaten by people, including the Oreohelix snails eaten by Native Americans in the West, and the European Helix snails served in French restaurants. However, eastern land snails are not generally known as a human food source and are best avoided because of the parasites they may carry and toxic chemicals in their slime which aid in their defense.

Although there are few land snail scientists, over the years experts from the Carnegie Museum of Natural History, Marshall University and the West Virginia Division of Natural Resources have all worked on various land snail projects in the Mountain State. With so much diversity, there are still many West Virginia snails that are not well known, and perhaps a few yet to be discovered.

Ken Hotopp is a conservation biologist whose snail research was funded by the DNR.


Tom Lewis

A toothed globe type land snail munches on a mushroom.