# Puget Sound Marine Area Bluffs: An Introduction to its Wildlife

The Puget Sound marine area bluffs include a variety of habitats that support both native and non-native wildlife species. The following includes general information on the **mammal, birds, reptiles** and **amphibians** that use Puget Sound marine area bluffs for all or part of their life. (For additional information on wildlife in similar habitats, see Johnson, D. and T. O'Neil, 2001.)

Written primarily for marine area bluff property owners, information on how to maintain property for each species group is found under "Tips for Puget Sound Bluff Property Owners." "References and Additional Information" occurs at the end of each section. Planners will hopefully find this and the accompanying article on "Human/Wildlife Conflicts" useful in guiding permit applicants.

## MAMMALS

The primary big game species utilizing forests and grasslands on Puget Sound marine area bluffs is the Columbian black-tailed deer. Also called black-tailed deer, this the most common deer subspecies found in all Washington.

**Table 1. Food Plants used by Black-Tailed Deer.**

| Trees and Shrubs | Forbs and Legumes | Grasses and Others |
|---|---|---|
| Vine maple, *Acer circinatum* | Pearly everlasting, *Anaphalis margaritacea* | Oats, *Avena fatua* |
| Red alder, *Alnus rubra* | Fireweed, *Epilobium angustifolium* | Deer fern, *Blechnum spicant* |
| Serviceberry, *Amelanchier alnifolia* | Cat's ear, *Hypochaeris spp.* | Bluegrass, *Poa spp.* |
| Snowbush, *Ceanothus velutinus* | Alfalfa, *Medicago sativa* | Sword fern, *Polystichum munitum* |
| Hazelnut, *Corylus cornuta* | Clover, *Trifolium spp.* | Wheat, *Triticum aestivum* |
| Hawthorn, *Crataegus columbiana* | Vetch, *Vicia spp.* | Lichen |
| Salal, *Gaultheria shallon* | | Mushrooms and other fungi |
| Douglas-fir, *Pseudotsuga menziesii* | | Seaweed (eaten for its iodine) |
| Oak, *Quercus spp.* | | |
| Cascara, *Rhamnus purshiana* | | |
| Blackberry, *Rubus spp.* | | |
| Thimbleberry, *Rubus parviflorus* | | |
| Salmonberry, *Rubus spectabilis* | | |
| Willow, *Salix spp.* | | |
| Elderberry, *Sambucus spp.* | | |
| Western red-cedar, *Thuja plicata* | | |
| Red huckleberry, *Vaccinium parvifolium* | | |

**Black bear** and **cougar** are still common near marine bluffs around Puget Sound, and in the case of the cougar, may be increasing. (WDFW game reports estimate 25,000 to 30,000 black bear and 3,000 to 4,000 cougars occur in the state).

As human populations encroach on bear and cougar habitat, people have greater chances of encountering these animals. Bears and cougars usually avoid people, but when they do come into close proximity, the animals' strength and surprising speed make them potentially dangerous. Bears and cougars should be given plenty of respect and room to retreat without feeling threatened.

Mammal species found in grasslands, brushy fencerows, and blackberry thickets on Puget Sound marine bluffs include eastern cottontail rabbits (an introduced species from eastern U.S, Fig. 1) and snowshoe hares. Rabbits' and hares' survival depends on their sitting still for long periods, a trait they've likely developed to avoid being seen by predators who watch for movement. Indeed, the most common way to find a rabbit's or hare's resting site is by accidentally scaring the animal from it.

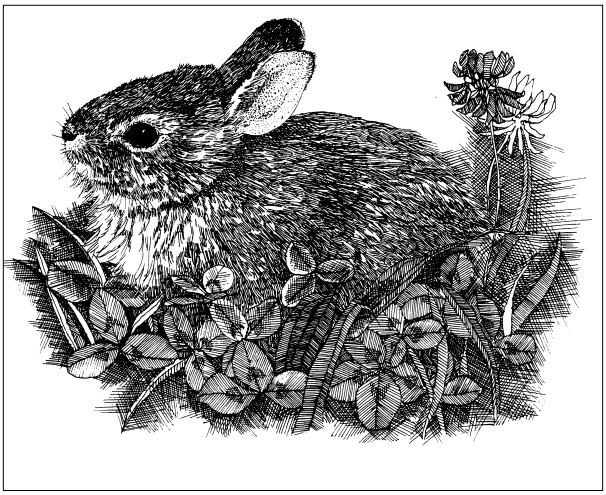

**Figure 1**. Female cottontail rabbits create a shallow, bowl-like nest called a "form," and line it with leaves, grass, and fur plucked from their bellies. (Washington Department of Fish and Wildlife.)

**Long-tailed weasels** and **short-tailed weasels** can be seen along forested edges, in open woodlands, brushy areas and seeps and other wetlands. An important requirement for weasels is a source of fresh drinking water, which they need daily.

In the early and mid-1900s, **Eastern red foxes** were introduced throughout the Pacific Northwest by hunting clubs and farmers who raised foxes for their valuable pelts. Released foxes and escapees established populations throughout most of Washington. Red fox were once commonly seen in and around Puget Sound marine area bluffs, but are now apparently extirpated or extremely rare.

The dramatic reduction of foxes is in part due to the increasing population of coyotes (Fig. 2). Coyotes are intelligent and adaptable animals that manage to occupy almost every conceivable habitat type, from open ranch country to densely forested areas to downtown waterfront. Despite ever-increasing human encroachment and past efforts to eliminate coyotes, the species maintains its numbers and is still increasing in some Puget Sound areas.

Coyotes are opportunists, both as hunters and as scavengers. They eat any small animal they can capture, including mice, voles, mountain beavers, rats, and rabbits, also snakes, frogs, fish, birds, and carrion. Grass, fruits, and berries are eaten during summer and fall. Grasshoppers and other insects are important to juvenile coyotes learning the stalk-and-pounce method of hunting. Pairs of coyotes or family groups using the relay method may pursue young or injured deer; fawns may be eaten in spring.

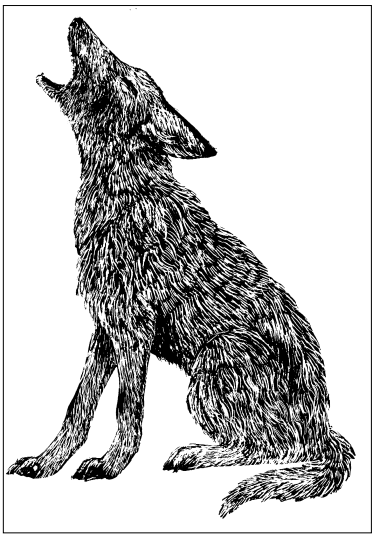

**Figure 2**. Juvenile coyotes are often heard in summer, trying out their voices.

Three native species of squirrels and one non-native species occur in wooded areas along Puget Sound bluffs. The native **Douglas squirrel**, or **chickaree** is found in areas with large stands of fir, cedar, and other conifers. In the fall it is often seen and heard collecting seeds off of big leaf maple trees, which the squirrels store for later use. The native nocturnal **Northern flying squirrel** is surprisingly common, yet is seldom seen in its forest home. The native **Townsend's chipmunk** nests, overwinters, and seeks refuge in burrows located in hollow logs, rock crevices, under stumps, or in holes in trees.

The **Eastern gray squirrel** was introduced into the Pacific Northwest during the early 1900s. Since then it has been repeatedly released in parks, estates, and residential areas and is now the most

common tree squirrel found in and near urban areas around Puget Sound. **Note:** The native **Western gray squirrel** is found only in limited areas of low-elevation oak and conifer woods in western and central Washington.

Other native rodents calling Puget Sound bluffs home include the **deer mouse**, **Townsend mole** and various species of **voles**. Three introduced rodents, which occur in much frequency, are the **Norway rat**, **black rat**, and the **house mouse**. The smallest terrestrial animals found on Puget Sound marine bluffs are **shrews**, which taxonomically speaking, are insectivores.

Mountain beavers are considered by many taxonomists to be the world's most primitive living rodent species. They are not really beavers, but were so named because they gnaw bark and cut off limbs in a manner similar to true beavers.

Mountain beavers live in moist forests, on ferny slopes, and are occasionally found in damp ravines in urban areas (Fig. 3). Most people don't know mountain beavers exist and some still continue to question that fact even after they've heard about the animals.

True **beavers** may be found where their preferred foods are in good supply—along rivers, and in small streams, lakes, marshes, and even roadside ditches containing adequate year-round water flow.

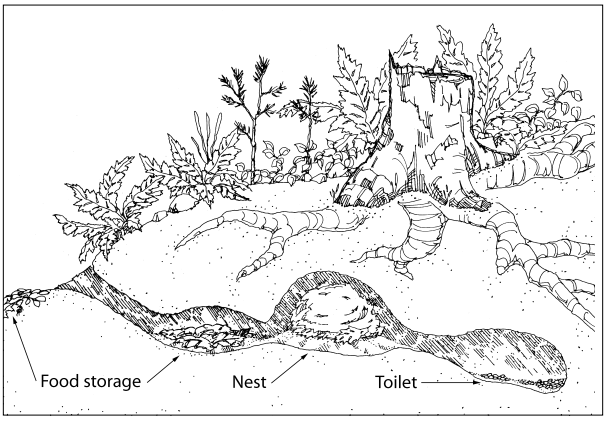


**Figure 3**. A cross section of a portion of a mountain beaver's burrow. Over time, their old nests, partially filled food pantries and toilets, are buried well below the surface, where the vegetation and droppings become fertilizer. (Drawing by Jenifer Rees)

Although seldom seen, **bobcats** are found in suitable habitat even at sea level. Rock cliffs, outcroppings, and ledges are important to bobcats for shelter, raising young, and resting sites. Large brush or log piles and hollow trees or logs are used in wooded areas. Bobcats tend to avoid open areas, preferring to stay close to cover they can quickly disappear into.

Also seldom seen, **river otters** are relatively common along Puget Sound marine area bluffs where they frequent ponds, lakes, rivers, sloughs, estuaries, and bays. They avoid polluted waterways, but will seek out a concentrated food source upstream, even in urban areas. Den sites near marine areas include hollow logs, log jams, piles of driftwood, and also areas under boathouses and other human structures.

Trails, or slides, are a common sign of river otter presence and there are often several in a river otter's home range. Slides are about 1 foot wide, located along undisturbed shorelines, and are made in grass, dirt, or sand.

More commonly seen species near water are **raccoons** (Fig. 4) and **opossums**. Raccoons will eat almost anything, but are particularly fond of creatures found in fresh and salt water—clams, crayfish, frogs, fish, and snails. Because raccoons manipulate and moisten food items in water, there is a misconception that raccoons "wash" their food before eating it. However, when water is not available, raccoons use many of the same motions in handling food. Opossums, also known as "possums," first arrived in Washington in the early 1900s as pets and novelties.

Both raccoons and opossums prefer forest areas near a stream or water source, but have adapted to various environments. Raccoons are often seen feeding along shorelines on a low tide during the early morning hours. The populations of both species can get quite large in areas with hunting and trapping restrictions, few predators, and human-supplied food.

Several species of bats can be seen flying over Puget Sound marine area bluffs during the warmer months. Two bat species that frequently roost in bat

boxes, old barns, and attics are the little brown bat and the big brown bat. Little is known about Pacific Northwest bats and it is possible that some species hibernate in caves and crevices found along bluffs (see Bats Northwest).

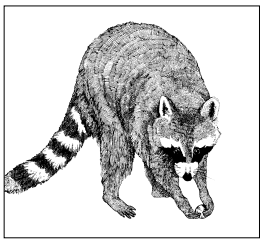

**Figure 4**. Because raccoons manipulate and moisten food items in water, there is a misconception that raccoons "wash" their food before eating it. However, when water is not available, raccoons use many of the same motions in handling food. (Oregon Department of Fish and Wildlife.)

Bats are highly beneficial to people, and the advantages of having them around far outweigh any problems people might have with them. Although swallows and other bird species consume large numbers of flying insects, they generally feed only in daylight. When night falls, bats take over: a nursing female little brown bat probably consumes her body weight in insects each night during the summer.

## TIPS FOR PUGET SOUND BLUFF PROPERTY OWNERS

Although property owners with acreage can provide significant habitat for mammals, those with less land can also contribute. Things to do include:

- Provide hiding cover. Mammals use hiding cover year-round during resting periods throughout the day or night, but it is especially important during hunting season and the first few months of an animal's life. Hiding cover can consist of stands of trees or dense shrubs and brambles (see Watson and Schirato, 1990, for information on the needs of deer). Where cover is limited, providing large, disturbance-free areas of tall grass and low native vegetation will be beneficial.
- Keep as much wooded property in a natural condition as you can. Leave dead or dying trees (snags) alone when possible. These provide den sites, food-storage sites, and much more for wildlife in general (Johnson and O'Neil, 2001).
- Include native trees and shrubs that provide seeds, nuts, cones, and fruits at different times of the year.
- Prevent infestations of noxious weeds that degrade areas containing preferred food plants (contact the county extension office for information).
- Conserve vegetation along streams and other freshwater areas and avoid placing roads near these areas, which are among the most favored habitats of deer and other wildlife.
- If a contractor is clearing vegetation, make sure the contract states that the contractor will be held responsible for plant restoration or alternate improvements if areas set aside for deer and other wildlife are inadvertently cleared. Temporarily fence important areas and supervise the work to keep disturbances to a minimum.
- Do not let cats and dogs run loose to chase wildlife (Fig. 5). Some county laws provide for shooting dogs and/or fining their owners if dogs are observed harassing wildlife.
- Inform guests, visitors, and contractors coming to your property that you do not allow dogs to roam free.
- Property fences and wire fences constructed on ranges used by deer should have a 17-inch gap at the bottom to let fawns and adult deer pass beneath them, and be no more than 4 feet high to let adults jump safely over them.
- Consult with local resource management agencies for advice on specific habitat-management activities that may be highly effective in your local area.

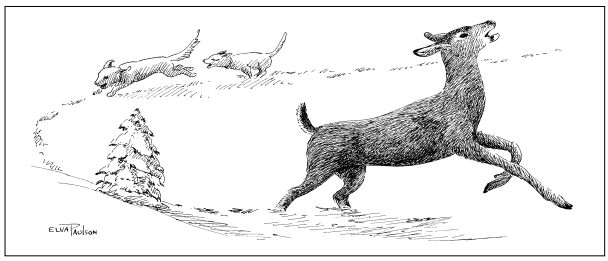

**Figure 5**. Dogs that are allowed to roam free will often harass, injure, or kill deer, squirrels, rabbits, quail, snakes, and other wildlife. (Drawing by Elva Hamerstrom Paulson.)

### References and Additional Information

Ingles, L. G. Mammals of the Pacific States. Stanford, CA: Stanford University Press, 1965.

Johnson, D. and T. O'Neil, Wildlife-Habitat Relationships in Oregon and Washington, Corvalis: Oregon State University Press, 2001.

Larrison, Earl J. Mammals of the Northwest: Washington, Oregon, Idaho, and British Columbia. Seattle: Seattle Audubon Society, 1976.

Maser, Chris. Mammals of the Pacific Northwest: From the Coast to the High Cascades. Corvalis: Oregon State University Press, 1998.

Watson, K. and M. Schirato, Managing Deer on Small Woodlands. 1990. (See http://www.woodlandfishandwildlife.org for ordering information.)

### Internet Resources

Bats Northwest: http://www.batsnorthwest.org/Default.htm

Burke Museum's Mammals of Washington: www.washington.edu/burkemuseum/mammalogy/mamwash2.html

U.S. Forest Service Wildlife Species Life Form Information: www.fs.fed.us/database/feis/

Washington Department of Fish and Wildlife's classification of mammals, see WAC 232-12-004, WAC 232-12-007 at www.leg.wa.gov/wac/

WDFW's Priority Species list for mammals: http://wdfw.wa.gov/hab/phsvert.htm#mammals

## BIRDS

A wide variety of birds utilize Puget Sound marine area bluffs year round or for part of the year for breeding, feeding, and nesting.

Several organizations maintain lists of species and subspecies that they consider to be of "Special Concern" (see Seattle Audubon's Birds of Washington State). Typically these birds have declining populations or are at risk in some other way.

Woodlot fragmentation and increasing populations of aggressive non-native species (house sparrows and starlings) have caused declines in neo-tropical migratory birds, including **vireos**, **warblers**, **tanagers**, **black-headed grosbeaks** and **orioles**. Domestic dogs and cats allowed outside of fenced yards can have significant impacts on birds through harassment, killing, or disrupting normal behavior (see American Bird Conservancy). Comprehensive surveys for neo-tropical migrants are in the process of being conducted.

Game birds associated with forested marine bluffs include **ruffed grouse**, **band-tailed pigeons** and **mourning doves**; predatory birds include **American crows**.

The number of **bald eagle** (Fig. 6) nest sites along marine bluffs has increased dramatically from 1986, when the Bald Eagle Protection Rules were adopted in Washington (see Bald Eagle Protection Rules). The dramatic increases seen for this species are likely due to the elimination of DDT use in the environment.

After food sources, the single most critical habitat factor associated with bald eagle nest locations and breeding success is the presence of large trees, particularly conifers with a dbh of at least 24 inches. Bald eagles need large trees capable of supporting their weight and their massive nests. Because the life expectancy of nests is 5 to 20 years, bald eagles need additional trees of similar size located nearby to serve as replacement nest trees if a nesting territory is to persist at the site.

Two-thirds of the known bald eagle nests are in trees on private property, the majority of which is shoreline property and thus highly desired for development and view management. Many trees left during construction of homes or commercial buildings will likely be removed when they become large enough to pose a threat to life or property should they fall. Other large trees, some of which are currently more than 300 years old, will succumb to disease. Therefore, in the future there may be fewer opportunities for bald eagles to find suitable spots to build their nests or perch while they watch for food.

The challenge for the future is to find a way to maintain appropriate stands of large trees in shoreline areas. These must include large, old trees as well as replacement nest trees that will provide nesting spots and screening from human activities continually, decade after decade.

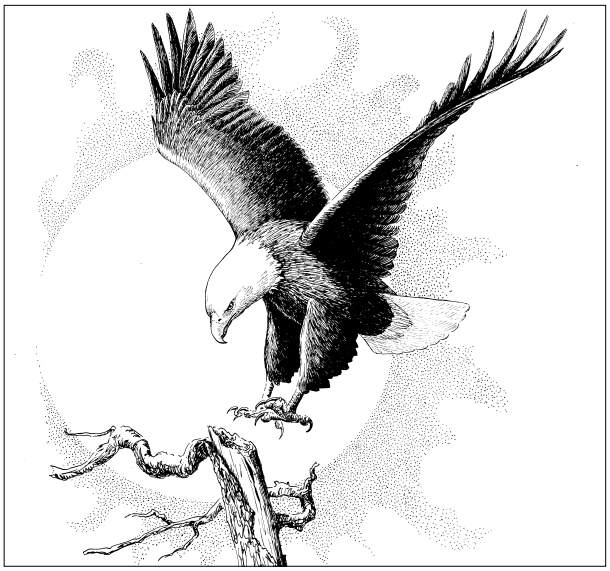

**Figure 6**. The bald eagle is the Pacific Northwest's largest resident bird of prey, with a wingspan of up to 7½ feet and weights of 8 to 14 pounds. Females are larger than males. (Drawing by Elva Hamerstrom Paulson.)

**Ospreys** build large nests near water, on top of dead trees or artificial structures that are similar to dead trees, such as utility or nesting poles. They can be found near fresh or salt water, as long as the water can sustain medium-sized fish. As with eagles, ospreys suffered great declines in the past century as a result of DDT and other eggshell-thinning pesticides. Range expansion into formerly occupied areas has been slow due to their strong loyalty to nesting areas. Artificial nest platforms have significantly increased nesting in many areas (Pendleton et.al., 1987).

A variety of hawks including the **Cooper's hawk**, **sharp-shinned hawk**, and **red-tailed hawk** use tall dead trees and branches as places to rest, look for prey, and feed once prey is caught. The tree's height provides the birds with a wide visual range, easy takeoff, and greater attack speed when hunting.

**Peregrine falcons** are typically found hunting in open areas, especially along marine area bluffs and near other bodies of water that provide habitat for their prey. They are considered a species of special concern by the Department of Fish and Wildlife, and are listed as an at-risk species by the Washington Gap Analysis (see Washington Gap Analysis).

In Washington, peregrine falcons reached a low of four pairs in 1980. In 2000, 56 pairs were counted, doubling the number counted just seven years prior (see WDFW's Priority Species).

Several owl species are seen or heard around wooded marine area bluff properties. The most common species include: The **great horned owl**, **barred owl**, **barn owl**, **western screech owl** and the **northern saw-whet owl**. Visual encounters with owls are relatively rare, because they spend most of the day perched high in trees, inside tree cavities, or in nest boxes.

Adaptable and widespread, the **great blue heron** is found in a wide variety of habitats. When feeding, it is usually seen in slow-moving or calm salt, fresh, or brackish water. Nesting colonies are found in mature forests, on islands, and on or near bluffs that are free of human disturbance and have foraging areas close by. Breeding areas are of concern to Washington Department of Fish and Wildlife biologists. Construction near a colony are particularly damaging, and a 1000-foot buffer zone around colonies is recommended (see WDFW's Priority Species).

**Belted kingfishers** (Fig. 7) are commonly seen and heard along shorelines in saltwater environments. Kingfishers require sandy vertical banks for nest burrows and clear water so they can see their aquatic prey. The kingfisher nests in burrows dug in sandy banks; two of its toes are fused together and act as a shovel for digging these burrows.


**Figure 7**. The belted kingfisher is a pigeon-sized bird that is blue-gray above and white below, with a bushy crest, a large, daggerlike bill, and a short tail. (Drawing by Elva Hamerstrom Paulson.)

**Pigeon guillemots** are seen along many Puget Sound waters. During the breeding season, they can be found on rocky islands and mainland cliffs that are protected from predators, as well as on a variety of man-made structures. The population of pigeon guillemots in Washington is not well known, and has probably declined in recent decades. They are highly vulnerable to oil spills and other pollution, and changing water temperatures. According to breeding bird surveys, the population in Washington has remained stable over the last 35 years. However, availability of suitable banks for nesting is a limiting factor in distribution and abundance.

**Woodpeckers**, including **flickers** and **sapsuckers** play an important role in wooded bluffs. They eat all life-stages of wood-boring insects that are inaccessible to most other forest birds. Northern flickers, or flickers, eat quantities of carpenter ants.

Holes that woodpeckers create each year for nesting and roosting are used in subsequent years by cavity-nesting songbirds, small owls, ducks, and native squirrels that cannot fully excavate their own nest site.

Clear-cutting forests currently has the most significant impact on **pileated woodpecker** habitat, but pileated woodpeckers are fairly adaptable, which offsets some of the impact from habitat loss. They are, however, currently candidates for endangered species listing by the Washington Department of Fish and Wildlife and are included on the Gap Analysis list of species-at-risk (see Washington Gap Analysis and WDFW's Priority Species for management recommendations).

**Northern rough-winged swallows** are usually found near water, especially along sandy cliffs or rivers with high, sandy banks and nearby open areas. They also nest in man-made banks. They are the principal bank-nesting swallows in western Washington.

**Bank swallows** are closely associated with sandy, vertical banks, even those created by human excavation. They adapt well to new surroundings and colonize areas quickly, necessary traits, since the banks in which they nest are often unstable and easily eroded.

### Tips for Puget Sound Bluff Property Owners

For people wishing to maintain bird habitat on their property, things to include are:

- Multiple-acre patches of coniferous trees—good nesting areas for hawks and owls.
- Young stands of coniferous trees at various stages of growth—good hunting areas for Cooper's and sharp-shinned hawks.
- Quiet, protected areas away from human activity—good for all songbirds.
- Protected areas near water with big trees—good for all bird species.
- Tall snags (dead or dying trees over 10 feet)—good perch sites and nest sites for cavity nesting birds.
- Tall live trees—good nest and perch sites for several hawk species.
- Hedgerows and thickets bordering fields—good for songbirds and hawks.
- Large unmowed or infrequently mowed grassy areas away from bluffs—good for red-tailed hawks and other species that eat rodents and large insects such as grasshoppers.

### References and Additional Information

Bosakowski, Thomas, and Dwight G. Smith. Raptors of the Pacific Northwest. Portland, OR: Frank Amato Publications, 2002.

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Pendleton et.al., Raptor Management Techniques Manual. Institute for Wildlife Research and the National Wildlife Federation, Science and Research Series No. 10, 1987.

Udvardy, Miklos D. F. Audubon Society Field Guide to North American Birds--Western Region. New

York: Alfred A. Knopf, 1977.

### Internet Resources

American Bird Conservancy (Cats Indoors and other programs): www.abcbirds.org

Bald eagle protection rules. WAC 232-12-292 found at: http://www.leg.wa.gov/wac/index.cfm?fuseaction=Section&Section=232-12-292

Seattle Audubon's Birds of Washington State: www.birdweb.org/birdweb/

U.S. Forest Service Wildlife Species Life Form Information: www.fs.fed.us/database/feis/

Washington Gap Analysis: http://www.fish.washington.edu/naturemapping/wagap/public_html/

WDFW's Priority Species: http://wdfw.wa.gov/hab/phsvert.htm#birds.

## AMPHIBIANS

The Puget Sound marine area bluffs support **tree-frogs**, **red-legged frogs**, **Western toads**, and several species of **salamanders**. Several of these, such as the western toad, are likely declining in portions of their range; however historical or baseline information is often incomplete for this species group. For detailed information on the above-mentioned species, see references below.

### Tips for Puget Sound Bluff Property Owners

To provide safe spaces for amphibians on your property:

- Protect existing natural areas to the greatest extent possible. Protect woodlands, wetlands, stream corridors, shorelines, and other wildlife habitat; encourage your friends and neighbors to do the same. Support public acquisition of greenbelts, remnant forests, and other wild areas. Write to legislators and attend public meetings when regulations are being considered.
- Protect buffer areas next to streams, lakes, marine areas, and ponds. The vegetated buffers surrounding these areas protect the ecological functions and value of the breeding habitat, and provide needed upland habitat for amphibians.
- Wherever possible, protect migration paths between uplands and breeding sites. If amphibian migrations to breeding sites cross neighborhood roads, try placing signs to inform local drivers of this crossing. If a new road is to be constructed in migration areas, work for installation of amphibian crossing structures, such as small tunnels under the roadway. Amphibian movements can also be guided by means of drift fences and large logs. If you have an area on your property that is used by migrating amphibians, leave the area as natural as possible.
- Leave a portion of your grass unmowed, especially in areas that adjoin a wet area, forest edge, or any other distinct habitat, as well as any area that is being used by migrating amphibians. If you must mow in these areas, mow at slower speeds and be ready to step on the clutch or brake. Set the mower blades as high as possible, or use a weed-whacker and leave grass 6 inches high.
- Regularly mow any areas you want to keep as lawn to prevent longer grass developing where frogs may hide. Mowing in hot, dry weather will minimize the chances of finding amphibians, and making some disturbances before mowing may encourage frogs to hop out of the way. Don't mow or weed-whack when amphibians are seen during breeding migrations or juvenile dispersal periods.

Preserve leaf litter under trees and shrubs. Such material provides cover and moisture; it also attracts organisms that amphibians eat.

Retain stumps, logs, rootwads, rock piles, and other debris that provides a cool, moist habitat for amphibians. Such habitat features provide much needed cover. All these can be strategically located as "stepping stones" across exposed areas, or to bridge gaps between breeding ponds and woods. To be effective in exposed areas, keep the structures within 15 feet of each other.

With permission from landowners, you could salvage these materials from cleared or logged areas and install them in your landscape, preferably away from busy roads.

Avoid using pesticides and herbicides. Amphibians

have highly permeable skin that can absorb toxic chemicals from your lawn, and they can be poisoned directly or indirectly through their food, such as slugs and snails. Moss-killers and roof treatment chemicals can also be toxic, and often such runoff is directly channeled into wetlands via pipes or sewer outflows.

**Figure 8**. Retain stumps, logs, rootwads, rock piles, and other debris that provides a cool, moist habitat for amphibians. (From Link, Landscaping for Wildlife in the Pacific Northwest.)

### Additional Information

Corkran, Charlotte C., and Chris Thoms. Amphibians of Oregon, Washington, and British Columbia: A Field Identification Guide. Vancouver, BC, and Redmond, WA: Lone Pine, 1996.

Leonard, William P., et al. Amphibians of Washington and Oregon. Seattle: Seattle Audubon Society, 1993.

Nussbaum, Ronald A., et al. Amphibians and Reptiles of the Pacific Northwest. Moscow, ID: University of Idaho Press, 1983.

Storm, R. M., and W. P. Leonard, eds. Reptiles of Washington and Oregon. Seattle: Seattle Audubon Society, 1995.

### Internet Resources

U.S. Forest Service Wildlife Species Life Form Information: www.fs.fed.us/database/feis

Pacific Northwest Herpetological Society: www.pnhs.net

## REPTILES

Three species of garter snakes occur in the Puget Sound marine area bluffs: the **Western terrestrial garter snake**, the **common garter snake** (Fig. 9) and the **Northwestern garter snake**.

All garter snakes hibernate during winter, either alone or in a group site called a hibernaculum. Hibernation sites are also used for shelter at other times, and include rodent burrows, spaces under logs and tree stumps, rock crevices, and lumber and rock piles. Snakes will use the same hibernaculum year after year; several hundred snakes and different species may occupy the same hibernaculum. Emergence from hibernation can begin as early as March, depending on the species and location. Snakes may temporarily emerge from hibernation to feed and bask during warm periods in mild areas.

The **Northern alligator lizard** and the **Western fence lizard** are the two lizard species likely to be seen in and around Puget Sound marine area bluff habitats. For detailed information on all the above-mentioned reptile species, see references below.

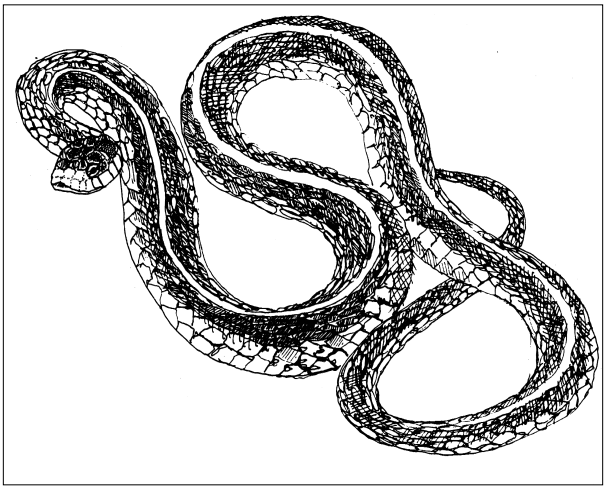

**Figure 9**. The common garter snake is usually found close to water or wet meadows—or your garden! (Washington Department of Fish and Wildlife.)

### Tips for Puget Sound Bluff Property Owners

To provide safe spaces for reptiles on your property:

- Protect hibernation sites and other areas used by snakes and lizards.
- Mow at slow speeds and be ready to step on the clutch or brake. Leave grass unmowed in places that adjoin a wet area, sunny forest edge, or any other known snake habitat. If the grass has to be cut, survey the area and move or direct any snakes to a safe location prior to mowing. Set the mower blades as high as possible, or use a weed-whacker and leave grass 6 inches high.
- Retain small, fish-free (fish eat all stages of amphibians) ponds for amphibians. Many snakes, and garter snakes in particular, feed on tadpoles, adult frogs, and invertebrates found in and around ponds.
- Build a rock wall or a rock pile with crevices for snakes and lizards to escape from severe weather and predators, to find food, and to give birth.
- Place habitat-enhancement features, such as rock piles, away from driveways or heavily traveled roads to avoid vehicle/reptile unpleasantries.
- Discourage cats and dogs from using your yard. They are effective hunters and can severely impact snake and lizard populations.
- Encourage your friends and neighbors to preserve wildlife habitat on their property, especially property that adjoins yours.
- Support public acquisition of greenbelts, remnant forests, and other wild areas in your community.
- Join a local conservation organization or a habitat enhancement project.

## ADDITIONAL INFORMATION

Storm, R. M., and W. P. Leonard, eds. Reptiles of Washington and Oregon. Seattle: Seattle Audubon Society, 1995.

U.S. Forest Service Wildlife Species Life Form Information: www.fs.fed.us/database/feis/

Internet Resources

Pacific Northwest Herpetological Society: www.pnhs.net/