

The Southwest Nova Biosphere Reserve's Natural Environment

Designated in 2001, the Southwest Nova Biosphere Reserve (SNBR) is one of only 15 United Nations Educational Scientific and Cultural Organization (UNESCO) World Biosphere Reserves in Canada. The southwest region of Nova Scotia was named a World Biosphere Reserve for its unique environment. It encompasses the five counties: Queens, Shelburne, Yarmouth, Digby and Annapolis. The biosphere reserve comprises major landscapes of the province, which exist in a near-pristine condition with intact ecosystem structure, processes and functions. Located in the boreal needle leaf forest biogeographical region, the biosphere reserve includes rolling plains, river plains, glacial plains, hills, drumlins and coastal cliffs.

Natural Landscapes and Forest types:

- 1) *Rolling plain* characterized by red spruce-white pine-eastern hemlock (red oak) and black spruce-larch;
- 2) *Shelburne River Plain* dominated by semi-barren terrain and black spruce-white pine;
- 3) *Roseway River Glacial Plain* characterized by red/black spruce-white pine-eastern hemlock;
- 4) *Lake Rossignol Hills* with sugar maple-yellow birch-American beech and spruce-hemlock-white pine;
- 5) *LaHave Drumlins* characterized by sugar maple-yellow birch-beech and red spruce-eastern hemlock-white pine;
- 6) *Sable River Basin Natural Landscape* dominated by black/red spruce-white pine-eastern hemlock-balsam fir and black spruce-larch;
- 7) *North Ridge* including red spruce-yellow birch-balsam fir; Annapolis Valley characterized by red spruce-eastern hemlock-red pine;
- 8) *St. Mary's Coastal Cliffs* dominated by white spruce-black spruce-balsam fir;
- 9) *Sissiboo Low Hills* including mixed hardwoods and red spruce-eastern hemlock;
- 10) *Tusket River Drumlins* with red spruce-white pine-eastern hemlock and mixed hardwoods;
- 11) *Tusket Islands* characterized by white spruce-balsam fir;
- 12) *Shelburne Headlands* (coastal environment composed of long bays, beaches, and spits) including white spruce-balsam fir; agroecosystems (small scale mixed agriculture); forestry systems; blueberry fields

Geographical Information:

Location	44°13'N; 65°50'W
Total area (hectares)	1,546,374
Core area(s)	141,900
Buffer zone(s)	27,474
Transition area(s) when given	1,377,000
Altitude (metres above sea level)	0 to +190

Wildlife within the Southwest Nova Biosphere Reserve

As a result of its unique southerly position in the Maritimes, the region contains populations of Atlantic coastal Plain plant species, Blandings turtle (*Emydoidea blandingi*), ribbon snake (*Thamnophis sauritus*) and southern flying squirrel (*Glaucomys volans*). The unique climate (slightly warmer than other parts of the province) of the SNBR is home to an extremely diverse collection of species. The most amphibians and reptiles east of Ontario can be found in the SNBR. The SNBR is a hotspot for biodiversity and is home to 75% of Nova Scotia's species at risk. The core of the biosphere reserve, which includes Kejimikujik National Park and the Tobeatic Wilderness area, is the largest protected wilderness area in the Maritimes. The surrounding counties are touched by the Atlantic Ocean and the Bay of Fundy which add to the distinct natural landscape.

Amphibians:

Salamanders, frogs and toads are amphibians. All of the thirteen known species of amphibians in Nova Scotia are found in Kejimikujik (Keji) National Park or within the SNBR. This includes five species salamanders, one toad and seven frogs. The large number of slow-moving rivers, streams, shallow lakes, bogs and a few marshes, together with warm summers and moderate winters, are likely the main reasons for such a variety of amphibians. Four of the five species of salamanders occurring in Nova Scotia, have been found within Keji. These are the yellow-spotted salamander, the red-spotted newt, the eastern redback salamander and the four-toed salamander ([Parks Canada, 2009](#)).

Nova Scotia is home to seven species of frogs and one toad. These are the northern spring peeper, bullfrog, green frog, mink frog, northern leopard frog, wood frog, pickerel frog and American toad. During spring and early summer, frogs meet in wet habitats to reproduce. Male frogs arrive first and begin calling to attract a mate. Each species has its own call, and most are easily recognized. The eggs are laid and hatch quickly into tailed tadpoles. Transformation into adult frogs may take 2 months to 2 years, depending on species and conditions. Frogs do not often hide like salamanders do so they are more vulnerable to predators. Large beetles, turtles, birds, snakes, fish and mammals eat frogs and their tadpoles ([The Province of Nova Scotia, 2000](#)).

Reptiles:

Eight reptile species live in the SNBR; five snake species and three turtles. Kejimikujik is the richest area for turtles in Atlantic Canada. Three kinds of aquatic turtles, the eastern painted turtle, snapping turtle, and Blanding's turtle, live in shallow coves along the lakeshore or in quiet sections of rivers where there is an abundance of aquatic plants and insects to feed on. The eastern painted turtle is a colourful turtle with a green carapace with a yellow stripe down the middle and a red edge. The plastron is yellow. The head is streaked with yellow, and neck and legs and tail are streaked with red. The painted turtle is common in Nova Scotia and within the SNBR. Kejimikujik is the only national park in the Maritimes to have a nesting population of the snapping turtle. Snapping turtles usually only leave the water during the nesting season, in late June and early July. Their eggs hatch in late September and early October. The Blanding's turtle

is a species at risk in Nova Scotia. The total Nova Scotia population estimated at approximately 250 adult turtles, most of which live within Kejimikujik. More information on the Blanding's Turtle can be found ahead in the Species at Risk section. Five species of snakes occur in Kejimikujik. The two most commonly occurring species are the maritime garter snake and the northern red-bellied snake. The northern ring-necked snake and the eastern smooth green snake are less common. The Eastern Ribbonsnake is present in low numbers and is a species at risk in Nova Scotia. More details on this species can be found in the Species at Risk section of this document ([Parks Canada, 2009](#)).

Birds:

Approximately 178 bird species are found within Kejimikujik National Park. These include the common loon, barred owl, warblers, woodpeckers, as well as northerly and southerly bird species. Southern species are generally found in the Park's hardwood forests. These species include the scarlet tanager, great crested flycatcher and the wood thrush which are all rare birds in Nova Scotia. Northerly Species include several boreal bird species which inhabit the dense softwood forests of Kejimikujik. These species include the boreal chickadee, red-breasted nuthatch, spruce grouse and the gray jay. While canoeing in Keji National Park, one may observe black ducks and common mergansers and occasional flocks of other waterfowl. The Keji Seaside, located in Port Joli in Queen's County, features ideal opportunities to see species of birds that never frequent the inland portion of Kejimikujik. Steady processions of shorebirds migrate through the area from late July to October. The coastal waters attract a spectacular variety of loons, grebes, seaducks and ocean birds from early fall until the following spring ([Parks Canada, 2009](#)). Brier Island in Digby County is the most westerly point in Nova Scotia and the official entrance to the Bay of Fundy. Brier Island is internationally known for whale watching opportunities and contains a rich collection of rare species of wildflowers. The unique ecosystem also sustains migrating birds and is recognized as the #1 bird watching location in Nova Scotia ([Destination Southwest Nova, Date Unknown](#)).

Fish:

Forty-three species of fish have been recorded in the lakes and streams of Nova Scotia, twelve of which occur in the waters of Kejimikujik National Park. Brook Trout is a cool water species of fish that seeks out deep holes of cool water in shallow warm lakes during the summer. The species is most sought by fishermen. In the spring when the water is cold, trout can be found in streams and rivers throughout Keji. The waters of southwest Nova Scotia are generally warmer than in the rest of the province. Warmer-water species, such as White Perch and Banded Killifish, appear to be at the northern limit of their range in this area. White and yellow perch are more common than trout as they can tolerate the warmer water. Perch are carnivores and can be found lurking in the shallows, hunting for insects and small minnows. Yellow perch are abundant in Keji. Brown bullheads are a catfish, which thrive in Kejimikujik's warm waters. They scavenge for food in the bottom muck. Unlike many species, catfish tend their eggs, and during late summer you may see the adults guarding schools of young in the shallows near shore ([Parks Canada, 2009](#)).

The fish of Nova Scotia's lakes and streams are characterized by two important features. These features relate to the peninsular nature of the province ([The Province of Nova Scotia, 2000](#)):

1. The numbers of different fish species is low compared to the numbers of species found further west in Canada
2. The species of fish that are present are heavily influenced by the salt water environment which surrounds Nova Scotia.

A good example of this is on Digby Neck where there is a lack of any purely freshwater species. This is an indication of these regions' distance from the point of entry and lack of freshwater colonization routes.

Species at Risk

Piping Plover

The Piping Plover is a small shore bird about 17-18cm that has sandy-gray upperparts and white underparts. They have a black band around their neck and forehead, an orange bill with a black tip and orange legs. Piping plover chicks have similar colouring as adults but there are no black bands on the neck and forehead and their bill is a solid black colour. They are found along beaches in open or sparsely vegetated areas of sand or pebble, or on mud flats. Individuals can live up to 14 years. The plovers nest and raise young from May to August on dry open ground between dense tundra vegetation and the high tide mark.



Nests are small depressions lined with small pebbles or shells which are well camouflaged (Left photograph). Males take care of his plover chicks as the female often leaves the family early. In the summer of 2010, approximately 48 breeding pairs were located on coastal beaches in Nova Scotia meaning that only around 100 piping plovers are currently in Nova Scotia. Threats to their survival include crows, gulls and other predators that eat eggs. Young plovers are attracted to the beach by garbage, making them an easy

target to predators. Humans (on foot and in vehicles) and dogs may disturb plover families and destroy nests. Disturbance by humans or predators can cause pairs to abandon their breeding site. Habitat loss is also occurring from natural beach succession and shoreline development. During the nesting season (mid April to August) avoid disturbing plovers by walking on wet sand, keep your dog on a leash and do not drive off-road vehicles along the beach. Do not litter and pick up any garbage you find on a beach. Source: www.speciesatrisk.ca

Blanding's Turtle

The Blanding's Turtle has a high-domed helmet shaped and sized shell that is dark grey when dry and black with yellowish flecks when wet. It has a long neck and bright yellow chin and throat (Bottom right photograph). Hatchlings are dark grey with pale yellow throat and are the size of a toonie. Full grown adults grow to be 20-25cm in size. The Blanding's are found in fresh water wetlands in slow-moving waters that contain muddy bottoms and dense vegetation. They need exposed, gravelly or sandy areas for nesting in June, and permanent wet areas for overwintering. Juveniles do not mature until their mid 20s (this is when they are reproductive) and individual turtles are believed to live longer than 80 years. Female turtles often return to nest in the same place each year. Blanding's Turtles absorb oxygen through their skin in winter, and can survive over three months underwater. Habitat loss and degradation threatens all life stages. Predators including racoons, small mammals and birds, eat eggs, hatchings and young juveniles. Blanding's Turtles are also threatened by being run over by vehicles when crossing roads and through collection in the pet trade. You can help protect Blanding's Turtles by learning how to recognize them and report any sightings to Parks Canada. If you do see turtles observe and appreciate them but do not disturb them. When driving be careful and keep your eyes open for any turtles on the road, especially in June.

Source: www.speciesatrisk.ca



Eastern Ribbonsnake

The Eastern Ribbonsnake is a long, slender, semi-aquatic snake that grows up to 70cm long. It is black with three yellow stripes on its head and sides that run from head to tail. There are light brown shades on the lower sides of the snake. In front of each eye there is a white tear-drop shaped scale (the third or fourth scale up from the belly). Eastern Ribbonsnakes are not poisonous and not harmful to humans. They are found in southwest Nova Scotia with concentrated populations in Kejimikujik National Park and Historic Site. The Nova Scotia population is a subspecies of the Eastern Ribbonsnake and is known as the Northern Ribbonsnake. They live in freshwater wetlands like marshes, swamps, bogs, lakeshores and coves and are rarely found more than 30m from the water's edge. They are seen in areas with aquatic vegetation, shallow pools and amphibians. Female snakes are generally larger than male snakes and when baby ribbonsnakes are born they are live and not encased in eggs. The snakes eat mostly small fish and amphibians. People often harm or kill snakes intentionally because they assume they are harmful. Learning about snakes and informing others that most are harmless can help protect snakes. Vehicles run over snakes on roads, tracks and trails so reduce their mortality



on the road by watching for them when driving. Shoreline development destroys the ribbonsnake's habitat so work to prevent shoreline development and disturbances.
Source: www.speciesatrisk.ca

Thread-leaved Sundew

The thread-leaved sundew is a carnivorous plant with long vertical leaves that are around 11cm tall. The leaves are covered with reddish-purple sticky glands. The plant has a long flowering stem that grow up to 22cm that has 6-15 flowers that are violet with yellow centers. The flowers are 1cm in diameter. The sundew is found in bogs which are acidic, low-nutrient wetlands that contain species such as mosses, shrubs, sedges and grasses. The sundew has adapted to this nutrient-poor area by becoming carnivorous. To obtain extra nutrients it ingests insects that become trapped on the sticky liquid found on the leaves. Activities that alter water flow and drainage in wetland habitats affect the thread-leaved sundew's survival. These activities include peat mining, cranberry production, forestry practices, off-road vehicle use, road building and infilling. To protect populations, inhibit these activities in areas where wetlands and bogs thread-leaved sundew live. Provincial permits are required if these activities are necessary.



Source: www.speciesatrisk.ca

Monarch Butterfly

Monarch butterflies are bright orange with heavy black veins and black borders with white spots. Their wing span is 10cm. Monarch larvae, or caterpillars, are striped yellow, black and white and grow up to 5cm long. The caterpillars hatch from eggs the monarch butterflies lay on milkweed leaves and remain caterpillars for about 14 days. They then form a chrysalis (cocoon, photograph on next page) which typically hangs from a milkweed leaf or branch. Caterpillars may also move to nearby plants or objects to form their chrysalis. Monarchs are found where wildflowers flourish, like in meadows, open fields or along roadsides. The presence of milkweed is important because monarch only lay their eggs on its leaves. Caterpillars eat milkweed which makes them poisonous to birds and ultimately protects them. The caterpillars eat enough milkweed so that they remain poisonous to birds then they become butterflies. Monarch butterflies feed on nectaring plants and flowers such as goldenrod and asters. In Nova Scotia, Monarchs are typically observed in July and August. In the fall they migrate to Mexico and form dense congregations on forested mountain tops. Up to thousands of butterflies perch in the exact same trees every year along typical migration routes. Monarchs travel thousands of kilometres each year during migration. No other known insect on earth performs an annual two-



way, long distance, large-scale migration. Unfavourable weather threatens the monarch's survival. Monarchs do not prefer cold harsh winters or hot, dry summers. Storms during migration also may impact their survival. Intentionally removing milkweed limits the number of available plants for monarchs to lay their eggs on. Milkweed is known as a noxious weed (a pest!) so farmers and other gardeners may remove the plants. Loss of breeding and staging habitat in Canada and the US is also a threat along with increased usage of pesticides is also suggested for the disappearance of monarchs and other butterfly species. To help protect the Monarch Butterfly, learn how to recognize this species and track the sightings by taking photographs like the ones of this page! Grow a butterfly garden by planting milkweed and other wildflowers and do not use insecticides or herbicides on your property.

Source: www.speciesatrisk.ca



Interested in learning more about Species at Risk in the SNBR and other parts of Nova Scotia?

Please visit the following websites!

- [Species at Risk Nova Scotia](http://www.speciesatrisk.ca)
- [Species at Risk Nova Scotia: Guide](#)
- [Friends of Keji](#)
- [Parks Canada](#)