

Wild Wednesday 18 November 2020, Woodrat by Walt Anderson

It's Wild Wednesday! You might think that as mammals ourselves, we would feel a certain affection for and obligation to other members of our class. Instead, there are few mammals that we haven't shot, trapped, poisoned, or displaced. That even applies to charismatic megafauna that now we glorify with stuffed animals or nature videos or symbols to sell more stuff (e.g., Pronghorn Estates, Antelope Car Wash, Panda Express).

This even applies to our widespread rodents, which some folks think are "cute," while others revile those "varmints." Today, I want to call attention to one rodent about which we show strong ambivalence: the woodrat, also known as packrat, trade rat, or, if it has taken up residence in your garage or under the hood of your car, the #@^*%% rat!

The genus *Neotoma*, however, is not really a "rat," a moniker we erroneously apply to other rodents like kangaroo rats, cotton rats, and rug rats. The genus *Rattus* includes Old World rats that stowed away on transoceanic ships and now populate the dirty alleys of our cities. The lab rat is really a domesticated *Rattus*, subject of stimulus-response and other experiments in what is known as a Skinner Box. I had a psychology professor once who treated us students just like lab rats, using positive and negative reinforcement techniques. Aware of this, we got pretty negative.

Packrats get their name from their habit of decorating their nests with all sorts of objects: shiny, spiny, and otherwise. Sometimes as they are carrying one object to their nest, they spot something even more enticing, so they drop the road apple for you and run off with your glittering watch. Thus the trade rat.

Primarily nocturnal, they seldom see us face to face, though I have made the acquaintance of a few. They create paths or runways out from their dens that they memorize and race along very efficiently when they are in a hurry. I learned that the hard way when sleeping under the stars in Tucson one night; a woodrat slammed right into my face as I lay across its usual path.

The packrat's biggest claim to fame, in our world, at least, is the species' habit of occupying a den for successive generations, sometimes for tens of thousands of years. Urine deposited on the nest solidifies over time into an amber-like substance known as amberat, preserving pollen, plant parts, bones, and other organic matter in a time machine that scientists have used to determine past climates and biotic communities. Now DNA analyses are unlocking even more secrets of the past. Success with woodrat "amber" has led scientists elsewhere in the world to study the middens of denning creatures like the hyrax. Who knew that "varmint waste" would be such a goldmine of valuable information?

Arizona hosts five of the 12 North American species of *Neotoma*, with the White-footed Woodrat found over most of the state, from deserts through pinyon-juniper and into the pine forests. Join me as I look at some aspects of the life history of a charming little animal that transcends our expectations of a "rat."



The White-footed Woodrat resembles an overgrown mouse and has, in my opinion, more natural charm that Mickey ever did. The woodrat is a loner, except during the short mating periods or when a female has young (1-3 in a litter). Otherwise, they are highly territorial and aggressive toward one another.



Woodrats often build a substantial nest on the ground or even in a bush or tree. I think some Arizonans believe these are made by dehydrated beavers—just add water. It takes many trips to accumulate enough for a nest of this size. The “hermit” in this abode creates multiple chambers, some for sleeping and some for storing food, and several escape doors. Though I can’t speak from personal experience, woodrats appear to be tasty morsels and are taken by owls, coyotes, foxes, skunks, bobcats, weasels, badgers, raccoons, and snakes. Of course, those living near humans also fall victim to roadkill. There is a field guide to flattened fauna, so you might want to take it with you while you inspect highways to look for flatrats before the scavengers come along.



In Arizona, woodrats often take advantage of prickly pear landscaping. It provides a certain amount of protection as well as a convenient source of food. This woodrat collected about as many pine cones as sticks. Some packrats pad their pad with prickly pear pads. If Teddybear Cholla is available, others pack the joint with joints. When unrelated woodrats meet, they tend to form a prickly pair.



Cactus, yucca, agave, and other succulents provide both food and moisture; woodrats do not need free water to survive. Unlike javelinas, which rip chunks of prickly pear leaving loose, messy fibers, woodrats munch fairly neatly. In woodrat country, it is a rare cactus that doesn't show some damage.



Woodrats are capable climbers, and sometimes when disturbed, they will race up into a tree or shrub. Remember, because they are antagonistic toward one another, they are never social climbers.



When woodrats den in rocky crevices, conditions are often just right for the accumulation of amberat in their middens over thousands of years. They are the ultimate historians of the animal world. Rock dens are also safer from fire. I've seen huge chaparral burns in California that resulted in local extirpation of woodrat populations.



Woodrats have their favorite latrines. The rodents can be common enough in some areas to have significant ecological impacts through their nitrogenous wastes affecting soil fertility, their browsing affecting plant distributions and even evolutionary defenses, their dens hosting a diverse community of other life (from mice to spiders to bacteria and a lot more), and their bodies plugging into complex food webs.



Like many rodents, woodrats go through boom-and-bust population cycles. One year we were over-run with packrats, who chewed electrical wires near our car engines and caused hundreds of dollars of damage. We decided there is a limit to tolerance of cuteness, so over a few months, we live-trapped about 40 (yes, unbelievable!) in live traps and relocated them to more rural, wild habitats. They find peanut butter irresistible, by the way. The next year, we saw no sign of the critters anywhere nearby, suggesting that the population had crashed. Sort of like the boom-and-bust towns so typical in the West. Humans can be ecologically similar to overgrown packrats.



You may not be lucky enough to see a live packrat, but you will surely see their conspicuous nests. Like beavers, they are ecological engineers, well worthy of our study and appreciation. Just make sure you take steps to keep them from taking over your garage or nibbling wires under the hood of your vehicle! Keep them as neighbors, not as uninvited guests.