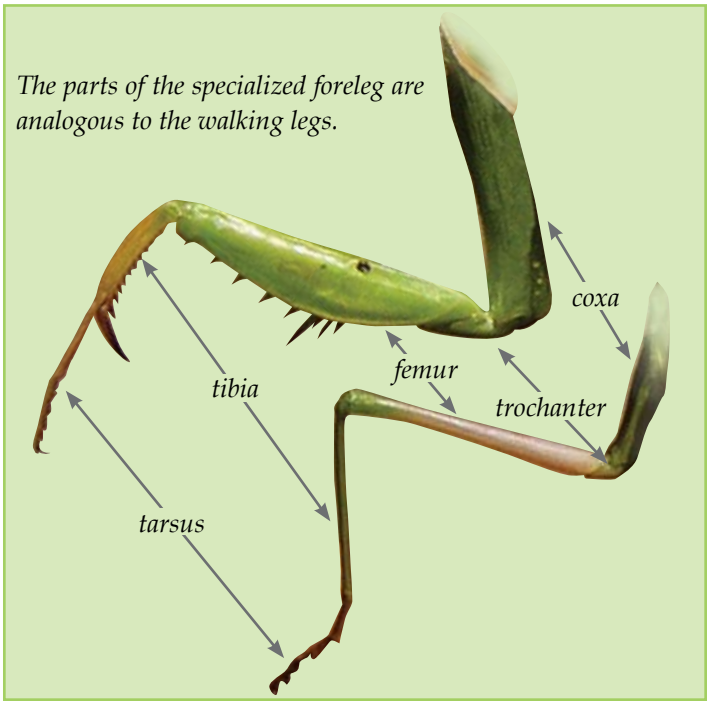
neighborhood naturalist

Nature you can find in town and the nearby countryside *Corvallis, Oregon* *Summer 2009*

Mantids

article and photography by Lisa Millbank

I was captivated by mantids as a child, and I kept a mantid menagerie in my bedroom. Both European and Chinese Mantids waited patiently (each in a cage of its own to prevent cannibalism) to devour the unfortunate insects that I caught for them, or crickets from the pet store. While I don't keep them at home anymore, I love to find one on a summer day, and let it crawl around on my hand. I like the way their funny triangular heads swivel around to watch me. And when I see one eating prey, though it's a little gruesome, I have to sit and watch until the mantid finishes its fastidious postprandial cleaning, washing its face and formidable claws like a cat does.



The parts of the specialized foreleg are analogous to the walking legs.

An adult female European Mantid has a large abdomen and relatively short antennae.

Although other regions of North America have native mantids, the mantids we see in our gardens and nearby fields are almost all the European Mantid (*Mantis religiosa*), also called the Praying Mantis. Supposedly, the folded forelegs looked rather pious to Europeans, hence the "praying" in the common name and "*religiosa*" as the specific name. Even the generic name "*Mantis*" is a Greek term for "prophet" or "seer." I'm sure I'm not the only one to think that "Preying" Mantis would be a better name. The European Mantid seems here to stay, as it's naturalized in the Willamette Valley and across much of North America. European Mantids may be green, tan or brown, but they all have a black and white eyespot between the spiny forelegs. Occasionally, Chinese Mantids or other species may turn up in backyards, because these insects' eggs are sold as biological pest control.

The mantids share a common ancestry with cockroaches and termites. Their forelegs are made of tough chitin and furnished with an array of sharp spines. Catching a venomous spider or wasp is not much of a risk to the mantid—with one quick lunge it grabs and immobilizes its prey and methodically eats the still-living victim. Interestingly, there are a few unrelated insects that have evolved similar forelegs, such as the mantidflies.

Brown Mantidfly
This interesting, harmless insect mimics a wasp and has very similar forelegs to the mantids, but is unrelated. Its order, Neuroptera, includes the lacewings and ant lions.

The armored forelegs of the mantid are attached to the elongated first segment of its thorax. Unique among insects, the mantid can rotate its head through nearly 300°, allowing it to track the movements of prey without moving its body. The walking legs are on the second and third thoracic segments.

An adult male has long antennae, a slender body, and wings capable of flight. An adult female also has wings, but a much heavier abdomen, making her unlikely to ever fly at all. But she has little need to fly anywhere. Her only dilemma is in finding a mate in late summer. The solution is for her to emit a pheromone to which the male's antennae are highly sensitive. When a male detects her signal, he begins flying or walking in her direction. Eventually he will see her and approach her for mating.

Like the Black Widow spider, the female mantid has a fearsome reputation. She is far larger than the delicately-built flying male. But it's a myth that she always eats her mate. Males seem to do their best to get away after mating, and they often succeed. When I had mantid pets, I used to feed the female well before introducing a male into her cage. I wanted to keep the male to fertilize the other females I had, in order to produce fertile eggs. By ensuring that the female was well-fed, the lucky male always escaped to mate again. While many males do get away, not all of them are so successful. While walking through a grassy field last summer, we did see an unfortunate suitor who was being eaten, bit by bit. However, his abdomen gamely continued to mate, although the female had chewed off his entire head and most of his thorax. Insect nervous systems are more diffuse than those of vertebrates, with nerve cords and ganglia along the length of the body. Probably the nerves that control copulation were undamaged and enabled his abdomen to go on with business as usual. When a male turns from mate to prey, he contributes to the female's nourishment, enabling her to produce more offspring.

A male European Mantid has a thin abdomen and long antennae.

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Whether she's consumed her mate or not, it's soon time for the female to lay her eggs. My pet mantids seemed to do this at night. The female lays a mass of 50-250 eggs in a frothy, foam-like substance that hardens into a protective case called an *ootheca*. This light and resilient structure will house the eggs and developing embryos until the warmth of late spring stimulates the babies to hatch.

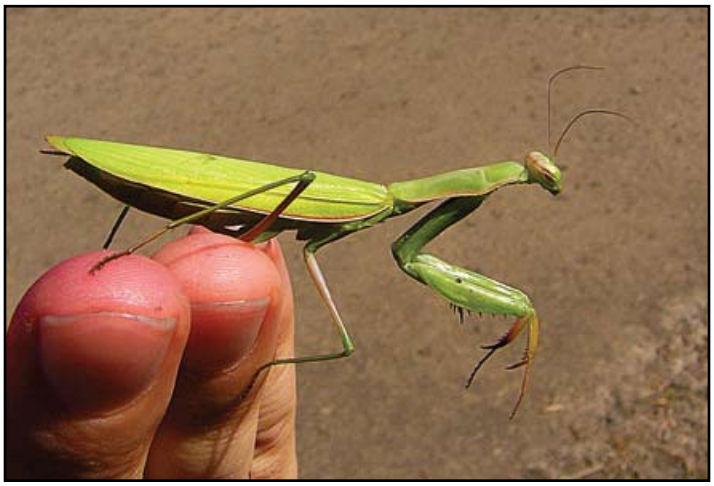
Mantids undergo gradual metamorphosis of six to nine molts, so the newly-hatched babies, or nymphs, look like tiny adults lacking wings. A nymph's first meal may be one of its own siblings. Out of the hundred or more nymphs per ootheca, only a few might make it to adulthood. The nymph's family of ravenous little cannibals is dangerous enough, but it also must run a gauntlet of spiders, reptiles, birds, and small mammals.

Mantids of all ages have predators, and they employ a few defenses. These elongated insects resemble leaves of grass or a twig, and sway in the wind to enhance the illusion. If camouflage fails, young mantids are nimble jumpers, enabling them to move quickly into thick vegetation and hide there. Adult male mantids are fairly good at flying, and might escape a predator this way. Mantids that are provoked may do a dramatic and startling display. I've seen an adult female suddenly unfurl her wings (making a hiss), and spread her spiky forelegs to reveal her black and white eyespots. The display might look fierce enough to frighten a small bird pursuing the mantid.

If you find a mantid and would like to handle it, gently direct it onto an outstretched hand, where it will be content to move around freely. Don't pick up a mantid by its armored thorax or abdomen. When I was first interested in mantids as a child, I learned from experience that holding a mantid this way may result in a strong pinch and biting (although it can't draw blood). A mantid that resorts to this kind of self-defense is being handled too roughly. A mantid walking around calmly on your hand will never bite or pinch.

Mantids are delightful garden insects, but are not selective in the prey they consume. Whether they make a noticeable difference in pest populations is a matter of debate. They are as likely to eat beneficial creatures such as bees, butterflies, and spiders as they are to eat earwigs, cutworms, and other insects a gardener might wish to control. To encourage mantids in an insecticide-free garden, you can mail-order oothecae from a variety of websites, or simply collect male and female mantids and place them in your yard.

This adult male European Mandtid is tan.



This is a green form adult female European Mantid.

Watch a video of a European Mantid at www.neighborhood-naturalist.com

This European Mantid nymph looks like an adult without wings.

Three is an average-sized raccoon litter.

Summer School

photography by Lisa Millbank

It takes time for a young raccoon to learn what's edible and how to get it. This raccoon family is foraging along a wetland edge in summer. The young raccoons have an innate drive to rummage around in the mud with their sensitive hands, but using this method to identify and catch food takes a lot of practice. Fortunately, their mother still provides milk as her family gradually becomes proficient at catching aquatic food. Raccoons learn to find food almost anywhere, and their mother will show them foraging places where they'll learn to pick blackberries, find acorns and catch grasshoppers.

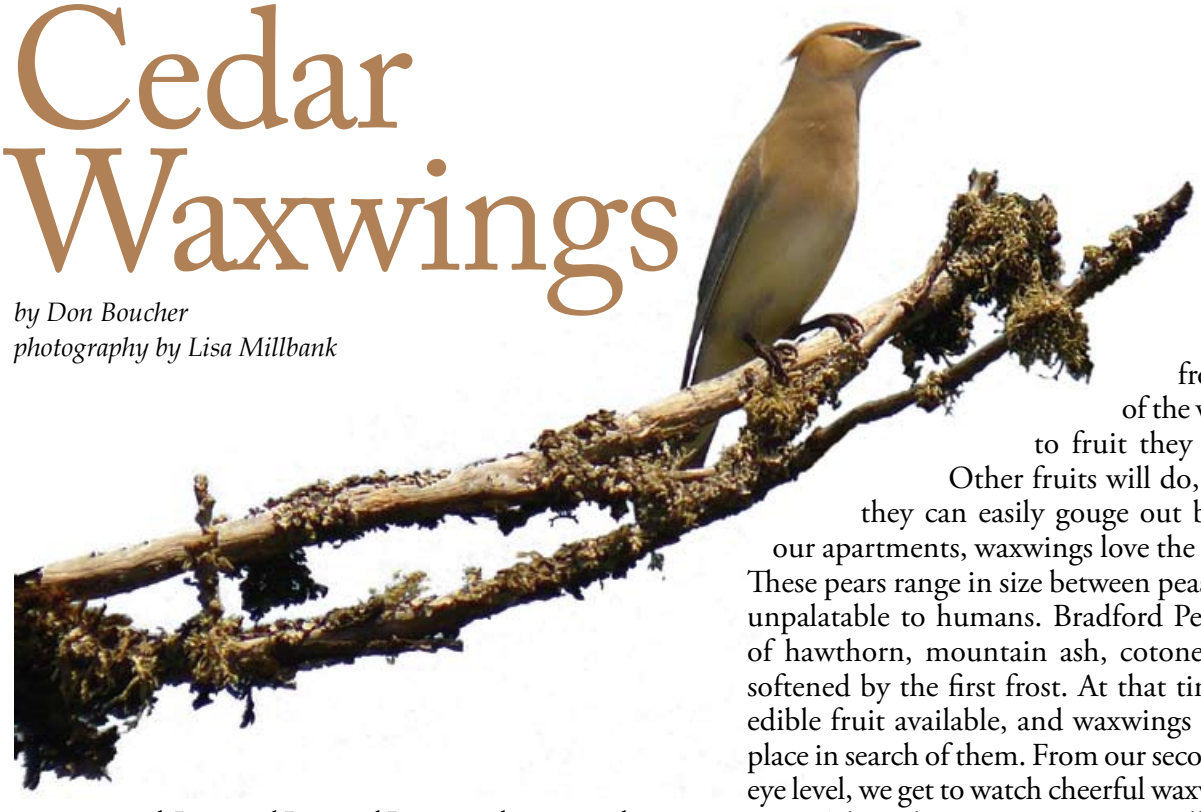
This little raccoon will need months of foraging practice and Mom's guidance before becoming independent.

The mother raccoon is prepared to defend her young by growling and biting if necessary, but prefers to quickly lead her family away from danger.

Mom knows all the techniques for catching prey in shallow water. She requires extra food during lactation.

Cedar Waxwings

by Don Boucher
photography by Lisa Millbank



It was mid-June and Lisa and I were picking strawberries. This no-spray farm hosted a healthy and diverse insect population. The insects attracted hundreds of birds, but the birds were eating more than just insects! Here and there we found a strawberry with wedge-shaped holes. While kneeling over a row of strawberry plants, I could hear the high-pitched calls of Cedar Waxwings nearby. Somehow their calls seemed particularly gleeful. I slowly peeked over the row of plants and I caught glimpse of a waxwing in the next row with a strawberry-stained bill. A few moments later, when I changed my picking position, I startled some nearby waxwings. They seemed clumsy and slow to respond. Perhaps the birds were so distracted with this glut of food (or maybe their bellies were so taut with strawberries) that it took them an extra second or so to get airborne. The hordes of happy waxwings were delightful picking companions, even though the occasional berry was damaged. There were plenty of berries to go around.

Cedar Waxwings are gregarious and arboreal. They are nomadic migrants whose population varies from year to year. In the Willamette Valley, their numbers have an annual trend. In late winter to mid-spring, many migrate south with only a few remaining in the area. Many return in late spring. By mid-summer, they tend to be in pairs for nesting, but throughout the rest of the year they're always in flocks. In late fall and early winter, large numbers gather with robins and starlings in trees and shrubs with late-ripening berries. Waxwings from the north may come to our area during this part of the season as well as waxwings from less fruitful parts of the valley. They're partial to fruit they can easily swallow. Other fruits will do, like strawberries, if they can easily gouge out bite-sized pieces. At our apartments, waxwings love the Bradford Pear trees. These pears range in size between peas and grapes and are unpalatable to humans. Bradford Pears, and the berries of hawthorn, mountain ash, cotoneaster and holly are softened by the first frost. At that time, they're the only edible fruit available, and waxwings roam from place to place in search of them. From our second-story window, at eye level, we get to watch cheerful waxwings gulp Bradford Pears. They also eat insects, especially in summer when they need protein to feed their nestlings. Waxwings perch in the trees and go on fly-catching sorties that last a minute or more. This can be easily observed over a stream, where they mingle with the swallows.

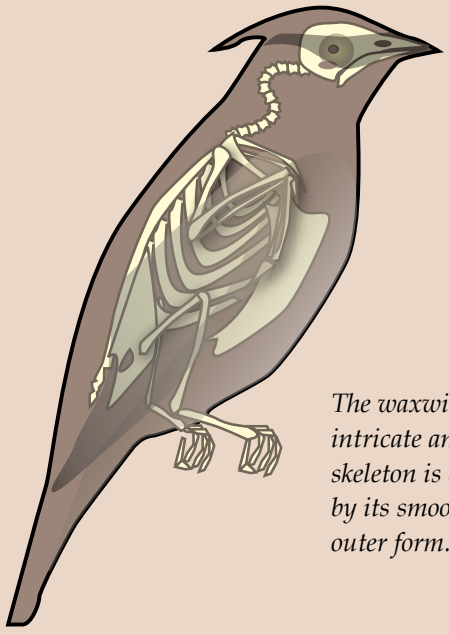
Juvenile waxwings have streaky, mottled plumage.

I took care of an orphaned waxwing nestling for two days. A friend who worked at Chintimini Wildlife Rehabilitation Center who was caring for it had to leave town. I was instructed on how to be a temporary waxwing parent. At the time I worked a few blocks from my house so I could feed the nestling during my breaks. It was a scraggly-looking thing about two-thirds adult size, begging with a high-pitched trill. Waxwings feed their babies insects and fruit. To replace the insect protein I fed it cat

food soaked in water. Conveniently, there was a hedge full of ripe blackberries on my block. I fed the little bird with a mixture of berries and cat food. I used tweezers and stuffed the mixture right into its gaping yellow mouth and down its throat, just like its parents would. Its feathers were not entirely grown, so I could watch the lump of food travel down its crooked neck. In adults, the contorted shape of the neck is concealed by smooth feathers (see skeleton illustration). It didn't seem content until I could see a bulge in its chest from its full crop. At night I would cover the waxwing's cardboard box with a cloth. All this time I kept the bird in the bathroom, away from my cat. The baby waxwing was soon returned to more capable hands and released into the wild in the fall.

Waxwings spend a lot of time near the tops of trees making high-pitched quavering whistles. Their sounds are either ignored or inaudible to many people. Many people are unaware that Cedar Waxwings are common, even though they don't come to seed feeders or forage in lawns. Waxwings love birdbaths, and it's quite a spectacle to have an entire flock descend to drink and bathe. They may also come to ground and bathe in a puddle or a small stream. Of course, people who have fruit trees in their yard get to see many waxwings. The social flocks love each other's company. I took a video of a pair in springtime passing a flower bud back and forth to one another. You may see them do this with berries too.

A waxwing gulps a Black Hawthorn berry in early fall.



The waxwing's intricate and compact skeleton is concealed by its smooth, sleek outer form.

illustration by Don Boucher

Waxwings enjoying a puddle bath with some robins

Watch a video and hear the sounds of Cedar Waxwings at www.neighborhood-naturalist.com

This waxwing was just eating cherries and its belly is stained with cherry juice.

Waxwings have hard keratin tips on the shafts of the secondary flight feathers (red) and tail feathers (yellow). These resemble hard sealing wax – hence the name "waxwing."

A secondary flight feather with its red, wax-like tip

The waxwing family, Bombycillidae, includes only three species, the Cedar Waxwing, Bohemian Waxwing and the Japanese Waxwing. Cedar Waxwings are exclusive to North America and the only waxwing species we have in the Willamette Valley. Bohemian Waxwings live in Asia, Europe and North America. Japanese Waxwings are exclusive to Asia. Waxwings were once considered members of the Silky Flycatcher family, which is represented in North America by the Phainopepla. Other familial affinities have been suggested, but waxwings remain relics whose close relatives have vanished. Bombycillidae in Latin means silky-tailed.

Go out and enjoy some waxwings this summer. Track them by listening for their calls, pick berries with them, or sit by the river and watch them catch insects.

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Cooper's Hawk

Young Hawks

Although adult Cooper's Hawks and Red-tailed Hawks have distinctive patterns and colors, the brown young hawks will soon fledge and can be difficult to identify. While adult Cooper's Hawks (and the similar Sharp-shinned Hawk) have rusty barring on the breast and a blue-gray back, the young Cooper's Hawk has vertical striping on the breast, a strongly barred tail, and a brown back. An immature Red-tailed Hawk lacks a red tail, but has a brown banded tail, and usually has a V-shaped pattern of mottled feathers on the back.

Red-tailed Hawk

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