

# NATURE DETECTIVES

Winter 2007

## Porcupine: A Prickly Critter

When someone is cantankerous and grouchy, we might say that person has a "prickly personality." The porcupine (*Erethizon dorsatum*)

doesn't seem particularly cranky, but don't ever try to touch one or you'll likely get a skin full of needle-sharp quills. Ouch! It is best not to bother prickly people or prickly porcupines.



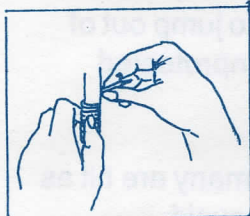
Unlike most wildlife, short-legged porcupines can't run away quickly. They are shy critters that usually stay hidden in brush or behind leafy branches. If you are lucky enough to see one, it will often go about its porcupine work while you watch for as long as you like. One good thing about porcupines is that they are easy and fun to watch – if you can find one. Wildlife biologists are worried that porcupines might be getting scarce in Boulder County. Sadly, they are not sure why the porcupines are disappearing.

## Porcupine Quill Art

Another good thing about porcupines is the lovely art made from their quills. Starting centuries ago, Native American artists skillfully decorated various things in their lives with beautiful quill art. The artists sorted the quills by size and sometimes dyed them different

colors. The quills were softened, usually by saliva in the artist's mouth. (Carefully!) The soft quills were flattened between the artist's teeth or with a thumbnail. The flat quills could be

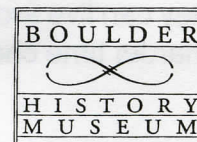
woven into patterns, or stitched down to hides or wrapped around an object such as a knife handle.



A few artists still enjoy crafting with quills today, and some actually get their quills by touching a live porcupine with styrofoam. Don't worry about the porcupine; it will grow new quills to replace any lost quills.



A special exhibit on the Arapaho Tribe's traditional use of the porcupine, including quill art, is now on display at the Boulder History Museum. See <http://www.boulderhistorymuseum.org/> for hours and location.





## Prize-winning Porcupines



Like mice and rats, porcupines are rodents, really big rodents. Only beavers are bigger members of the rodent family in North America. If an award could be given for an animal with the best defense for the least amount of effort, porcupines would surely win the prize.

Fluffy-looking porcupines waddle along, never seeming to worry about becoming anyone's dinner – for good reason. Most animals know to steer clear or they will get a face full of painful quills. If a porcupine is disturbed it will chatter its teeth then put its quill-less nose between its paws and turn its back on the harasser. The porcupine squeezes muscles under its skin, and 15,000 to 30,000 quills that were lying flat under long, yellow guard hairs suddenly stick up and bristle in all directions. The quills are shortest at the forehead, and become longer and thicker along the porcupine's humped up back and hefty tail.

Some quills are four inches long. If the porcupine is touched, it swings its thick tail very quickly, back and forth, often slapping an unwary animal right in the face. The top of the tail is loaded with long quills that stick easily into the other animal's hide.

Whether the other animal might be an inexperienced hungry coyote or a curious golden retriever, the quills are a throbbing lesson to stay away from porcupines. The quills are barbed with hooks so tiny you can't even see them, but once the quills pierce the hide, the barbs swell up with water in the skin. The arrow shape of the swollen barbs makes them very difficult and painful to remove, and any movement pulls the quills further and further into the skin.

## Overcoming Porcupine Defense

Despite the porcupine's terrific quill defense, some mountain lions kill and eat porcupines. These predators know that porcupines cannot throw their quills, and they know to jump out of reach of the swinging tail. They look for an opportunity to slip a paw under the unprotected nose, flip the porcupine over, and attack the quill-free soft belly.

Quills can't protect porcupines from cars, and since porcupines don't see well, many are hit as they slowly make their way across the road. If porcupines stay off the road and avoid predators, they can live around seven years. As they age, their back teeth get worn down, and they have a harder time chewing enough food to survive.



## Porcupine Bodies Built for Tree Climbing

Porcupines use their sense of smell for locating food and their hearing for sensing danger, and they can make many noises from grunts to meows and wails. They excel at climbing trees. Their long claws dig into the bark as they climb. The quills on their muscular tails poke into the tree and help steady the porcupine as it climbs or sits on branches. Bumpy pads on the porcupine's feet help it grip tightly, too. Their back claws grasp the tree as they use their front claws to pull off bark or leaves. Their always-growing, beaver-like, front teeth are good for biting off tough twigs and bark. Surprisingly, porcupines do fall out of trees and even get poked with their own quills, which they remove with their teeth and front feet.

## Built to be Active All Year

The long yellow guard hairs are what you first notice on a porcupine. Many people mistake these strong hairs for the quills. The guard hairs and dense underfur keep the porcupine warm during the winter as it scrounges for food. Scarce foods found during the winter include the barely nutritious inner bark of trees and pine needles so by spring the porcupines are scrawny and hungry. During the summer, they feast on a variety of plants – eating buds, stems, leaves and berries. They crave salt, and will chew on anything people have carried because our sweat contains salt. Backpacks, ax handles, canoe paddles, even shoes have been ruined by porcupines hungry for salt. They chew old bones and antlers for the minerals, too.

Porcupines do most of their eating at night, but they can be active or asleep at any hour. They sleep in rock crevices or in trees. During extremely snowy weather, porcupines hole up in natural dens on rocky south slopes, in hollow trees, under old buildings or hidden in leafy trees. Their main habitat is in wooded, bushy areas of aspen and willows and in ponderosa and other pine tree forests.



Gnawing Wood

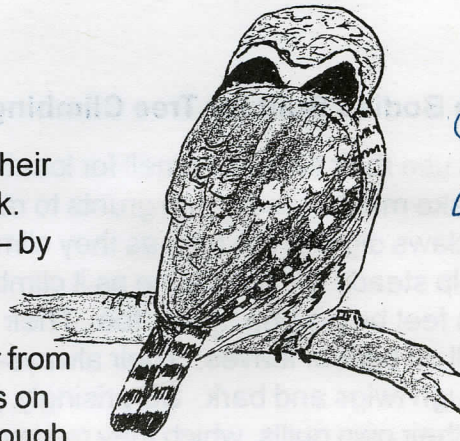
## Babies Born to Climb

Porcupine moms usually give birth to one baby in the spring. Babies are born with soft quills, which soon stiffen to provide a ready defense. A few hours after birth, the wide-eyed baby can follow its mom about the forest, often staying hidden below the tree where she is feeding. Within a couple days, the baby starts climbing practice and gets quite good at climbing after a few weeks. By fall, it is ready to wander off on its own to face its first winter.



## Animal Defenses

Animals have developed many good ways to protect themselves from harm. Some, like the porcupine, use their defenses to scare away an animal when it tries to attack. Skunks also use their defense when they are attacked – by spraying a stinky substance to drive the attacker away.



Pygmy Owl

Other animals have defenses that may keep a predator from even approaching them. Rattlesnakes shake the rattles on their tails if they feel danger is near, and that may be enough to convince most animals that they shouldn't even try. A pygmy owl has black marks that look like two eyes on the back of its head, so a predator approaching it from behind would think that the owl is glaring right at it. Some animals try not to even be seen by predators, and they use camouflage as a defense. The snowshoe hare has camouflage for different seasons. These hares live up in the mountains, where there is snow on the ground for much of the year. In the winter they are pure white, to blend in with the snow, and in the summer when the snow melts away their coats turn to brown.

These are only a few examples of the ways that animals have developed to protect themselves from danger. Can you think of some other interesting defenses?

## Design a Defense

Try this: Make up an imaginary animal that has special adaptations for defense. Think about what kind of predators your animal would need to defend itself from...

Your animal could have a combination of some of the defenses mentioned or brand-new ones!

**Draw your new animal in the space below.**

