

# Natural History of the Terrestrial Mammals of the San Juan Islands

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## I. Introduction

### Who are they?

Among the wildlife of the San Juan Islands are a number of species of **terrestrial mammals**. To be classified as a **mammal**, an animal must meet the following criteria:

- The female gives birth to live young that develop inside her body (as opposed to laying eggs which develop outside the body and hatch at a later date).
- The female lactates and nurses her young for a period after they are born.
- Most mammals are furry or hairy, rather than having feathers or scales.

These animals are described as **terrestrial** because they are essentially “land based” in comparison to truly **marine** mammals that spend all, or most of their time in salt water. Included in the terrestrial group are aquatic or semi-aquatic mammals such as the beaver and river otter, and flying mammals such as bats.

### Where Do They Live?

Many of the birds we see on the islands are only here for part of the year. They migrate to find better wintering areas, more suitable breeding grounds, or warmer weather. With the exception of bats, the terrestrial mammals of the San Juan Islands are unable to do this. Their habitat or home range must supply their needs all year round. They must be able to find sufficient food and shelter to support themselves and also raise their young. Although the San Juans cover a relatively small land area, they offer a wide variety of different habitats, including different types of shoreline, fresh-water ponds, lakes and marshes, open grasslands and pasture, and several different types of woodland. For the sake of simplicity, the terrestrial mammals on the islands can be divided into three main groups: 1. Those which are closely associated with **bodies of water**. 2. Those which rely heavily on **woodland**. 3. Those which are mostly found in **grassland**.

#### Water

This group would include mammals such as river otter, beaver, mink and muskrat which spend most of their time in or near ponds, lakes, marshes, or the shore and rely heavily on aquatic animals or plants for food.

#### Woodland

This group would include squirrels, chipmunks, raccoons, deer, and the deer mouse which get most of their food and shelter from trees, under-story bushes and shrubs, or on the woodland floor.

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### Grassland

The most obvious species in this group are the European rabbit and Townsend's vole, which are most numerous in open pasture and grasslands.

Of course, many of these animals can be found in different habitats. One good example is the red fox which may have its den in the woods, spend a lot of time hunting voles and young rabbits in grassy areas, and regularly visit the nearest shore to scavenge along the tideline.

## **II. Which Terrestrial Mammals Live Here?**

Compared to the wide variety of bird species found on the San Juan Islands, the terrestrial mammals are relatively easy to cover. Only about 20 species are known to live here, and of these, nine are non-native, that is, they were introduced by humans at some point, either deliberately or accidentally.

In some ways the wildlife of the San Juan Islands is similar to that of the nearby mainland, but in other ways it is very different. As far as we know, there are no longer any large carnivores on the islands, such as wolf, bear, cougar etc., although some of these animals inhabited the islands prior to the arrival of the first European settlers. Furthermore, we do not have any coyote, opossum, or skunk, although these animals are common on the mainland. People often ask how the mammals that inhabit the islands got here. Did they swim? My understanding is that most of our native species were here before the islands were gradually cut off from the mainland as the sea level rose at the end of the last glacial period.

The species covered in this section are:

### Native Species

Raccoon  
River Otter  
Mink  
Columbia Black-tailed Deer  
Beaver  
Deer Mouse  
Townsend's Vole  
Vagrant Shrew  
Little Brown Bat  
Big Brown Bat  
Flying Squirrel?

### Introduced Species

European Rabbit  
Red Fox  
Muskrat  
Norway Rat  
House Mouse  
Townsend's Chipmunk  
Eastern Gray Squirrel  
Eastern Fox Squirrel  
Douglas Squirrel

There is a great deal of information about these mammals in various books and guides if you want to go into detail. The intention here is to tell you what mammals are on the islands, how you can identify them, and to provide information on their local distribution and basic natural history.

**Raccoon** (*Procyon lotor*)

Everyone knows what a raccoon looks like. With its gray coat, black mask, and striped tail, it would be difficult to mistake it for any other wild creature we have on the islands. They live mainly in wooded areas, near a water source such as a stream, pond, or lake, and are often seen foraging along the shore. They eat a wide range of foods including fruits, berries, nuts, insects, worms, fish, shellfish, frogs, bird eggs, and occasionally small birds and mammals. Their incredibly dexterous forepaws can find and handle food, open shells, winkle grubs out of cracks in bark, and catch shrimp in pools. They are very good climbers and can build their dens high up in hollow trees, or lower down in logs, rock crevices, and burrows.



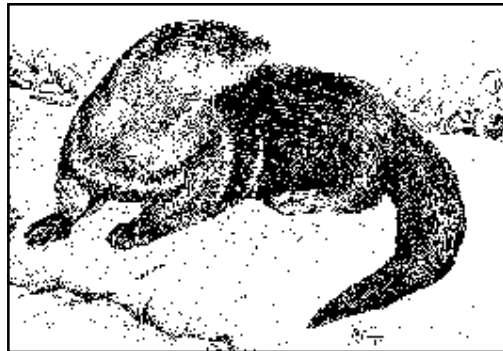
raccoon

A litter of two to six kits are born in March/April. The young stay in the den until they are about eight weeks old and are able to begin following their mother around. They remain with her through to the fall. Raccoons are mainly nocturnal, so you may not always see them, but you can often tell that they are around by the sounds they make (growls and snarls when they squabble and "wheep wheep" sounds from the youngsters when they are frightened). They also leave distinctive tracks in mud or sand.

From about 1994 to 1996 large numbers of raccoons on the islands died from an outbreak of what was probably canine distemper. There are still raccoons around, but their numbers are reduced in some areas.

**River Otter** (*Lutra canadensis*)

The name "river otter" is misleading because it suggests that these animals are found only in rivers, when in fact they can live in ponds, lakes, rivers, and in the sea. There are documented sightings of sea otters but no records of resident family groups in this area, so the otters you see along the shore or in the sea around the islands are river otters. Their territory may include several ponds and a stretch of seashore, and may travel several miles overland to get from one body of water to the next, depending on food availability.



river otter

An adult river otter can reach a length of up to 3½ feet and weigh up to 25 pounds. Being a member of the weasel family, they are long and low to the ground, and have a long tail which is thick at the base and tapers toward the tip. Their head is broad and flat with tiny ears, little black eyes, and long whiskers. Their short, dense fur is a rich dark brown on the back

and head, shading to paler grayish-cream on the underside. In the water they are very agile and graceful, swimming, diving, and turning somersaults as if they have no bones in their body. On land, however, they are more ungainly, running with a hump-backed galloping motion.

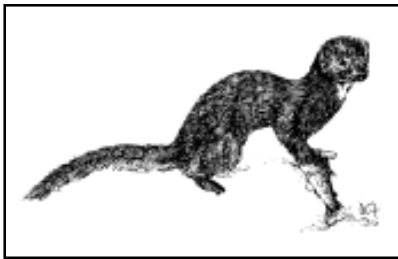
River otters eat a range of fish, crustaceans, shellfish, frogs, and occasionally water birds. They have very strong jaws and teeth that can crunch through shells.

Their den (orholt) is usually a hole in a bank or in a crevice among rocks, close to water. Their young (kits) are born in March or April and stay in the den for the first 12 weeks or so, before following their mother into the water. Usually two kits are born, but litter size varies from one to five. The youngsters stay with their mother through the fall and into winter.

River otters are relatively common in the islands, but are not always very visible because they tend to be most active in late evening, through the night, and in the early morning. You can tell that they have been around by their web-footed tracks in the mud or the musky, fishy odor of their sprainting places (latrine spots where they deposit their droppings and mark their territory.)

### **Mink** (*Mustela vison*)

The mink is a relative of the river otter, and has the same long, low body shape, but is a much smaller animal. The mink only grows to a length of about 2 feet, including its long tapering tail, and to a maximum weight of about 3 pounds. Its fur is a rich dark brown color, with a cream or white patch on the chin and often with lighter patches on the belly. It has a blunt nose, small black eyes and tiny ears.



mink

The mink is a native species to the San Juans, but many people aren't aware of its presence because it is so unobtrusive. It lives mainly in wet areas including ponds, streams, marshes, and sometimes along the seashore. It is an excellent swimmer and feeds on fish, crustaceans, frogs, small birds and bird eggs, mice, voles, and muskrats.

The mink makes its den along the banks of a pond or lake, or along the shore, where the female gives birth to a litter of two to six kits in early spring. Mink may make a range of sounds, but the most common is a series of sharp squeaks.

It has been reported that there are feral ferrets on San Juan Island and it would be possible to confuse these with mink if you just caught a glimpse of the animal. Ferrets (originally domesticated European ferrets) come in a range of colors from cream to dark, reddish brown, while almost all wild mink are the same characteristic deep rich brown.

**Columbia Black-tailed Deer** (*Odocoileus hemionus*)

Columbia black-tailed deer is the only species of deer found on the islands (with the exception of exotics such as Fallow and Sika deer which were introduced to Spieden Island), and is the same species found on the nearby mainland. Our island deer, however, tend to be smaller, with a mature buck reaching a weight of around 140 pounds compared to around 200 pounds on the mainland. The black-tailed deer is considered to be a subspecies of the mule deer and has the characteristic large ears. Its summer coat is reddish brown with cream under the belly, on the insides of the upper legs, and on the rump. Some animals also have a cream patch on the throat. In fall they grow a thicker, darker gray-brown winter coat. Their name comes from their tail, which is black on the upper side and light cream-white underneath.

Only the male (buck) has antlers, which grow throughout the summer and are full grown and ready for use in sparring matches during the rut or mating season from October to December. The antlers are shed in January or February.

Does give birth to one or two fawns most years, usually in mid to late May. The fawns are reddish brown with white spots on their back. This spotted baby coat, which helps to camouflage the fawns, remains until early fall when the darker winter coat grows in. For the first couple of weeks, the fawns lie very still and quiet in a hidden place for several hours at a time while the doe goes off to feed. She then returns to nurse the fawns, before going off again for up to six to eight hours. After the first two to three weeks, the fawns are strong enough to follow the doe and start nibbling at browse. The youngsters are weaned around mid-September, but often stay with their mother through the winter.

Deer on the islands like to live in areas with some thick woodland and brush for cover, and open clearings or fields nearby where they can feed. They are not grazers (like cattle which tear off large mouthfuls of grass), but browsers, which means they nibble off leaves and shoots from trees, bushes, and low growing herbs and grasses. They are most active in mornings and evenings and throughout the night, resting in sheltered cover during the day.

**Beaver** (*Castor canadensis*)

Most people would recognize a beaver if they saw one. It is a large rodent, up to about 3 feet long including the tail, and weighs 30 to 60 pounds. It has dense, dark brown fur, a large paddle-shaped scaly tail and big orange-brown colored front teeth. A beaver's diet consists of the bark and small twigs from a range of trees including aspen, poplar, birch, maple, willow, and alder. Branches and



beaver

small sections of logs are stored near the lodge for use during the winter months.

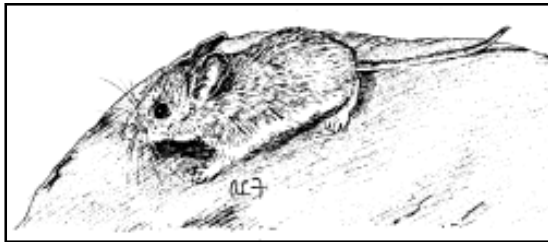
Beavers may live in a lodge which looks like a mound of sticks in or on the edge of water, or in a burrow in a pond or stream bank. A litter of two to four kits are born in April or May and may stay with their parents for up to two years, sharing the lodge with their mother and father and the next year's litter of kits.

There are very few beaver on the San Juans. We know of one family on Orcas Island and there may be a few in other places. They are mainly nocturnal, so may not be seen very often, but signs of their feeding, such as gnawed twigs and branches and the gnawed stumps of felled saplings, are fairly obvious.

#### **Deer Mouse** (*Peromyscus maniculatus*)

Deer mice are brownish on the back and sides and paler underneath, often with a white chin, throat, and feet (hence the alternative name of white footed mouse.) They have long ears and long furred tails that are light underneath and darker on top. Their head and body is around 3 inches long and their tail can be about the same length.

Deer mice eat seeds, nuts, acorns, and insects, and often store food to keep them going through the winter. They nest in small burrows in the ground or under logs or tree stumps and are abundant throughout the woodlands on the islands. During the winter months, they may move to live near or inside our houses. They can produce two to four litters of young each year.



deer mouse

The deer mouse is a truly wild, native mouse and should not be confused with the introduced house mouse, which lives in and around our buildings. To tell them apart, look for the bi-colored tail and white feet on the deer mouse, as compared to the all-dark, scaled tail and dark feet of the house mouse.

Deer mice are the favorite prey of predators such as barn owls, and their bones often make up a large proportion of the contents of owl pellets.

#### **Vagrant Shrew** (*Sorex vagrans*)

The vagrant shrew is a tiny animal, about 4 inches in length which includes its long tail, and weighs about 1/4 of an ounce. At first glance, it may resemble a mouse, but its appearance and diet are very different. It

has tiny, bead-like eyes, tiny ears which are hidden in the fur and a long pointed nose. The fur on its back and sides is reddish brown in the summer, changing to almost black in the winter, and its underside is paler. It feeds on a wide range of insects, sowbugs, centipedes, earthworms, slugs, and some vegetable matter.



vagrant shrew

These animals are active both day and night, and are relatively common in moist areas such as ditches, damp woodland, stream edges, and wet meadows. They live just under the leaf mold layer on the ground and can develop complex runways. They have a very high metabolism and move around quickly, requiring them to eat almost continuously. They make their nest of dry grass and leaves in a stump or log, and give birth to a litter of two to nine young in early spring.

### **Townsend's Vole** (*Microtus townsendii*)

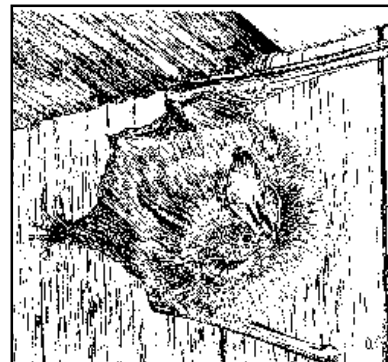
Townsend's voles are often referred to as "meadow mice", but they belong to a different family from the true mice. They are larger, have a rounded nose, chunkier bodies, smaller eyes and ears, and a shorter, fur-covered tail.

The Townsend's vole is one of the larger voles, measuring up to 6 to 9 inches including the tail, which is usually about half the length of the body. It is dark, blackish-brown with a paler, grayish underside. They are strictly vegetarian, feeding on green leaves, shoots, stems, and bulbs. This is a very common animal, found in open fields and meadows throughout the islands where it leaves noticeable runways and tunnels through dead grass mats. Voles are one of the favorite prey items for predators such as great-horned and barn owls, red-tailed hawks, red foxes, and house cats.

### **Bats**

At least ten different species of bats have been seen on the islands, but the two most common are the **Little Brown Bat** (*Myotis lucifugus*) and the **Big Brown Bat** (*Eptesicus fuscus*).

The little brown bat is quite abundant on the San Juans. It is often seen at night during the summer months flying erratically, catching mosquitoes and other small flying insects on the wing. They are glossy brown on the back and paler buff underneath, while their wing membranes, ears, and feet are blackish-brown.

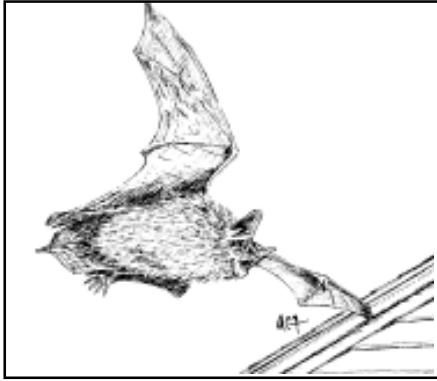


little brown bat

Little brown bats are highly colonial, and during summer, there may be large roosting groups of nursing females in hollow trees, caves, tunnels, or buildings. A single youngster is born in late June or early July and is usually left hanging in the roost while its mother goes off to feed. By a month

old, the youngster is ready to fly and find its own food. These bats are usually seen in clearings near wooded areas and close to water.

In winter they seek out caves or similar places where temperatures are sufficiently low and constant for them to go into dormancy. They become torpid, but don't go into a deep sleep so that during warm spells in the winter months, they may become active for short periods. Many little brown bats migrate out of the area in winter, and it is thought that some move to caves in the Cascade Mountains.



big brown bat

The big brown bat, as the name suggests is a bit larger, weighing 11 to 17 grams compared to 7 to 9 grams for the little brown bat, however, it is not easy to tell them apart when you see one flying by. The big brown bat is also brownish in color, with blackish wing membranes,

ears, and feet, and slightly paler brown underparts. It has comparatively shorter ears than the little brown bat. The big brown bat also roosts in hollow trees, caves, tunnels, and buildings, but usually roosts in small groups or on its own. It feeds on flying insects, mainly beetles, and is most often seen in wooded areas. It usually has two youngsters, born in May or June of each year.

### Flying Squirrel

The flying squirrel appears on our list with a question mark by its name because we don't know if this is a native or non-native species. A few animals were confirmed on San Juan Island in 1995. However, it is not known if they represent a small, native population that has just been discovered, or a couple of animals that were introduced to the islands (e.g. as pets) and moved out to live in the nearby woodland. We presume that these are **Northern Flying Squirrels** (*Glaucomys sabrinus*) but this has not been confirmed.

It is not unlikely that flying squirrels have been on the islands without people realizing it, because they are completely nocturnal and live in dense coniferous forest. Even in areas where they are common, they are rarely seen, and little is known about their habits. The northern flying squirrel is about 11 inches long including a furry 5-inch long tail, has large eyes, and relatively small ears. Its fur is soft and silky, grayish-brown on the back and paler grayish-buff on the underside. It has a large flap of furry skin between its fore and hind limbs which enables it to glide from tree to tree.

Flying squirrels eat seeds, nuts, fungi, berries, fruits, blossoms, and occasionally bark. Unlike other squirrels, they will also eat insects, bird eggs, and small birds. They make their dens in holes in trees, particularly dead snags, and line them with shredded bark. They do not hibernate, but store



caches of food to keep them going through the winter months. The young are born in late spring and start to glide when they are about two months old.

### **European Rabbit** (*Oryctolagus cuniculus*)

The rabbits on the islands are not native cottontails, but European rabbits. There are various stories about how and when they got here; general consensus is that they were brought here many years ago as a meat animal, escaped from cages or were deliberately released and soon formed a thriving wild population on all three of the largest islands and some of the smaller islands as well. Over the years, their population seems to have risen to a peak then crashed several times, perhaps due to a viral infection. Currently (1998), their numbers appear to be at low to moderate levels on San Juan Island and high on some parts of Lopez Island.

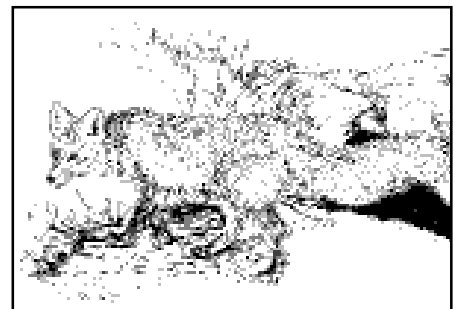
European rabbits are larger than cottontails and have longer ears. The normal wild color ranges from reddish to grayish brown, with creamy white on the underside, and on the inside of the ears. The underside of their tail is white. Rabbits in a range of other colors including white, black and white, and golden orange have been seen from time to time. These are usually pet rabbits which have escaped or been deliberately released and rarely survive very long in the wild.

European rabbits usually live in a warren of inter-linked burrows dug into the ground. These provide shelter from bad weather and predators as well as nest areas where the young are born and raised. European rabbits can produce several litters a year, starting as early as February, and often have about six young in a litter. The young are born pink and hairless, but develop quickly and by about two and a half to three weeks are starting to move around outside the warren. They eat a wide range of low growing vegetation including grasses and clover, and when food is scarce, will nibble at the stems of more woody plants including tree saplings.

Local predators such as great horned owls, bald and golden eagles, red-tailed hawks, and red foxes prey heavily upon these rabbits, particularly the youngsters.

### **Red Fox** (*Vulpes fulva*)

The red fox is not native to the San Juan Islands, but was introduced quite some time ago. Exactly when the first fox was brought here is unclear, but there are records of their presence on San Juan Island in the 1930s. Folks who have lived on the Island for a few decades report that foxes were quite numerous at one point, then they seemed to disappear. A few were known to live in the American Camp area. Within the last 4 years or so, their numbers have increased and they



red fox

are now found all over San Juan Island. There have also been a few sightings reported on Orcas and Lopez Islands.

The red fox is about the size of a small dog (a maximum of 12 pounds), with a very distinctive long bushy tail, large ears, and a pointed face. There are two main color phases found on the islands, the usual red/orange color and a black/silver phase. The red colored foxes are orange-red, often with black “stockings”, a paler belly, and a white tip to the tail. The black ones are mainly black with white tips on the fur along the back and sides, producing a silvery appearance. There are also some intermediate colors such as chocolate brown, “cinnamon” colored, and red with black/gray markings.

Red foxes live in a range of woodland and grassland areas and, although they are most active at night, they are often seen during the day. Their diet includes insects, mice, rats, voles, small rabbits, ground nesting birds, and scavenged fish and crabs along the shore.

Their den is usually a large burrow where the kits are born in March or April. The dog (male) and vixen (female) work together to raise the kits, bringing food to the den at first, then later taking the kits out to teach them to hunt.

#### **Muskrat** (*Ondatra zibethica*)

The muskrat is another introduced species that has been on the islands for some time. They can grow up to about 25 inches including the tail (about the size of a small house cat). They have a blunt, rounded nose, short ears, rich brown fur, with a lighter silvery underbelly, and a long, hairless, black scaly tail. The tail is unusual in that it is flattened from side to side rather than horizontally flat like a beaver tail or with a round cross-section as is found in other rodents.



muskrat

Musk rats are semi-aquatic and are usually found in marshy areas along the edges of ponds, lakes and streams, where there is good cover among rushes and cattails. They eat a range of aquatic vegetation and fresh water snails, crayfish, frogs, and sometimes fish.

A muskrat's home may be a burrow in the bank of a pond or lake, or in a conical mound of aquatic vegetation. Often there is an underwater entrance and a long burrow up into the nest chamber. Five or six young are born in spring.

Muskrats are mainly nocturnal and although you may not see one, you may notice signs that they are around, such as their burrows in the banks of ponds, latrine spots where they leave droppings and scent markings, or nibbled aquatic vegetation.

**Townsend's Chipmunk** (*Eutamias townsendi*)

The Townsend's chipmunk was introduced to Lopez Island at some point and, as far as we know, is not found on other islands. Its head and body are about 6 inches long, and its tail is about the same length. Its color varies from yellowish-brown to grayish-brown with five alternating dark and pale stripes along the back and upper sides and three stripes visible on the head. The underside is creamy white.



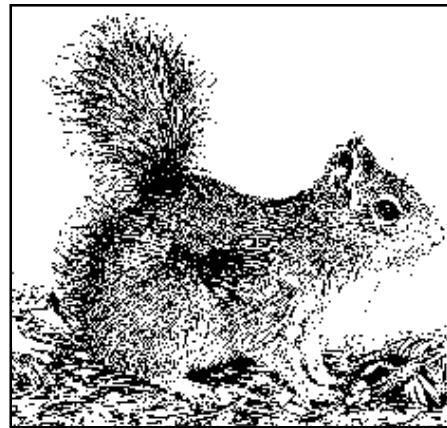
Townsend's chipmunk

These chipmunks are active during the day and move in fast spurts and jerky movements. They can climb trees, but spend most of their time on the ground or in low bushes where they feed on seeds, nuts, fruits, berries, buds, and probably some insects. They hibernate for short periods during the winter, waking up periodically to eat food that they cached in various places during the fall. Female chipmunks give birth to one litter of three to six young in May each year.

**Douglas Squirrel** (*Tamiasciurus douglasi*)

The Douglas squirrel was introduced to Moran State Park on Orcas Island and, as far as we know, is not found on other islands. If you take any of the forest walks in Moran State Park, you will almost certainly see or hear this noisy little animal as it makes its sharp "pee-oo" sounds from the branches above your head.

Its head and body are about 6 inches long. Its bushy tail is just an inch or so shorter than its body and is often held up along its back. In summer, its coat is reddish brown with a yellow-orange belly, while its winter coat is grayer with a creamy underside.



Douglas squirrel

Douglas squirrels live in coniferous forest where it feeds on a variety of seeds, nuts, eggs, and fungi, often leaving behind piles of cone pieces at its favorite feeding stump. It stores nuts and cones in caches as it is active throughout the winter. These squirrels make their nest of leaves, twigs, and shredded bark in the crotch of a tree or in a tree cavity.

Small numbers of two larger eastern squirrels have been recorded on Lopez Island. The **Eastern Gray Squirrel** (*Sciurus carolinensis*) can grow up to 8 to 10 inches tall, with a bushy tail of about the same length. It is gray, with

a tinge of red in summer on the back and sides, and white underneath. This species was also introduced to Seattle and Stanley Park in Vancouver, British Columbia, where it can be seen in large numbers.

The **Eastern Fox Squirrel** (*Sciurus niger*) is about the same size or larger than the eastern gray squirrel. It can be a variety of colors, from reddish-gray to rusty yellow but has a yellow-buff to orange belly which differentiates it from the eastern gray squirrel. Both of these species nest in holes in trees and eat seeds, nuts, fruits, buds, and leaves.

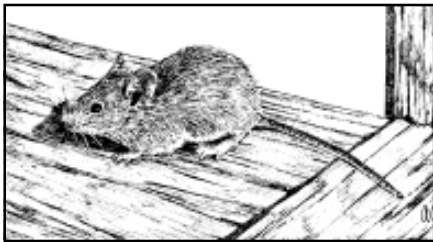
The last two species on our list are animals that are found almost everywhere people have settled. The **Norway Rat** and the **House Mouse** have learned how to take advantage of the food and shelter we provide.

**The Norway Rat** (*Rattus norvegicus*)

The Norway rat is the common brown rat seen in cities and around farmyards. It is gray-brown in color with a paler belly. Its head and body measure 7 to 10 inches, while its long scaly tail adds another 5 to 8 inches. The Norway rat is successful because it is so adaptable, living in burrows, under foundations, under rubbish piles, or anywhere else it can find shelter. It can eat almost anything edible.

**The House Mouse** (*Mus musculus*)

The house mouse is a small, grayish brown mouse with a paler belly and a long scaly tail. The head and body measure about 3 inches with another 2½ inches of tail. Usually found in or around buildings, it eats anything edible and breeds all year round. It can be easily distinguished from the native deer mouse, which has a white belly and feet and a furred tail that is dark on top and light underneath.



house mouse

### III. Conclusion

These are the species of terrestrial mammals that are known to live on the San Juan Islands. There have been reported sightings of other species at various times, but these have not been confirmed. Of course, this distribution can, and probably will, change over the years. People who are familiar with the species currently present in their areas will know when they see or hear about something unusual and can therefore play a part in keeping our knowledge of these animals up to date.

## References

Burt, William H. and Richard P. Grossenheider. A Field Guide to the Mammals, 3rd ed. Boston: Houghton Mifflin Company, 1976. (A volume in the Peterson Field Guide series.)

Kozloff, Eugene N. Plants and Animals of the Pacific Northwest. Seattle, WA: University of Washington Press, 1976.

Larrison, Earl J. Mammals of the Northwest. Seattle, WA: Seattle Audubon Society, 1976.

Vernon, Susan. Wildlife of the San Juan Islands. Friday Harbor, WA: Archipelago Press, 1996. (A species checklist and wildlife watching guide to the San Juan Islands.)