

Section Five: Regional Information Packages

South Coast Region

5.6.1	South Coast Region	5.6-3
5.6.2	Regional Features	5.6-5
5.6.3	Important Ecosystems	5.6-5
5.6.4	Regionally Significant Species	5.6-7
5.6.5	Invasive Alien Species	5.6-10
5.6.6	Useful Sources	5.6-13

Link to: [Table of Contents](#)

This section of *Develop with Care* offers information on some of the issues, species and ecosystems of concern that are priorities in each region. This section is not a stand-alone guide to environmentally sensitive development in each region—reference to other sections of this document is essential for a full understanding of the recommended environmental guidelines.

Figure 5.6-1: Ministry of Forests, Lands and Natural Resource Operations Regions



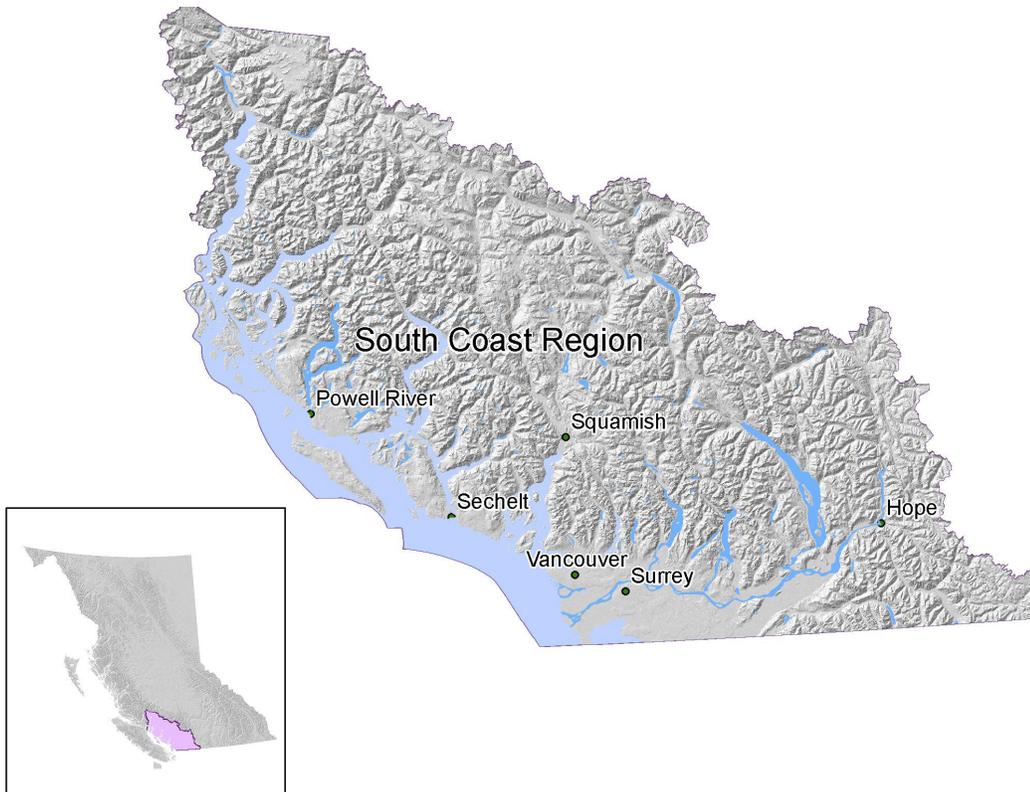
Cover Photos:
 Left: Great Blue Heron. Centre: Coastal Range.
 Right: Wetland, Vedder Creek. Photos: Judith Cullington



5.6.1 South Coast Region

The South Coast Region includes the southwest corner of British Columbia which encompasses the Greater Vancouver urban area and the Sunshine Coast, Squamish-Whistler corridor, and Lower Fraser Valley.

Figure 5.6-2: South Coast Region



5.6.2 Regional Features

The South Coast Region houses more than 60% of British Columbia's population, and land development pressures are intense. The population is projected to increase further, and development and pollution associated with continued settlement have created pressure on the region's natural environment, particularly its air, water, and biodiversity.

Biogeoclimatic Zones

For information on biogeoclimatic classification (BEC) see the [Biogeoclimatic Zones](#) and the BEC website: <http://www.for.gov.bc.ca/hre/becweb/>.

There are nine biogeoclimatic zones in the South Coast Region (**Figure 5.6-3**). The [Coastal Western Hemlock](#) biogeoclimatic zone occurs throughout much of the region. These temperate rainforests are complex and highly productive ecosystems which provide a variety of habitats



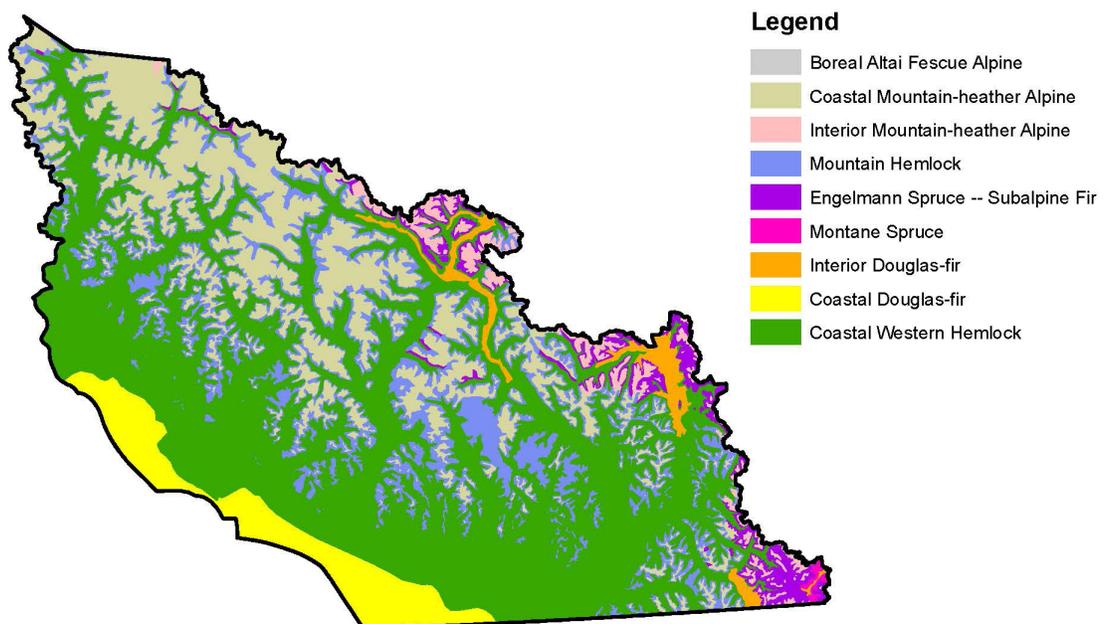
Section 5.6: South Coast Region

for birds and mammals. Fungi and seedlings develop on fallen trees as substrates on which to grow, while the forest canopy provides habitat for lichens, mosses, and insects. Where gaps in the canopy occur, understory vegetation flourishes, providing forage for Roosevelt Elk and other wildlife. The many streams in this zone provide excellent habitat for fish and other aquatic species. In the Fraser River lowlands, most of the extensive riparian ecosystems have been changed to agricultural and urban environments.

The [Coastal Douglas-fir](#) zone occurs only in southwest British Columbia including the east coast of Vancouver Island, the Gulf Islands, and parts of the South Coast. In upland areas, Douglas-fir grows in association with Salal and Oregon Grape. Garry Oak, Arbutus, and Douglas-fir grow in rocky outcrop areas together with other drought-tolerant species such as Baldhip Rose, Snowberry, and Oceanspray. Moister areas support Grand Fir, Western Redcedar, and Bigleaf Maple; swordferns, Salmonberry, and Trillium grow in the understory. The mild climate of this zone supports many plant species that are more typical of Washington and Oregon.

The [Mountain Hemlock](#) zone occurs on higher ground within the region. Dense, closed-canopy forests grow at lower elevations in this zone, but at higher elevations, the forests thin out into alpine meadows. The growing season in this zone is shorter than in the Coastal Douglas-fir zone, with colder climates and more snow. The Mountain Hemlock zone provides habitat for many species including cougar and Black Bear, especially during the warmer summer months.

Figure 5.6-3: Biogeoclimatic Zones of the South Coast





Ecosystems in all three of these biogeoclimatic zones have been extensively modified by human settlement, agriculture, and forestry.

5.6.3 Important Ecosystems

Estuaries

Estuaries are formed where rivers enter the ocean and fresh water mixes with the saltwater environment. They are among the most productive ecosystems on earth. Estuarine plants and animals occupy different parts of the estuary ecosystem depending on their ability to tolerate salt concentration (salinity), wave action, river flow, tidal changes, and sedimentation levels.

The Fraser River has the largest estuary on the Pacific coast of North America. The intertidal wetlands alone cover about 17,000 hectares and the freshwater flows from the river are so great that they affect the entire southern Strait of Georgia. The Fraser estuary is recognized as a globally important centre of biodiversity. Five million waterfowl and shorebirds use British Columbia estuaries every year as ‘refuelling stations’ along their migration routes, as wintering grounds, or as year-round habitat. More than 300 species of birds and 80 species of fish and shellfish spend at least part of their life cycles here along with 300 species of invertebrate animals. More than two billion juvenile salmon spend weeks or months in the estuary before beginning their ocean migration, making the Fraser the greatest salmon-producing river on earth.

The greatest cause of estuary loss has been the diking, draining, and filling of estuary wetlands to ‘reclaim’ land for development. Seventy percent of the Fraser River estuary wetlands have been destroyed in this way, and this has a direct impact on the size of the Fraser River fisheries. Pollution from urban areas, agricultural lands, and offshore oil spills has been trapped by wetlands and eelgrass beds, where filter-feeding organisms such as clams digest the toxic sediments. Invasive plants such as Creeping Bentgrass, English Cordgrass, and Purple Loosestrife are becoming more prevalent and efforts are underway to prevent them from spreading out of control and displacing native wetland species. Exotic marine animals, such as the Green Crab, have also been introduced, often through the release of ballast water from ocean-going ships. This is such a serious problem that the Port of Vancouver now requires all ships to exchange their ballast water in the open ocean in an attempt to prevent any more invasive species from reaching our shores.

For more information about the Fraser River estuary and efforts to protect it, see the [Fraser River Estuary Management Program](#) website.



Rare Plant Communities

The [Conservation Data Centre](#) identifies 67 Red-listed ecological communities in the South Coast. Three of these are outlined below.

Douglas-fir/Dull Oregon-grape

The Douglas-fir/Dull Oregon-grape ecological community was once widespread throughout the Coastal Douglas-fir biogeoclimatic zone. This community is found in very dry areas and poor soils, usually below 250 m elevation.

Today, mature and old-growth stands have been significantly reduced due to urbanization, agriculture and timber harvesting. These ecosystems are susceptible to invasion from alien plant species, especially after logging or in areas adjacent to human developments.

Western Hemlock–Douglas-fir/Electrified Cat’s Tail Moss

The Western Hemlock–Douglas-fir/Electrified Cat’s Tail Moss was once widespread throughout the dry Coastal Western Hemlock biogeoclimatic zone. This ecological community is found on the middle and upper slopes (to 650 m) in well-drained soils.

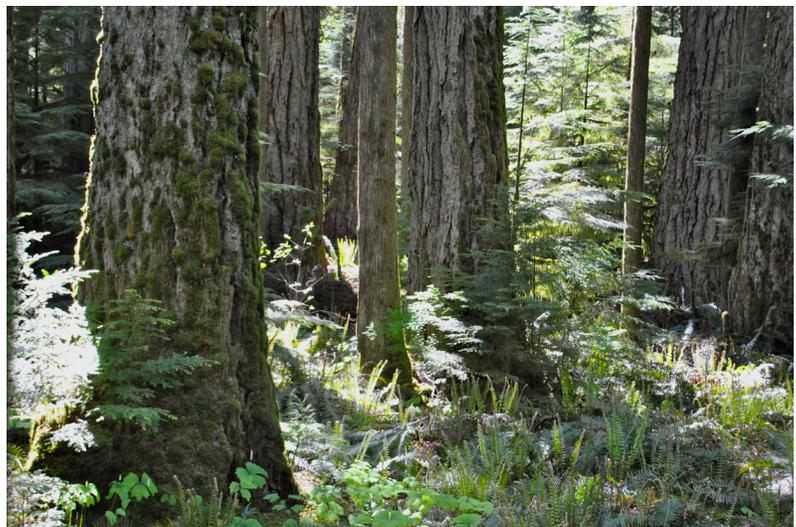
Extensive logging, urban developments, and agricultural activities have made mature and old-growth occurrences of this community rare.

Western Redcedar–Douglas-fir/Vine Maple

The Western Redcedar–Douglas-fir/Vine Maple ecological community was once widespread throughout the South Coast, found in patches on lower elevations (below 650 m) in well-drained soils.

This productive forested ecosystem has been a prime candidate for logging. As a result, very few mature or old-growth stands remain.

Douglas-fir/Dull Oregon Grape ecological community.
Photo: Trudy Chatwin





5.6.4 Regionally Significant Species

The South Coast Region is one of British Columbia's biodiversity 'hotspots'. The region is home to about 68 species and sub-species that are federally-listed by COSEWIC and 274 species and sub-species that are on the provincial Red or Blue Lists.

See [Section 4: Environmentally Valuable Resources](#) for additional guidelines on protecting species at risk.

Fish

Salmon and Trout

Most salmon and some trout are 'anadromous', meaning that they use the ocean for part of their life cycle and return to freshwater to spawn. Some anadromous species are more affected than others by urban development, particularly those such as [Cutthroat Trout](#) and [Coho Salmon](#) which rely on small freshwater streams. Coastal Cutthroat Trout are [Blue-listed](#), and several populations (stocks), particularly those on the east coast of Vancouver Island and the South Coast, are in serious decline. [Steelhead Trout](#) are also decreasing in numbers. These trout need healthy watersheds and stable river channels because they spend two to four years as juveniles in freshwater.

Because of land development and/or over-fishing, many stocks of these species have gone extinct, and others have suffered dramatic decreases. Each stock represents thousands of years of adaptation to a home watershed, and its loss reduces the diversity of the species as a whole. The cumulative loss of fishing opportunities also affects the multi-million dollar sport and commercial fishery. Aquatic and riparian habitats, including estuaries, ephemeral streams, and small streams should be protected as they are important fish habitats.

Birds

Important Bird Areas (IBAs) have been designated for the Squamish River area, the Chehalis River Estuary, Sumallo River/Skagit Watershed, Fraser Delta-Boundary Bay, English Bay-Burrard Inlet, Pacific Spirit Park, Greater Vancouver watershed, Desolation Sound, Jervis Inlet-McRae Islet, and White Islets-Wilson Creek. Depending on the location, IBAs in this region are designated because they provide important areas for foraging, staging and overwintering for species such as Marbled Murrelet, Black Brant, Western Grebe, Red-necked Grebe, Barrow's Goldeneye, Great Blue Heron, Black-bellied Plover, Dunlin, Western Sandpiper, Glaucous-winged

Stocks vs. species

Salmon and trout have strong homing instincts and usually return to the stream where they were hatched. Populations returning to one watershed or region are usually genetically distinct and are called '**stocks**'. Different stocks (or 'runs') of the same species have different behaviours or physical traits which allow them to adapt to conditions in their home river.

'**Species**' refers to different types of fish, such as Cutthroat Trout, Coho Salmon, and Dolly Varden.

The Canada [Fisheries Act](#) prohibits the destruction or harmful alteration of fish habitat, including the riparian vegetation that surrounds aquatic habitats.



Section 5.6: South Coast Region

Gull, Lesser Snow Goose, Northern Pintail, Trumpeter Swan, Western Sandpiper, Barn Owl, Bald Eagle, and others.

To find the locations of IBAs and access site information (e.g., bird species abundance, habitat description, and conservation issues), search the online Map Viewer or Site Directory at www.ibacanada.ca.

Information from several bird monitoring programs coordinated by Bird Studies Canada is also available through a searchable online data warehouse, Nature Counts (www.naturecounts.ca). Information available includes species presence, seasonal abundance, breeding species and other information. See [Appendix D: Sources for Environmental Mapping and Inventory](#) for more details.

Great Blue Heron

The South Coast Region is home to the Pacific (or *fannini*) subspecies of Great Blue Heron, which is found only along the west coast of North America. Most of the Pacific heron population lives along the Strait of Georgia where increasing development pressures and expanding human populations are affecting important nesting and foraging habitats. Bald eagles are also taking their toll by preying on the nesting birds and their young. Because of its vulnerability to development pressures and disturbances, the Pacific subspecies of Great Blue Heron is listed as ‘[Special Concern](#)’ under the Canada [Species at Risk Act](#). For more information and guidelines for protection, see the [Fact Sheet on Herons](#) (Appendix G).



The Bald Eagle uses the largest available trees in which it builds its heavy nests.

Photo: Bob Friesen picturebc.ca

Bald Eagle

The Bald Eagle is still a common sight in many parts of the South Coast, but the gradual loss of its nesting habitat is affecting the species. In this region, eagles generally nest in large, strong trees that are at least as tall as the surrounding trees. In urban and rural areas, nest trees are often veteran Douglas-firs that are at least 150 years old. Although many of these trees are still present in some urban areas, there is pressure to cut them down because they may become a hazard to nearby houses.

Bald Eagles are sensitive to disturbance of their nest sites for the extent of the breeding period, which on the South Coast extends from October 1st to July 31st. The time of highest sensitivity is from January 1st to April 30th, during nest building, copulation, egg laying, incubation, and early brood rearing. All activities around the nest site should be avoided during this period, as disturbance can result in nest abandonment.



Activity around the nest site should be minimized during the territory establishment and nest-site evaluation stages (October 1st - December 31st) and the raising of nestlings stage (April 1st - July 31st). During these periods, low disturbance activities such as site reconnaissance may be acceptable, but all construction activities (e.g., excavating or tree falling) should be avoided until the young have fledged and left the nest area.

For more information and guidelines for protection, see the [Fact Sheet on Bald Eagle and Ospreys](#) (Appendix G) and [Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia \(2013\)](#).

Amphibians and Reptiles

There are many amphibian and reptile species in the South Coast Region and the habitat needs of these species are often in conflict with development. Some species have declined to the point where they are now species at risk. One species—the [Gopher Snake](#)—has been extirpated from the region. Other species, such as the [Tailed Frog](#) and [Red-legged Frog](#), are considered particularly vulnerable to impacts from land use and are listed as ‘[Special Concern](#)’ under the Canada [Species at Risk Act](#).

Amphibians and reptiles live in valley bottom areas that are prime urban and rural development locations. Unless measures are taken to preserve the specialized habitats of these species, their numbers will continue to decline.

Refer to [Guidelines for Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia \(2014\)](#) for more information on ways to protect these animals. See also the [Fact Sheets on Tailed Frog](#) and [Red-legged Frog](#) (Appendix G).

Mammals

Pacific Water Shrew

The Pacific Water Shrew, also known as the Marsh Shrew, is a small mammal that lives in aquatic and riparian habitats in and around watercourses and wetlands. It feeds mostly on invertebrates.

In Canada, the Pacific Water Shrew it is found only in the South Coast region of British Columbia. It is designated as [Threatened](#) by COSEWIC and is [Red-listed](#) in British Columbia. It is threatened by a continuing decline in the quantity and quality of its habitats and by habitat fragmentation.

For more information and guidelines for protection, see the [Fact Sheet on Pacific Water Shrew](#) (Appendix G).



Many other wildlife use Mountain Beaver tunnel and burrow systems, including Coastal Giant Salamanders, Douglas squirrels, Deer Mice, Coast Moles, Long-Tailed Weasels, Mink, and Western Spotted Skunks.

Predators of Mountain Beavers include bobcats, coyotes, cougars, and owls.

Mountain Beaver

In Canada, the Mountain Beaver occurs only in southwestern British Columbia and has been designated as of [Special Concern](#) by COSEWIC. The species is found in the Lower Fraser Valley from Langley to Hope, but its numbers are declining because of habitat loss and fragmentation associated with urban and suburban growth. The Mountain Beaver is also found east of Hope, north along the Cascade Mountains to the Lytton-Merritt area, and west to about Princeton. In this area, forestry activities are the primary cause of habitat loss.

For more information and guidelines for protection, see the [Fact Sheet on Mountain Beaver](#) (Appendix G).

Plants

Phantom Orchid

The Phantom Orchid or Ghost Orchid is an unusual plant that obtains its nutrients from a fungus rather than through photosynthesis. It is involved in a three-way partnership with a specific family of fungi (the *Thelophoraceae*) and a (presently unknown) tree species. Both the stem and flowers of this plant are white, giving it a ghostly appearance and its common name. For more information and guidelines for protection, see the [Fact Sheet on Phantom Orchid](#) (Appendix G).

Vancouver Island Beggarticks

The Vancouver Island Beggarticks thrives along the edges of ponds, lakes, streams, creeks, channelized watercourses, willow swamps, and other wetlands. Despite its name, it is also found in the South Coast in places where water levels are high in winter and spring and low in summer. These changing water levels help keep the species' open, silted, habitats suitable for growth. Although this plant is generally found in freshwater areas, it also occurs within the tidal zone along the Fraser River. For more information and guidelines for protection, see the [Fact Sheet on Vancouver Island Beggarticks](#) (Appendix G).



5.6.5 Invasive Alien Species

Transportation and commerce has created many opportunities for plants and animals to spread from their places of origin. Although many species are transported by accident, others are deliberately imported for landscaping, as pets, for agriculture, or for pest control. Most imported species do not thrive and spread, but a few become a major problem. Once these invasive species arrive, humans often inadvertently assist their spread.

The spread of invasive alien species is second only to habitat alteration in adversely affecting amphibians and reptiles in this region. Weedy vegetation such as [Purple Loosestrife](#) and [Reed Canary Grass](#) can out-compete native aquatic vegetation around important pond and wetland habitats, removing food sources and changing water flows. The [American Bullfrog](#), originally imported by frog-farmers for its meaty legs and sold as tadpoles through pet shops, has spread into ponds and wetlands where it preys upon native amphibians. Introduced fish such as small-mouthed bass eat the tadpoles of native amphibians. See [Section 2.4.4](#) for guidelines on managing invasive species.

Many invasive plant species are causing problems in the region. The Coastal Invasive Plant Species Committee has recently formed to address these concerns. Information on invasive species can also be found at the [Invasive Species Council of B.C.](#) website.

Invasive species of concern in the South Coast region include the following.

- ◆ [Knotweed](#) species are bamboo-like shrubs that choke riparian areas, ditches, wetlands and other moist areas. Once established, these species displace native vegetation, rapidly forming mono-cultures and contributing to erosion and mass wasting along river corridors. Knotweed species are notoriously difficult to control or eradicate. This plant is a major problem in the South Coast and the U.S. Pacific Northwest. It is likely spread through ditch maintenance and by gardeners.
- ◆ [Giant Hogweed](#) is an invader of moist riparian areas. It forms a dense canopy, out-competing native species. This plant has a highly toxic sap that causes severe photo-sensitization, resulting in skin damage that can last for years. It has invaded several areas across the province.

Invasive species cause extensive damage to native ecosystems. Many species are so widespread and persistent that they can only be controlled through the long-term involvement of all land stewards.



American Bullfrog.
Photo: W. Leonard



Section 5.6: South Coast Region

- ◆ [Scotch Broom](#), [Gorse](#), [Himalayan and Evergreen Blackberry](#), and [English Hawthorn](#) are plants that thrive on open and disturbed sites, including roadsides and areas awaiting redevelopment. Repeated hand pulling or mechanical cutting can control or eliminate them from sensitive ecosystems and from disturbed sites that can act as seed banks for more than 50 years! Gravel and soil sources should be kept free of weeds so that their seeds are not spread during road construction and landscaping.
- ◆ [English and Irish Ivy](#), Laurel-Leaved [Daphne](#) and [English Holly](#) are common landscaping species. They often reseed into native forest and woodland ecosystems and displace native species. Ivy grows around the trunks of trees and shrubs and interferes with nutrients and light requirements, causing decline, breakage and occasionally death of the tree and understorey. Removing ivy is very labour intensive task once this plant becomes established.
- ◆ [Purple Loosestrife](#) is an attractive purple-flowered plant that displaces native species in wetlands, streams, and ditches. It originally was used as a landscaping plant in wet sites.
- ◆ [Carpet Burweed](#) is a low growing winter annual plant that sheds barbed seeds and out-competes vegetation in open areas and lawns. This plant can become a serious problem in golf courses, lawns, and grassy or woodland ecosystems. Carpet Burweed is now found on Vancouver Island and in Washington State, so the likelihood of infestation in the South Coast Region is considered high.



Gorse.
Photo: Judith
Cullington



Abbotsford.
Photo: Josh McCulloch picturebc.ca

- ◆ [Orchardgrass](#) is a grass commonly used in grass seed mixtures and for cattle forage. It is the most prolific invasive plant in threatened Garry Oak and associated ecosystems. Grass seed mixes used for lawns and disturbed sites should exclude this species.
- ◆ [Bullfrog](#). This large frog preys on native amphibians, birds, and anything else that is small enough to fit in its mouth. Humans help bullfrogs spread by converting seasonal wetlands into year-round ponds and by moving tadpoles.
- ◆ [Eastern Grey Squirrel](#) is a large grey to black squirrel that may be displacing the smaller native Douglas Squirrel in urban and rural areas and competing with other native species for food in many ecosystems throughout the South Coast region.



5.6.6 Useful Sources

General Information

The Ministry of Forests, Lands and Natural Resources
South Coast Regional Office
2nd Floor, #10470 152nd Street
Surrey B.C. V3R 0Y3
Phone: (604) 582-5200
<http://www.for.gov.bc.ca/mof/regdis.htm#scr> or
<http://www.env.gov.bc.ca/lower-mainland/>

Regional Resources

Access to many sources of inventory information can be found through the EcoCat (Ecosystems Report Catalogue) website <http://www.env.gov.bc.ca/ecocat/>

Maps and inventory:

- ◆ The South Coast Conservation Program website <http://www.sccp.ca/>
- ◆ Information available on the Community Mapping Network website (<http://www.cmnbc.ca/>) include:
- ◆ Abbotsford Watershed Atlas <http://shim.bc.ca/atlas/alt/main.cfm>
- ◆ Chilliwack River Habitat Atlas <http://shim.bc.ca/atlas/Chilliwack/Index.cfm>
- ◆ Fraser Valley Regional District Habitat Atlas <http://shim.bc.ca/atlas/fvrd/main.htm>
- ◆ Sunshine Coast Habitat Atlas <http://shim.bc.ca/atlas/scrd/default.htm>
- ◆ Fraser River Estuary Management Program <http://www.bieapfrem.org/>

Climate Change

For information on regional projections for climate change see the Pacific Climate Impacts Consortium's Plan2Adapt tool <http://pacificclimate.org/tools-and-data/plan2adapt>