

Underground Living

From tiny ants to medium-sized mammals, all sorts of creatures prefer to make their homes in burrows beneath the surface

written by Sydney Brown
illustrated by Liz Bradford

A young scientist sits and patiently waits for the sun to set and her favorite species, the winter ant, to emerge from the ground. It is not long before the first worker ant leaves the nest, flicking her antennae, smelling, looking for the trail left by her sisters. The ant scents along the ground, following her large family.

After observing the species for months, the young scientist has plenty of data written down about winter ants coming out to forage, the temperatures they prefer and social interactions with their siblings and other organisms. The scientist stands and prepares to head

home, boots crunching in the frost. She doesn't realize it, but she is being watched. A groundhog pops his head out of the den at the unexpected sound, sniffing the air and determining that warmer weather is on the way.

Burrowing animals are everywhere, from the smallest ants to some rather large mammals. There is a labyrinth of tunnels and hideouts deep underground. Species that move through burrows don't hurt trees and plants but rather help overturn soil and promote growth. Two native North Carolina species provide a neat insight into the different types of burrows that animals create.

plus the queen. Some other ants have much larger colonies consisting of tens of thousands of individuals.

Even with their small colonies, Northern fungus farming ants do a lot of work. For example, scientists think that if you wandered into an intact forest and taped off a section the size of a football field, you would be able to find more than 1,000 nests. Taken together, workers in these nests can excavate over a metric ton of soil—the weight of an average car—in a single year. The ants take soil from deep underground and move it to the surface, where different minerals and nutrients in the soil are made available to bacteria, fungi and plants.

Northern fungus farming ants raise their young in the underground passages of their nests. Here the growing young are provided with cozy living conditions and protection from predators.

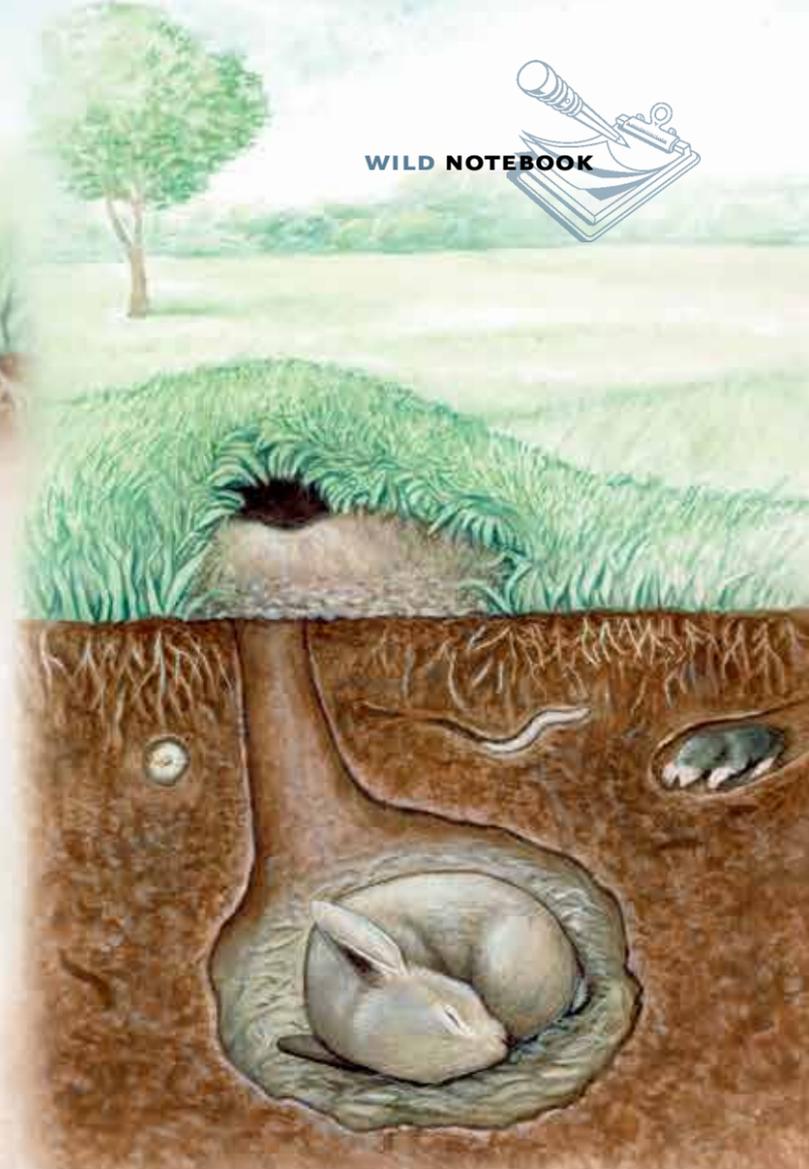
MARbled SALAMANDER

The marbled salamander (*Ambystoma opacum*) is found throughout North Carolina and is the state's official amphibian. It is identified by white or gray bands across the top of its dark body. A small salamander between 3 1/2 to 4 1/2 inches long, it sleeps most of the day and hunts at night. Its favorite foods include worms, spiders, slugs and snails.

The marbled salamander is found around wetlands. While most amphibians live in wet areas where they can keep their skin moist to absorb oxygen, the marbled salamander uses dry ground to create burrowing areas. Burrows are located underground and provide constant temperature and moisture levels. The sun's heat does not penetrate as deep as the marbled salamander digs, which allows for uniform temperatures and reduced evaporation of ground water. Since it is an amphibian—which is a class of cold-blooded animals that includes frogs, toads and newts—this salamander does rely on outside factors such as sunlight and shade to regulate its internal body temperature. The marbled salamander will not share its burrow with anyone else.

Get Outside

If you want to see cool burrowing species in action, stop by your nearest forest or grassland and take a close look at the ground around you. Many animals normally pile excess dirt outside of their burrows. If you notice a pile of dirt, no matter how small, stop and look around for a hole in the ground and wait to see if anything comes out. You can often find burrows of larger animals on hillsides where the slope of the ground offers protection from predators when the animal emerges.



BUILD A VIVARIUM

Want to see what life is like underground? Building a vivarium is a great way to see how burrowing underground promotes soil turnover.

FIRST ASK AN ADULT TO HELP GATHER THESE MATERIALS:

Materials:

- Glass or plastic aquarium or shoebox
- Mealworms (can be found at most pet supply stores)
- Dried oats
- Carrots (mealworm food)
- Food coloring

After all materials have been gathered, you need to set up your vivarium. Dried oats (or any dried grain cereal) is a great substrate (or underlying layer) for mealworms. Carrots will help sustain them. Use food coloring to dye different batches of dried oats and layer them in the aquarium or shoebox. Once finished, let the mealworms do their thing and see how long the stratification of colors last. Hint, it won't last for long!

Once done with your experiment, stick the mealworms in the freezer (not the refrigerator) for a couple of days until they stop moving and use them in your bird feeder. They will be a tasty snack! Please freeze the mealworms before they start to pupate into the next stage of their lives (between 4 and 8 weeks after you get them). Otherwise, you will end up with a tub of beetles, which are much harder to get rid of.