

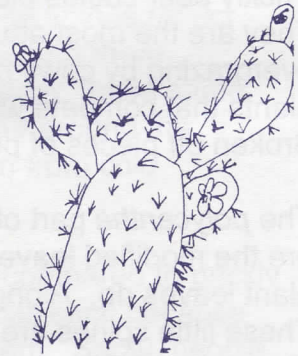
NATURE DETECTIVES

Summer 2008

Why, Oh Why, Cacti?

Ow! Yes, another prickly pear cactus spine stabbed someone's ankle.

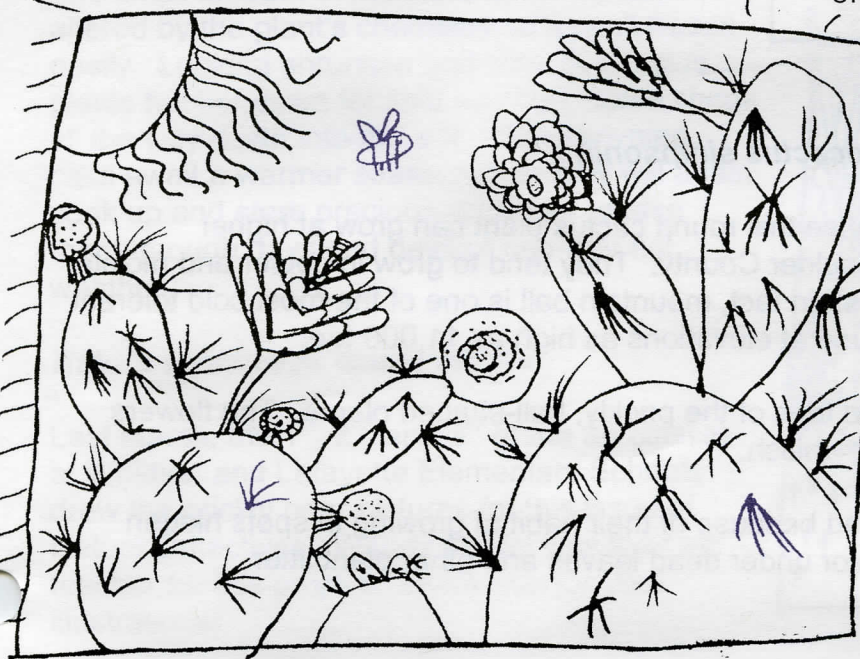
At times, it seems that plants such as the prickly pear cactus must exist only to torment hikers who aren't careful where they step. And, pity those cattle that aren't careful where they stick their noses while searching for sweet grass. Ow!



It is easy to be mad at prickly plants just for existing, but cacti (viewed at a safe distance) are important and tough contributors in their dry habitats. Their very existence helps ensure the survival of many creatures that share their harsh environment. The roots and fat stems of cactus plants have evolved to store sparse rainwater quickly before the water droplets can evaporate or drain away in sandy or rocky soil. During long dry spells when tender plants turn brown, animals would surely destroy succulent cacti by munching the plants for dinner if the cacti lacked their defensive spines. Protected by their prickly outside, cactus plants do survive to the benefit of bees and other insects, birds and animals.

Food in Flowers and Fruit

Brightly colored cactus blooms attract bees that collect the flower pollen and sip the flower nectar to feed themselves and their young. Some pollen grains fall off the bees' little bodies as they buzz from cactus to cactus. The powdery pollen, carried from one flower and dropped in another, is necessary for production of the cactus fruit.



Birds, rodents, and other animals eat cactus fruits. The seeds inside the fruits are spread by the bird and animal droppings to start new cactus plants. The cactus plants, the bees, the bushy-tailed woodrats, the coyotes and many other critters that share their dry habitat are dependent on each other for survival. They all play a part in making a beautiful place – fascinating for its contrast to wetter habitats.

But, be careful where you step!

On the Lookout for Cactus

Prickly pear cactus (*Opuntia polyacantha*)

Prickly pear cactus plants are the ones we often see in Boulder County for good reason. They are the most abundant cactus type here, and they thrive in the dry sandy soil. Even overgrazing by cows helps them spread. When cattle spend too much time munching the plants that compete with prickly pears, the cactus seeds get plenty of room to sprout. Broken off pieces of prickly pear stem can start whole new plants, too.

The *polyacantha* part of their scientific name means "many spines." The spines or thorns are the modified leaves of the plant. Spines don't lose water in hot weather the way regular plant leaves do. Along with the big obvious spines, prickly pears grow tiny barbed spines. These little spines are red or yellow, and they easily come off the cactus to pierce skin. They are painful, very difficult to see and very hard to remove from skin.



Cactus roots are designed to quickly take up water during rain showers. The water is stored in the thick stems of the cactus. The broad, pear-shaped pads of the prickly pear cactus look like fat leaves, but the pads are actually enlarged stems. These stems store energy from the sun and produce flowers and fruit and seeds.

In the summer, look for the showy reddish-orange to yellow flowers on the plants. Prickly pears will grow at elevations up to 10,000 feet.

Mountain ball cactus (*Pediocactus simpsonii*)

Mountain ball is a great name because this round cactus plant can grow at higher elevations than any other cacti in Boulder County. They tend to grow in cooler and moister places than most other cactus types. In fact, mountain ball is one of the most cold tolerant species of cactus and has been found at elevations as high as 11,000 feet.

Flowers form in a small circle on the tops of the prickly, ball-shaped plants. The flowers may be light to dark pink, yellow, or whitish.

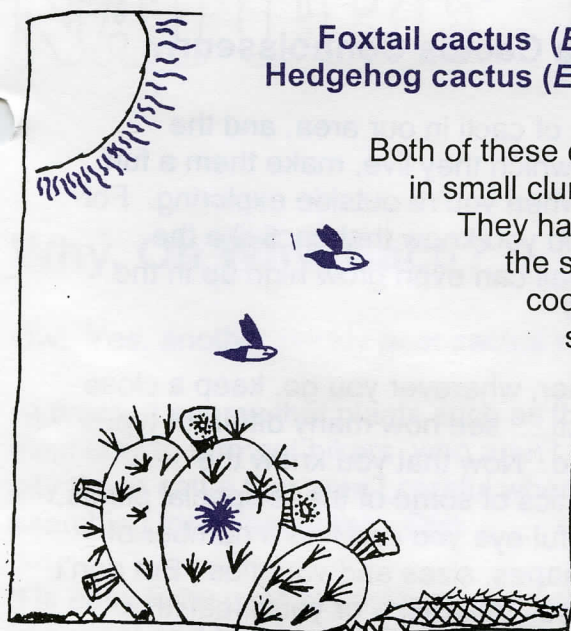
These lovely cacti often go unnoticed because of their habit of growing in spots hidden under grasses or other taller plants or under dead leaves and other plant litter.

Foxtail cactus (*Escobaria missouriensis*)
Hedgehog cactus (*Echinocereus coccineus*)

Both of these cactus types have funny animal names and both grow in small clumps or mounds, usually on rocky hillsides.

They have many light-colored spines. The spines reflect the sun and help shade the plants, keeping them cooler on the hottest days. In the winter, these same spines help hold a bit of warmer air around the plants, providing a little protection from cold temperatures.

They are much harder to find compared to prickly pear cacti or even mountain ball cacti because there are not very many of them. Sadly, people sometimes dig up these cactus plants to put in their own gardens, even though the plants seldom survive the transplanting.



Besides unscrupulous plant collectors, other factors have reduced the numbers of these plants. In the past, wildfires would burn unchecked through brushy areas, killing bushy plants and opening up new habitat for cacti to grow. Now houses stand in many habitats where cacti once lived.

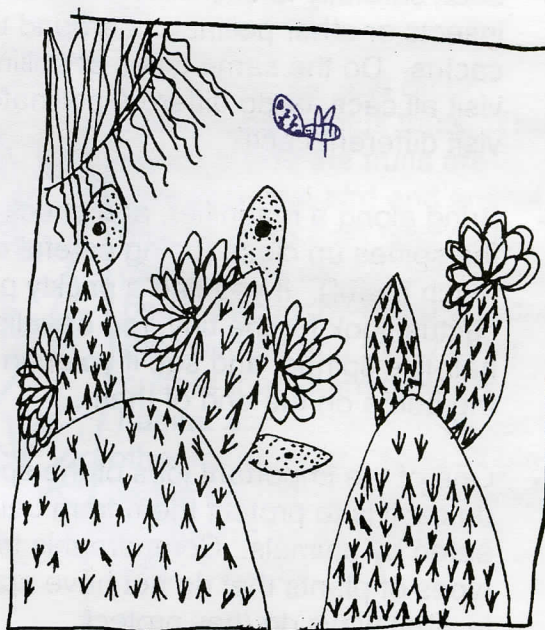
Winter Survival

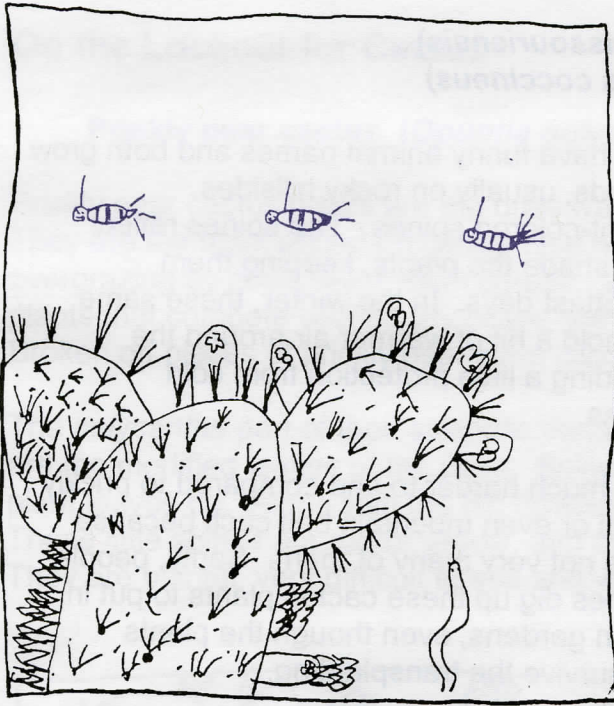
Cacti are perfect survivors in dry hot conditions, but they need to change their habits to endure winter. Instead of keeping their stems fat with stored up water as winter approaches, cacti get rid of the extra water that would split the stems if it froze.

The small amount of moisture left in the stem is altered by the plant's chemistry so it can't freeze easily. Looking shrunken and limp, the cactus plants hunker down for cold weather; some shrink all the way down into the soil. The shriveled cacti await a warmer season when they will again soak up and store precious rainwater to take them through days and days of rain-free hot weather.

Nature Detectives Guest Artists

Last March, the 1st, 2nd and 3rd grade art classes at Whittier and Lafayette Elementary Schools drew the prickly pear pictures for this issue of Nature Detectives. Wendy Daniel was their art teacher for this project. Thank you for your illustrations!





Become a Cactus Connoisseur...

The variety of cacti in our area, and the habitats in which they live, make them a fun discovery when you're outside exploring. For instance, did you know that cacti like the mountain ball can even grow high up in the mountains?

This summer, wherever you go, keep a close eye for cacti... see how many different types you can find. Now that you know the characteristics of some of these special plants, with a careful eye you can find a number of different shapes, sizes and varieties. But don't get too close – OUCH! – or you'll feel it!

Some ideas for an aspiring cactus connoisseur:

- Keep a field notebook to record observations when you come across a cactus – Where was it found? What is the shape of the cactus itself? Does it have flowers, and if so, what color/size are they? Do you see any fruit on it?
- You can draw field sketches of the cacti like the students who made the prickly pear drawings on these pages.
- Look carefully to see if there are any insects or other pollinators around the cactus. Do the same types of pollinators visit all cacti, or do different pollinators visit different cacti?
- Bring along a magnifier, and check out the spines up close (being careful not to touch them!). If you find a prickly pear cactus, look for the tiny, red or yellow hair-like spines, and see if you can find the barbs on the end of them.
- One of the important jobs of the spines on cacti is to protect them from being eaten by animals. Compare this to other types of plants that do not have spines – in what ways do *they* protect themselves?

