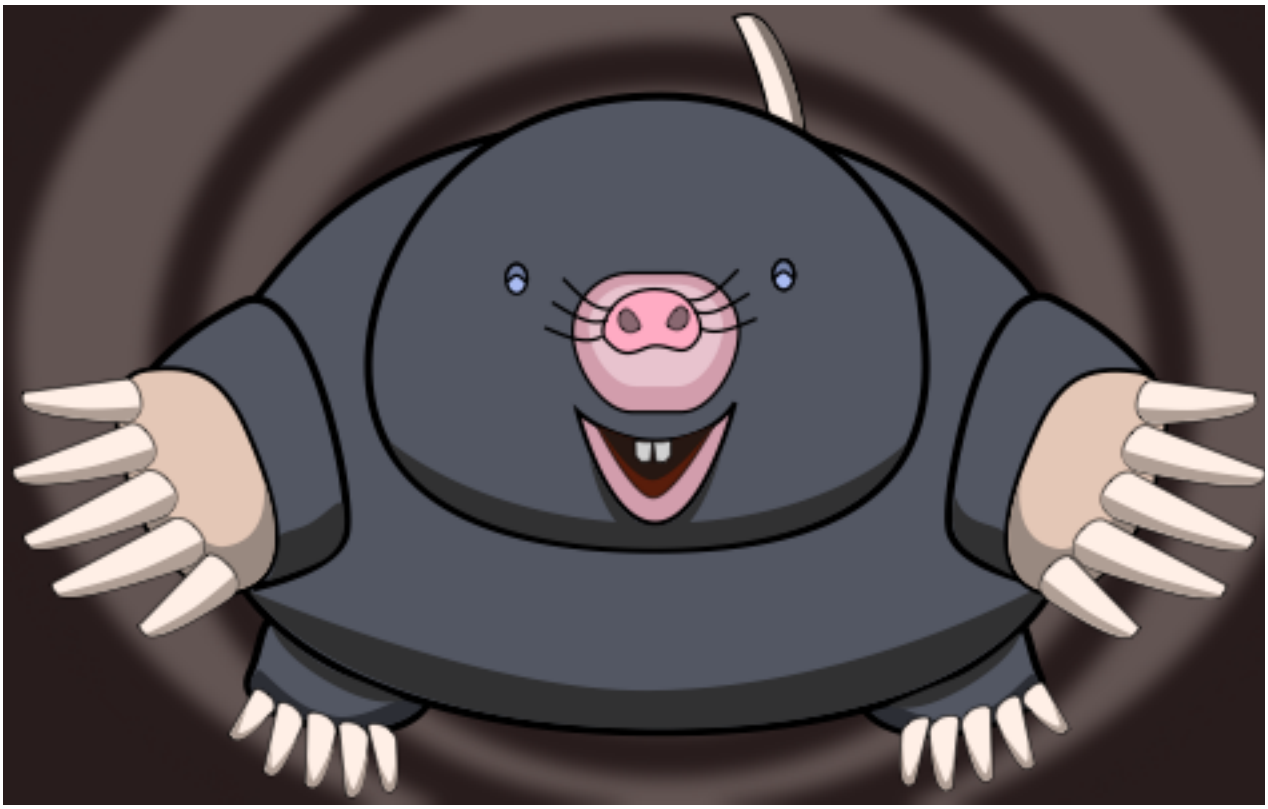

TUNNEL LIKE A MOLE

2018 APR 5

A few years after our landscaping got done, mole mounds began popping up in our backyard. Like most new homeowners, I sprang into action. After knocking down the mounds and spreading the dirt around, I searched the internet for ways to get the gang of underground interlopers out of my turf.

The more I learned about moles, the less I wanted to get rid of them. When I read that they eat crane fly grubs, I thought, “Ah, what the hell, let it go for now.”

Shortly after that, a mole about the size of a large mouse somehow wound up on the surface and got attacked by something fierce. I found the poor little guy’s body laying near our pond. He looked so pitiful that, without considering diseases, I picked him up. I was startled by how smooth and soft his fur was. After looking him over, I buried him, washed my hands, and let moles do whatever the hell they wanted in my yard.

I’m not saying you should let the moles in your yard run rampant, but learning about them got me thinking in new ways because moles are so frigging weird. A mole is way different than say, an eagle.

It used to be that when I was working, my imagination was like an eagle, soaring high and

seeing far. My imagination would run wild all the time. I'm big on being creative and all that, but it got out of control. I would plan way too far into the future and obsess about details that no one could predict.

That approach really wasn't paying off for me, but I didn't notice it. My projects would go off the rails and stall out. It was massively discouraging.

Then I thought about that mole. If he were still alive, he'd be digging through what's in front of him and not worrying about much beyond that. In a day he'd have dug tunnels dozens of feet long.

So, I decided to do that. Not dig tunnels; work on what's in front of me. Although, I read that one of the hobbies of Seymour Cray, the guy who designed the Cray supercomputers, was digging tunnels on his property.

Anyway, now when I work, I focus on what's in front of me. My imagination still runs wild, but I don't follow up on every little thing it thinks is cool.

In case you don't care to learn more about moles like I did, let me tell you one thing: moles don't congregate much. On average you get about one mole per acre. What you think is a big infestation is usually one mole. It only looks that way because one can tunnel up to 15 feet in an hour. That can make a lot of mole mounds.

There is still much to learn about them. It's only been in the past decade or so that thorough research could be conducted on these little guys because tools like ground penetrating radar hadn't been widely available. Here's what I found about them so far…

• Moles are intelligent animals in the family Talpidae. They have sensitive pig-like snouts exceptional digging abilities, and evolved all kinds of adaptations for digging tunnels and living in them. Scientists call them "fossorial," which is a fancy way to say they dig tunnels and live in them.

• Although moles may resemble mice and rats, they are not rodents; they're insectivores. So, they're more closely related to another misunderstood animal group, bats.

• Here in Seattle and the Pacific Northwest we mostly have the Townsend Mole (Scapanus townsendii). Unlike other yard moles and gophers, the Townsend live in tunnels deep underground. They only come to the surface if they can't find food and water down there. Compared to other places in the country, we see fewer raised mole tunnels in our turf.

• If you don't like moles, you could wait them out. Their lifespan is about 6 years.

• Most mole species are solitary animals, only socializing when they reproduce. I know people like that.

• Like pigs, male moles are called "boars" and female moles are called "sows". A group of moles is called a "labor". Who comes up with this stuff?

• Moles have only a few predators. Dogs, foxes, and coyotes are adept at detecting and digging moles out of their subterranean hiding places, and birds of prey such as vultures, hawks and owls find moles to be easy pickings when they're above ground.

Appearance and Anatomy

• A mole can be 4 to 11 inches long including the tail and weigh 0.25 to 7.5 oz. Moles average 6.25 inches long. This is true for the male moles with the female moles being slightly smaller. They weigh approximately around 4.5 ounces, i.e. about 130 grams.

• A mole has a tubular body with brown or gray fur and a short tail.

• A mole has small concealed eyes and ears; small hind feet and larger forefeet for digging; polydactyl forepaws, i.e., each paw has 2 thumbs. The paddle-like forefeet are large and broad with huge claws for digging.

• Moles have sensitive Eimer's organs at the end of their snouts that are great for detecting touch and vibration. So, they avoid noisy places, like your house.

• Moles have tiny eyes that are protected from dirt by thin membranes. Nostrils are located on the sides of their pointed snouts to prevent clogging, and ear openings are hidden beneath short velvety fur.

• Mole fur is velvety in a way that the fur of surface animals is not. Surface-dwelling animals tend to have longer fur with the nap running in a particular direction. Whereas mole fur is short and very dense with no particular direction to the nap. This makes it easy for moles to move backwards underground, as their fur is not "brushed the wrong way".

• Whiskers and hairs on their forefeet probably help them navigate. The tension from whiskers bending as they hit surfaces sends messages to the brain, helping moles interpret the space around them.

• Several glands that emit a strong odor may function in scent-marking.

• The mole's hind feet are small and narrow with slender, sharp claws.

• The extra thumb on the mole's paw is next to the normal thumb and is called a prepollex. While the mole's other digits have multiple joints, the prepollex has a single, sickle-shaped bone that develops later and differently from the other fingers during embryogenesis from a transformed sesamoid bone in the wrist, independently evolved but similar to the giant panda thumb.

• Mole blood cells have a special form of hemoglobin with a higher affinity for oxygen than other forms. Plus, moles use oxygen more effectively by reusing exhaled air. As you might guess, this enables them to survive in low-oxygen environments like their burrows.

• A mole's saliva contains a toxin that paralyzes worms, allowing them to gather and store food for consumption later on.

Behaviors and Activities

• Moles live and forage underground in broad systems of burrows and tunnels. Because they prefer to dig in soil that is loose and moist, they are most abundant in fields, meadows, orchards and forests with lots of shady vegetation.

• Moles find their way in the darkness using keen senses of smell, hearing, and touch.

• Moles are not blind. They detect light brightness, shapes, and movement. There's still a lot of controversy over what they can detect with their eyes and how much they rely on their eyes.

• Mole sounds typically include high-pitched squeals, snorts, squeaks, guttural noises, and grating teeth. Some species also wheeze. Listen to them on line. Pretty funny.

• Moles can dig tunnels at a rate of up to 15 feet per hour. A mole alternately bringing its forepaws towards its snout, then thrusting them out and backward, pushing dirt aside or beneath the body, where it is kicked behind. The mole's body rotates 45 degrees to each side, forcing loose soil upward. They kind of swim through the dirt. I think I read somewhere that if a mole was the size of a human, his front leg could push 1,500 pounds. I can't seem to find that information again. Darn.

• Moles are one of the only animals that can smell in stereo. They can detect an odor immediately as well as determine the direction from which it came. That's how they quickly and accurately locate food and predators.

• When digging tunnels, moles tend to follow manmade edges like fence lines or building foundations. Once in a while, moles will pause to push the loosened soil to the surface, resulting in the creation of molehills. But don't make a mountain out of it. Sorry. Had to.

• Moles have an innate sense that the interior of a human dwelling is an area which poses a high risk. They stay away from it. A mole inside a human dwelling only happens if there is a flood that forces the mole out of its tunnel system.

• But don't worry, moles are good swimmers and are likely to survive floods.

• Although moles are active year-round, like the rest of us, they don't move around much in extreme heat or cold. In cold or dry weather, moles will often dig deeper into the

ground, following their food source. They are most active after periods of rain when the soil texture is ideal for digging. So, you may see more mounds after you water your lawn.

• Moles are active day and night. They sleep in four-hour shifts. They are likely to be more active early in the morning or before the sunset.

Food and Eating Habits

• In one day, a mole eats 70-100% of its weight in earthworms, grubs, slugs, centipedes, insects and other small invertebrates found in the soil. The also eat nuts and seeds. The Townsend Mole feeds primarily on earthworms and insect larvae.

• In a way, mole runs are "worm traps." A mole senses when a worm falls into a tunnel and quickly runs in to kill and eat it.

• Before eating a captured earthworm, a mole may squeeze the worm between its forepaws to push the dirt from its gut. There's a great image for your psyche.

• Because their saliva contains a toxin that can paralyze earthworms, moles are able to store their still-living prey for later consumption. They construct special underground "larders" for just this purpose; researchers have discovered such larders with over a thousand earthworms in them. Another great image. Your welcome.

• If a mole is caught in a flood, it will feed on small fish.

• Moles are often blamed for the eating of roots and seeds, but moles are insectivores that almost never eat plants or plant matter. Other plant-eating animals like voles will use the hunting tunnels left behind by moles, and generally they are the true culprits. However as a result of tunneling, moles can dislodge plant roots and kill grass.

Habitat

• One solitary mole's range can extend up to 2.7 acres. A mole's underground home is a large, complex burrow system with separate areas for living and for hunting.

• Mole territories may overlap, but moles avoid each other and males may fight fiercely if they meet.

• Moles hunt down their ground-dwelling prey by constantly excavating, leaving behind a series of tunnels. This digging requires a tremendous amount of energy, which may explain the mole's voracious appetite.

• At the hunting grounds, most of a mole's runway system is made up of shallow tunnels ranging over the hunting area. These underground hunting paths are about 1¼ to 1½ inches in diameter. Once dug, these shallow tunnels may not be used again or they may

be re-traversed at irregular intervals. Eventually, they become filled by settling soil, especially after heavy rains.

• Moles dig special chambers at the end of their tunnels which are usually used as their bedrooms as well as areas for giving birth.

• A mole's den area consists of irregular chambers about the size of a quart jar connected with deep runways located from 12 to18 inches beneath the soil surface. Deep runways also lead from the mole's den to its hunting grounds.

• Mole populations may range from 1 mole per 6 acres to up to 5 moles per 1 acre.

Mating and Reproduction

• Mating season begins in late winter. Breeding season for a mole depends on species but is generally February through May.

• Males signal females with high-pitched squeals and tunnel through foreign areas to find them. What guy hasn't gone to an unfamiliar tavern and done that?

• Gestation lasts about 42 days, after which time females give birth to 2-5 young, mainly in March and early April.

• Baby moles become independent from their mothers after about a month of age. Pups leave the nest 30–45 days after birth to find territories of their own.

• Young moles start staking out their own territory throughout the middle of the summer about two months after they have been born.

• Moles start tunnels where there are worm castings.

Moles in Culture and Folklore

• In Middle English, moles were known as moldwarp. In case you cared, the expression "don't make a mountain out of a mole hill" about exaggerating problems, was first recorded in Tudor times.

• By the era of Early Modern English, the mole was also known in English as mouldywarp, a word having cognates in other Germanic languages such as German (Maulwurf), and Danish, Norwegian, Swedish and Icelandic (muldvarp, mullvad, moldvarpa), where the muld/mull/mold part of the word means soil and the varp/vad/varpa part means throw, hence "one who throws soil" or "dirt tosser".

• The Mole character in The Wind in the Willows is sensible, generous, and loyal. Another character, Rat, teaches Mole that exploration can be a good thing. In the story, Mole

changes from a frightened ball of fur into a pretty savvy dude.

• Moles can be found in all kinds of folklore. Moles, and unfortunately parts of moles, have been used in remedies. I guess in a world that had healing white magic or harming black magic, moles got cast in the role of a creature from the dark side. You can look up more details, but I think the first time a mole is mentioned is in Pliny the Elder's Naturalis Historia in around AD 77. He talks about entrails and hearts and stuff so maybe you don't want to look it up after all.

• People in the late eighteenth century believed that if you held a mole in your hand until it died your hands would acquire healing power. In the nineteenth-century, a cure for ague was the powder made from a skinned and dried male mole. Until the twentieth century people believed that the blood of a freshly killed mole dripped onto warts would cure them, and took sugar dripped with blood from the nose of a living mole to control fits. Farm laborers once carried moles' legs in a bag around their necks to protect against toothache. Such bags also treated epilepsy and scrofula, a skin disease. People kept moles' hands in their pockets to guard against rheumatism. Moles' hands and feet were still being carried as remedies in the Fens as late as 1971. The persistence of this kind of thinking may explain the way politics is going now.