

Grass-Rabbit-Fox/Ferret Food Chain in the San Juan Islands

When doing a modeling of this sort, one way to make the activity relevant is to authentically model a nearby system. In this case, the ecosystem of the San Juan Islands can be represented through this model. Furthermore, in the San Juan Islands, a number of these species have been introduced over the last few centuries. This provides a storyline and added relevance, as this particular model can provide a launching point for investigations and discussions about non-native species and their effects on ecosystems.

Below are a few resources to help start the storytelling.



Native Grasses

Roemer's fescue (left) and other native grasses were cultivated in 2010 in a demonstration garden located in front of the American Camp visitor center.

Mike Vouri

Native grasses

One of the park's major projects at San Juan Island NHP is to restore the grasslands to native vegetation at American Camp. This is critical to restore the health of the ecosystem as well as support native wildlife. Native Grasses are critical for many species. For example, the **streaked horned lark**, which was once a common breeder on the Cattle Point Peninsula, is no longer found here because it nests at the base of bunchgrass, which has been crowded out by non-native plant species.

Some of the native grasses that are being planted as part of the program are Sitka brome (*Bromus sitchensis* var. *sitchensis*), Jepson's blue wildrye (*Elymus glaucus* ssp. *Jepsonii*), and Roemer's fescue (*Festuca roemerii*).

Retrieved from <http://www.nps.gov/sajh/learn/nature/native-grasses.htm> on August 18, 2015.

Animals

The Columbia blacktail deer (*Odocoileus hemionus columbianus*) is the largest land mammal in the San Juan Islands.

Mandy Lee Photo

Because of environmental and topographical contrasts on San Juan Island, you'll find a surprising variety of wildlife here: Large marine mammals such as Orca whales, Dall's porpoises and Pacific Harbor seals; terrestrial mammals such as red fox and Columbia blacktail deer; bats; reptiles; amphibians; more than 200 species of birds; 32 species of butterflies; 200 species of fish; and hundreds of species of marine invertebrates. Many species reside at San Juan Island NHP or in its surrounding waters year around, some are summer or winter residents, and others visit the island to rest and feed during seasonal migrations.



Island biogeography explains why there are fewer species of animals on San Juan Island than on the neighboring mainland: they must find a way to cross seven to 20-miles stretches of open water or vast expanses of open sky.

Not all animal species are native. Some, such as the red fox, European rabbit, and Norway rat, were introduced to the island by humans, which changed the island's natural balance. The future of all these species is intricately tied to the environmental health of the land, water, and air of San Juan Island National Historical Park, the Straits of Juan de Fuca, Georgia, Haro, and beyond.

Retrieved from <http://www.nps.gov/sajh/learn/nature/animals.htm> on August 18, 2015.

Resources gathered by Rochelle Gandour-Rood, Environmental and Sustainability Education (ESE), OSPI. For more information about ESE, go to <http://www.k12.wa.us/EnvironmentSustainability/default.aspx>.



The red fox, a nonnative species, is a common sight throughout San Juan Island, especially on the American Camp prairie.

Retrieved from

<http://www.nps.gov/sajh/learn/nature/mammals.htm> on August 18, 2015.

Non-native species on San Juan Island

Non-native species are species that are not native to or originally from a region. Non-native species are also referred to as introduced, exotic, or alien. The National Park Service defines non-natives as species that occur in a given place as a result of direct, indirect, deliberate, or accidental actions of humans. Non-natives include many cultivated plants (food crops and ornamentals) and domesticated animals. Non-natives become problematic when they become invasive. Invasive species are non-native species that displace native species, disrupting the natural ecosystem of an area. Non-natives flourish due to a lack of predators, diseases, or other forms of population control that typically promote balance in a natural area. Invasive non-native species tend to be aggressive, spreading rapidly and out-competing native species for scarce space and resources. Over time invasive non-natives can alter ecosystems that have existed for thousands of years. In extreme cases invasive non-natives can totally displace indigenous species and even form dense monocultures, thereby degrading the integrity and diversity of native communities. Others may introduce foreign parasites and diseases, which can devastate native populations. Non-native species can also become pests, such as Gypsy moths, fire ants, zebra mussels, and European rabbits.

One of the most critical threats to the rare plants and native habitats of San Juan Island NHP is the presence of non-native plant species. Introduced from early settlers, their animals, and landscape plantings, non-native plants and seeds have taken hold at San Juan Island National Historical Park. Non-native animals are also encountered in the park: feral cats, red fox, and the ubiquitous European rabbit.

Retrieved from <http://www.nps.gov/sajh/learn/nature/environmentalfactors.htm> on August 18, 2015.

From "Ferret Chic," by Curt Suplee, April 19, 1988 *The Washington Post*

The "natural prey" issue raises another argument against the pets: If enough house ferrets begin to escape, they might develop into a feral population that would threaten existing species. Ferret backers tend to insist that their kennel-bred animals could not sustain themselves for long in the wild. But Stanley L. Diesch, a professor at the University of Minnesota's College of Veterinary Medicine, points out that when they were introduced into New Zealand to help control the rabbit population, ferrets not only flourished but contributed to the decline of some 20 bird species. And on San Juan Island, off Washington State, imported ferrets appear to be surviving at the expense of the native mink. ::

Retrieved from <http://www.washingtonpost.com/archive/lifestyle/wellness/1988/04/19/ferret-chic/72668052-56f0-49d8-ac8d-a80dd35f5ddc/> on August 18, 2015.

On San Juan Island, Washington (USA), a feral ferret population was discovered accidentally in 1974, when domestic ferrets were unexpectedly caught in rabbit traps during a study of the European rabbit population on the island by the [National Park Service](#). Since no research was conducted on ferrets, the impacts of ferrets on wildlife were not investigated, and the presumed disappearance of the population sometime in the 1980s was not documented (Stevens, 1975; Stevens, 1982).

Retrieved from https://www.dfg.ca.gov/wildlife/nongame/nuis_exo/ferret/ferret_issues_2.html on August 18, 2015.

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