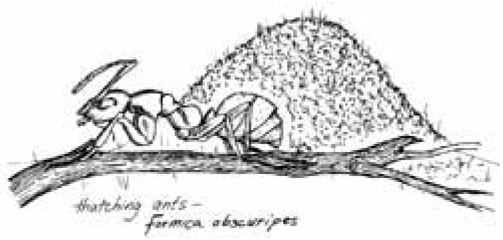
Boundaries

by Jack Nisbet

Jack Nisbet is the author of *The Mapmaker's Eye, Sources of the River, Purple Flat Top, Singing Grass, Burning Sage* and *Visible Bones*. His newest, *The Collector*, is due out in October.

Pismires

January 2007



In his instructions to the Lewis and Clark Expedition, Thomas Jefferson made it very clear that his captains should take note of everything -- every single little thing -- that they saw on their journey west. So when the Corps of Discovery laid over at the three forks of the Missouri for a few days at the end of July, 1805, Meriwether Lewis kept his eyes open and his nose to the ground, listing a cornucopia of birds, wildlife, plants, and some much smaller things.

there is also in these plains a large ant with a redish brown body and legs, and a black head and abdomen; they construct little perimids of small gravel in a conic shape, about 10 or 12 inches high [on the outside], a mixture of sticks and with but little earth.

This is a clear description of the conical nest of a western harvester ant, an insect not noticed again by any western naturalist for decades.

The following April, on their return journey up the lower Columbia, William Clark also proved that he was paying attention to spring activities during a three-day stop near Rooster Rock State Park.

the air temperate, birds singing, the pizmire, flies, beetles, in motion

A pismire is nothing more than a large ant belonging to the family Formicida, those ants that spray threatening invaders with formic acid. It's a Scandinavian term still used in parts of the U.S. when referring to big carpenter ants.

Another group of Formicida family ants are quite prevalent in the North Columbia country -- members of the genus Formica that build large thatched mounds in open woods. Various species of these black or red-and-black ants thrive throughout the northern hemisphere, and have been much studied in northern Europe and Japan. Our local "thatching ants" share most of the same traits as their relatives.

Although the ant mounds that we see in the woods might appear to be simple piles of dirt and forest duff, they are in fact dense mazes of interconnected shafts, galleries, and chambers that reach just as far beneath the ground as they rise above it. As far back as 1810, a French zoologist named Pierre Huber suggested that the primary function of these mounds might be microclimatic regulation.

Each individual mound is cleverly engineered to present the most favorable exposure to the sun. Their outsides are thatched with a mixture of opportunistically gathered leaf and needle fragments, stems and twigs, tiny pebbles and bits of charcoal. This amalgamation provides protection against hard rains, wind, and extremes of temperature and humidity. Inside the structure, rich organic materials provide insulation, food, and living space. The mound of a mature Formica ant colony can rise above the waist of a human, and is designed for maximum solar gain -- when the temperature of the ants inside is raised, they are then able to forage earlier in the spring and rear new broods more quickly. To anyone who has ever considered a solar house, it is not surprising that the mounds of some Formica species are constructed with elongated southern slopes to catch more sun. In parts of Switzerland, these slopes are so consistently oriented that for centuries alpine hikers have relied on the nests as crude compasses. The nests are further heated by the decay of plant materials gathered within the mound, and from the metabolism of the tens of thousands of ants working together in crowded quarters inside. It is there that the general course of ant natural history plays out.

Each nest begins with nuptial flight of an established colony, where a virgin winged queen mates with a winged male. Each new queen flies away, risking a host of predators and mishaps in an attempt to begin her own family structure. If one of these females succeeds in reaching a favorable spot, she clips her own wings and laboriously digs enough of a cavity in the ground to protect herself while she lays the eggs that will form her first brood. The new queen nourishes the hatched white grubs, called larva, on energy stored in her body, then waits while her children move into their their black glossy pupal stage. The adults that emerge from these pupa are mostly female workers, a force of strong daughters who continue the excavations the queen started, allowing her to move deep underground for security from the elements, predators, and kicking feet. It is there the workers begin to supply their mother queen with the food she needs to lay many thousands more eggs over the next few years.

The worker daughters are the ones who gather the material to construct the mounded city that houses the growing colony. They continually rearrange the thatch, opening vent holes and shutting off galleries, to carefully regulate the temperature of the precious coming broods. Some workers from the new colony follow scent trails back to the original home of the queen, and there can be enough interchange between a series of such outlying mounds to form what is in effect an ant supercolony, with a population counted in the millions.

The mound-building Formica ants are familiar to anyone who has spent time outside in our region, and anyone who has bent close to one knows that they can produce a pretty sharp sting. If you pick up one ant by the back and hold it to your face, it will also give you a faint spray of formic acid, citrus smelling and not at all unpleasant. School kids on their campouts often eat these ants in a show of heartiness, and the Fairchild Air Force Base Survival School recommends that lost hikers make a nutritious lemonade by dropping handfuls of them in hot water, although for full effect you have to make sure to eat the dregs after you're finished sipping.

The native tribes know these mounds as part of the scheme of the landscape, and still tell funny stories that reveal clues about the life history of little Ant. In a cryptic line from a long and complicated Raven tale related more than a century ago by a St. Mary's Kootenai man named Barnaby, Raven has lost a son and a daughter by accident when Ant suddenly appears as the designated grave digger. Then, when they were talking, Ant tightens his belt in order to bury the dead. He almost cuts himself in two, and is small in the waist after that.

A Yakama story collected by L.V. McWhorter follows the same theme: Ant makes a belt out of Deer's hide, but it has not been cured according to established rules. Deer comes back to life and runs away, dragging little Ant along behind. The buckskin is drawn tighter and tighter, cutting deeply into his belly. Deer continues running and finally breaks loose. Poor Ant is left squeezed small at the middle, a shape which has been with him to this day.

Such stories about the form and nature of ants are directly connected to more practical knowledge. For untold ages Columbia Basin tribes have used natural depressions in rockslides below basalt cliff faces to store food. These talus pits kept the goods cool and protected in hot summer weather, but could be prone to visits by mischievous pack rats and coyotes. Such raids were discouraged by taking handfuls of the thatch from an abandoned ant mound and spreading it around the pit. The thatch would be infused with formic acid, an odor that announced its presence to everyone in the vicinity. And all the creatures of the forest, desert, and mountains, from the smallest mouse to the most insensitive human, know that the last creature you want to mess with is little Ant.

Thanks to Sue Frieberg and Dr. Laurel Hansen for help with this article.

Illustration by Emily Nisbet.

Article can be found at:
http://www.northcolumbiamonthly.com/boundaries/boundaries0107.shtml