

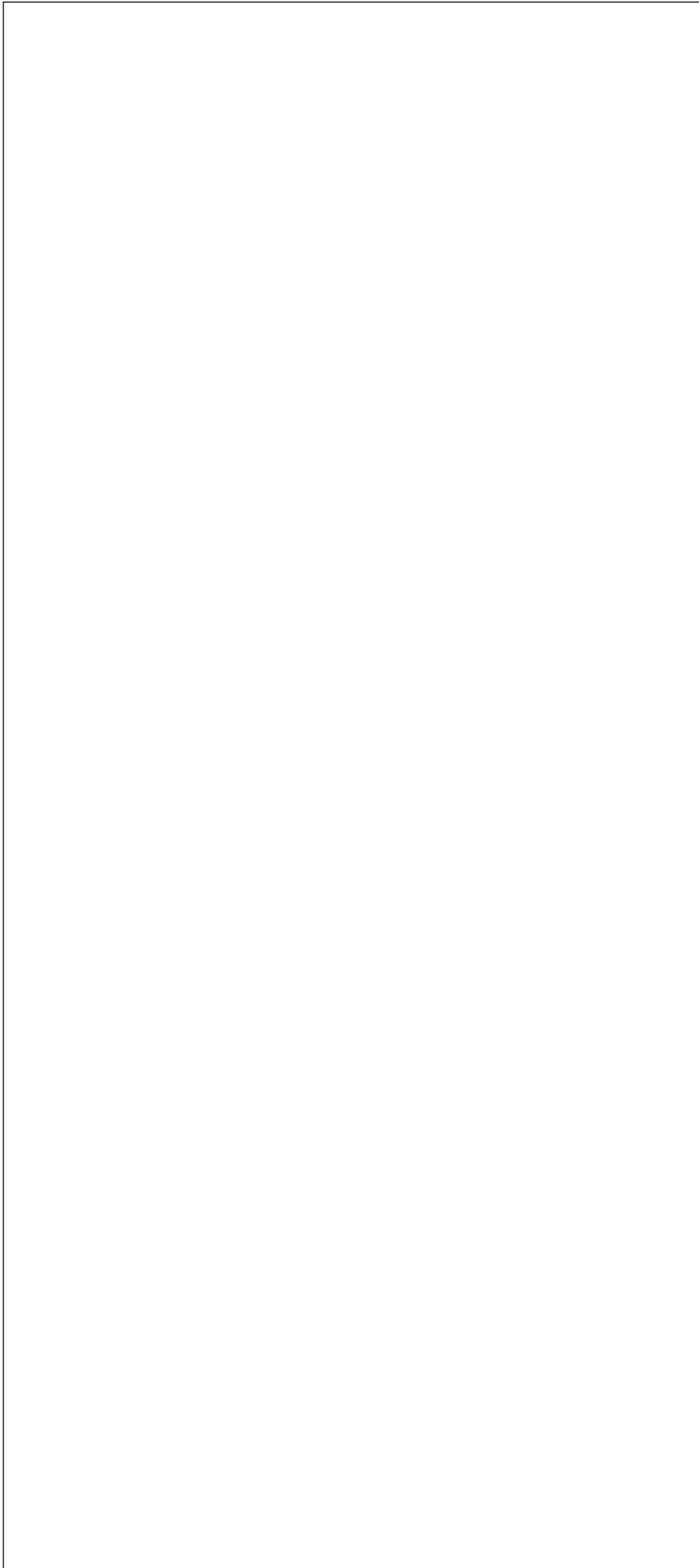
# GROUND-DWELLING SQUIRRELS

OF THE PACIFIC NORTH WEST



*S. t. nancyae*

ERIC YENSEN & PAUL W. SHERMAN



# GROUND-DWELLING SQUIRRELS

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OF THE PACIFIC NORTHWEST

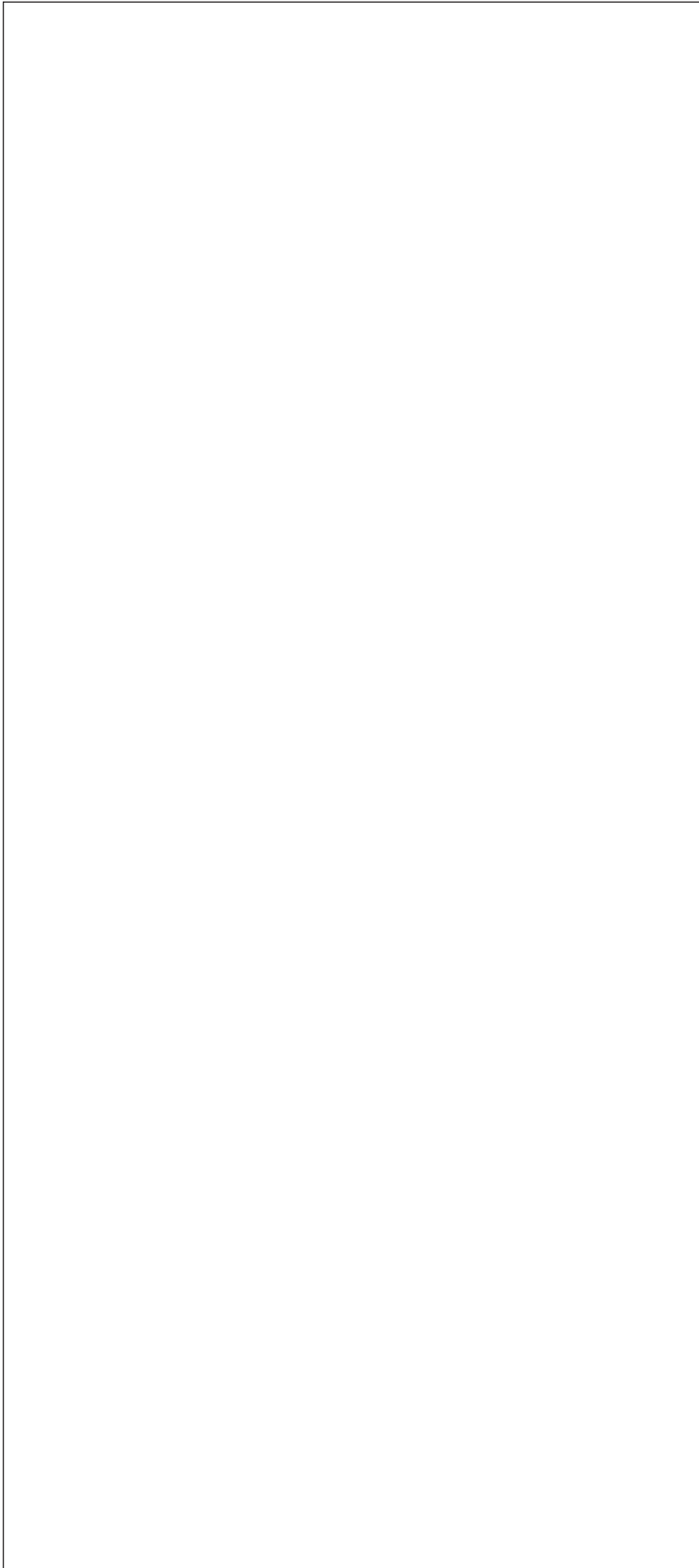


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Bureau of Land Management, Spokane District Office  
Bureau of Land Management, Oregon State Office



# GROUND-DWELLING SQUIRRELS

OF THE PACIFIC NORTHWEST

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# GROUND-DWELLING SQUIRRELS

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Ground-dwelling squirrels are active during the day. They spend the night (and also take refuge) in subterranean burrows. Most species hibernate during the winter and produce one litter (4-14 pups) in the spring.

In the Pacific Northwest there are 19 species of ground-dwelling squirrels, belonging to 5 evolutionary groups. Idaho has the most species (13), followed by Oregon (10) and Washington (8). Seven species occur only in Washington, Oregon, or Idaho, and the other 12 have ranges that extend beyond the Pacific Northwest (although this guide includes only distributions in the 3 target states).

Prairie dogs do not occur in Washington, Oregon, or Idaho, but there are 8 species of chipmunks (which are distantly related). Chipmunks are readily recognizable by their small size, long, thin tail, multiple stripes on the back, sides, and face, and semi-arboreal habits. Chipmunks are not included in this guide.

## THE ECOLOGICAL ROLE OF GROUND SQUIRRELS

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Ground squirrels are important components of ecological systems. For example, they:

- Loosen, move, mix, and aerate soils.
- Bring nutrients from deep soil layers to the surface.
- Increase the rate of water infiltration into the soil.
- Reduce soil compaction.
- Increase soil fertility.
- Increase plant productivity.
- Increase plant diversity by bringing buried seeds near the surface.
- Increase diversity of microhabitats.
- Serve as a prey base for predator food chains (e.g., raptors, badgers, coyotes, weasels, and snakes). Badger digs provide homes for burrowing owls, rabbits, insects, and other species.

## CONSERVATION

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Ground-dwelling squirrels are ecologically valuable, and they play an important role in the Pacific Northwest landscape. Conservation of these animals is becoming increasingly important because many of the ground squirrels, especially the small-bodied, small-eared species, no longer occur across their historical geographic "range."

Range maps, created by connecting all sites where a species has been located or captured, no longer paint a realistic picture. Today, many species exist not in ranges, but as small, widely scattered populations isolated from each other — most of which are separated by unsuitable habitat. Because habitats have become disconnected, nearby source populations for resupply often do not exist. The old adage "where there's one ground squirrel, there's bound to be more," is now more likely to be: "where there's one ground squirrel, there's a place we ought to protect because there probably aren't many more places with squirrels."

As of spring 2003, the Washington, northern Idaho, southern Idaho, Townsend's, Merriam's, and some subspecies of Piute ground squirrels are currently of conservation concern in the Pacific Northwest. The northern Idaho ground squirrel is listed as a "threatened" species, and the southern Idaho and Washington ground squirrels are "candidate" species under the federal Endangered Species Act.

It is known that ground squirrels sometimes cause damage to agricultural crops. In some cases, focused control measures by wildlife professionals may be required. In the event of a control action, care should be taken not to deplete dwindling populations. Human threats to ground squirrels such as sport shooting (plinking) and poisoning can be devastating to some species when their populations are small and isolated.

The risks of decline and extinction for some ground squirrel species has increased. Realizing this, resource management professionals are moving away from "controlling" ground squirrels to conserving them, and ranchers and farmers are beginning to see that ground squirrels on rangelands are allies — not enemies.

It is hoped that conservation measures such as habitat improvement, alteration of fire and land management practices, reduction of shooting and poisoning, translocation/propagation efforts, population monitoring, and increased public education about the species and threats will help ground squirrels rebound in the Pacific Northwest.



## DID YOU KNOW?

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*Southern Idaho ground squirrel habitat, Washington County, Idaho.*

- • • Most ground squirrels spend two-thirds of their lives in hibernation. In just 4 months above ground, they must reproduce and then store enough fat to survive the remaining 8 months of the year underground.
- • • Many species of ground squirrels live in family groups including grandmothers, daughters, and granddaughters.
- • • Most species of ground squirrels give warning whistles to alert their close relatives when a predator approaches.
- • • California ground squirrels are resistant to rattlesnake venom. They attack rattlesnakes by first kicking dirt in the snake's eyes, then pouncing on and biting the snake.
- • • Ground squirrels are susceptible to plague, which was introduced to North America from Asia in 1899.
- • • "Ground Hog Day" commemorates the emergence from hibernation of a marmot (the woodchuck).

# SPECIES ACCOUNTS

## ANTELOPE GROUND SQUIRRELS

### White-tailed Antelope Squirrel *Ammospermophilus leucurus*

#### *Description*

The smallest ground squirrel in the Northwest. It is gray-brown with white on the cheeks, an off-white eye ring, and a white stripe on each side from the shoulders to the hips (but no black stripes). The tail is white below and about half the length of the body, the nose is blunt, and the ear pinnae (flaps) do not extend above the crown of the head.

#### *Range and Habitat*

Inhabits deserts in southeastern Oregon and southwestern Idaho; does not occur in Washington. Prefers habitats dominated by tall, dense shrubs, frequently at the boundary between rocky areas and sandy desert flats.

#### *Habits*

Active all year. Solitary; low population density.

Often seen climbing in desert shrubs or scurrying for cover with the tail carried over the back like a parasol, white side up.

Eats seeds, green vegetation, insects, small vertebrates and carrion.

Burrow diameter usually is  $\leq 2$  inches; entrances often hidden under bushes.



#### *Conservation*

Population surveys have not been conducted.

# SPECIES ACCOUNTS

## MANTLED GROUND SQUIRRELS

### Golden-mantled Ground Squirrel *Spermophilus lateralis*

#### Description

Distinctively multi-colored with a reddish-brown head, off-white eye ring, rusty to golden-colored neck, a white stripe on each side from shoulders to hips bordered above and below by black stripes, and a grayish-brown back. The tail is thin and half as long as the body; the ear pinnae project well above crown of the head. Unlike chipmunks they have no stripes on their face, and rarely climb trees.



#### Range and Habitat

East of the Cascades in Oregon, east of the Columbia River and Columbia Basin in Washington, and throughout most of Idaho. Inhabits open coniferous forests with abundant rocks, logs, and stumps, talus slopes, and rocky sagebrush habitats. Seeks rocky areas and avoids dense timber.

#### Habits

Hibernates 7-8 months/year (October-April). Solitary and territorial, although aggregations sometimes form around artificial food sources (e.g., campgrounds). Omnivorous; eats leaves, flowers, seeds, fungi, insects, eggs, small vertebrates, and carrion. Burrows among rocks or under stumps or logs. Burrow diameter usually is  $\geq 2$  inches; entrances often hidden in rocks or under logs.

#### Conservation

Abundant in suitable habitat, but thorough population surveys have not been conducted. Increases in tree density due to fire suppression could be detrimental.

# SPECIES ACCOUNTS

## MANTLED GROUND SQUIRRELS

### Northern Cascades Mantled Ground Squirrel *Spermophilus saturatus*

#### *Description*

Looks like the golden-mantled ground squirrel, but darker and larger. The black stripes adjacent to the white lateral stripe are diffuse and poorly defined.

#### *Range and Habitat*

Occurs only in Washington west of the Columbia River, primarily on the eastern slopes of the Cascades. Inhabits sagebrush "meadows" in ponderosa pine forests, relatively closed forests, alpine meadows, talus slopes, and alpine krumholtz.

#### *Habits*

Hibernates 7-8 months/year (September-March). Solitary, although groups sometimes form around artificial food sources (e.g., campgrounds). Eats mainly fungi; also eats leaves, seeds, and fruit. Burrows among rocks or under stumps or logs. Seldom climbs. Burrow diameter usually is  $\geq 2$  inches; entrances often hidden under logs.

#### *Conservation*

Thought to be common in suitable habitat, but surveys have not been conducted. Clear-cutting of ancient forests could be detrimental.



# SPECIES ACCOUNTS

## ROCK SQUIRRELS

### Rock Squirrel *Spermophilus variegatus*

#### Description

A large, long-tailed animal that resembles a tree squirrel in size, proportions, body color (gray), and tail which is bushy and nearly as long as its head and body. Coat is grayish with dark speckles, but the lower back often is rusty brown and mid-back dark. Ear pinnae project well above the crown of the head. There is a conspicuous, light-colored eye ring.



#### Range and Habitat

Occurs only in extreme southeastern Idaho. In this range it cannot be mistaken for any other squirrel, because no gray squirrels or California ground squirrels occur there. Inhabits rocky arid habitats such as canyons, cliffs, and talus slopes; avoids deserts, open flats, and montane forests.

#### Habits

Hibernates 7-8 months/year (August-February). Forms social groups consisting of a dominant male and several females, along with subordinate males. Omnivorous; eats buds, nuts, fruits, seeds, leaves, insects, and small vertebrates. Occasionally arboreal. Burrow diameter usually is  $\geq 3$  inches; entrances often hidden under rocks.

#### Conservation

Population surveys have been not been conducted.

# SPECIES ACCOUNTS

## ROCK SQUIRRELS

### California Ground Squirrel *Spermophilus beecheyi*

#### *Description*

A large, long-tailed animal, similar to the rock squirrel. Back is more uniformly colored than rock squirrel; brownish and variegated with light-colored transverse spots, especially on shoulders. Tail is bushy and nearly as long as head and body. Ear pinnae project well above crown of the head; eye ring is conspicuous.

#### *Range and Habitat*

Occurs throughout western Oregon and the eastern foothills of the Cascades in Washington. Prefers open habitats, including disturbed and early successional areas such as pasturelands and clear-cuts.

#### *Habits*

Hibernates 4-5 months/year at low elevations (Nov-Feb/March); longer at higher elevations. Female kin often cluster their burrows. Densities can be high in areas of abundant food. Climbs well (stumps, fence posts). Omnivorous; eats leaves, seeds, acorns, nuts, fruits, insects, and, on rare occasions, bird's eggs. Burrow diameter usually is  $\geq 3$  inches; burrow entrances often found in the open.

#### *Conservation*

Abundant in suitable habitat, but no population surveys have been conducted.



# SPECIES ACCOUNTS

## TRUE GROUND SQUIRRELS: SMALL-EARED GROUP

*These are small-bodied ground squirrels, <10 inches in total length, including the tail, which is short (1-2 inches), straight, and flattened (wider horizontally than vertically). All species have a conspicuous, light-colored eye ring and small ear pinnae. Generally occur in arid (shrub-steppe) habitats. Burrow entrances are small and inconspicuous, often under obstructions; soil from burrow excavation typically is scattered without forming mounds. Most species have a ventriloquial alarm call consisting of a single-note whistle.*

### Washington Ground Squirrel *Spermophilus washingtoni*

#### Description

The back is brownish-gray with highly conspicuous light spots. The off-white belly coloration extends half-way up on the flanks and meets the back coloration in a sharp lateral line. Ear pinnae do not project above the crown of the head.



#### Range and Habitat

Occurs only in Washington east of the Columbia River, and northern Oregon south of the Columbia between the John Day River and the Blue Mountains. Prefers sandy soils in dry, open sagebrush and grassland habitats.

#### Habits

Hibernates 7-8 months/year (June/July-January/February). Solitary, although densities can be high in areas of abundant food. Eats succulent vegetation and bulbs in the spring and seeds in early summer. Burrow diameter usually is  $\leq 3$  inches; entrances often hidden under bushes or rocks.

#### Conservation

Endangered in Oregon and a candidate in Washington; also a candidate under the federal Endangered Species Act. Most of its geographic range has been converted to agriculture. Remaining populations are small, isolated, and in decline. Habitat destruction and degradation of remaining rangelands are continuing threats.

## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
SMALL-EARED GROUP

### Southern Idaho Ground Squirrel *Spermophilus brunneus endemicus*

#### *Description*

Back is light gray-brown with faint light spots; belly is cream colored, gradually grading into the darker flanks. Back of the legs, top of nose, and underside of the base of the tail are rust colored. Ear pinnae project slightly above the crown of the head. Probably separate species from the northern Idaho ground squirrel.



#### *Range and Habitat*

Occurs only in Idaho in the rolling hills north of the Payette River from Emmett, Payette, and Weiser, northward to Midvale, Crane Creek and Indian Valley areas and east to Squaw Butte. It does not cross the Snake River into Oregon. Prefers sandy soils in dry, open sagebrush and grassland habitats.

#### *Habits*

Hibernates 7-8 months/year (June/July-January/February). Solitary, although densities can be high in areas of abundant food. Eats succulent vegetation and bulbs in the spring, and flowers and grass seeds in early summer. Burrow diameter usually is  $\leq 2$  inches; entrances often hidden under bushes or rocks.

#### *Conservation*

Candidate for listing under the federal Endangered Species Act. Remaining populations are small, isolated, and in decline. Degradation of rangelands and loss of native food plants due to invasion by exotic annual grasses are the main threats.



# SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
SMALL-EARED GROUP

## Northern Idaho Ground Squirrel *Spermophilus brunneus brunneus*

### Description

The back is reddish brown with faint light spots and the belly is cream colored. The back of the legs, top of nose, and underside of the base of the tail are reddish brown. Ear pinnae project slightly above the crown of the head. Rustier and smaller than similar southern Idaho ground squirrel.

### Range and Habitat

Occurs only in west-central Idaho (Adams and Valley Counties) between Hell's Canyon, the Seven Devil's Mountains, and Cuddy Mountain east to Long Valley. Not known from the Idaho Batholith. Found in montane meadows and grasslands with scattered sagebrush at 3,000-5,500 feet elevation.

### Habits

Hibernates 7-8 months/year (August-April). Solitary, although population densities can be high in areas of abundant food. Eats succulent vegetation and bulbs in the spring, and flowers and grass seeds in early summer. Burrow diameter usually is  $\leq 2$  inches; entrances often under bushes, logs, or rocks.

### Conservation

"Threatened" under the federal Endangered Species Act and threatened in Idaho. There are only about 30 small, isolated populations, containing a total of  $< 500$  animals as of 2002. Loss of meadow habitat due to encroachment of conifers (resulting from fire suppression) and plant succession due to alteration of natural fire cycles are the main threats.



## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
SMALL-EARED GROUP

### Townsend's Ground Squirrel *Spermophilus townsendii*

#### Description

Back is medium brown, with light-tipped hairs forming very tiny speckles. Belly is grayish cream, and nose and base of tail are rusty. Underside of tail is dark rusty red, flanked by cream. There are two subspecies: *S. townsendii townsendii* and *S. t. nancyae*. The latter is lighter in color and has a different chromosome number; it may be a different species.

#### Range and Habitat

Both subspecies occur only in Washington. *S. t. townsendii* occurs north of the Columbia River and west of the Yakima River, in the Yakima Valley, Horse Heaven Hills, and nearby foothills of the Cascades. *S. t. nancyae* occurs between the Yakima and Columbia Rivers south of the Wenatchee Mountains.

#### Habits

Little is known about either subspecies. Their annual cycles and diet probably are similar to Washington ground squirrels. Burrow diameters usually are  $\leq 2$  inches; entrances often hidden under bushes or rocks.

#### Conservation

Much of their geographic range has been converted to agriculture. Many historical sites no longer contain the animals. Although no detailed population surveys have been conducted, both subspecies probably deserve to be on the appropriate state and federal lists of conservation concern.



\* An illustration of *S. t. nancyae* appears on the front cover and title page of this guide.

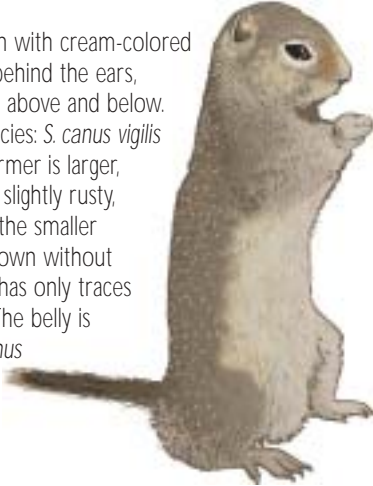
# SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
SMALL-EARED GROUP

## Merriam's Ground Squirrel *Spermophilus canus*

### Description

Back is medium brown with cream-colored flecks, slightly orange behind the ears, and tail is rusty brown above and below. There are two subspecies: *S. canus vigilis* and *S. c. canus*. The former is larger, the back is lighter and slightly rusty, and the nose is rusty; the smaller *S. c. canus* is darker brown without rust on the back, and has only traces of rust on the nose. The belly is reddish buff in *S. c. canus* and gray cream in *S. c. vigilis*.



### Range and Habitat

*S. c. canus* occurs in central Oregon, in the high desert from Wasco County south to Lake County and west to Malheur and Baker Counties. Details of the eastern portion of its range are not well documented. *S. c. vigilis* occurs in the lower Snake River Valley south and west of the Snake River in Owyhee County, Idaho and Malheur County, Oregon from Reynolds Creek to Huntington and west to Westfall.

### Habits

Little is known about either subspecies. Their annual cycles and diet probably are similar to southern Idaho ground squirrels. Burrow diameter usually is  $\leq 2$  inches; entrances often under bushes or rocks.

### Conservation

*S. c. canus* do not occur at many sites where they were formerly abundant. They appear to have been replaced by Belding's ground squirrels in many places in central Oregon, possibly as a result of planting pasture grasses. *S. c. vigilis* is all but extinct in southwestern Idaho, and has disappeared from most of the known sites in Oregon. Both subspecies are of conservation concern.

## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
SMALL-EARED GROUP

### Piute (Great Basin) Ground Squirrel *Spermophilus mollis*

#### Description

There are 3 subspecies: *S. mollis mollis*, which has a light gray-brown back; *S. m. artemisiae*, which has a darker back; and *S. m. idahoensis*, which has a slightly chestnut back. Underside of tail is cream colored in *S. m. mollis* and *S. m. artemisiae*, and rusty in *S. m. idahoensis*. Belly is off-white in *S. m. mollis* and *S. m. artemisiae*, and cream-colored in *S. m. idahoensis*.

#### Range and Habitat

Piute ground squirrels occur in southern Idaho and extreme southeastern Oregon.

*S. m. idahoensis* occurs north of the Snake River and south of the Payette River and Boise Mountains, as far east as Glenn's Ferry;

*S. m. artemisiae* occurs on the Snake River Plain north of the Snake River from Bliss east to Dubois; and

*S. m. mollis* occurs in extreme southeastern Oregon, in Idaho south of the Snake River from Murphy to Pocatello, and south into Nevada and Utah.



#### Habits

Hibernates 6-7 months/year (June-January on the western Snake River Plain, July-March in eastern Idaho). Prefers areas with native shrubs, especially winterfat, and sagebrush. Eats green vegetation, native grasses and their seeds, and a few insects. Solitary, although densities can be high in areas of abundant food. Burrow diameter usually is  $\leq 2$  inches; entrances often hidden under bushes or rocks.

#### Conservation

No population surveys have been conducted, but all three subspecies are probably of conservation concern. *S. m. artemisiae* has disappeared from much of its former range due to agricultural conversion and habitat degradation. *S. m. idahoensis* populations can fluctuate erratically. Status of *S. m. mollis* is not known.

\* An illustration of *S. m. mollis* appears on the back cover of this guide.

# SPECIES ACCOUNTS

## TRUE GROUND SQUIRRELS: LARGE-EARED GROUP

These are medium-sized ground squirrels, usually >10 inches in total length including the tail which is long (2-4 inches), straight, round and bushy. All species have a light-colored eye ring, and the ear pinnae project above the top of the head. Generally occur in more productive habitats than small-eared species. Burrow entrances often are placed in the open, with soil from burrow excavation piled nearby. They have two alarm calls: a multiple-note trill for slow-moving (terrestrial) predators and single-note whistle for fast moving (aerial) predators.

### **Belding's Ground Squirrel** *Spermophilus beldingi*

#### *Description*

Back is gray brown flecked with buff, darker chestnut down the middle; belly is buffy. Body has a buffy wash in the shoulder area that may extend along the flanks to hind legs. Tail is flat and frosted with grayish-tipped hairs; underside is brick red, upper side dark toward the black tip.

#### *Range and Habitat*

Occurs in central and eastern Oregon, except part of the Blue Mountains and Columbia Basin, and in Idaho south of the Snake River as far eastward as Cassia County. Prefers productive habitats such as grassy meadows, bottomlands, and sagebrush flats that are close to water.

#### *Habits*

Hibernates 6-8 months/year (September-April, depending on elevation and exposure). Feeds on succulent green leaves of grasses and forbs in spring, and grass, flowers, seeds, and bulbs in summer; occasionally eats insects, vertebrates, and carrion. Female kin often cluster their burrows. Densities can be high in areas of abundant food. Burrow diameter usually is  $\leq 3$  inches.

#### *Conservation*

Abundant in suitable habitat, but population surveys have not been conducted. Being replaced by Columbian ground squirrels in northeastern Oregon; replaces Merriam's ground squirrel in many areas of central Oregon.



## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
LARGE-EARED GROUP

### Columbian Ground Squirrel *Spermophilus columbianus*

#### Description

Readily distinguished by its large size (15-17 inches in total), rusty-red throat, nose, legs, and belly (yellowish in some individuals), and dark brown back with small spots of buff-tipped hairs. Long, bushy tail fringed with white ripples behind as it runs. There are two subspecies: *S. columbianus ruficaudus* and *S. c. columbianus*; the former is larger and has a redder tail.

#### Range and Habitat

*S. c. ruficaudus* occurs in the Blue and Wallowa Mountains of northeastern Oregon and southeastern Washington; *S. c. columbianus* occurs north of the Snake River in extreme eastern Washington east of the Columbia Basin, and throughout Idaho north of the Snake River Plain east to edge of Big Lost River Valley. Inhabits alpine and montane meadows, bottomlands, and agricultural fields and pastures.

#### Habits

Hibernates 7-8 months/year (August-March, depending on elevation). Omnivorous; eats leaves, flowers, seeds, bulbs, fruits, insects, eggs, small vertebrates, and carrion. Social groups consist of female kin and a dominant male. Burrow diameter is usually  $\geq 3$  inches; entrances often with conspicuous mounds of soil.

#### Conservation

Abundant in suitable habitat, but no population surveys have been conducted. Possibly declining due to tree encroachment on meadows and lack of fires.



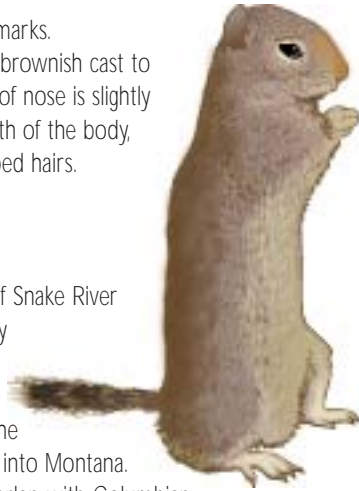
## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
LARGE-EARED GROUP

### Uinta Ground Squirrel *Spermophilus armatus*

#### *Description*

All gray, with few other marks.  
Some individuals have a brownish cast to back and buffy legs. Tip of nose is slightly rusty. Tail is half the length of the body, and dark with white-tipped hairs. Belly lighter than back.



#### *Range and Habitat*

Occurs in Idaho south of Snake River Plain from Cassia County eastward to Wyoming, and north of the Snake River Plain from the Big Lost River northeast into Montana. Apparently does not overlap with Columbian ground squirrel. Prefers montane meadows, pastures, and dry sagebrush-grasslands.

#### *Habits*

Hibernates 7-8 months/year (August-March, depending on elevation). Feeds on succulent green leaves of grasses and forbs in spring, and grass, flowers, seeds, and bulbs in summer; occasionally eats insects, small vertebrates, and carrion. Burrow diameter usually is  $\leq 3$  inches.

#### *Conservation*

Population surveys have not been conducted.

## SPECIES ACCOUNTS

TRUE GROUND SQUIRRELS:  
LARGE-EARED GROUP

### Wyoming Ground Squirrel *Spermophilus elegans*

#### Description

Back buff brown to gray, belly buff. Tails are moderately long, orange below, buff mixed with black above, and black tip. There are two subspecies: *S. elegans aureus* and *S. e. nevadensis*; the former is more golden-orange in color and the underside of its tail very orange.

#### Range and Habitat

Historically, *S. e. nevadensis* occurred in southeastern Oregon (southern Malheur County) and southern Idaho (Owyhee and Twin Falls Counties) into Nevada. *S. e. aureus* occurs in east-central Idaho into Montana. Prefers productive habitats such as bottomland meadows and pastures.

#### Habits

Hibernates 6-7 months/year (August-March, depending on elevation). Feeds on succulent green leaves of grasses and forbs in spring, and grass, flowers, seeds, and bulbs in summer; occasionally eats insects, small vertebrates, and carrion. Burrow diameter usually is  $\leq 3$  inches.

#### Conservation

*S. e. nevadensis* is known from only 3 localities in Idaho; it may be extinct in Oregon. *S. e. aureus* probably is more widespread. However, no population surveys have been conducted.





# SPECIES ACCOUNTS

## MARMOTS

Marmots are easily recognized as large, short-legged, heavy-bodied ground-dwelling squirrels, >15 inches in total length (including a 3-5 inch tail) and weighing 4-6 pounds. Tips of long, light-colored guard hairs project some distance beyond soft undercoat giving the pelt a "shaggy" look. Their alarm call is a sharp, single-note whistle.

### Yellow-bellied Marmot ("Rockchuck") *Marmota flaviventris*

#### Description

Back is dark brown to black, grizzled with off-white to yellow tips; side of neck buff to yellow; belly yellowish to orange or rusty. Tail tends to be darker and/or rustier than body. Usually there is a white bar between the eyes, and a white area behind the mouth; facial markings are individually variable.

#### Range and Habitat

Occurs throughout Idaho except the northern panhandle, throughout most of central and eastern Oregon and Washington, east to the Cascades. Prefers meadows adjacent to talus slopes or rock outcrops; avoids tall vegetation. In places where it overlaps with hoary marmots, the yellow-bellied is found at lower elevation.

#### Habits

Hibernates 7-8 months/year (August-March, depending on elevation). Individuals live solitarily or in small colonies (2-8 animals) consisting of a dominant male, several females and immatures. Densities vary with habitat productivity and availability of refugia. Feeds selectively on succulent green leaves of grasses and forbs in spring, then grass, flowers, seeds, and bulbs in summer. Burrows are among rocks; entrance diameter usually is  $\geq 6$  inches.

#### Conservation

Abundant in suitable habitat, but population surveys have not been conducted. Human persecution (shooting) is a threat because groups are isolated and individuals mature slowly, so losses are not quickly replaced.



# SPECIES ACCOUNTS

## MARMOTS

### Hoary Marmot *Marmota caligata*

#### *Description*

The contrast between the upper and lower back is diagnostic. Upper back, shoulders, and front legs are gray to cream-colored, and lower back, hind legs, and tail are rusty to black in color. Nose and forehead are dark, and separated by a light-colored band; facial markings are individually variable.

#### *Range and Habitat*

Occurs in the northern Cascades of Washington and Rocky Mountains of east-central Idaho. Limited to high elevations. Prefers talus slopes or rocky outcrops near lush meadows.

#### *Habits*

Hibernates 7-8 months/year (September-May). Individuals live solitarily or in small colonies (2-6 animals) consisting of a dominant male, females and immatures. Feeds selectively on succulent green leaves of grasses and forbs in spring, then grass, flowers, seeds, and bulbs in summer. Burrows are among rocks; entrance diameter usually is  $\geq 6$  inches.

#### *Conservation*

Abundant in suitable habitat, but population surveys have not been conducted. Human persecution (shooting) is a threat because groups are isolated and individuals mature slowly, so losses are not quickly replaced.



# SPECIES ACCOUNTS

## MARMOTS

### Olympic Marmot *Marmota olympus*

#### *Description*

Color is variable. Coat is various shades of dark brown with lighter patches, and a white ring around nose. Brown often bleaches to light brown later in summer.

#### *Range and Habitat*

Occurs only in the Olympic Mountains of Washington. Prefers sloping alpine and subalpine meadows near timberline, especially tall sedge communities with lush grasses.

#### *Habits*

Hibernates 7-8 months/year (September-May, depending on exposure). Feeds selectively on grasses, sedges, and roots in spring, and herbs, flowers, and seeds in summer; sometimes eats insects and carrion. Burrows in the open; entrances usually  $\geq 6$  inches in diameter and conspicuous with dirt mounds and well-worn trails leading away from them.

#### *Conservation*

Abundant in suitable habitat, but extremely restricted in distribution (i.e., occurs only within Olympic National Park).



# SPECIES ACCOUNTS

## MARMOTS

### Woodchuck ("Ground Hog") *Marmota monax*

#### *Description*

The smallest marmot and the most uniform in color (dark gray back and reddish brown belly); sometimes white around nose. Tips of guard hairs are buff, giving the coat a "grizzled" appearance.

#### *Range and Habitat*

May occur in the panhandle of northern Idaho and a small adjacent area in Washington. However, documentation of its occurrence in the Pacific Northwest is limited to one specimen collected nearly 100 years ago at Thompson Pass (on the Idaho-Montana border). Prefers highly productive, open grasslands.

#### *Habits*

Hibernates 6-7 months/year (September-March), but length of hibernation is variable depending on latitude and elevation. Individuals are solitary and widely dispersed. Eats a variety of grasses, herbs, and seeds, some insects, and leaves, buds, and bark of shrubs and trees. Burrow entrances usually are in the open, and  $\geq 6$  inches in diameter.

#### *Conservation*

Existence in the Pacific Northwest uncertain. Population surveys are needed.



## FOR MORE INFORMATION

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# FOR MORE INFORMATION

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### FEDERAL AGENCIES

#### Bureau of Land Management

Idaho State Office, Boise, Idaho (208) 373-4000  
[www.id.blm.gov](http://www.id.blm.gov)

Oregon State Office, Portland, Oregon (503) 808-6002  
[www.or.blm.gov](http://www.or.blm.gov)

Spokane District Office, Spokane, Washington (509) 536-1241  
[www.wa.blm.gov](http://www.wa.blm.gov)

#### U.S. Fish and Wildlife Service

Snake River Fish and Wildlife Office, Boise, Idaho (208) 378-5243  
<http://idahoes.fws.gov>  
Pacific Regional Office, Portland, Oregon (503) 231-6151  
<http://pacific.fws.gov>

#### U.S. Forest Service

Payette National Forest - Idaho (208) 634-0700  
[www.fs.fed.us/r4/payette](http://www.fs.fed.us/r4/payette)

U.S. Forest Service Region 4 - Utah (801) 625-5306  
[www.fs.fed.us/r4](http://www.fs.fed.us/r4)

U.S. Forest Service Region 6 - Oregon, (503) 808-2971  
[www.fs.fed.us/r6](http://www.fs.fed.us/r6)

### STATE FISH AND GAME AGENCIES

#### Idaho Department of Fish and Game

Headquarters, Boise, Idaho (208) 334-3700  
[www2.state.id.us/fishgame](http://www2.state.id.us/fishgame)  
Nampa, Idaho Sub-Office (208) 465-8465

#### Oregon Department of Fish and Wildlife

(503) 872-5263  
[www.dfw.state.or.us](http://www.dfw.state.or.us)

#### Washington Department of Fish and Wildlife

(360) 902-2200  
[www.wa.gov/wdfw/contact.htm](http://www.wa.gov/wdfw/contact.htm)

### ZOO BOISE

Boise, Idaho (208) 384-4125  
[www.cityofboise.org/parks/zoo](http://www.cityofboise.org/parks/zoo)

## TABLE OF BODY LENGTHS

SPECIES	LENGTH (MM)*
White-tailed Antelope Squirrel ( <i>Ammospermophilus leucurus</i> )	150 mm
Golden-mantled Ground Squirrel ( <i>Spermophilus lateralis</i> )	180 mm
Northern Cascades Mantled Ground Squirrel ( <i>Spermophilus saturatus</i> )	195 mm
Rock Squirrel ( <i>Spermophilus variegatus</i> )	265 mm
California Ground Squirrel ( <i>Spermophilus beecheyi</i> )	255 mm
Washington Ground Squirrel ( <i>Spermophilus washingtoni</i> )	175 mm
Southern Idaho Ground Squirrel ( <i>Spermophilus brunneus endemicus</i> )	182 mm
Northern Idaho Ground Squirrel ( <i>Spermophilus brunneus brunneus</i> )	175 mm
Townsend's Ground Squirrel ( <i>Spermophilus townsendii</i> )	165 mm
Merriam's Ground Squirrel ( <i>Spermophilus canus</i> )	180 mm
Plute (Great Basin) Ground Squirrel ( <i>Spermophilus mollis</i> )	170 mm
Belding's Ground Squirrel ( <i>Spermophilus beldingi</i> )	215 mm
Columbian Ground Squirrel ( <i>Spermophilus columbianus</i> )	270 mm
Uinta Ground Squirrel ( <i>Spermophilus armatus</i> )	225 mm
Wyoming Ground Squirrel ( <i>Spermophilus elegans</i> )	210 mm
Yellow-bellied Marmot ("Rockchuck") ( <i>Marmota flaviventris</i> )	425 mm
Hoary Marmot ( <i>Marmota caligata</i> )	530 mm
Olympic Marmot ( <i>Marmota olympus</i> )	510 mm
Woodchuck ("Ground Hog") ( <i>Marmota monax</i> )	415 mm
*Body length measurements only. Tail lengths are not included.	



## FIELD NOTES





*S. m. mollis*

# GROUND-DWELLING SQUIRRELS

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OF THE PACIFIC NORTHWEST

Published April, 2003

Boise, Idaho

# GROUND-DWELLING SQUIRRELS

OF THE PACIFIC NORTHWEST

## SPECIES COMPARISON



White-tailed Antelope Squirrel  
(*Ammospermophilus leucurus*)



S. Idaho Ground Squirrel  
(*Spermophilus brunneus endemicus*)



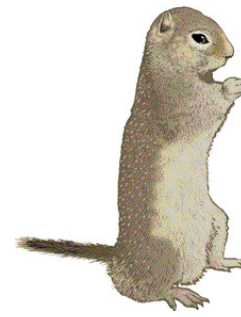
N. Idaho Ground Squirrel  
(*Spermophilus brunneus brunneus*)



Townsend's Ground Squirrel  
(*Spermophilus townsendii*)



Washington Ground Squirrel  
(*Spermophilus washingtoni*)



Merriam's Ground Squirrel  
(*Spermophilus canus*)



Piute Ground Squirrel  
(*Spermophilus mollis*)



Wyoming Ground Squirrel  
(*Spermophilus elegans*)



Uinta Ground Squirrel  
(*Spermophilus armatus*)



Belding's Ground Squirrel  
(*Spermophilus beldingi*)



Columbian Ground Squirrel  
(*Spermophilus columbianus*)



N. Cascades Ground Squirrel  
(*Spermophilus saturatus*)



Golden-mantled Ground Squirrel  
(*Spermophilus lateralis*)



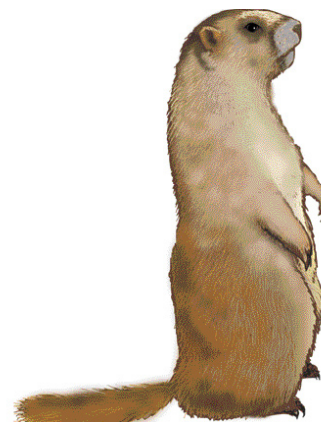
California Ground Squirrel  
(*Spermophilus beecheyi*)



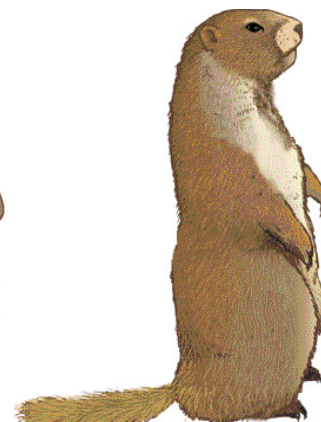
Rock Squirrel  
(*Spermophilus variegatus*)



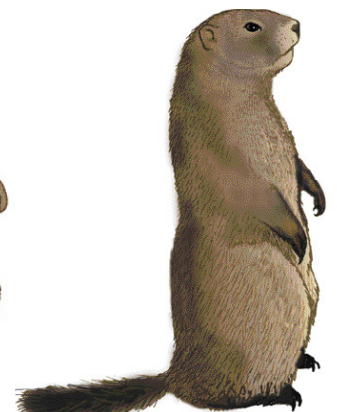
Yellow-bellied Marmot "Rockchuck"  
(*Marmota flaviventris*)



Hoary Marmot  
(*Marmota caligata*)



Olympic Marmot  
(*Marmota olympus*)



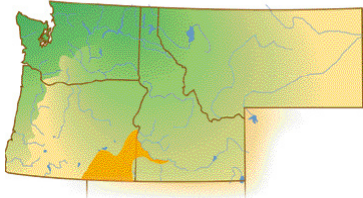
Woodchuck "Ground Hog"  
(*Marmota monax*)



# GROUND-DWELLING SQUIRRELS

OF THE PACIFIC NORTHWEST

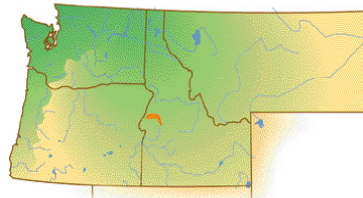
## RANGE MAPS



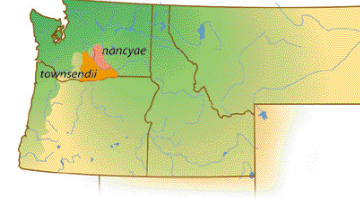
White-tailed Antelope Squirrel  
(*Ammospermophilus leucurus*)



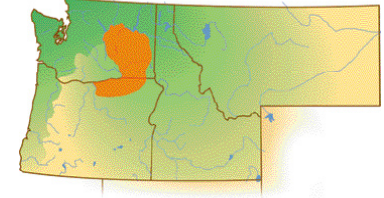
S. Idaho Ground Squirrel  
(*Spermophilus brunneus endemicus*)



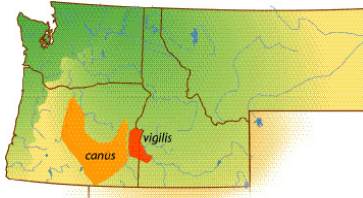
N. Idaho Ground Squirrel  
(*Spermophilus brunneus brunneus*)



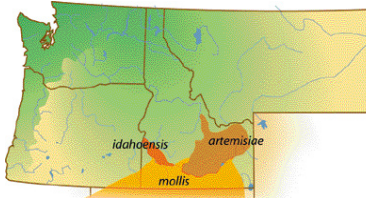
Townsend's Ground Squirrel  
(*Spermophilus townsendii*)



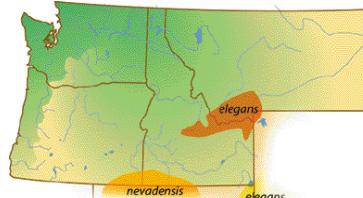
Washington Ground Squirrel  
(*Spermophilus washingtoni*)



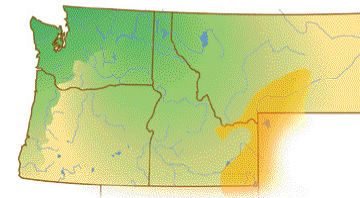
Merriam's Ground Squirrel  
(*Spermophilus canus*)



Piute Ground Squirrel  
(*Spermophilus mollis*)



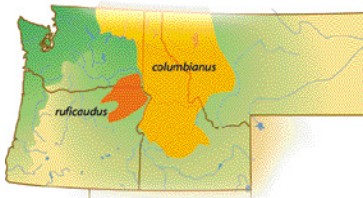
Wyoming Ground Squirrel  
(*Spermophilus elegans*)



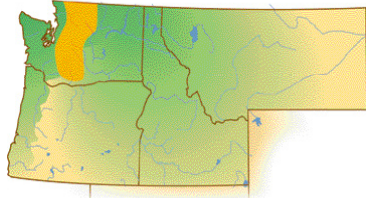
Uinta Ground Squirrel  
(*Spermophilus armatus*)



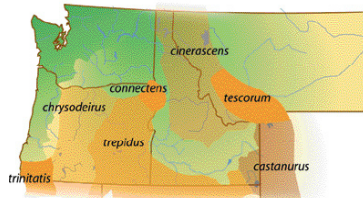
Belding's Ground Squirrel  
(*Spermophilus beldingi*)



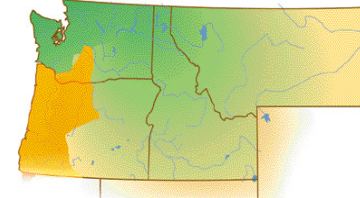
Columbian Ground Squirrel  
(*Spermophilus columbianus*)



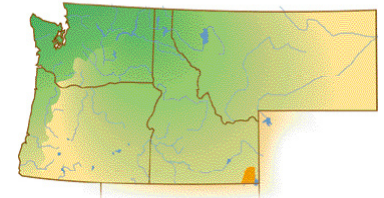
N. Cascades Ground Squirrel  
(*Spermophilus saturatus*)



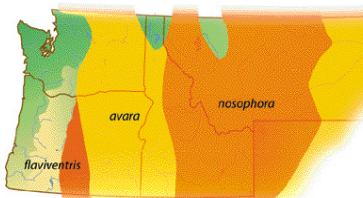
Golden-mantled Ground Squirrel  
(*Spermophilus lateralis*)



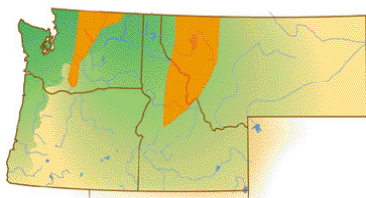
California Ground Squirrel  
(*Spermophilus beecheyi*)



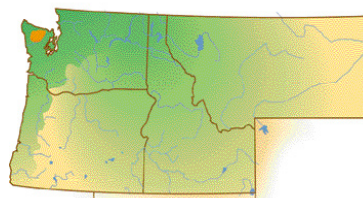
Rock Squirrel  
(*Spermophilus variegatus*)



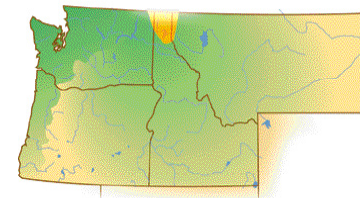
Yellow-bellied Marmot "Rockchuck"  
(*Marmota flaviventris*)



Hoary Marmot  
(*Marmota caligata*)



Olympic Marmot  
(*Marmota olympus*)



Woodchuck "Ground Hog"  
(*Marmota monax*)

### NOTE

Ranges of all subspecies in the Pacific Northwest are shown, whether mentioned in the guide text or not. No subspecies are named when the species is not divided into subspecies, or if only one subspecies occurs in Washington, Oregon, or Idaho. Subspecies are afforded protection under the Endangered Species Act.