The Nature of Merrickville

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MICE!!

Deck the halls with baited mousetraps, falalala lalalala. Tis the season to be pestered, willtheyeverleave the dam-ned mice. For anyone who lives in a house that is older than they are, fall-into-winter is a time when every rodent in Christendom seems to be looking for an IN. And there is always plenty of room!

With there tiny little skulls, flexible shoulder and hip joints and compressible ribs, mice – and indeed rats and voles – can squeeze through the tiniest of holes. If they can get their head through, the rest of the body can follow. For rats, the hole is the size of a quarter; for mice, a dime.

The charming 150-year old house that I rent is replete with possible entry holes, through visible gaps in the sightly crumbling parging over the original stone foundation. Decks, porches, an addition and an attached garage hide myriad more possible entry points. In the low-ceilinged basement, I can see but cannot access a number of entry points -- around incoming pipes, a cistern downspout and an old coal shoot.

Once inside, the mice run along pipes and get into wall cavities, where they scratch and gnaw and sound much bigger than they are. The furnace folks say mice will nest in furnaces because it's so warm. The duct cleaners confirm that they find plenty of critters in that realm. But they need that dime diameter, so the grills over heating vents are not doorways from the basement. Phew! Still, I have service calls booked!

Once in and eager to set up house, these interlopers need very little space to call home. According to *Rats*, a fascinating two-part program on CBC Radio's **Ideas** this fall, an extended family of Norway rats can live quite comfortably in a space the size of a basketball. Mice need much less space.

Mice shred and steal soft fabric and paper tissue of all kinds to use as nesting material. They had clearly attacked a box of tissue in the airing cupboard upstairs. A winter nest in your house is not necessarily for making babies, though; it could be a bachelor pad. In the woods, white-footed mice build nests in trees. Again, phew.

I know that mice are ubiquitous and they have come and gone for years, compelling me to use lots of steel wool to bung up cracks and holes that I could reach, to keep them out of my realm and relegate them to the basement. There is mint in every kitchen drawer and cupboard, of which there are very few, given the age of the house. Further, many tiny, undefined, white-bellied mice have met a quick death in traps over the years. I have payed some attention to their appearance but never made a study of them. But recently, when I opened the door to the basement, I saw an all-brown mammal of seemingly bigger than mouse-like proportions scamper and leap athletically up the

shelves in the pantry under the stairs and disappear into the kitchen ceiling. I looked up and saw a wide-open gap between the stairs and the floor and started to think about the size of animal that could easily get through there. I was concerned because, as far as I knew, mice laid low to the ground and could climb, but not like that! Also, I had not seen a white belly on this one.

So I called in the experts and set about researching the issue.

Beyond CBC, my sources for this article were various pest control websites, friends, a man from Orkin, Nature Ontario, University of Michigan publications, Consumer Reports and, of course, Wikipedia (to which I donate annually for all the info it provides free of charge or commercial interference).

Now to Britannica.org, courtesy of Google, for the research kick-off: ***Rodent**, (order Rodentia), any of more than 2,050 living species of **mammals** characterized by upper and lower pairs of ever-growing rootless incisor teeth. **Rodents** are the largest group of **mammals**, constituting almost half the **class Mammalia's** approximately 4,660 species.*

Most rodents fear and avoid humans, but some have evolved to rely on people— from early agrarians to modern urbanites. These are called 'commensal' rodents,the word meaning 'sharing a table'. The most common commensal rodent pests in North America are the House Mouse *(Mus musculus)* and the Brown Rat, *(Rattus norvegicus*) aka sewer rat and Norway rat. The Black Rat (*Rattus rattus*) aka roof rat, tree rat and ship rat is a more southern species, but its range is moving further northward. (That is the creature I feared I might have living here.) Out here in the country, village and rural folk might also be pestered by Deer Mice (Peromyscus maniculatus), White-footed Mice (Peromyscus leucopus) and larger, round-bodied Meadow Voles (*Microtus pennsylvanicus*) that are surprisingly good climbers. Orkin-man's first guess for my streaker was a vole.

Meadow Voles, Deer Mice and White-footed Mice are native to North America and have been around for tens of millions of years. House Mice and both species of rats are alien invaders. Brown Rats originated in northern China; Black Rats in southern India. House Mice are also native to India. They spread across Europe, following agrarian human settlements, and were eventually brought to the Americas on ships in the early 16th century by Spanish explorers. Later they were introduced to Canada by the French fur traders and the English colonists. House Mice have been spread to all parts of the globe by humans. Rats have similarly followed human 'progress' and are now on every continent but Antarctica.

How to tell them all apart…The House Mouse can be black, gray, white, tan or brown and is notably solid-coloured, with a hairless tail. Its eyes are black or pink and its rounded ears are small. This city mouse is an opportunist, happiest co-habiting with us, where it grazes at leisure on any edibles we leave behind. It's a jumper!

Our native mice, the country cousins, are climbers. They steal and hoard food, rather than eating it *in situ.* Deer Mouse has brown or tan fur on its back and a white belly, legs, and feet; its tail is distinctly dark on top and light underneath. The very similar-looking White-footed Mouse's tail is shorter and not so distinctly two-toned. Also white underneath, White-footed's dorsal fur is closer to a pinkish brown or gray with occasional dark hairs, and its hind feet are larger than those of Deer Mouse. Both country mice have large ears and eyes in a relatively small face. Except for the white belly, colouration is variable, and all three mice species are about the same size, so, in the end, the tale is the tell. It is thus for rats as well: Black Rat's tale is longer than its body, whereas Brown Rat's is distinctly not.

It was too dark under the stairs to see my visitor's tail, but the solid colour suggested a House Mouse. After his inspection and a lengthy discussion, Orkin-man concluded I likely have both kinds of mice and, mercifully, no rats. Rats and their droppings are conspicuously larger than mice and theirs. NO such entities lurk here. He said Brown Rats are definitely in the region, but mostly in Ottawa or in more rural settings where grain and compost are abundant. Also, unfortunately, Kemptville is a Brown Rat hot spot. I guess progress and construction to lure urban escapees brings urban invaders as well.

All rodents carry fleas and can spread bacteria around a house, though city mice will invade more indoor areas than country mice, who will prefer to be outside when weather permits. All rodents are prey to deer ticks, which can carry Lyme Disease. It is the Deer Mouse whose droppings can contain the virus that causes Hantavirus Pulmonary Syndrome, aka Four Corners Disease. (A reminder, Deer Mouse's tail is distinctly dark on top and light underneath.) All traces of urine and feces should be cleaned with a disinfectant of some sort. Old, dried-up droppings should be sprayed with a little water before clearing, to minimize dust that could be contaminated. You should wear eye covering, gloves and a mask.

Rodents grind their front teeth together or gnaw to keep them chisel sharp. Rat incisors are also harder than lead, aluminum, copper, and iron. Rats can gnaw through metal pipes, wood, plastic, lead, aluminum siding, glass, and cinder blocks! Mice are a tad less destructive.

Sidebar: In my teaching collection, I have the skull of a groundhog with very long teeth – eyeball-pokingly long. Theories for what happened to the hapless beast vary: illness leading to an inability to gnaw, so teeth grew and the poor thing could not open its mouth to eat and starved to death; maybe the teeth keep growing after death… 59

As I looked for the answer to that question and researched strategies to humanely shoo the critters from our homes, I read about world-class research taking place in Algonquin Park, where biologists have spent the last 60 years hanging around the forest homes of small mammals and pestering them. Ha! Payback! They call it *SMAMMAL* research, conducted by *sm'mammalers.* Smammals (mice, voles, moles, shrews, chipmunks and squirrels) are a staple in the diets of almost all carnivorous mammals.

Smammals spread seeds and important mycorrhizal fungi spores in forest ecosystems; their tunnelling and burrows can influence the flow of precipitation over the land. Smammal abundance is an indicator of ecosystem health. Long-term studies of their populations and home-ranges in pristine forests can be used to inform the management of fur-bearing predators, to provide a baseline for assessing the impacts of land use practices, like mining and logging, and to monitor responses to large scale environmental changes, such as climate change. Research based at the Algonquin Wildlife Research Station (AWRS), which was established in 1952, represents the longest running study of forest small mammals in North America. Fascinating!

This interesting news brought to mind a friend who did a lot of field biology, to see how she handled mice in her country home. As we chatted, I learned that back in the 1970s, when she **was working with her professor on a project** in Ethology, the study of animal behaviour, she had the opportunity to take part in similar research in Virginia. Deer Mice were marked and fitted with tiny transmitters; students followed the beeps to record how far they roamed from home, providing data to quantify the size of their home range. Very often, she told me, the tiny subjects were caught by large arboreal Black Rat Snakes or speedy Black Racers. The students would thrash through the forest to catch the snake, and then wait for it to "pass" the mouse.

My friend has a soft spot for animals and she told me of a winter, decades ago, when she found deer mice in her house. She started live-trapping them and putting them into two aquaria in her basement. It was too cold and snowy to cast them outside! She was segregating males from females, but lost track of the genders and ended up with 75 mice by winter's end! She fed them peanut butter, sunflower seeds and oatmeal.

She discovered Norway rats, last year, feasting and breeding in her birdseed storage shed, presumably taking a break from eating chicken scratch at the farm next door. She left the lid off the container so they would have something to eat…

She told me she has mice occasionally living in her car, in which she transports birdseed. She does not mind the mice at all, though she has had to replace some wiring and hoses. If my friend were not so honest about her generous spirit, she might follow suit with several hundred Toyota and Honda owners who tried to sue the auto-makers, back around 2016, for rodent damage due to new, environmentally-friendly, soy-based wire coatings that they alleged were attracting rodents to gnaw at and damage their vehicle wiring and hoses. Alas, despite plenty of anecdotes and testimonials from mechanics, it would be for naught: Honda repaid a few for some damages and, in 2018, the Toyota suit was dismissed for lack of specific evidence. I guess it's hard to get a rat to take the stand.

So as to those mouse shooing strategies, we spent some time together online and came to some conclusions. All the home remedy repellents suggested might work for short periods, since they involve a strong smell that will dissipate over time – so replenish regularly. The favourites seem to be moth balls, peppermint oil-soaked

cotton-balls, ammonia-soaked rags and cayenne. They are either unpleasant or overpower the mouse's sense of smell. Predator urine, hair or feathers seem worth a try. Dryer sheets work for a few days, until they become nesting material; soap, even Irish Spring, is a treat and will just be gnawed. The best practices across most advice givers and professional pest-management sites include: plugging entry holes and cracks to keep them out; removing food, garbage and compost so as not to encourage or attract them; poison bates, live or lethal traps to kill them quickly and humanely. There are some clever new-old traps on the market -- if live ones, remove mice at least several hundred metres away; if lethal ones, dispose of the body out of reach of children and animals, especially if a poison is used.

The pros use copper wire or steel wool as a hole filler, as well as exterior and interior bait boxes with Warfarin, which causes internal bleeding and dehydration, killing the animal slowly and leaving a desiccated corpse that will not get putrid. By contrast, fast-acting poisons were found not to work with clever rats who, seeing their dead fellows, learned to avoid the bait! Also, they need to prepare for country mice that take the bait away, leaving none for the next visitor to the bait box.

Finally, the best defense might be a good mouser, assuming the endless toying with the prey and the dead-mouse gifts are acceptable to the household. It ought to work. After all, archeologists have evidence that cats were originally domesticated to deal with mice and rats. Cats are so biologically bound to mice as food that a mouse meat enzyme, called taurine, must be put into cat food, otherwise the cat will not thrive. But most well-fed domestic cats can't be bothered or will just play with it. And they risk being bitten.

As with all life's problems, there are no easy solutions. Good luck and do check out that Ideas program on Rats. It is very interesting. Thanks for reading!

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