

# neighborhood naturalist

Nature you can find in town and the nearby countryside

Corvallis, Oregon

Winter 2006-07

## Brilliant Blues

### Western Scrub-Jay

*Aphelocoma californica*

by Lisa Millbank

Each morning after sunrise, a long, sturdy beak pokes down over the rain gutter above our apartment deck. A sparkling brown eye, graced with an arched white eyebrow, looks around inquisitively. Then the beak opens and emits an earsplitting shriek. It's breakfast time for our Western Scrub-Jays, and they always make sure to let us know!

Maybe it's that loud, raspy screaming of the neighborhood jays, or their bold assaults on bird feeders, but whatever the reason, many people aren't fond of jays. Perhaps people develop an idea for what a bird should be, and jays don't fit in. "Nice" birds are timid, sing melodiously, and daintily pick seeds from our feeders. In contrast, jays eat baby birds, shriek harshly, and scare the finches as they swoop to bird feeders. It's true that jays do all these



One of our peanut monsters checks out the situation on our deck.

things, but I want to reveal to you their endearing, deeply perceptive, and even gentle character that may not be so obvious. Western Scrub-Jays are even the subjects of new research that is expanding our awareness of non-human forms of intelligence.

All jays, crows, ravens, magpies and nutcrackers belong to the same family, the Corvidae. They are long-lived and intelligent birds, full of character and successful worldwide. The mid-Willamette Valley is home to two resident jays: the Western Scrub-Jay and the crested, darker Steller's Jay. Visiting flocks of Gray Jays occasionally descend from higher elevations to the forested foothills of the valley. Over much of the valley, especially in open areas with oaks, and in many neighborhoods, the Western Scrub-Jay is the most numerous.

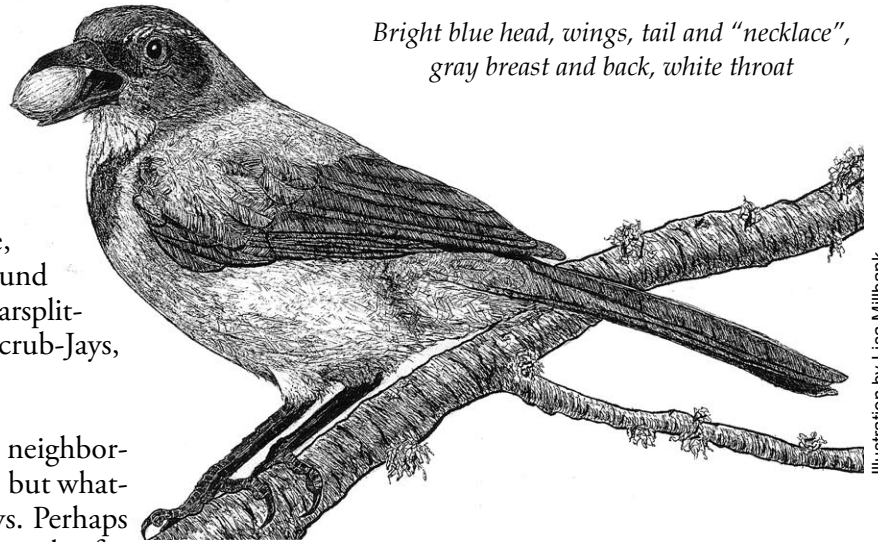


Illustration by Lisa Millbank

Bright blue head, wings, tail and "necklace", gray breast and back, white throat

Our three neighborhood jays are a mated pair (jays form a life partnership) and their friend, probably one of the pair's offspring from a previous year. They don't tolerate other jays in their territory, and certainly a hawk is most unwelcome. When a young Red-tailed Hawk perched across the street, they screamed at it incessantly, until the crows joined the uproar and drove it away. A raccoon sleeping in a tree is another favorite target of a jay yelling party. But while jays must sometimes engage in serious conflicts, most of the screaming and chasing we see is just their boisterous style of play. They chase one another with a flowing grace among branches, or swoop in to snatch an unguarded peanut before another jay gets it. And they like to call loudly to the other jays in their territories. Soon another jay will come over to see what is so exciting, and join in the lively screaming.

While Western Scrub-Jays use their loud voices to communicate over long distances, they have a few sounds that may seem uncharacteristically quiet. When our jays are picking up a peanut from our deck, or thinking about where to hide it, they make a little muttering *rrk...rrk...rrk...* sound, just to themselves. But the most unique and intimate sound is one that few humans are lucky enough to hear. It is the "whisper-song," a complex, finch-like warbling song, but delivered as if in a whisper, and only audible from a few yards away. I have found no reference

explaining the meaning of this delightful private song, but I'm happy leaving that secret to the jays.

The jay's voices are hushed when other birds are singing in the springtime. Though they are normally playful, bold rascals, during their nesting season the Western Scrub-Jays fall unusually silent, skulking around in brushy thickets with hardly a sound. In the first week of March we have seen a pair of them pulling at twigs for nest material. The birds line their nest with fur or grass. The male feeds the female while she incubates their clutch.



*A jay tugs at an Oregon Ash twig while collecting nesting material in early March.*

When their 3-6 eggs hatch, the parents bring a variety of insects and other small animals for their nestlings. Jays are adept at watching and understanding the behavior of other birds, enabling them to seek out nests and prey on eggs or chicks. Some people feel disturbed by jays killing baby birds, but, like many other species, they must find high-protein food for their fast-growing young. They have the size and

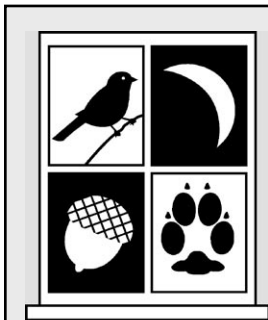
strength to kill vertebrates, and the intelligence to find well-hidden nests. Jays are not cruel animals, but they are resourceful and some become successful hunters.

Though jays do include animal foods in their diets, when their youngsters have fledged and are feeding themselves, the jays turn to their staples of fruits, nuts and seeds. Caching, or burying food items in the ground, is a strategy that enables jays to store food during times of plenty. When one of our neighborhood jays makes its peanut-collecting rounds, it carefully weighs the peanuts. With the biggest one selected, the jay takes it to a habitual caching site, and pounds the peanut into loose substrate, like wood chips or sod. The jay places a marker, such as a small rock or distinctive leaf, on the spot where it has hidden its treasure.

However, some food items that jays cache are more perishable than peanuts. Sometimes they bury insects they have caught or fruits. Recent research has shown that each Western Scrub-Jay keeps a mental inventory of hundreds of food caches, including the type of food, when it was stored, and the perishability of each item. Jays manage their caches by selectively digging up and eating the food that will soon spoil, while relying on less perishable foods for long-term storage. This ability to keep a what-when-where inventory, known as *episodic memory*, was presumed to be a trait exclusive to humans until a study of Western Scrub-Jays proved that assumption wrong.

The part of the jay's brain that stores such information is the hippocampus. This structure is associated with memory formation and spatial orientation in all birds (and ourselves), and it is extremely well-developed in the Western Scrub-Jay. In fact, a study published in the journal *Brain, Behavior and Evolution* showed that of all the jays, nutcrackers and magpies in the study, Western Scrub-Jays were at the top of the charts when hippocampal volume was correlated with body mass, and they had the largest total brain volume relative to body mass of all the corvids in the study.

But episodic memory is not the only outstanding cognitive ability our jays display. Some jays learn to watch for their neighbors caching food in the ground. When the other jay is finished burying and marking the food location, it flies away, confident that it will be able to dig up the food later. But the observing jay quickly moves in to uncover and steal the food. According to research published in the journal *Nature*, a Western Scrub-Jay who pilfers others' food caches knows that it could be robbed if another jay is watching it bury its food. It will wait until the other jay is gone, then dig up and re-bury its food elsewhere. If the pilferer has cached the food in private, it knows the food is safe. In contrast, a jay who hasn't learned to steal will



**neighborhood  
naturalist**

Neighborhood Naturalist promotes interest about nature in backyards, parks and neighborhoods.

#### **Submissions:**

This is a newsletter which caters to nature enthusiasts. Any article, story, poem or artwork which celebrates nature in the Willamette Valley is much welcome. The newsletter publishes 4 times a year around the Solstices

and Equinoxes. Send your submissions two weeks in advance. Contact info below:

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5008 SW Technology Loop #9  
Corvallis, OR 97333

541-753-7689

information@neighborhood-naturalist.com

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naïvely bury food in full view of other jays. The suspicion of the pilfering jay is an example of *experience projection*, a cognitive ability using one's own experience to predict the behavior of another individual in the same situation in the future. Nicola Clayton, a professor of comparative cognition at University of Cambridge, and the author of the study, said, "This is the first time we have seen evidence that an animal other than a human recalled the social context of an event and adjusted its future behavior."

So Western Scrub-Jays are some of the smartest birds around. Their intelligence may not be as celebrated as that of their close relatives, the ravens and crows, but maybe that's because scientists are just beginning to understand their behavior and brain structure.

Despite their prodigious memory of hundreds of food caches, jays inevitably fail to retrieve some caches. Oaks rely on jays forgetting a few of the acorns they've collected and buried. The strategy works for oaks, because not only do the jays disperse acorns to new sites, but they also plant them in the soil. Squirrels, too, cache acorns, but they cannot disperse them as widely as jays do. So when you see Oregon White Oaks on a hilltop, think of the forgetful Western Scrub-Jays who likely planted them there (acorns don't roll uphill!). The jays' caching behavior benefits future generations of jays and many other animals by providing more acorn-bearing oaks.

But where acorns are a seasonal crop, peanuts can be had year-round, for a lucky jay with a human acquaintance. Jays are uniquely willing to befriend humans who offer them food. Why this relationship develops relatively easily between jays and humans may be explained in part by jays' association with deer. Deer stand still to allow Western Scrub-Jays to perform the useful service of picking ticks from their skin, much like an oxpecker. I wonder if jays' relative tameness around humans is related to their predisposition to land on, and feed off of, large mammals. Landing on a human hand to take a peanut is not so different from landing on a deer to glean ticks.

Despite all of their cleverness and adaptability, a danger they cannot escape threatens these birds. West Nile Virus, the mosquito-borne virus that has only spread to western Oregon within the last few years, kills most corvids it infects (although it is only rarely dangerous to humans). In the fall of 2006, a Western Scrub-Jay was found dead in Corvallis, a victim of West Nile Virus. Wherever the virus has appeared, corvids have been hit hard, so I hope that resistance to this virus builds quickly. I'm concerned about the effects of the disease on our neighborhood jays and the greater population.

But at present, Western Scrub-Jays are thriving in the mid-Willamette Valley. Let the jays in your own backyard or nearby park entertain you with their playful and clever personalities. Almost every neighborhood has its own gang of these noisy, mischievous blue rascals. From our deck we watch our jays chasing one another during a break in the autumn rains. A whistle brings them excitedly swooping across the street, eager to grab the day's peanut offering. Their boundless enthusiasm is always heartening, their color mirrors clear skies, and their bright eyes look into our own with friendly curiosity. 🦉



Stacy Drake gives a peanut to Friend, one of the Western Scrub-Jays she and Paul Howard feed in their NE Corvallis neighborhood. They know many of their neighborhood jays by name. They say subtle differences in the jays' white eyebrows and individual behaviors enable them to tell these otherwise indistinguishable birds apart. Photo courtesy Paul Howard.

**Hear the sounds of Western Scrub-Jays online**

[www.neighborhood-naturalist.com](http://www.neighborhood-naturalist.com)

go to the bird sound link



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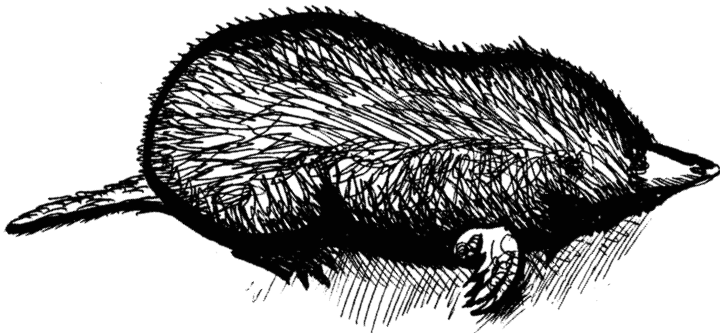
[www.neighborhood-naturalist.com](http://www.neighborhood-naturalist.com) or call 753-7689



# Moles

Article and illustrations by Don Boucher

There are three species of mole in our bioregion. One of them, the Townsend's Mole is, at nine inches long, the largest in mole North America. The other two are the Pacific (or Coast) Mole and the Shrew Mole.



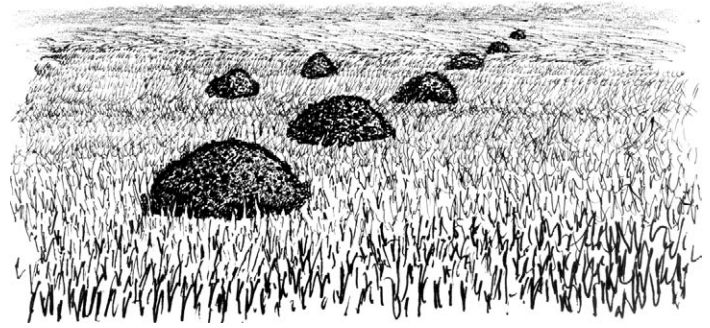
A Townsend's Mole adult is on average six to nine inches long. Males are larger than females. The fur is dark purplish-gray or black and somewhat metallic.

Moles spend most all their time underground, so you're not likely to see one. Many people attribute any sign of dirt excavation to moles or confuse moles with voles and pocket gophers. Voles and pocket gophers are rodents with large buck teeth. Moles are insectivores, like shrews, and have pointy teeth, long noses and invisible ears and nearly invisible eyes. Moles and shrews are more closely related to bats than they are to rodents. Both pocket gophers and moles are diggers and soil movers and leave noticeable evidence on the surface of their excavating. Voles in comparison are effectively little mice in fields and do relatively little soil excavation.

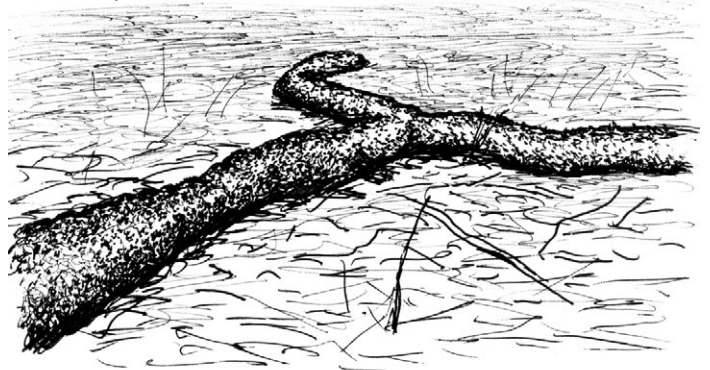
There's some misinformation out there about how to distinguish moles from other earth movers. Moles rarely make exit or entry holes on the surface. The most common sign of mole activity are their mounds which are hemispherical or cone-shaped with no exit hole. Pocket gophers make their mounds by casting the soil to one side of a visible hole. I've watched pocket gophers do this and they often toss the dirt into the air and periodically poke their noses out of the hole. Sometimes the hole is plugged, but when they are finished, the resulting mound is fan-shaped. In contrast, a mole shoves soil upward and it crumbles out from the center. After considerable weathering, the shapes of both pocket gopher and mole mounds become distorted, flattened, and less distinguishable.



This isolated mound was made by a Pacific Mole.



The Townsend's Mole makes characteristically large, numerous mounds, often in rows.



A mole didn't make this because this is rodent activity! Pocket gophers make solid tubular deposits under snow cover called eskers or trail castings. When the snow melts, the eskers lie on the surface. Voles and mice may make eskers too. These kind of deposit is rare in the Willamette Valley due to the lack of snow.



Moles make temporary shallow tunnels which result in a raised ridge, like this one illustrated here, visible from the surface. They differ from trail castings or eskers in that they have a hollow tunnel underneath. Permanent mole tunnels are deeper.

## Townsend's Mole *Scapanus townsendii*

Townsend's Moles move a lot of soil and their hills may be up to seven inches high. These hills result from the removal of soil from tunnels. Each Townsend's Mole makes its own tunnel system which defines its territory. They are solitary creatures and the size of the territory varies with the quality of the habitat. A territory is a little less than half an acre on average. Most tunnels are about six to eight inches deep and are maintained for long-term use. Temporary, shallow tunnels are made during hunting or mating expeditions.

Photo by Lisa Milbank

These result in a ridge visible on the surface. They get most of their sustenance by patrolling tunnels and snapping up any prey that happens into their tunnel system. They eat a lot of earthworms but any other juicy insect or invertebrate will do. Moles are primarily carnivorous, but Townsend's Moles also may eat plant material such as tubers and roots, making them unique among North American moles in that they are omnivorous.

Townsend's Moles are common in the Willamette Valley. They prefer rich loamy soil in fields, bottomlands and floodplains. The sand content in their habitat is typically low. The rows of mole hills in a farmer's field or unfortunate golf course are the result of Townsend's Moles. Although common, there is much that is unknown about Townsend's Moles. I suppose that's due in part to their underground existence. We do know that they breed from early winter until early spring, depending on climate. Males search for females by burrowing shallow exploratory tunnels. Their mating habits are promiscuous and females raise their young alone. They have an average of three offspring. They build some of the most extensive nests among moles, in undisturbed areas like a corner of a field or under a fence. The nesting chamber is a cavity about eight inches deep, within a huge mound about a foot-and-a-half tall and two feet wide. They line the nesting chamber with a layer of wet or green grass. Inside that is another layer made of dry grass and moss. It is thought that as the wet grass decomposes, the resulting heat keeps the nest cozy.

**Pacific Mole**  
**Scapanus orarius**

This mole prefers well-drained, sandy soils in meadows or forests. They make fewer, isolated and smaller hills than the Townsend's Mole, about five inches high. Their general habits are similar to the Townsend's but they make more of the kind of shallow tunnels which result in visible ridges at the surface. Their diet is exclusively earthworms and other soil invertebrates.



*Pacific Mole adults range from five to six inches long. Their fur is dark steely gray with a metallic luster. This is a staged photo with a frozen specimen. Moles seldom make exit holes. We found this poor Pacific Mole dead along a bicycle path. After the photo shoot, Mr. Mole was laid to rest back into the soil.*

Photo by Lisa Millbank

**Shrew Mole**  
**Neurotrichus gibbsi**

*The Shrew Mole is a true mole, not a shrew. It does resemble a shrew in appearance and in some habits.*



The Shrew Mole is the tiniest mole in North America. They make shallow tunnels in leaf litter or loose, decaying vegetation. They're not as common as our other moles and prefer ground free of turf in shady ravines near streams. They spend a considerable amount of time above the surface. They differ from shrews in that they have pointed, naked snouts and no visible ears. Unlike other mole species, their front feet are longer than wide.

It is not easy to distinguish a Townsend's Mole from a Pacific Mole. They are both common in the Willamette Valley and may occupy the same area where their habitats conjoin. The size and frequency of the mounds and type of habitat are the most readily available indicators. If you have a specimen, you may need to take it to an expert in order to determine the species. Townsend's Moles are darker and larger, but there are young and small individuals which are close in size to adult Pacific Moles. A Shrew Mole is unique in appearance and much smaller than both Townsend's and Pacific Moles.



*A Mole's primary senses are smell and touch. This long, pointy and naked snout is an effective sensory tool.*



*Both Townsend's and Pacific Moles have short forelimbs with wide, heavily clawed feet which are effective digging tools.*

Photos by Lisa Millbank

For many people, a mole is a problem to get rid of. If you own a golf course, it's a serious problem because you're dependant on a tidy green lawn for your livelihood. Many people feel it's pretty important to have a tidy lawn on their property in which case moles pose a threat to their style. Moles do little or no damage to crops and they do a service to soil health by their aerating and tilling. They also benefit humans by eating soil pests. Take a closer look at those mounds next time you see them and see if you can determine if they were made by a mole. Don't be afraid to dig into and investigate them, as you will do no harm to the mole or pocket gopher if you do. In the spring, larger, out-of-the-way mounds may be nesting chambers and you may as well leave them alone. Isn't it amazing how much life activity goes on under our feet? 🦨

# Events Calendar

## Naturalist Adventure

Free, Monthly, Starting in November

Meet at Avery Park Rose Garden, Avery Park in Corvallis

**Tracking - Wild Edibles - Native Plants - Birding**

Each trip will focus on a seasonal topic of interest. Sometimes we may seek edible plants, find mushrooms, visit a tracking spot or watch birds. They will be conducted in a 'poke-around' fashion and nothing of interest will be ignored. If the focus is plants for the field trip, we will not pass up good animal tracks. If we are visiting a tracking spot, we won't pass up a good bird sighting. If you want to learn about tracking, these field trips are for you. Since tracking is best learned as holistic nature observation, other topics we study will be relevant. Children are welcome, but trips are not structured for small children. Please leave dogs at home.

**January 21, Sunday, 9am-Noon**

**February 18, Sunday, 9am-Noon**

**March 18, 2007, Sunday, 9am-Noon**

## Visit the Neighborhood Naturalist Web site

### Willamette Valley bird sounds

The entire collection is on-line. Learn your local birds by browsing this index dedicated exclusively to our birds.

### Newsletter archives

The texts of all previous issues are archived. Review four years worth of articles, stories and poetry featuring birds, plants, bugs, mammals and more.

### List of books and field guides

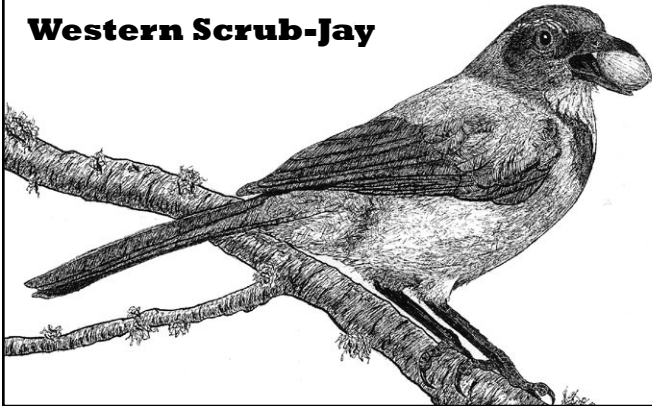
Think of it as a reading list for the Willamette Valley naturalist. All the best field guides and nature books are listed to get you up to speed with nature in our bioregion.

### Books, CDs, Posters

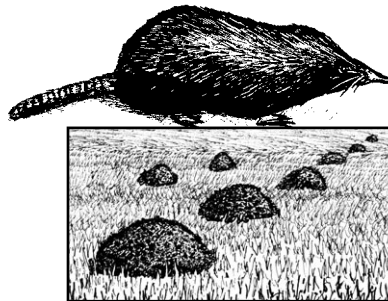
Published by Neighborhood Naturalist and for sale: bird sound CDs, native wildflower posters and a booklet on processing acorns into food which includes recipes.

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### Western Scrub-Jay



### Willamette Valley Moles



Neighborhood Naturalist  
5008 Technology Loop #9  
Corvallis, OR 97333