



**APPENDIX M. PRIORITY SPECIES LIST**

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Avifauna</i>							
<i>Accipiter cooperii</i>	Cooper's Hawk	S1?B,S UN,SU M				Not common in Nova Scotia but does breed in the province. Found in mature forest, open woodlands, wood edges and river groves. Nests in coniferous, deciduous and mixed woods, typically those with tall trees and with openings or edge habitat nearby. Also found among trees along rivers through open country, and increasingly in suburbs and cities where tall trees exist for nesting (e.g. parks, open fields and even backyards with feeders). Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Accipiter gentilis</i>	Northern Goshawk	S3S4				Found in coniferous and mixed forests. Generally restricted to wooded areas (along riparian corridors) but may be in relatively open woods or along edges. Often more common as a breeding bird in mixed woods (e.g. mature and old-growth forests with more than 60% closed canopy). In the East, goshawks seek out nest sites in mixed-hardwood forests where beeches, birch, hemlock and maples dominate. Goshawks often build nests near breaks in the canopy, such as a forest trail, road or opening created by a downed tree and prefer sites with a creek, pond or lake nearby. Breeds between April and July. May mate for life (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Alca torda</i>	Razorbill	S2B				Year-round resident along the coasts of Nova Scotia and also winters farther off-shore (pelagic). Winter distribution varies, depending on food supply and weather. Tends to forage in cool waters less than 200' deep, so often concentrates over offshore shoals or ledges; sometimes closer to shore than other large auks. Nests in colonies and may mate for life. Pair formation may take place within flocks on water or on common ground near the colony. Nests on islands or mainland on cliffs or rocky shorelines. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Ammospiza nelsoni</i>	Nelson's Sparrow	S3S4B				They spend most of their time on or near the ground in dense marsh vegetation. Nelson's Sparrow breed mainly in fresh and saltwater marshes in the northern Great Plains and along the northern Atlantic Coast. Breeds between April and July (Audubon and The Cornell Lab)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds:

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							<a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Anas acuta</i>	Northern Pintail	S1B,SUM				Found in marshes, prairies, fresh ponds, lakes and salt bays. Summers in wide variety of open habitats, including prairies, farmland, northern tundra and near bodies of water. Breeds in seasonal wetlands, open areas with short vegetation, wet meadows, grasslands and crop fields. During the nonbreeding season they use flooded and dry agricultural fields, lakes, reservoirs, estuaries, saltmarshes, freshwater and brackish wetlands and bays. Pintails also use different habitats depending on time of day (e.g. tend to forage in wetlands during the day). Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Arenaria interpres</i>	Ruddy Turnstone	S3M				Common migrant in Nova Scotia. Favours beaches (with lots of seaweed or debris), lake shorelines, mudflats, jetties and rocky shores (and tundra in the summer). Mostly coastal in migration and winter. May also feed on mudflats or on plowed fields near the coast. Ruddy Turnstones breed along rocky coasts and in the tundra across the High Arctic. In North America they breed in sparsely vegetated tundra near marshes, streams and ponds. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Asio flammeus</i>	Short-eared Owl	S1B	T	SC		Short-eared Owls breed primarily in well-drained grasslands near coastal wetlands. In areas with extensive coastlines, some caution is warranted in summarizing breeding habitat as inland marshes and bogs are less frequently monitored and thus may be under-represented in assessments of breeding habitat (COSEWIC Assessment and Status Report).	COSEWIC. 2008. COSEWIC assessment and update status report on the Short-eared Owl <i>Asio flammeus</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. vi + 24 pp. ( <a href="http://www.sararegistry.gc.ca/status/status_e.cfm">www.sararegistry.gc.ca/status/status_e.cfm</a> ).
<i>Asio otus</i>	Long-eared Owl	S2S3				Known to breed throughout Nova Scotia. They occur at elevations ranging from near sea level to above 6,500 feet. May be nomadic at times, moving about in response to changing food supplies. Favored habitat includes dense trees for nesting and roosting and open country (e.g. grasslands and	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds:

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						shrublands) for hunting. Inhabits a wide variety of such settings, including forest with extensive meadows to groves of conifers or deciduous trees. Generally avoids unbroken forest. Known to be an early breeder. Breeds between April and July (Audubon and The Cornell Lab).	<a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Botaurus lentiginosus</i>	American Bittern	S3S4B, S4S5M				Found in marshes and reedy lakes. Breeds in freshwater marshes, mainly large, shallow wetlands with a large amount of tall marsh vegetation (cattails, grasses and sedges) and areas of open shallow water. Sometimes feeds in dry grassy fields. They are rarely seen out in the open, prefers vegetation cover. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Branta bernicla</i>	Brant	S3M				Found throughout all of Nova Scotia during migration (winter to spring breeding season). Most migrating and wintering Brant in eastern North America use coastal waters, especially lagoon systems behind barrier beaches, where eelgrass, sedges, and algae are plentiful. When not feeding, Brant roost on mudflats, barrier islands and sand spits near their foraging areas. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Bucephala clangula</i>	Common Goldeneye	S2S3B, S5N, S5M				Winters in Nova Scotia along the coast. Generally migrates late in fall and early in spring. Males tend to winter farther north than females. Found in shallow coastal bays, estuaries that offer good foraging sites: sand, gravel, rock and boulder substrates supporting mollusks and crustaceans. In the interior, wintering flocks gather on large lakes and rivers as far north as open water occurs. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Bucephala islandica</i>	Barrow's Goldeneye	S1N, S1UM	SC	SC		Barrow's Goldeneye wintering habitat extends along the shores of the Atlantic provinces.	Species Profile (Barrow's Goldeneye) - Species at Risk Public Registry ( <a href="http://canada.ca">canada.ca</a> )

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<i>Buteo lagopus</i>	Rough-legged Hawk	S3N				Common across Nova Scotia during nonbreeding (winter). Spends the winter in open country, including grasslands, coastal prairies, marshes, farmland and dunes. In tree-covered areas they hunt over open bogs and other clearings. Breeds mostly on tundra, in areas having cliffs for nest sites; some breed along northern edge of coniferous forest zone. Rough-legged Hawks breed in open country of the arctic, both in North America and Eurasia. Breeds between April and July. May mate for life (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Calcarius lapponicus</i>	Lapland Longspur	S3?N,S UM				They winter in vast agricultural fields that are often devoid of other birdlife in that season in southern area, and head up to the tundra to breed in the summer. Breeds between April and July (Cornell Lab, Audubon).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Calidris alba</i>	Sanderling	S2N,S3 M				Common migrant in Nova Scotia and will winter in Nova Scotia sometimes on sandy beaches (not common). Favours outer beaches, tidflats and lake shores. Mainly (during any season) found on sandy beaches washed by waves and sometimes found on rocky shorelines, less often on mudflats. Typically coastal, but a few stop over on inland bodies of water such as lakes, streams, reservoirs and ponds. Studies show that many individuals return year after year to same wintering sites. Much of migration is accomplished in long nonstop flights between key stopover points. In breeding season, they are mostly far above the Arctic Circle on rather dry, rocky tundra with growth of moss, lichens and short plants (generally close to lakes or ponds). Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>



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<i>Calidris canutus</i>	Red Knot	S2M				Red Knots migrate through Nova Scotia along the coast in the summer and fall. Adults in faded breeding plumage are observed in July and August, while juveniles are mainly seen from August to October. Red Knots use different habitats during the breeding, wintering, and migration seasons. In the Arctic, they nest in extremely barren habitats, such as windswept ridges, slopes, or plateaus. Nesting sites are usually located in dry, south-facing locations, near wetlands or lakes, where the young are led after hatching. Red Knots generally feed in damp or barren areas that can be as far as 10 km from the nest. Migratory stopovers and wintering grounds are vast coastal zones swept by tides twice a day, usually sandflats but sometimes mudflats. In these areas, the birds feed on molluscs, crustaceans, and other invertebrates. The species also frequents peat-rich banks, salt marshes, brackish lagoons, mangrove areas, and mussel beds.	
<i>Calidris maritima</i>	Purple Sandpiper	S3S4N	SC/E/E		E	Generally winters in Nova Scotia. In winter, prefers rocky shores or rock jetties and breakwaters, foraging in zone below high-tide mark. Sometimes in areas of seaweed washed up on beaches. In summer they are found on barren northern tundra, especially in rocky areas or ridges. Usually follows rocky coast during migration (goes father north than other shorebirds), seldom appearing inland (but they are sometimes seen on rocky edges (natural or artificial) of bays, lakes and rivers). Fall migration is much later for this species than that of most sandpipers, not appearing on wintering grounds until November. They forage and roost among rocks, sometimes sheltering from severe storms in nearby harbors, bays or grassy island interiors. Spring migrants often use muddy or sandy shorelines, especially where there are invertebrate prey. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

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<i>Calidris melanotos</i>	Pectoral Sandpiper	S3M				Common migrant in Nova Scotia. Compared to other shorebirds, migration is relatively early in spring and late in fall (adults before juveniles). During migration, they prefer wet, grassy environments such as prairie pools, muddy shores, fresh and tidal marshes. They prefer tundra in the summer. Migrants favor grassy places rather than open mudflats. Often seen along grassy edges of shores, at edges of tidal marshes, in flooded fields or wet meadows. Sometimes on dry prairie or even plowed fields. On breeding grounds, favours wet grassy areas of tundra dominated by grasses and sedges. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Calidris minutilla</i>	Least Sandpiper	S1B,S4M				Common migrant (generally in flocks) in Nova Scotia. In Nova Scotia, Least Sandpipers are known to nest in sand dunes. During migration they stop on coastal mudflats, rocky shorelines and inland habitats including wet meadows, flooded fields, and muddy edges of lakes, ponds and ditches. On the coast they usually avoid sandy beaches and wide-open tidal flats, preferring narrow tidal creeks and the edges of salt marshes. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Calidris pusilla</i>	Semipalmated Sandpiper	S3M				Common migrant in Nova Scotia. Migrates in flocks (adults before juveniles). May make very long nonstop flights between major feeding areas on migration. Semipalmated Sandpipers nest in low tundra, usually not far from marshes or ponds (both dry upland habitats with sufficient vegetation cover). In preparation for migration, they gather into flocks in shallow-water mudflats or lakeshores. Migrating birds stop over at sewage ponds, ephemeral wetlands (rain pools), beaches, inlets, estuaries, tidal mudflat, sandbars and freshwater impoundments with shallow margins (edges of lakes and marshes). Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Cardellina canadensis</i>	Canada Warbler	S3B	SC	T	E	Forest undergrowth, shady thickets. Breeds in mature mixed hardwoods of extensive forests and streamside thickets. Prefers to nest in moist habitat: in luxuriant undergrowth, near	Nova Scotia Department of Lands and Forestry. 2021.



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						swamps, on stream banks, in rhododendron thickets, in deep, rocky ravines and in moist deciduous second-growth.	Recovery Plan for the Canada Warbler ( <i>Cardellina canadensis</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Cardellina pusilla</i>	Wilson's Warbler	S3B,S5M				Found in thickets along wooded streams, moist tangles, low shrubs, willows, alders. Breeds in thickets, second-growth, bogs, or in alder and willow groves near streams and ponds. In migration and winter, occurs from hot lowland thickets up to cool mountain woods; always in scrubby overgrown clearings and thin woods, not in the interior of dense forest. Breeds between April and July (Cornell Lab, Audubon).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Cathartes aura</i>	Turkey Vulture	S2S3B, S4S5M				In past was not surveyed/very rare to see Turkey Vultures in Nova Scotia, but as the climate warms they are now sighted across the province (MBBA and Nova Scotia Bird Society). Look for Turkey Vultures as they soar high over open areas. They are particularly noticeable along roadsides and at landfills. At night, they roost in trees, on rocks and other high secluded spots. Most common over open or semi-open country (including mixed farmland, forest, rangeland and even small offshore islands), especially within a few miles of rocky or wooded areas providing secure nesting sites. Generally avoids densely forested regions. Breeds between April and July (Audubon and The Cornell Lab)	Nova Scotia Bird Society: <a href="https://www.nsbirdsociety.ca/library/resources/the-of-birds-of-ns">https://www.nsbirdsociety.ca/library/resources/the-of-birds-of-ns</a> , Maritime Breeding Bird Atlas (MBBA): <a href="https://www.mba-aom.ca/jsp/map.jsp">https://www.mba-aom.ca/jsp/map.jsp</a> , Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>





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<i>Chaetura pelagica</i>	Chimney Swift	S2S3B, S1M				The chimney swift is associated with urban and rural areas where chimneys are available for nesting and roosting. In their northern breeding range, Chimney Swifts look for sites with a relatively constant ambient temperature.	COSEWIC 2007. COSEWIC assessment and status report on the Chimney Swift <i>Chaetura pelagica</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. Vii + 49 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
<i>Charadrius semipalmatus</i>	Semipalmated Plover	S1B,S4M	T	T	E	Known as a migrant and sometimes a breeder in Nova Scotia (known to breed in more northern or southern areas of the province). Favours very open habitats (little vegetation) for foraging during migration, including broad mudflats, sandy/stony beaches, lake shores, pools in salt marsh; sometimes in flooded fields or even plowed fields with other shorebirds. Tends to avoid flats overgrown with too much marsh vegetation. Migrates mostly late in spring and early in fall. During high tides, and at night, they roost in upper parts of beaches and high hummocks in marshes. Breeds in the north, mostly on open flats of sand or gravel near water. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

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<i>Charadrius vociferus</i>	Killdeer	S3B				Favours fields, sandbars, lawns, river banks, coastal estuaries, mudflats and shores. Often found on open ground, such as pastures, plowed fields and large lawns, even at a great distance from water. This species does well in areas disturbed by humans and is commonly spotted on roads, lawns, airports, parking lots, golf courses, fields and in gravel areas. Most successful nesting areas have some shallow water closeby or other good feeding area for the chicks. Generally the vegetation in fields inhabited by Killdeer is no taller than one inch. You can find Killdeer near water, but unlike many other shorebirds, they are also common in dry areas. Spring migration is very early, returning to some northern areas in February or March. Breeds between March and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Chlidonias niger</i>	Black Tern	S1B				Uncommon migrant and breeder in Nova Scotia; has mainly been seen in Cumberland County. Migrants turn up in many sorts of wetland habitats: sewage lagoons, river edges, lakes, marshes, lagoons, beaches and over open ocean waters, even far out to sea. Black Terns nest in large freshwater wetlands, usually in dense marshes on the edges of shallow lakes associated with open prairies or northern forests (sometimes in rice fields or on river islands). Breeds in scattered colonies between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Chordeiles minor</i>	Common Nighthawk	S3B	SC	T	T	Common Nighthawk breeds in a range of open and partially open habitats, including forest openings and post-fire habitats, prairies, bogs, and rocky or sandy natural habitats, as well as disturbed areas. It is also found in settled areas that meet its habitat needs, those with open areas for foraging and bare or short-cropped surfaces for nesting. The species use of a wide range of habitats makes it difficult to estimate trends in habitat availability, except in urban habitats, where their main nesting sites – flat graveled roofs – are disappearing.	<a href="https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/common-nighthawk-2018.html">https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/common-nighthawk-2018.html</a>

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<i>Chroicocephalus ridibundus</i>	Black-headed Gull	S3N				Most of this species in Nova Scotia likely comes from Iceland (followed by a sudden growth of the Icelandic nesting population in the 1930s). In winter, found primarily along seacoasts, estuaries and protected bays (generally rare on fresh waters well inland). Breeds along lakes, rivers, bogs, moors, grasslands, swamps and coastal marshes. Usually nests in colonies, sometimes in isolated pairs. Breeds in scattered colonies between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Coccothraustes vespertinus</i>	Evening Grosbeak	S3B,S3N,S3M				Evening Grosbeak breeding habitat generally includes open, mature mixedwood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant. Outside the breeding season, the species seems to depend largely on seed crops from various trees such as firs and spruces in the boreal forest, but is also attracted to ornamental trees that produce seeds or fruit, and bird feeders stocked with sunflower seeds.	Species at Risk Public Registry - The COSEWIC Summaries of Terrestrial Species Eligible for Addition or Reclassification on Schedule 1 - January 2018 <a href="http://sararegistry.gc.ca">(sararegistry.gc.ca)</a> .
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S3B				Black-billed Cuckoos are birds of woodlands and thickets, including aspen, poplar, birch, sugar maple, hickory, hawthorn and willow. They tend to occur more frequently in larger and denser woodlands than the Yellow-billed Cuckoo. On their wintering grounds, they live in forest, woodlands and scrub. A long-distance migrant, going to South America for the winter. Migrates at night; sometimes heard calling in flight overhead at night during the spring. During migration, they seek any kind of dense vegetation cover (e.g. young trees or tall shrubs). Common breeder in Nova Scotia. Breeds mostly in deciduous thickets and shrubby places, often on the edges of woodland or around marshes. Also in second growth of mixed deciduous-coniferous woods, or along their brushy edges. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

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<i>Contopus cooperi</i>	Olive-sided Flycatcher	S3B	SC	T	T	Olive-sided Flycatcher has been widely observed in open coniferous or mixed coniferous forests, often located near water or wetlands with the presence of tall snags or trees from which the species sallies for prey and advertises its territory. Mature conifer stands within patchy landscapes influenced by natural disturbance (e.g., recent burns) support the highest densities of Olive-sided Flycatcher. Nests are generally placed toward the tip of coniferous branches (although other tree types have been used).	Nova Scotia Department of Lands and Forestry. 2021. Recovery Plan for the Olivesided Flycatcher ( <i>Contopus cooperi</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Contopus virens</i>	Eastern Wood-Pewee	S3S4B	SC	SC	V	The Eastern Wood-pewee is mostly associated with the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in forest stands of intermediate age and in mature stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges, early and successional clearings.	Species Profile (Eastern Wood-pewee) - Species at Risk Public Registry (canada.ca)
<i>Coturnicops noveboracensis</i>	Yellow Rail	SUB	SC	SC		Yellow rail is distributed along northern Nova Scotia. Nesting Yellow Rails are typically found in marshes dominated by sedges, true grasses, and rushes, where there is little or no standing water (generally 0-12 cm water dept), and where the substrate remains saturated throughout the summer. They can be found in damp fields and meadows, on the floodplains of rivers and streams, in the herbaceous vegetation of bogs, and at the upper levels (drier margins) of estuarine and salt marshes. Nesting habitats usually have a dry mat of dead vegetation from previous growing seasons. A greater diversity of habitat types is used during migration and winter than during the breeding season. In winter, the rails are known to use coastal wetlands and rice fields. (COSEWIC Assessment and Status Report).	Species Profile (Yellow Rail) - Species at Risk Public Registry (canada.ca)
<i>Dolichonyx oryzivorus</i>	Bobolink	S3B	SC	T	V	Bobolink has nested in forage crops (e.g., hayfields and pastures dominated by a variety of species, such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants). The Bobolink occurs in various grassland habitats including wet prairie, graminoid peatlands and abandoned fields dominated by tall grasses, remnants of uncultivated virgin prairie (tall-grass prairie), no-till cropland, small-grain fields, restored	Species Profile (Bobolink) - Species at Risk Public Registry (canada.ca)



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						surface mining sites and irrigated fields in arid regions. It is generally not abundant in short-grass prairie, Alfalfa fields, or in row crop monocultures (e.g., corn, soybean, wheat), although its use of Alfalfa may vary by region.	
<i>Empidonax traillii</i>	Willow Flycatcher	S2B				Uncommon breeder throughout mainland Nova Scotia, not Cape Breton (MBBA, as of July 2021). In winter, they use shrubby clearings, pastures and woodland edges often near water. Migrates relatively late in spring and early in fall. Breeds in thickets of deciduous trees and shrubs, especially willows, or along woodland edges. Often near streams or marshes and may be found in drier habitats than the Alder Flycatcher. Breeds between April and July (Audubon and The Cornell Lab).	Maritime Breeding Bird Atlas (MBBA): <a href="https://www.mba-aom.ca/jsp/map.jsp">https://www.mba-aom.ca/jsp/map.jsp</a> , Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Euphagus carolinus</i>	Rusty Blackbird	S2B	SC	SC	E	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands. In winter, it occurs primarily in lowland forested wetlands, cultivated fields and pecan groves. Suitable habitat for the species appears to be decreasing on its breeding range and wintering grounds, due mainly to the loss and degradation of wetlands by human activities.	<a href="https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails_e.cfm?sid=907">https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails_e.cfm?sid=907</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Falco sparverius</i>	American Kestrel	S3B,S4 S5M				Breeds in Nova Scotia but also can be a permanent resident. American Kestrels favor open areas with short ground vegetation and sparse trees (e.g. meadows, wood edges, grasslands, deserts, parks, farm fields, cities and suburbs). When breeding, kestrels need access to at least a few trees or structures that provide appropriate nesting cavities. American Kestrels are attracted to many habitats modified by humans, including pastures and parkland, and are often found near areas of human activity including towns and cities. In winter, females may occupy open habitats more so than males. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Fratercula arctica</i>	Atlantic Puffin	S2B				Year-round resident along the coast and offshore of Nova Scotia and commonly breeds in colonies in Northern Cape Breton, middle-mainland Nova Scotia and Southern Nova Scotia. They spend most of the year at-sea (pelagic) in cooler waters. Outside of breeding season usually well offshore, even far out in mid-ocean. Capable of moving long distances; young birds banded in Iceland and Europe have been recovered in eastern Canada. Birds often have the same mates each year. Atlantic Puffins nest in burrows on rocky islands with short vegetation and on sea cliffs with rock crevices. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Gallinago delicata</i>	Wilson's Snipe	S3B,S5 M				Common across Nova Scotia during breeding and also known as a permanent resident in the southern areas of the province. Wilson's Snipes can be found in all types of wet, marshy settings, including wet fields, bogs, fens, swamps, wet meadows and along muddy edges of rivers and ponds. They avoid areas with tall, dense vegetation, but need patches of cover to hide in and to provide a safe lookout for predators. During the breeding season they are mainly found around fresh marshes and bogs, shrubby streambanks and northern tundra. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Hirundo rustica</i>	Barn Swallow	S3B	SC	T	E	Barn Swallows forage over a wide range of open and semi-open habitats including natural and anthropogenic grasslands, other farmland, open wetlands, open water, savannah, tundra, highways and other cleared right-of-ways, and cities and towns. They avoid forested regions and high mountains. Barn Swallows throughout the world have adapted to nesting in or on human structures, including buildings, barns, bridges, culverts, wells and mine shafts. Use of natural nest sites such as caves or rock cliffs with crevices or ledges protected by overhangs is rarely reported. Nocturnal roosts are typically in reed or cane beds or other dense vegetation, usually in or near water.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for the Barn Swallow ( <i>Hirundo rustica</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Histrionicus histrionicus pop. 1</i>	Harlequin Duck - Eastern population	S2S3N, SUM	SC	SC	E	Winters along the Nova Scotia coastline. The harlequin duck is typically found close to shore where the surf breaks along exposed rocky headlands, reefs, and offshore islands. Congregates in coastal marine areas near rocky shorelines or subtidal ledges. Found close to the shore in turbulent places where the surf breaks against the rocks and there are low levels of ice. Harlequin Ducks are typically observed from November until April in turbulent areas along the coast. They are often seen in the Eastern Shore Islands Wildlife Management Area, Port L'Hebert, Chebucto Peninsula and along the Digby Neck.	Species at Risk in Nova Scotia: Identification & Information Guide <a href="https://novascotia.ca/natr/wildlife/conserva/harlequin-duck.asp#:~:text=The%20harlequin%20duck%20is%20typically,animals%20among%20the%20churning%20waters.">https://novascotia.ca/natr/wildlife/conserva/harlequin-duck.asp#:~:text=The%20harlequin%20duck%20is%20typically,animals%20among%20the%20churning%20waters.</a>
<i>Hydrobates leucorhous</i>	Leach's Storm-Petrel	S3B	T			Leach's Storm-Petrel breeds on vegetated islands generally free of mammalian predators, and prefers well-drained habitats suitable for excavating underground burrows, such as low forest and meadow. Atlantic Leach's Storm-Petrel usually nests on islands occupied by other seabirds, often including large gulls, and tends to use different habitat from other burrow-nesting species. <a href="https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/leachs-storm-petrel-2020.html">https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/leachs-storm-petrel-2020.html</a>	<a href="https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/leachs-storm-petrel-2020.html#toc2">https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/leachs-storm-petrel-2020.html#toc2</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Icterus galbula</i>	Baltimore Oriole	S2S3B, SUM				Baltimore Orioles are often very common in open woods and groves in summer. Found in open woods, riverside groves, elms, shade trees. Breeds in deciduous or mixed woodland, generally in open woods or edges rather than interior of dense forest. May be common in trees in towns (Audubon). Breeds between April and July (Audubon and The Cornell Lab).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Ixobrychus exilis</i>	Least Bittern	SUB				The Least bittern has been observed in every Province in Canada. However, it is only probable to be located in Nova Scotia. The Least Bittern breeds strictly in marshes dominated by emergent vegetation surrounded by areas of open water. Most breeding grounds in Canada are dominated by cattails, but breeding also occurs in areas with other robust emergent plants and in shrubby swamps. The presence of stands of dense vegetation is essential for nesting because the nests of Least Bittern sit on platforms of stiff stems. The nests are almost always within 10 m of open water. This small heron prefers large marshes that have relatively stable water levels throughout the nesting period. Needs for wintering habitat are less specific, and appear to be met by a wide variety of wetlands—not only emergent marshes like those used for breeding, but also brackish and saline swamps (Environment Canada Recovery Strategy)	Environment Canada. 2014. Recovery Strategy for the Least Bittern ( <i>Ixobrychus exilis</i> ) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada. Ottawa. vi + 41 pp.
<i>Lanius borealis</i>	Northern Shrike	S3S4N				They occur in open but brushy habitats, and on calm, sunny days they may sit up on utility wires, bushes, and trees (Cornell Lab). Nests are usually placed in a low tree or large shrub, often in spruce or willow, usually 6-15' above the ground. Breeds between April and July (Audubon and The Cornell Lab).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>



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<i>Limnodromus griseus</i>	Short-billed Dowitcher	S3M				Common migrant in Nova Scotia that prefers coastal habitats. Migrants are opportunistic in their choice of habitat, turning up in man-made environments such as impoundments, sewage ponds and flooded farm fields as well as in muddy margins of rivers, lakes and bays. Migrants also rest on rocky and sandy shorelines (beaches) and occasionally feed in such places, but they forage mostly where there is a fine muddy bottom covered by a few inches of water (pond edges, mudflats and tidal marshes). Breeds far north, mostly in open bogs, marshes and edges of lakes within coniferous forest zone. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Limosa haemastica</i>	Hudsonian Godwit	S2S3M	T			Hudsonian Godwit occurs regularly during breeding or migration in all three territories and in provinces from British Columbia to Québec, as well as occasionally in the fall in all of the Atlantic provinces. Hudsonian Godwit breeds in wetland habitats (sedge meadows and muskeg) in sub-Arctic and Boreal regions. It uses a wide variety of habitats on migration, including freshwater marshes, saline lakes, flooded fields, shallow ponds, coastal wetlands and mudflats (COSEWIC Assessment and Status Report).	COSEWIC. 2019. COSEWIC assessment and status report on the Hudsonian Godwit <i>Limosa haemastica</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xi + 50 pp. (Species at Risk Public Registry).
<i>Loxia curvirostra</i>	Red Crossbill	S3S4				Found throughout the entire province year-round. Red Crossbills can be found in conifer forests and groves, and breeds in pines (predominately), spruce, hemlock, Douglas-fir, or other evergreens. Breeding occurs from April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>

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<i>Mareca strepera</i>	Gadwall	S2B,S UM				Not common in Nova Scotia but there have been recent confirmed sightings, based on the distribution list by county in this file (MBBA, as of July 2021) - Found in lakes, ponds and marshes. They choose well-vegetated wetlands for foraging and concealing themselves. Gadwall breed mainly in prairie potholes (small ponds scattered throughout the Great Plains and Canadian prairies, hence why they are uncommon in Nova Scotia). Will also breed on tundra, deltas and wetlands in boreal forests farther north. Equally important for breeding are adjacent uplands with vegetation to conceal nests and ducklings. Breeds between April and July (but compared to most ducks, nesting begins rather late) (Audubon and The Cornell Lab)	Maritime Breeding Bird Atlas (MBBA): <a href="https://www.mba-aom.ca/jsp/map.jsp">https://www.mba-aom.ca/jsp/map.jsp</a> , Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Mergus serrator</i>	Red-breasted Merganser	S3S4B, S5M,S 5N				Common in Nova Scotia throughout the year in lakes and open water. During the winter, mainly found along the coast in open waters or in coastal bays and estuaries. Red-breasted Mergansers breed in the boreal forest on fresh, brackish and saltwater wetlands (typically close to the coast). They tend to use saltwater, including estuaries and bays, more often than the Common Merganser. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Mimus polyglottos</i>	Northern Mockingbird	S1B				Year-round resident throughout Nova Scotia, less common in Cape Breton. Found year-round in areas with open ground and shrubby vegetation (e.g. dense, low shrubs - hedges, fruiting bushes and thickets). When foraging on the ground, it prefers grassy areas, rather than bare spots. Common places include roadsides, parkland, cultivated land, suburban areas, woodland edges and in second-growth habitat at low elevations. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Molothrus ater</i>	Brown-headed Cowbird	S2B				Found in farms, fields, prairies, wood edges, river groves. Favors open or semi-open country at all seasons. In winter often concentrates in farmland, pastures, or cattle feedlots. More widespread in breeding season, in grassland, brushy country, forest edges, even desert, but tends to avoid dense unbroken forest. Breeds between April and July, and lays eggs in nests of other birds (Audubon and The Cornell Lab).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>

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<i>Myiarchus crinitus</i>	Great Crested Flycatcher	S1B				Uncommon breeder throughout mainland Nova Scotia, not Cape Breton (MBBA, as of July 2021). Migrates mostly at night. Breeds mainly in deciduous forest or mixed forest, but avoids pure stands of conifers. May be found in either continuous deep forest or in more open wooded areas, around edges of clearings or abandoned orchards. Dead snags and dying trees are important sources of the cavities they need for nesting (will even search out cavities in old orchards and in woody urban areas like parks, cemeteries and golf courses). If there are enough trees, they will claim territories in pastures, along streams and rivers, and in swamps and wetlands. Breeds between April and July (Audubon and The Cornell Lab).	Maritime Breeding Bird Atlas (MBBA): <a href="https://www.mba-aom.ca/jsp/map.jsp">https://www.mba-aom.ca/jsp/map.jsp</a> , Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Numenius borealis</i>	Eskimo Curlew	SXM	E	E		This species have not been recorded in Nova Scotia since 2007. On spring and fall migration, a wide variety of habitats was used historically, including both inter-tidal and terrestrial habitats, the latter including anthropogenic landscapes. As on the breeding areas, the Eskimo Curlew commonly used ericaceous heathland on fall migration in southern Quebec, Labrador, Newfoundland and the Maritime Provinces. On spring migration, they were found in tallgrass and eastern mixed grass prairies, often in areas that had been recently burned or disturbed by grazing bison, and in cultivated fields. (COSEWIC Assessment and Status Report).	COSEWIC. 2009. COSEWIC assessment and status report on the Eskimo Curlew <i>Numenius borealis</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. vii + 32 pp. ( <a href="http://www.sararegistry.gc.ca/status/status_e.cfm">www.sararegistry.gc.ca/status/status_e.cfm</a> ).
<i>Numenius phaeopus hudsonicus</i>	Whimbrel	S2S3M				Common migrant in Nova Scotia. Migrating whimbrels feed mostly on tidal mudflats and sandflats; they also forage in saltmarshes, lagoons, estuaries and on reefs and rocky shorelines where small crabs are available. When not feeding, Whimbrels roost in flocks in marshes, meadows, fields, dunes and oyster beds, as well as on small islands and even in mangrove trees. Migrating Whimbrels are known to also use coastal tundra and heath in Alaska and Canada. North American Whimbrels breed in subarctic and alpine tundra and taiga, nesting in drier upland environments (heath) or (mainly) wetter lowlands with grasses, sedges, mosses, lichens, small shrubs and stunted trees. Breeds between April and July (The Cornell Lab and eBird).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , eBird: <a href="https://ebird.org">https://ebird.org</a>

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<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	S1B				Not common in Nova Scotia and only has been observed in the southern counties - Requires aquatic habitat for foraging and terrestrial vegetation for cover. Found in wetlands, including saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, ponds, lagoons, tidal mudflats, canals, reservoirs and wet agricultural fields. Roosts in trees and nests in groves of trees, in thickets, or on ground (usually on islands or above water). Breeds throughout the year, but mostly spring to late summer (April to August). May breed or nest earlier than other herons (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Passerculus sandwichensis princeps</i>	Ipswich Sparrow	S1B	SC	SC		The breeding range of Ipswich sparrows is almost exclusively restricted to Sable Island, Nova Scotia. The birds winter in coastal dune habitats, particularly those with direct seaward exposure, from southern Nova Scotia to northern Florida. Ipswich sparrows breed in nearly all vegetated areas on Sable Island, particularly heathy areas dominated by shrubs, which are characteristic of stable terrain on the island, as well as areas where Marram Grass ( <i>Ammophila breviligulata</i> ) is particularly dense. During winter, Ipswich sparrows are found strictly on coastal beaches and dunes, particularly their seaward portions (COSEWIC Assessment and Status Report).	COSEWIC. 2009. COSEWIC assessment and status report on the Savannah Sparrow princeps subspecies <i>Passerculus sandwichensis</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. vi + 21 pp.
<i>Passerella iliaca</i>	Fox Sparrow	S3S4B, S5M				Found year round in Cape Breton, and throughout the migration season (late March and early November) in the rest of the province. Migrates at night. Found in wooded areas, undergrowth, brush. Breeds in brushy areas including woodland edges and clearings, streamside thickets, scrubby second growth, stunted coastal forest. Winters in similar habitats, also in brushy fields, chaparral, well-vegetated suburbs and parks. Breeds from April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Passerina cyanea</i>	Indigo Bunting	S1?B,S UM				This species favors brushy edges rather than unbroken forest. Indigo Buntings breed in brushy and weedy areas. They're common on the edges of woods and fields; along roads, streams, rivers, and powerline cuts; in logged forest plots, brushy canyons, and abandoned fields where shrubby growth is returning. They are also in clearings within deciduous woods, edges of swamps. Breeds between April and July (Audubon and The Cornell Lab).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>

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<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	S2S3B				Breeds throughout Nova Scotia. A long-distance migrant that migrates in flocks, traveling by day. Typically nests in colonies, sometimes with hundreds of nests crowded close together. These colonies are close to a water source, open fields or pastures for foraging, and a source of mud for nest building. Nest site is usually on vertical surface with some overhead shelter. Natural sites were on cliffs. Most sites today are on the sides of buildings, under bridges, in culverts or similar places. They now live in grasslands, towns, broken forest and river edges, but avoid heavy forest and deserts (e.g. open to semi-open land, farms, river bluffs and lakes). Still unaccountably scarce or missing in some seemingly suitable areas. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Phalacrocorax carbo</i>	Great Cormorant	S2S3B, S2S3N				Habitat is mainly over shallow waters close to shore, especially in sheltered bay areas. Nests on rocky sea cliffs of coasts and islands. In recent years, as population has increased, has been found in winter on large rivers inland. Breeds throughout the year, but mostly spring to late summer (April to August) (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	S3B				Look for these birds in forest edges and woodlands. Rose-breasted Grosbeaks breed in moist deciduous forests, deciduous-coniferous forests, thickets, and semiopen habitats. They gravitate toward second-growth woods, suburban areas, parks, gardens, and orchards, as well as shrubby forest edges next to streams, ponds, marshes, roads, or pastures. They favor edges or openings with combination of shrubs and tall trees, rather than unbroken forest. Breeds from April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Pinicola enucleator</i>	Pine Grosbeak	S3B,S5N,S5M				Found throughout the province year-round. Pine grosbeaks can be found in conifers; in winter, other trees. Breeds in open coniferous forest, especially of spruce and fir. In winter often found in deciduous trees (especially fruiting trees), also in groves of pines and other conifers. Breeding occurs from April to July (The Cornell Lab, Audubon).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>



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<i>Pluvialis dominica</i>	American Golden-Plover	S2S3M				Uncommon migrant across Nova Scotia. Found in prairies, mudflats and shores (tundra in the summer). During migration, usually found on short-grass prairies, flooded pastures, plowed fields and, less often, on shorelines, mudflats and beaches (also found in disturbed areas - airports, golf courses and tilled farmland for example). Breeds on Arctic tundra, especially in low vegetation on rocky slopes. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Pluvialis squatarola</i>	Black-bellied Plover	S3M				Migrates through Nova Scotia. Found in mudflats, open marshes and beaches (tundra in the summer). Nesting occurs in drier tundra, often more barren ridges above lowland lakes and rivers (sometimes in lower wet tundra near coast). In winter, found mostly on open sand beaches and tidal flats. During migration will often stop in short-grass prairie or plowed fields, especially during high tides, when mudflats are underwater. In some places, they forage on rocky shorelines. Black-bellied Plovers roost together at high tide and overnight on beaches, saltmarshes and sometimes upland habitats such as farm fields. Most migrate along coast or over sea, but numbers stop over regularly at some inland sites. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Podiceps auritus pop. 2</i>	Horned Grebe - Western population	S3N,SUM				The Horned Grebe winters on the coast of Nova Scotia. It has been observed on lakes, rivers and marshes. Some birds follow coastlines as part of their migration. Horned Grebes generally winter in marine habitats, mainly estuaries and bays. Birds are found in greatest numbers in coastal habitats, including areas that offer some degree of protection. Some birds winter on inland lakes and rivers in areas where the minimum temperature in January is higher than -1°C (Species at Risk Public Registry)	Horned Grebe ( <i>Podiceps auritus</i> ) <a href="http://sararegistry.gc.ca">(sararegistry.gc.ca)</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Poecile hudsonicus</i>	Boreal Chickadee	S3				Year-round resident throughout Nova Scotia. Occasional small southward invasions in fall, with a few appearing south of breeding range (similar to Black-capped Chickadees invasions). Boreal Chickadees inhabit mostly mature coniferous forests (sometimes mixed forests), usually spruce and balsam fir, often near water. During late fall and winter irruptions, they tend to be found mostly in areas dominated by coniferous trees. Occurs in low stunted spruces as far North as treeline (e.g. spruce bogs). May mate for life, the birds remaining together all year. Nests in a hole in a tree, either a natural cavity or one they created (or from another species). Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Poocetes gramineus</i>	Vesper Sparrow	S1S2B, SUM				Vesper Sparrows breed in open areas with short, sparse grass, areas where there are a few taller plants for use as song perches, and scattered shrubs including, old fields, pastures, weedy fencelines and roadsides, hayfields, and native grasslands. Can be found in meadows, fields, prairies, roadsides, open grassy or weedy fields. May be in weedy roadsides, gravel pits, stubble fields, grassy areas just above sandy beaches. Breeds from April to July (The Cornell Lab, Audubon).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Puffinus puffinus</i>	Manx Shearwater	S1?B				Pelagic seabird present in numbers off northeastern North America from May to October. Comes to shore to breed, mainly on uninhabited offshore islands. Generally occurs over cooler waters. Often feeds closer to shore than other shearwaters. Movements of this species are not well known. Breeds between March and August (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Rallus limicola</i>	Virginia Rail	S2S3B				Breeds across Nova Scotia, but more common in the northern region. Nests in a variety of marshy situations, mostly fresh, but also brackish marshes near the coast. Where this species and Sora breed in same marshes, Virginia Rail typically nests in drier spots. Often moves into salt marshes in winter. During migration, sometimes found in odd spots, even city streets. Virginia Rails occupy shallow (sometimes deeper) freshwater wetlands with tall stands of cattails and rushes (need areas with standing water typically less than 6 inches deep with a	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>



Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
						muddy bottom). They are most common in wetlands with 40–70% coverage of tall emergent vegetation, mixed with open water, mudflats and areas with matted vegetation. During the nonbreeding season, Virginia Rails use similar habitat, but may venture into more open areas. Breeds between April and July (Audubon and The Cornell Lab).	
<i>Riparia riparia</i>	Bank Swallow	S2B				As with other swallow species, migratory stopover points are usually centred on large marshes where birds roost at night and disperse to forage throughout the day. There is little information available for Bank Swallows in terms of the importance of area requirements of these disparate habitats and their proximity to each other.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for the Bank Swallow ( <i>Riparia riparia</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Rissa tridactyla</i>	Black-legged Kittiwake	S2S3B				Uncommon along the shores of mainland Nova Scotia during non-breeding (winter) season, but is common year-round on the North to East shores of Cape Breton. Most migration is offshore. Nests in dense colonies on ledges of seaside cliffs, islands, abandoned buildings, headlands and other sites free of predators. Favours areas of upwellings (concentrations of prey), sometimes the edge of the continental shelf, and may occur from the coast to hundreds of miles offshore. When not breeding, kittiwakes seldom come to land, although juvenile kittiwakes often appear singly on shore. Unlike many North American gulls, they do not visit landfills. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>



Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Setophaga castanea</i>	Bay-breasted Warbler	S3S4B, S4S5M				Bay-breasted warblers are found in woodlands, conifers in summer. Usually breeds in northern coniferous forest, in thick stands of spruce and fir. They are predators of spruce budworm, and are abundant in spruce forests during outbreaks. Where spruce is not found, will nest in deciduous or mixed second-growth woods of birches, maples, firs, and pines. Breed from April to July, typically in the latter half of the breeding window (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Setophaga pinus</i>	Pine Warbler	S2S3B, S4S5M				Pine Warblers live in pine or mixed pine-deciduous forest. Also sometimes in cedar or cypress. Various sightings throughout Nova Scotia, generally in the southern portion of the province. Breeds April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Setophaga striata</i>	Blackpoll Warbler	S3B, S5M				The blackpoll warbler can be found in conifers; broadleaf trees in migration. Breeds in low northern spruce forest. In migration, moves through forests, parks and gardens, they stop over in scrubby thickets and mature evergreen and deciduous forests. Found in the southern half of Nova Scotia during migration and the northern half during the breeding season. Breeding occurs from April to July (The Cornell Lab, Audubon).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Setophaga tigrina</i>	Cape May Warbler	S3B, S5M				The Cape May Warbler can be found in spruce forest; other trees in migration. Breeds in spruce forest, especially during spruce budworm outbreaks, either in pure stands or mixed with firs or other trees, generally in more open woods or near the forest edge. During migration often favors conifers, but also forages in deciduous trees and thickets. Breeding occurs from April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Sialia sialis</i>	Eastern Bluebird	S3B				Uncommon breeder throughout Nova Scotia. In the north, arrives quite early in spring, and lingers late in fall. These birds live in semi-open country with scattered trees, but with little understory and sparse ground cover. Original habitats probably included open, frequently burned pine savannas, beaver ponds, mature (but open) woods and forest clearings/openings. Today, they are most common along pastures, roadsides, agricultural fields, suburban parks, backyards and golf courses. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Somateria mollissima</i>	Common Eider	S3B,S3M,S3N				Found in marine waters (rarely on fresh water), usually near rocky seacoasts. During nesting, this species favours islands (with vegetation cover) or coasts with rocky shorelines, either barren or forested, or coastal lagoons in tundra regions. On islands, they nest near small lakes, usually those close to saltwater. During preparation or the process of migration, large eider flocks sometimes use freshwater lakes and lagoons. Winter habitat includes areas with rocky seafloors and strong tides, which are generally rich in mollusks. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Spatula clypeata</i>	Northern Shoveler	S2B,SUM				Migrates through all parts of Nova Scotia, except Cape Breton (uncommon for this species to breed in Nova Scotia). Migratory period is quite prolonged in both spring and fall, with many birds moving late in spring and early in fall. Northern Shovelers use shallow wetlands with submerged vegetation during the breeding season, nesting along the margins and in the neighboring grassy fields. Outside of the breeding season they forage in saltmarshes, estuaries, lakes, flooded fields, wetlands, agricultural ponds and wastewater ponds (and fields in vicinity of shallow water) with extensive muddy margins, including stagnant or polluted waters not much favored by other ducks. Pair formation begins in winter and continues during spring migration. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Spatula discors</i>	Blue-winged Teal	S3B				Found mainly in fresh ponds and marshes. In summer they use shallow freshwater marshes and ponds in open country, as well as brackish marshes near coast. In migration and winter they forage and stop in any kind of shallow waters, whether inland or coastal. Flocks in migration are sometimes seen over ocean, many miles offshore. They are flightless during their late summer molt, and they spend this time in prairie potholes or large marshes. Blue-winged Teal nest among grasses or herbaceous vegetation. Pair formation begins in early winter and continues during spring migration. Breeds between April and July (Audubon and The Cornell Lab)	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Spinus pinus</i>	Pine Siskin	S3				Found throughout the province year-round. Pine Siskins can be found in conifers, mixed woods, alders, weedy areas. Breeds mostly in coniferous and mixed woods, often around edges or clearings; sometimes in deciduous woods, isolated conifer groves. In migration and winter occurs in many kinds of semi-open areas, woodland edges, weedy fields. Breeding occurs from April to July (The Cornell Lab, Audubon)	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Sterna dougallii</i>	Roseate Tern	S1B				Only three colonies are known to have had more than 20 pairs in the last 10 years: The Brothers, Grassy Island, and Country Island. In some years, have bred at a variable subset of other sites, including three of the Magdalen Islands, Québec, Machias Seal Island, NB, and about 21 other sites in Nova Scotia. Roseate Terns nest in colonies almost exclusively on small islands with low vegetation, but will occasionally nest on mainland spits. They generally select nest sites with vegetated cover but will also nest under beach debris and driftwood. Roseate Terns generally forage in shallow areas close to shore, near shoals and tide rips, although little is known about their foraging ecology in Canada.	Nova Scotia Department of Lands and Forestry. 2021. Recovery Plan for Roseate Tern ( <i>Sterna dougallii</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Sterna hirundo</i>	Common Tern	S3B				Common on-shore in Nova Scotia for the breeding season and common off-shore during migration. Nests in colonies (sometimes with other tern species), sometimes in isolated pairs (on undisturbed rocky islands, barrier beaches and saltmarshes). This species forages over both coastal and inland waters in low-lying, open country, where shallow waters are close to nesting sites. After breeding, may move a short	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
						distance north before beginning southward migration. Common Terns are not known to overwinter in North America, although fall migrants may linger to the beginning of January. During the winter, they gather primarily over marine habitats, foraging at sea and resting on boats and beaches. Breeds between April and July (Audubon and The Cornell Lab).	
<i>Sterna paradisaea</i>	Arctic Tern	S3B				Common on-shore in Nova Scotia for the breeding season and common off-shore during migration. At sea for most of year, in wide variety of situations, but seems to spend most time over cold waters and well offshore. Rarely found inland. They tend to migrate offshore although some individuals may migrate overland. They forage over streams, ponds, lakes, estuaries and the open ocean. Nests in colonies (sometimes with other tern species), sometimes in isolated pairs (in treeless areas with little to no ground cover (coastal tundra), in open boreal forests and on undisturbed small islands and barrier beaches). Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Tringa flavipes</i>	Lesser Yellowlegs	S3M				Common migrant throughout Nova Scotia. Occurs widely in migration, including coastal estuaries, salt and fresh marshes, mudflats, shores/edges of lakes and ponds; typically more common on freshwater habitats. Often in same places as Greater Yellowlegs, but may be less frequent on tidal flats. Wetland habitats ranging from tidal flats to sewage ponds to flooded fields; often in the company of other shorebird species. Breeds in open boreal forests and meadows interspersed with marshes and bogs. Breeds between April and July (Audubon and The Cornell Lab).	
<i>Tringa melanoleuca</i>	Greater Yellowlegs	S3B,S4M				Common migrant in Nova Scotia (migrates in flocks). During migration and throughout the winter, Greater Yellowlegs use a wide variety of fresh and brackish wetlands, including mudflats, estuaries, beaches, marshes, lake and pond edges, wet meadows, sewage ponds and flooded agricultural fields. Breeds in boggy and marshes places within northern coniferous forest. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Tringa semipalmata</i>	Willet	S3B				Willetts inhabit open beaches, wet meadows, bayshores, marshes, mudflats and rocky coastal zones. During the breeding season, these birds seek saltmarshes, barrier islands and barrier beaches for breeding. Often nests in colonies, especially along Atlantic Coast (prefers to nest in extensive salt marsh habitat). Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Uria aalge</i>	Common Murre	S1?B				Coastal bird - year-round resident in Northern Nova Scotia and a common migrant throughout the rest of the province (also known to breed at the Southern tip of the province). When not breeding, they remain on the ocean rather than coming ashore to rest or roost (but are known to come close to shore). Favours cool ocean waters, both offshore and near the coast, generally over the continental shelf. Where their range overlaps with the Thick-billed Murre, that species tends to forage over deeper waters, farther from shore (Common Murres also avoid areas of pack ice). Nests in colonies on the coast, islands, rocky cliffs and headlands at the edge of the ocean. During the breeding season, they forage at sea, normally over waters deeper than 100 feet and well away from land, at places where warm and cool currents meet and concentrate fish. Breeds between April and July (Audubon and The Cornell Lab).	Audubon: <a href="https://www.audubon.org/bird-guide">https://www.audubon.org/bird-guide</a> , The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a>
<i>Vireo gilvus</i>	Warbling Vireo	S1B,SUM				Occurs in deciduous and mixed woods, aspen groves, poplars, shade trees. Breeds in open deciduous or mixed woodland; also in orchards, shade trees of towns (Audubon). They stay high in deciduous trees (Cornell Lab). Breeds between April and July (Audubon and The Cornell Lab).	The Cornell Lab - All About Birds: <a href="https://www.allaboutbirds.org">https://www.allaboutbirds.org</a> , Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<i>Vireo philadelphicus</i>	Philadelphia Vireo	S2?B,SUM				Occurs in second growth; poplars, willows, alders. Breeds in deciduous and mixed woodlands, especially near their edges, or in the young growth of overgrown pastures. Also nests in willows and alders along streams, lakes, and ponds. Breeds between April and July (Audubon).	Audubon Guide to North American Birds: <a href="https://www.audubon.org/field-guide/bird">https://www.audubon.org/field-guide/bird</a>
<b><i>Fish</i></b>							



Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Anguilla rostrata</i>	American Eel	S3N	T			During their oceanic migrations, eels occupy salt water and in their continental phase (growth in continental waters), they use all salinity zones. In freshwater habitats, preferred habitat can be found in both lentic and lotic waters including all waters extending from the high-water mark down to at least 10 m depth for all reaches currently or formerly used by the American Eel (COSEWIC Assessment and Status Report).	COSEWIC. 2012. COSEWIC assessment and status report on the American Eel <i>Anguilla rostrata</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xii + 109 pp.
<i>Salmo salar pop. 6</i>	Atlantic Salmon - Nova Scotia Southern Upland population	S1				Southern Upland Atlantic Salmon typically spend two to four years in freshwater as juveniles before migrating to the north Atlantic Ocean. After staying at sea for one to three years, adults return to freshwater to spawn. Rivers that support Atlantic Salmon are generally clear, cool and well-oxygenated, with gravel, cobble and boulder substrates.	Fisheries and Oceans Canada 2019: <a href="https://www.dfo-mpo.gc.ca/species-especes/profiles-profil/atlanticsalmon-SU-saumonatlantique-eng.html">https://www.dfo-mpo.gc.ca/species-especes/profiles-profil/atlanticsalmon-SU-saumonatlantique-eng.html</a>
<i>Salvelinus fontinalis</i>	Brook Trout	S3				Most common in cool well-oxygenated waters of lakes and streams. In autumn, brook trout move into smaller, shallower streams and require free passage along streams to move between areas of use. Spawning occurs from October - early December (Gilhen, 1974)	Gilhen, J. 1974. The fishes of Nova Scotia's lakes and streams
<b><i>Herpetofauna</i></b>							

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Chelydra serpentina</i>	Snapping Turtle	S3				They are common in southwestern Nova Scotia and less common on the northeastern mainland. Although Snapping Turtles occupy a wide variety of habitats, the preferred habitat for this species is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often found in ponds, marshes, swamps, peat bogs, shallow bays, river and lake edges, and slow-moving streams. turtles appear to prefer the following characteristics for their hibernacula: water shallow enough to let the turtle reach the surface to breathe, but deep enough so the water will not freeze to the bottom; a location that is likely to freeze over later in the season and thaw earlier in the spring; a thick layer of mud in which the turtle can bury itself; and additional submerged cover, such as a floating mat of vegetation, roots, stumps, branches or logs, a muskrat dwelling or an overhanging bank.	Environment and Climate Change Canada. 2016. Management Plan for the Snapping Turtle ( <i>Chelydra serpentina</i> ) in Canada [Proposed]. Species at Risk Act Management Plan Series. Ottawa, Environment and Climate Change Canada, Ottawa, iv + 39 p
<i>Chrysemys picta picta</i>	Eastern Painted Turtle	S4	SC	SC	V	Eastern Painted Turtle is found in New Brunswick, Nova Scotia, and the Atlantic coastal states east of the Appalachian Mountains. Painted Turtles occupy slow moving, relatively shallow and well-vegetated wetlands (e.g., swamps, marshes, ponds, fens, bogs, and oxbows) and water bodies (e.g., lakes, rivers, creeks, and streams) with abundant basking sites and organic substrate. These turtles are found in association with submergent aquatic plants, which are used for cover and feeding. The species is semi-tolerant of human-altered landscapes and may occasionally be found occupying urban ponds and lands subject to anthropogenic disturbance (e.g., farm ponds, impoundments, water treatment facilities). Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Painted Turtles overwinter in shallow water with deep sediment (COSEWIC Assessment and Status Report).	COSEWIC. 2018. COSEWIC assessment and status report on the Midland Painted Turtle <i>Chrysemys picta marginata</i> and the Eastern Painted Turtle <i>Chrysemys picta picta</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xvi + 107 pp. ( <a href="http://www.registrelep.sararegistry.gc.ca/default.asp?lang=en&amp;n=24F7211B-1">http://www.registrelep.sararegistry.gc.ca/default.asp?lang=en&amp;n=24F7211B-1</a> ).

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Hemidactylium scutatum</i>	Four-toed Salamander	S3				Four-toed salamanders have specialized habitat requirements which require suitable breeding wetlands within or adjacent to mature forests. They prefer mature, mesic forests with dense canopy cover to preserve body moisture, an abundance of downed woody debris for cover and foraging opportunities, and vernal pools, ponds, bogs, shallow marshes, or other fishless bodies of water for nesting and larval success. Wooded wetlands such as seepage swamps or cedar swamps with many moss mats are ideal. Male adults can be located under leaves, bark, and logs in the upland forest, while females are most often found during the breeding season nesting in moss mats which overhang pools of water. (Harding 1997).	Harding, J. 1997. Amphibians and Reptiles of the Great Lakes Region. Ann Arbor, Michigan: University of Michigan Press. [online] <a href="https://animaldiversity.org/accounts/Hemidactylium_scutatum/">https://animaldiversity.org/accounts/Hemidactylium_scutatum/</a>
<b>Lichen</b>							
<i>Anzia colpodes</i>	Black-foam Lichen	S3				Anzia colpodes requires mature deciduous tree habitats with high humidity and high light levels. The required humidity is supplied by wetlands, nearby brooks, lakes or by the host's position on upland slopes above a water body. Host tree trunks are usually free of dense undergrowth and the lichen usually occurs at or above the height of the undergrowth (in swamps and fens). A few of the Anzia collections from are reported to be from the canopy of Red Maple trees. Recent searches have found that A. colpodes occurs from 20 cm above the ground to 2 m up the tree trunks.	COSEWIC. 2015. COSEWIC assessment and status report on the Black-foam Lichen Anzia colpodes in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. x + 47 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
<i>Erioderma pedicellatum</i>	Boreal Felt Lichen	S1	T	T	T	The existing boreal felt lichen occurs within 25 km of the sea coast at an elevation of up to 300 m above sea level and they are found in forested habitats with low open crown closure. Boreal Felt Lichens are typically found in balsam fir stands, on north-facing trunks of mature and overmature trees. Habitat preference for boreal felt lichen is cool and moist and remains relatively constant throughout the year. They are often located on or at the base of slopes with northern or northeastern exposure.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for Boreal Felt Lichen (Erioderma pedicellatum) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
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Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Pannaria lurida</i>	Wrinkled Shingle Lichen	S2S3				The Wrinkled Shingle Lichen colonizes mature deciduous trees, most often Red Maple that grow near, but not usually within, imperfectly drained habitats. Hence, this lichen is found on trees close to the edge of treed swamps or floodplains. The Wrinkled Shingle Lichen most frequently inhabits sites near imperfectly drained, humid habitats dominated by deciduous trees. Such sites are close to the edge of treed swamps or riparian floodplains, or are at the base of moderate to steep slopes. A few occurrences are known from upland hardwood stands at the tops of slopes that are less than 100m in elevation. Only two occurrences are within a few kilometres of the coast. Canopy density is moderately open. The lichen grows on the rough bark of mature trees, mainly on the more sun-exposed sides. Red maple is the main host species, with poplar the second most frequent species. It is also known from Black and White Ash, Sugar Maple, Red Oak and American Beech.	COSEWIC. 2016. COSEWIC assessment and status report on the Wrinkled Shingle Lichen <i>Pannaria lurida</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xi + 41 pp. ( <a href="http://www.registrelep-sararegistry.gc.ca/default_e.cfm">http://www.registrelep-sararegistry.gc.ca/default_e.cfm</a> )
<i>Pannaria lurida ssp. russellii</i>	Wrinkled Shingle Lichen	S2S3	T	T	T	The Wrinkled Shingle Lichen colonizes mature deciduous trees, most often Red Maple that grow near, but not usually within, imperfectly drained habitats. Hence, this lichen is found on trees close to the edge of treed swamps or floodplains. The Wrinkled Shingle Lichen most frequently inhabits sites near imperfectly drained, humid habitats dominated by deciduous trees. Such sites are close to the edge of treed swamps or riparian floodplains, or are at the base of moderate to steep slopes. A few occurrences are known from upland hardwood stands at the tops of slopes that are less than 100m in elevation. Only two occurrences are within a few kilometres of the coast. Canopy density is moderately open. The lichen grows on the rough bark of mature trees, mainly on the more sun-exposed sides. Red maple is the main host species, with poplar the second most frequent species. It is also known from Black and White Ash, Sugar Maple, Red Oak and American Beech.	COSEWIC. 2016. COSEWIC assessment and status report on the Wrinkled Shingle Lichen <i>Pannaria lurida</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xi + 41 pp. ( <a href="http://www.registrelep-sararegistry.gc.ca/default_e.cfm">http://www.registrelep-sararegistry.gc.ca/default_e.cfm</a> )

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Pectenium plumbea</i>	Blue Felt Lichen	S3	SC	SC	V	The Blue Felt Lichen is usually found on the trunks of old broad-leaved trees growing in moist habitats or close to streams and lake margins. This lichen occurs in coastal suboceanic areas but also some distance inland in damp valleys. It prefers cool, humid woodlands that may be mixed coniferous/hardwood or dominated by deciduous trees. The Blue Felt Lichen seems to prefer mature deciduous trees, particularly maple, ash and yellow birch. At its northerly limit of distribution in Nova Scotia, the Blue Felt Lichen has once been found on moss-covered rocks.	Species Profile (Blue Felt Lichen) - Species at Risk Public Registry (canada.ca)
<b>Mammal</b>							
<i>Alces alces americana</i>	Mainland Moose	S1			E	Moose are herbivores who live in boreal and mixed-wood forests. They are often found where there is an abundance of food (twigs, stems, and foliage of young deciduous trees and shrubs). In spring, islands and peninsulas are often used by cows when giving birth. In summer, access to wetlands (and aquatic vegetation) is important.	Species at Risk in Nova Scotia: Identification & Information Guide
<i>Glaucomys volans</i>	Southern Flying Squirrel	S3S4				Southern Flying Squirrel occurs in southern Nova Scotia in an area roughly bounded by the South Mountains in the north, the Gaspereau Valley (Kentville) to the west, the New Ross area in north-east Lunenburg County to the south and Kejimikujik National Park in the west. Southern Flying Squirrel selected forests with American beech, eastern hemlock, red oak, white ash and white pine. Nest trees (dead or alive) also tend to be larger in diameter than trees without nests (COSEWIC Assessment and Status Report).	COSEWIC 2006. COSEWIC assessment and update status report on the southern flying squirrel <i>Glaucomys volans</i> (Atlantic (Nova Scotia) population and Great Lakes Plains population) in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. vii + 33 pp.

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Myotis lucifugus</i>	Little Brown Myotis	S1	E	E	E	Little Brown Myotis is one of the few bat species that uses buildings and other anthropogenic structures (e.g., bat boxes, bridges, and barns) to roost (particularly for maternity roosting), but it will also use cavities of canopy trees, foliage, tree bark, crevices on cliffs, and other structures.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for Little brown myotis ( <i>Myotis lucifugus</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Pekania pennanti</i>	Fisher	S3				They are often found in deciduous and mixedwood forest stands in the forested region. They can also be found in wetland vegetation types including shrubby swamps, shrubby bogs, and marshes. There is a higher likelihood to find them in harvested stands compared to naturally regenerating stands of similar age.	Alberta Biodiveristy Monitoring Institute: <a href="https://abmi.ca/home/d-ata-analytics/biobrowser-home/species-profile?tsn=99007289">https://abmi.ca/home/d-ata-analytics/biobrowser-home/species-profile?tsn=99007289</a>
<i>Perimyotis subflavus</i>	Tricolored Bat	S1	E	E	E	Tri-colored Bat often select the deepest part of caves or mines where temperature is the least variable, have strong humidity level preferences, and use warmer walls than other species. They have been recorded within any one hibernacula, possibly because they tend to hibernate solitarily (i.e., not in clusters) in the deepest sections of the caves/mines. Tri-colored Bats exhibit high fidelity to hibernacula. Roosts provide thermal regulation, shelter from weather and predation, and can be sites for social interaction. Individuals may switch roosts regularly and therefore, may use a network of roosts in a roosting area. The tendency to switch roosts may depend on species, sex, age, reproductive status, and roost type.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for Tri-colored bat ( <i>Perimyotis subflavus</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Synaptomys cooperi</i>	Southern Bog Lemming	S3				They are often found in sphagnum bogs and low moist places, but they are also found in grasslands, mixed deciduous/coniferous forests, spruce-fir forests, freshwater wetlands, marshes, and meadows. They prefer areas with a thick mat of herbaceous and shrubby vegetation.	Animal Diversity: <a href="https://animaldiversity.org/accounts/Synaptomys_cooperi/">https://animaldiversity.org/accounts/Synaptomys_cooperi/</a>
<b>Invertebrate</b>							
<i>Danaus plexippus</i>	Monarch	S2?B,S3M	E	SC	E	The breeding habitat of the Eastern and Western populations in Canada is confined to where milkweeds grow, since leaves of these plants are the sole food of the caterpillars. The	Monarch ( <i>Danaus plexippus</i> ) ( <a href="http://sararegistry.gc.ca">sararegistry.gc.ca</a> )

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						different species of milkweeds grow in a variety of environments, including meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, river banks, irrigation ditches, arid valleys, and south-facing hillsides. Milkweeds are also often planted in gardens. The Monarch is known to breed on native milkweeds within their natural ranges. The most commonly used other sources of nectar are goldenrods ( <i>Solidago</i> spp.), asters ( <i>Doellingeria</i> , <i>Eurybia</i> , <i>Oclemena</i> , <i>Symphyotrichum</i> and <i>Virgulus</i> ), the introduced Purple Loosestrife ( <i>Lythrum salicaria</i> ), and various clovers ( <i>Trifolium</i> spp. and <i>Melilotus</i> spp.)	
<i>Bombus bohemicus</i>	Ashton Cuckoo Bumble Bee	S1	E	E	E	Currently, nothing is known about the mating and overwintering habitat requirements for the Gypsy Cuckoo Bumble Bee. Overwintering habitat for bumble bees in Ontario may include rotting logs, leaf litter and mulch, burrows in soil, and garden compost. Forage habitat includes the plant species mentioned below as well as other flowering plants which bloom early spring (e.g. Willow) to late autumn (e.g. Goldenrod). Forage habitat occurs in old fields, grasslands, dunes, alvars, woodlands (especially in the spring) and road sides.	Nova Scotia Department of Lands and Forestry. 2021. Recovery Plan for the Gypsy Cuckoo Bumble Bee ( <i>Bombus bohemicus</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	SH	T			Suckley's Cuckoo Bumble Bee occurs in most Canadian ecozone including the Atlantic Maritimes. Suckley's Cuckoo Bumble Bee occurs in diverse habitats including open meadows and prairies, farms and croplands, urban areas, boreal forest, and montane meadows. Records are from sea level to 1200 m although the species could potentially occur at higher elevations where its host(s) occur. In the early spring, hosts typically establish nests in abandoned underground rodent burrows or other dry natural hollows; because Suckley's Cuckoo Bumble Bee is a nest parasite these same host residence sites also serve as its habitat. Adults have been recorded feeding on pollen and nectar from many flowers (COSEWIC Assessment and Status Report).	COSEWIC. 2019. COSEWIC assessment and status report on the Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. xi + 70 pp. (Species at risk public registry).

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<i>Bombus terricola</i>	Yellow-banded Bumble Bee	S3				Habitat generalist within open coniferous, deciduous and mixed-wood forests, wet and dry meadows and prairie grasslands, meadows bordering riparian zones, and along roadsides, urban parks, gardens and agricultural areas, subalpine habitats and more isolated natural areas.	COSEWIC. 2015. COSEWIC assessment and status report on the Yellow-banded Bumble Bee <i>Bombus terricola</i> in Canada. Committee on the Status of E Wildlife in Canada. Ottawa. ix + 60 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
<i>Coccinella transversoguttata</i>	Transverse Lady Beetle	SH	SC	SC	V	The Transverse Lady Beetle is reported to be a habitat generalist occurring within agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, sand dune edges and riparian areas.	Nova Scotia Department of Lands and Forestry. 2020. Recovery Plan for the Transverse Lady Beetle ( <i>Coccinella transversoguttata</i> ) in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<b>Vascular Plants</b>							
<i>Acer saccharinum</i>	Silver Maple	S1				Generally found near flowing water and in wetlands. In Nova Scotia, it has been found along the Cornwallis River, Kings Co. (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Adiantum pedatum</i>	Northern Maidenhair Fern	S1				Very few extant collections: Meander River, Hants Co., where it was found in the 1980s. Records exist from Yarmouth, Kings and Victoria counties. Recently discovered along the South Blair River, Inverness Co. Limited to alkaline soils and oak–birch–sugar maple–elm intervale forests. Spores produced in summer (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Agalinis maritima</i>	Saltmarsh Agalinis	S2				Limited to saltmarshes. Known from the Argyle Head region of Yarmouth Co. where it is abundant. Flowers from mid-July to September (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).

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<i>Agalinis maritima</i> var. <i>maritima</i>	Saltmarsh Agalinis	S2				High salt marshes often within stands of <i>Spartina alterniflora</i> and <i>Spartina patens</i> . Generally, occurring where the <i>Spartina</i> spp. are thin and some soils are exposed. Flowers spring - summer (New York Flora Atlas, 2021)	New York Flora Atlas: <a href="https://newyork.plantatlas.usf.edu/Plant.aspx?id=2932#citation">https://newyork.plantatlas.usf.edu/Plant.aspx?id=2932#citation</a>
<i>Agalinis purpurea</i>	Purple False-Foxglove	S2S3				Bogs, calcareous and mafic fens, open floodplain swamps, depression ponds, interdune swales, tidal freshwater marshes and swamps; more numerous in a variety of wet to mesic, open, disturbed habitats, including old fields, clearings, and roadsides. Flowers in late summer to early fall (Digital Atlas of Virginia Forest, nd).	Digital Atlas of Virginia Flora: <a href="http://vaplantatlas.org/index.php?do=plant&amp;plant=617">http://vaplantatlas.org/index.php?do=plant&amp;plant=617</a>
<i>Agalinis purpurea</i> var. <i>parviflora</i>	Small-flowered Purple False Foxglove	S2S3				Sandy soils of stream and lake margins, bogs, and barren (NatureServe, 2021)	Nature Serve Explorer: <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.147913/Agalinis_paupercula">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.147913/Agalinis_paupercula</a>
<i>Agalinis tenuifolia</i>	Slender Agalinis	S1				Anthropogenic (man-made or disturbed habitats), brackish or salt marshes and flats, fresh tidal marshes or flats, meadows and fields, woodlands <a href="https://gobotany.nativeplanttrust.org/species/agalinis/tenuifolia/">https://gobotany.nativeplanttrust.org/species/agalinis/tenuifolia/</a> ; Exotic to Nova Scotia, <a href="http://www.accdc.com/webranks/NSall.htm">http://www.accdc.com/webranks/NSall.htm</a> .	
<i>Ageratina altissima</i>	White Snakeroot	S1S2				Grows in moist soils at the edge of fields and forests. Flowers late summer, August and September. Known from Mill Brook, McGahey Brook and a brook near Refugee Cove, all in Cape Chignecto Provincial Park; older collection from Antigonish County. (Munro, Newell and Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Ageratina altissima</i> var. <i>altissima</i>	White Snakeroot	S1S2				Grows in moist soils at the edge of fields and forests. Flowers late summer, August and September. Known from Mill Brook, McGahey Brook and a brook near Refugee Cove, all in Cape Chignecto Provincial Park; older collection from Antigonish County. (Munro, Newell and Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Allium schoenoprasum</i>	Wild Chives	S1?				Wet meadows, rocky or gravelly stream banks and lake shores. Flowering June to August (Flora North America).	<i>Allium schoenoprasum</i> - FNA ( <a href="http://floranorthamerica.org">floranorthamerica.org</a> )

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<i>Allium schoenoprasum</i> var. <i>sibiricum</i>	Wild Chives	S1?				Wet meadows, rocky or gravelly stream banks and lake shores. Flowering June to August (Flora North America).	Allium schoenoprasum - FNA (floranorthamerica.org)
<i>Allium tricoccum</i> var. <i>burdickii</i>	Narrow-leaved Wild Leek	S1?				DISTRIBUTION NOT KNOWN IN NS. Dry soil in upland woods. Flowering early June (Flora North America).	Allium tricoccum var. burdickii - FNA (floranorthamerica.org)
<i>Alnus serrulata</i>	Smooth Alder	S3				Favours lakeshores. Flowers appear from February to May throughout its range. No phenology data exists for NS material. Uncommon and local in southwestern NS from Lunenburg Co (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Amelanchier fernaldii</i>	Fernald's Serviceberry	S2S3				Thickets, open barrens, shores, and ravines. Occurs mostly in calcareous areas. Grows in riparian and shrub wetlands (Nature Serve Explorer, nd). Flowers June - August (Munro, Newell & Hill, 2014).	Nature Serve Explorer: <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.151911/Amelanchier_fernaldii">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.151911/Amelanchier_fernaldii</a> , Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Amelanchier spicata</i>	Running Serviceberry	S3S4				Man-made or disturbed habitats, cliffs, balds, ledges, forest edges, grassland, meadows and fields, woodlands (GoBotany, nd). Flowers in the spring (NC State Extension, nd)	GoBotany: <a href="https://gobotany.nativeplanttrust.org/species/amelanchier/spicata/">https://gobotany.nativeplanttrust.org/species/amelanchier/spicata/</a> North Carolina Extension: <a href="https://plants.ces.ncsu.edu/plants/amelanchier-spicata/">https://plants.ces.ncsu.edu/plants/amelanchier-spicata/</a>
<i>Andersonglossum boreale</i>	Northern Wild Comfrey	S1				A generalist. along the borders of woods and thickets, along trails and pathways through woods, and within upland deciduous woods. It appears to prefer circumneutral or even calcareous areas. The soils are usually sandy or rocky (New York Natural Heritage Program 2005). Rare in open woods and roadsides (Rhoads and Block 2000). Borders, openings, and clearings or under dense shade in coniferous or mixed woods (fir, cedar, spruce, pine, birch, aspen, and occasionally beech and maple), especially in sandy or rocky soil (Voss	<a href="https://guides.nynhp.org/northern-wild-comfrey/#habitat">https://guides.nynhp.org/northern-wild-comfrey/#habitat</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
						1996). Uplands woods (Gleason & Cronquist 1991). Rich woods and thickets (Fernald 1970). flowers of this plant begin to appear mid-May and persist into early July	
<i>Angelica atropurpurea</i>	Purple-stemmed Angelica	S3				Grows in swamps, meadows, in ditches and along streams. Flowers late May until September. Very abundant in northern Cape Breton (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Antennaria parlinii</i>	Parlin's Pussytoes	S2				Found in dry soils of pine and oak forests, pastures, oldfields, and rocky banks. Flowers in June or July. Only known from along the LaHave River (Bridgewater), the Halfway River (Hants County) and from several Kings County locations. More recently found along the Kennetcook River, Hants County and East Branch River John, Pictou County (Munro, Newell and Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Antennaria parlinii ssp. fallax</i>	Parlin's Pussytoes	S2				Found in dry soils of pine and oak forests, pastures, oldfields, and rocky banks. Flowers in June or July. Only known from along the LaHave River (Bridgewater), the Halfway River (Hants County) and from several Kings County locations. More recently found along the Kennetcook River, Hants County and East Branch River John, Pictou County (Munro, Newell and Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Antennaria rosea</i>	Rosy Pussytoes	S1				The rosy-coloured flowers are distinctive and like no others of the genus in NS. It has very recently been confirmed at Cape d'Or (Munro, Newell and Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Antennaria rosea ssp. arida</i>	Rosy Pussytoes	S1				The rosy-coloured flowers are distinctive and like no others of the genus in NS. It has very recently been confirmed at Cape d'Or (Munro, Newell and Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Atriplex glabriuscula var. franktonii</i>	Frankton's Saltbush	S3S4				confined to indigenous salt marsh and beach habitats. It is very common in northern areas, such as the Northumberland Strait region and along Cape Breton's northern coasts. Occasionally seen elsewhere as near Truro and Halifax.	<a href="http://beta.floranorthamerica.org/Atriplex_glabriuscula_var._franktonii">http://beta.floranorthamerica.org/Atriplex_glabriuscula_var._franktonii</a> ; Nova Scotia Plants by Munro, Newell & Hill (2014).



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<i>Baccharis halimifolia</i>	Eastern Baccharis	S2	T	T	T	The species is most often found in the upland fringe of salt marshes, in or near the transition zone to coastal forest, where soil salinity is lower and vegetation cover is predominantly graminoids and low shrubs. These habitats include both halophytic and non-halophytic species commonly including Saltwater Cordgrass, Freshwater Cordgrass, Tick Quackgrass, New Belgium Aster, Seaside Goldenrod, Virginia Rose, Black Huckleberry, Bayberry, Winterberry Holly, Red Maple and Red or White Spruce.	<a href="https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&amp;n=7E4856E0-1">https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&amp;n=7E4856E0-1</a>
<i>Bartonia virginica</i>	Yellow Bartonia	S3S4				Flowers July to September. Dry barrens, sandy or peaty soils, bogs, lakeshores. Common in the southwestern counties becoming scarcer east to Annapolis and Halifax; St. Peter's area of Cape Breton.	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Blismopsis rufa</i>	Red Bulrush	S1				Saline habitats in coastal marshes or peatlands. Known only from Dingwall, Victoria Co.; Cheticamp, Inverness Co. and Sand Beach, Yarmouth Co. Fruiting in late summer (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Botrychium lunaria</i>	Common Moonwort	S1				Known from Conrad's Beach, Halifax County and from New Campbellton and Indian Brook in northern Cape Breton. Found on open slopes, sand or gravel; shores and meadows. Basic soils. Anthropogenic habitats (man-made or disturbed habitats), fields and edges of wetlands. Spores are produced throughout the summer (Go Botany and Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014, <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a>
<i>Botrychium lunaria var. lunaria</i>	Moonwort Grapefern	S1				Known from Conrad's Beach, Halifax County and from New Campbellton and Indian Brook in northern Cape Breton. Found on open slopes, sand or gravel; shores and meadows. Basic soils. Anthropogenic habitats (man-made or disturbed habitats), fields and edges of wetlands. Spores are produced throughout the summer (Go Botany and Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014, <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a>
<i>Botrychium simplex</i>	Least Moonwort	S2S3				Scattered locations from Yarmouth County to Cape Breton: Cedar Lake (Digby-Yarmouth border), West Berlin (Queens County), Petpeswick and in Antigonish, Victoria and Inverness Counties. Reported from various habitats, usually involving damp or mossy streambanks or lakeshores. Also anthropogenic habitats (man-made or disturbed habitats), meadows and fields. Subspecies: occurs primarily in open sites, including prairies, wetlands, and abandoned mine sites.	Nova Scotia Plants - Munro et al., 2014, <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a> , <a href="https://www.dnr.state.mn.us/">https://www.dnr.state.mn.us/</a>

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						Spores produced in late May and June (Minnesota DNR, Go Botany and Munro et al., 2014).	
<i>Bromus latiglumis</i>	Broad-Glumed Brome	S2				Floodplain (River or stream floodplains), forest, shores of rivers or lakes (Go Botany)	Bromus latiglumis (flanged brome): Go Botany (nativeplanttrust.org)
<i>Calamagrostis stricta</i>	Slim-stemmed Reed Grass	S2S3				Reported in Yarmouth Co, but collected only from Cumberland Co. in Amherst. Found in a variety of habitats such as lakeside, bogs, streamsides and cliff-faces (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Calamagrostis stricta ssp. stricta</i>	Slim-stemmed Reed Grass	S1S2				Reported in Yarmouth Co, but collected only from Cumberland Co. in Amherst. Found in a variety of habitats such as lakeside, bogs, streamsides and cliff-faces (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Cardamine dentata</i>	Toothed Bittercress	S1				rare species of calcareous swamps and fens	
<i>Cardamine maxima</i>	Large Toothwort	S2				rich, moist forests. Floodplain (river or stream floodplains), forests, talus and rocky slopes	<a href="https://inaturalist.ca/taxa/116347-Cardamine-maxima">https://inaturalist.ca/taxa/116347-Cardamine-maxima</a>
<i>Carex grisea</i>	Inflated Narrow-leaved Sedge	S1				floodplain forest and deciduous woods (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Carex houghtoniana</i>	Houghton's Sedge	S2S3				sandy soils, along roadsides. Sandy disturbed area.	<a href="https://guides.nynhp.org/houghtons-sedge/#:~:text=Carex%20houghtoniana%20occurs%20on%20the,talus%20slopes%2C%20and%20successional%20forests.&amp;text=Dry%20to%20moist%20sandy%20or,(Reznicek%20and%20Catling%202002).">https://guides.nynhp.org/houghtons-sedge/#:~:text=Carex%20houghtoniana%20occurs%20on%20the,talus%20slopes%2C%20and%20successional%20forests.&amp;text=Dry%20to%20moist%20sandy%20or,(Reznicek%20and%20Catling%202002)</a> . Nova Scotia Plants

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
							by Munro, Newell & Hill (2014).
<i>Carex hystericina</i>	Porcupine Sedge	S2S3				*note: resembles the more common <i>C. lurida</i> , but for the presence of many nerves on the perigynia, extending to the orifice. Habitat: seeps, marshes and shoreline fens. Fruits in late spring to mid-summer. Orange listed (Minnesota Wildflowers, nd)	<a href="https://www.minnesota-wildflowers.info/grass-sedge-rush/porcupine-sedge">https://www.minnesota-wildflowers.info/grass-sedge-rush/porcupine-sedge</a> ; Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Carex longii</i>	Long's Sedge	S2S3				Found in swamps, bogs and other peaty sites near the coast. Flowering and fruiting mostly in the summer (Munro, Newell & Hill 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Carex lupulina</i>	Hop Sedge	S3				Found in muck soils, in forests, swamps, swales and intervals. Flowers and fruits in June (Munro, Newell & Hill 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Carex normalis</i>	a Sedge	S1				Open, often wet, woods, thickets, meadows and roadsides. Fruiting early summer (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242357360">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242357360</a>
<i>Carex plantaginea</i>	Plantain-Leaved Sedge	S1				Rich, moist, deciduous or mixed deciduous-evergreen forests, on slopes along streams or along edges of moist depressions, southward in mountain gorges. Fruiting in spring (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242357409">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242357409</a>
<i>Carex scirpoidea</i> ssp. <i>scirpoidea</i>	Scirpuslike Sedge	S2S3				Moist alpine meadows, stream banks, and open rocky slopes, thin and rocky soils, rock outcrops, and talus slopes. Flowers June - August (DNR WA, nd)	DNR Washington: <a href="https://www.dnr.wa.gov/publications/amp_nh_cascs8.pdf">https://www.dnr.wa.gov/publications/amp_nh_cascs8.pdf</a>
<i>Carex swanii</i>	Swan's Sedge	S3				Barrens, pastures and clearings where soils are acidic. Matures early in summer (Munro, Newell & Hill 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Carex vacillans</i>	Estuarine Sedge	S1S3				Saline, brackish shores, swales, salt and intertidal marshes. Fruiting in June to August (Flora of North America).	<i>Carex vacillans</i> in Flora of North America @ efloras.org

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<i>Cephalanthus occidentalis</i>	Common Buttonbush	S3				Grows amidst boulders at waterline and overflow marshes of lakes. Locally abundant in suitable habitat from Medway to Roseway Rivers. Flowers mid-summer (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Cephalanthus occidentalis</i> var. <i>occidentalis</i>	Eastern Buttonbush	S3				Grows amidst boulders at waterline and overflow marshes of lakes. Locally abundant in suitable habitat from Medway to Roseway Rivers. Flowers mid-summer (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Cerastium arvense</i> ssp. <i>strictum</i>	Matted Field Chickweed	S1?				flowers May until frost. cliffs, talus slopes, quarries, rocky beaches, coastal headlands, and in high-pH and serpentine communities. Compacted soils, especially on moist lawns and other arable land	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Ceratophyllum echinatum</i>	Prickly Hornwort	S3				Marshes. A plant more typical of the shallows of acidic water bodies than its congener.	
<i>Clethra alnifolia</i>	Coast Pepper-Bush	S2				Sweet Pepperbush is typically found in the shrub zone along lake shorelines. Sweet Pepperbush is a species of acidic upper lakeshores and lakeshore forest margins. It also occurs locally along shrubby and semi-forested stream margins and to a limited extent under Red Maple dominated swamp forest canopy within about 20 m of shorelines. It has not been observed to flower when under dense forest canopy. Sweet Pepperbush occurs in gravelly, sandy, peat and muck soils, sometimes within the zone of shoreline boulders pushed up by ice. It is considered an obligate wetland plant, and can grow in sites with shallow standing water for most of the summer, although it is more often in sites just above the low summer water level. Flowers between mid-August and mid-October.	<a href="https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Sweet%20Pepperbush_2014_e.pdf">https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Sweet%20Pepperbush_2014_e.pdf</a>  Species at Risk in Nova Scotia: Identification & Information Guide
<i>Coleataenia longifolia</i>	Long-leaved Panicgrass	S3S4				Marshes, meadows and fields, shores of rivers or lakes (GO Botany).	Coleataenia longifolia (long-leaved redbotpanicgrass): Go Botany (nativeplanttrust.org)
<i>Coleataenia longifolia</i> ssp. <i>longifolia</i>	Coastal Plain Panicgrass	S3S4				Marshes, meadows and fields, shores of rivers or lakes (GO Botany).	Coleataenia longifolia (long-leaved redbotpanicgrass): Go Botany (nativeplanttrust.org)

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Comandra umbellata ssp. umbellata</i>	Bastard's Toadflax	S2				Found in swamps and bogs, rich mesic sites, dry, sandy or rocky soils, savannas, early successional forests. Flowers March - August (Flora of North America, nd)	Flora of North America <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250101746">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250101746</a>
<i>Conioselinum chinense</i>	Chinese Hemlock-parsley	S3				Found in treed swamps, mossy coniferous forest, seepy coastal slopes. Flowers from August to October. Common on Saint Paul Island and infrequent elsewhere (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Coreopsis rosea</i>	Pink Coreopsis	S2				Pink Coreopsis occurs in ten eastern seaboard states and in southwestern NS. It is found on the shores of eight lakes in the Tusket, Carelton, and Annis river systems in Yarmouth County, and in salmon, Wilsons, Bennetts, Raynards, Gillfillan, Agard, Sloans, and Pleasant Lakes. Pink Coreopsis is found on infertile, gently sloping sandy, gravel, peat, or cobblestone lake shorelines. It is associated with deposits of red till. It prefers shorelines with naturally occurring environmental stresses and disturbances such as periodic water level fluctuations, wave action and/or ice scour which maintains a sparsely vegetated open habitat and prevents the establishment of more aggressive plants. It is frequently found with other rare species such as Plymouth Gentian, Water Pennywort and Tubercled Orchid. It is also associated with Grass-Leaved Goldenrod (or Slender Fragrant Goldenrod), Twigrush, Bog Yellow-eyed Grass, Redtop Panic Grass, Three-Way Sedge, and Golden-Pert. Pink Coreopsis flowers from mid-July to late September.	Nova Scotia Department of Lands and Forestry. 2021. Ecosystem-based Recovery Plan for Atlantic Coastal Plain Flora in Nova Scotia [Final]. Nova Scotia E Species Act Recovery Plan Series.
<i>Crataegus submollis</i>	Quebec Hawthorn	S2?	E	E	E	Anthropogenic (man-made or disturbed habitats), forest edges, meadows and fields, shrublands or thickets. Flowers in June (GoBotany, nd).	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/crataegus/submollis/">https://gobotany.nativeplanttrust.org/species/crataegus/submollis/</a> ,
<i>Crataegus succulenta</i>	Fleshy Hawthorn	S3S4				Forest edges, forests, meadows and fields. Also found in abandoned farmland, along streams and in forest openings. Flowers in late spring (Natural Resources Canada, nd).	

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<i>Crataegus succulenta</i> var. <i>succulenta</i>	Fleshy Hawthorn	S3S4				Forest edges, forests, meadows and fields. Also found in abandoned farmland, along streams and in forest openings. Flowers in late spring (Natural Resources Canada, nd).	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/crataegus/succulenta/">https://gobotany.nativeplanttrust.org/species/crataegus/succulenta/</a> , Natural Resources Canada: <a href="https://tidcf.nrcan.gc.ca/en/trees/factsheet/427">https://tidcf.nrcan.gc.ca/en/trees/factsheet/427</a>
<i>Cuscuta cephalanthi</i>	Buttonbush Dodder	S2?				Flowers during August and September. Low-lying coastal areas, often seen parasitizing <i>Symphytotrichum novibegii</i> . Anthropogenic (man-made or disturbed habitats), meadows and fields, shores of rivers or lakes, swamps	
<i>Cyperus diandrus</i>	Low Flatsedge	S1				Since 2000 it has been collected from Ellenwood, Third and Bennetts Lakes. Grows along undisturbed shorelines of sand and peaty soils. Matures in summer. (Munro, et al. 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Cyperus lupulinus</i> ssp. <i>macilentus</i>	Hop Flatsedge	S1				Various well-drained, open places. Fruiting summer (Flora North America).	<i>Cyperus lupulinus</i> subsp. <i>macilentus</i> - FNA ( <a href="http://floranorthamerica.org">floranorthamerica.org</a> )
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Small Yellow Lady's-Slipper	S2				Mesic to wet fens, prairies, meadows, thickets, open coniferous, and mixed forest. Flowering in May to August (Flora of North America).	<i>Cypripedium parviflorum</i> var. <i>makasin</i> in Flora of North America @ <a href="http://efloras.org">efloras.org</a>
<i>Elatine americana</i>	American Waterwort	S1				Brackish or salt marshes and flats, lacustrine (in lakes or ponds), riverine (in rivers or streams), shores of rivers or lakes	<a href="https://gobotany.nativeplanttrust.org/species/elatine/americana/">https://gobotany.nativeplanttrust.org/species/elatine/americana/</a>
<i>Eleocharis erythropoda</i>	Red-stemmed Spikerush	S1				Non-calcareous or calcareous fresh or brackish shores. Fruiting occurs in the summer (Flora North America).	<i>Eleocharis erythropoda</i> - FNA ( <a href="http://floranorthamerica.org">floranorthamerica.org</a> )
<i>Eleocharis flavescens</i>	Pale Spikerush	S3				Bogs, brackish or salt marshes and flats, floodplain (river or stream floodplains), marshes, shores of rivers or lakes, wetland margins (edges of wetlands) (Go Botany).	<i>Eleocharis flavescens</i> (yellow spikesedge): Go Botany ( <a href="http://nativeplanttrust.org">nativeplanttrust.org</a> )

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<i>Eleocharis flavescens</i> var. <i>olivacea</i>	Bright-green Spikerush	S3				Bogs, cold springs, dry stream banks, lake and pond margins, maritime mud flats, marshes, moist meadows, swamps. Fruiting summer-winter (June-November) (Flora North America).	Eleocharis flavescens var. olivacea - FNA (floranorthamerica.org)
<i>Eleocharis rostellata</i>	Beaked Spikerush	S3				Limited to saltmarshes and swales. Fruiting from July to October. (Munro, et al. 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Eleocharis tuberculosa</i>	Tuberclcd Spike-rush	S2				Tuberclcd Spikerush is only known from five population on six lakes in southwestern Nova Scotia. Tuberclcd Spike-rush is restricted to open, peaty or sandy substrates and floating peat mats along lakeshores. It occurs within the shoreline zone that is annually flooded in spring and is frequently flooded during wet years in late summer and autumn, making detection difficult in some years. It is a relatively weak competitor, and requires periodic disturbance from flooding and ice scour to prevent more competitive species from crowding it out of available lakeshore habitat.	pp. (www.sararegistry.gc.ca/status/status_e.cfm).
<i>Euphorbia polygonifolia</i>	Seaside Spurge	S2S3	SC	SC	V	Coastal beaches (sea beaches), dunes, sandy areas. Flowering and fruiting early summer–fall.	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Fagus grandifolia</i>	American Beech	S3S4				Forests	GoBotany
<i>Fallopia scandens</i>	Climbing False Buckwheat	S3S4				Uncommon and local, from Digby to Richmond counties on the northern side of the province - Grows on low ground in riparian zones - Flowers mid-August to October (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Fragaria vesca</i>	Woodland Strawberry	S3S4				Forming dense patches in shady forests, ravines. Flowers in June. A white-berried form of this species persists in a number of locations within the province: White Rock, Wolfville, Grand Pré and Barrington. (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).

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<i>Fragaria vesca ssp. americana</i>	Woodland Strawberry	S3S4				Forming dense patches in shady forests, ravines. Flowers in June. A white-berried form of this species persists in a number of locations within the province: White Rock, Wolfville, Grand Pré and Barrington. (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Fraxinus pennsylvanica</i>	Red Ash	S1				Flowers May - June. Found in riparian and upland forest and shelter belts (Minnesota Wildflowers, nd)	Minnesota Wildflowers <a href="https://www.minnesota-wildflowers.info/tree/green-ash">https://www.minnesota-wildflowers.info/tree/green-ash</a>
<i>Galium aparine</i>	Common Bedstraw	S3S4				Composts, ballast and waste soils. Flowers from May until July (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Goodyera repens</i>	Lesser Rattlesnake-plantain	S3S4				Shady, moist, coniferous or mixed woods, on mossy or humus-covered ground. Sometimes it is found in bogs or cedar swamps. Flowering early July-early September (Flora North America).	Goodyera repens - FNA (floranorthamerica.org)
<i>Hieracium paniculatum</i>	Panicled Hawkweed	S3S4				Mixed forest on dryish soils, especially oak. Occasional from Yarmouth east to Kings and Halifax counties. Common about Kentville and at Keji. Flowers August and September (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Hieracium robinsonii</i>	Robinson's Hawkweed	S3				Found in riparian areas, in cobble, rock crevices and cliff faces, Local. Tusket Islands, Yarmouth Co., Truro area and northern Cape Breton. Flowers in July and August (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Hordeum brachyantherum</i>	Meadow Barley	S1				Grows in pastures and along streams and lake shores (Flora of North America).	Hordeum brachyantherum subsp. brachyantherum - FNA (floranorthamerica.org)
<i>Hudsonia ericoides</i>	Pinebarren Golden Heather	S2				Late May to early in July. Sand barrens and other areas where the soil is dry and rocky, as at Jack Pine barrens at Williams Lake, Halifax Co. Ranges from Shelburne to Halifax counties along the Atlantic shore and known from several localities through the centre of the Annapolis Valley. Only a single Cape Breton locality.	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Humulus lupulus var. lupuloides</i>	Common Hop	S1?				Anthropogenic (man-made or disturbed habitats), floodplain (river or stream floodplains), forests, shrublands or thickets	



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<i>Huperzia appressa</i>	Mountain Firmoss	S3S4				Also known as <i>Huperzia appalachiana</i> . In Nova Scotia, known from the Fundy coast, Cumberland County (McAlese Brook and Moose River) and Kings County (Amethyst Cove). Also a collection from Clyburne Brook, Victoria County. Found on damp acidic granite as on talus slopes or exposed cliffs. Alpine or subalpine zones, cliffs, balds, or ledges, mountain summits and plateaus, ridges or ledges. Flowers from summer to early fall (Minnesota Environment and Natural Resources Trust Fund, Go Botany and Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014, <a href="https://www.minnesota.wildflowers.info/">https://www.minnesota.wildflowers.info/</a> , <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a>
<i>Hylodesmum glutinosum</i>	Large Tick-trefoil	S2				Anthropogenic (man-made or disturbed habitats), cliffs, balds, or ledges, forest edges, forests, ridges or ledges, talus and rocky slopes. Flowers June to August	<a href="https://www.minnesota.wildflowers.info/flower/pointed-leaf-tick-trefoil">https://www.minnesota.wildflowers.info/flower/pointed-leaf-tick-trefoil</a> . <a href="https://gobotany.nativeplanttrust.org/species/hylodesmum/glutinosum/">https://gobotany.nativeplanttrust.org/species/hylodesmum/glutinosum/</a>
<i>Iva frutescens</i>	Big-leaved Marsh-elder	S3				Disturbed and elevated areas around saltmarshes. From Yarmouth County; Lunenburg and Kings counties, and in Cape Breton. Flowers during August and September (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Juncus acuminatus</i>	Sharp-Fruit Rush	S3S4				Frequents sand and mud flats, clay soils as in sterile meadows or ditches. Flowers and fruit produced from late May until Augset. (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Juncus alpinoarticulatus</i>	Northern Green Rush	S2				Fen, fresh tidal marshes or flats, marshes, meadows and fields, shores of rivers or lakes. Fruiting mid summer to fall (Go Botany).	<i>Juncus alpinoarticulatus</i> (northern green rush): Go Botany (nativeplanttrust.org); <a href="http://floranorthamerica.org/Juncus_alpinoarticulatus">http://floranorthamerica.org/Juncus_alpinoarticulatus</a>
<i>Juncus antheratus</i>	Greater Poverty Rush	S1?				Exposed or partially shaded sites in moist or seasonally wet sandy or clay soils. Flowering and fruiting in spring (Flora North America).	<i>Juncus antheratus</i> - FNA (floranorthamerica.org)

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<i>Juncus brachycephalus</i>	Small-Head Rush	S1				Collected from Seal Island, Yarmouth and mainland Yarmouth and Cape Breton. Habitats are calcareous, meadows, and shorelines. Produces flowers and fruits from July to September. (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Juncus stygius ssp. americanus</i>	Moor Rush	S3				Wet moss, bogs and bog-pools. Flowering and fruiting in mid to late summer.	<i>Juncus stygius</i> var. <i>americanus</i> in Flora of North America @ efloras.org
<i>Juncus subcaudatus</i>	Woods-Rush	S3S4				Conifer woods and spruce swamps, where substrate is soggy. Flowers and fruits produced from July through October. (Munro, et al. 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Lactuca hirsuta</i>	Hairy Lettuce	S2S3				Grows in dryish soils in open forest and cut-overs. Scattered in the western part of NS. Flowers from July through September (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Lobelia spicata</i>	Pale-Spiked Lobelia	S1				Found in dry fallow soils. ariety of sunny and semi-shade habitats, including prairies, glades, woodlands, and disturbed areas. Very rare and at risk. Scattered locations: Cape Blomidon, Kings Co.; Linden, Cumberland Co. and reported from Yarmouth Co. Local but may be abundant where found.	<a href="https://inaturalist.ca/taxa/128839-Lobelia-spicata">https://inaturalist.ca/taxa/128839-Lobelia-spicata</a> ; Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Lorinseria areolata</i>	Netted Chain Fern	S3S4				Bogs, meadows and fields, swamps, wetland margins (edges of wetlands) (Go Botany).	<i>Woodwardia areolata</i> (netted chain fern): Go Botany (nativeplanttrust.org)
<i>Lyonia ligustrina</i> var. <i>ligustrina</i>	Maleberry	S1				Flowers in May throughout its range. Generally found in wet mucky soils. Mesic to hydric, deciduous to mixed evergreen-deciduous forests, edges of swamps, often associated with acidic soils. In Nova Scotia, so far known only from Springhaven, Yarmouth Co.	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Lysimachia quadrifolia</i>	Whorled Yellow Loosestrife	S1				Anthropogenic (man-made or disturbed habitats), grassland, woodlands, fens, moist prairies (GoBotany, n.d.). Flowers from July - August (LBJ Wildflower Centre, nd).	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/lysimachia/quadrifolia/">https://gobotany.nativeplanttrust.org/species/lysimachia/quadrifolia/</a> , Lady Bird Johnson Wildflower Center <a href="https://www.wildflower">https://www.wildflower</a>

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							r.org/plants/result.php?id_plant=LYQU2
<i>Malaxis monophyllos</i>	White Adder's-mouth	S1				Found in Fens, ridges or ledges, swamps with northern white-cedar. Flowering in summer (GoBotany).	Malaxis monophyllos (white adder's-mouth): Go Botany (nativeplanttrust.org)
<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	North American White Adder's-mouth	S1				Found in swamps and bogs. Flower in summer (Flora fo North America).	Malaxis monophyllos var. brachypoda - FNA (floranorthamerica.org)
<i>Neottia bifolia</i>	Southern Twayblade	S3				Bogs and swamps (Go Botany)	Neottia bifolia (southern twayblade): Go Botany (nativeplanttrust.org)
<i>Nuphar microphylla</i>	Small Yellow Pond-lily	S3S4				Ponds, lakes, sluggish streams, sloughs, ditches and occasionally tidal waters. Flowers summer - early fall (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=233500815">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=233500815</a>
<i>Oenothera fruticosa</i>	Narrow-leaved Evening Primrose	S2S3				Scattered from Yarmouth to the Northumberland Strait - Found in dry open soil habitats such as old fields, edges of thickets and roadsides - Flowers from June to August (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Oenothera fruticosa</i> ssp. <i>tetragona</i>	Narrow-leaved Evening Primrose	S2S3				Scattered from Yarmouth to the Northumberland Strait - Found in dry open soil habitats such as old fields, edges of thickets and roadsides - Flowers from June to August (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Ophioglossum pusillum</i>	Northern Adder's-tongue	S2S3				Known from Yarmouth and Digby Counties; scattered east to Halifax and Amherst; a single Cape Breton record from George River. Found in sterile soils, swamps and sandy or cobbly lakeshores. Anthropogenic habitats (man-made or disturbed habitats), marshes, meadows, fields and edges of wetland margins. Spores produced May to August (Go Botany and Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014, <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a>

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<i>Oreojuncus trifidus</i>	Highland Rush	S3				Grows in a number of habitat types, especially in alpine environments. Found on cliffs and ledges, fellfields, tundra, meadows. The soils may be dry to moist, calcareous and acidic (Wikipedia).	Oreojuncus trifidus - Wikipedia
<i>Oxybasis rubra</i> var. <i>rubra</i>	Red Goosefoot	S2S3				In New York, Red Pigweed has been found along the coast in wet interdunal swales, stony beaches, and the shores of coastal ponds, as well as amongst ship ballast and waste places (New York Natural Heritage Program 2010). Salt marshes (Clemants 1992). Salt marshes and brackish soil (Gleason and Cronquist 1991). Waste ground, shores, and river banks (Voss 1985).	<a href="https://guides.nynhp.org/red-pigweed/#habitat">https://guides.nynhp.org/red-pigweed/#habitat</a>
<i>Panicum dichotomiflorum</i> ssp. <i>puritanorum</i>	Spreading Panicgrass	S1?				Flowering and fruiting from June through October	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Parnassia parviflora</i>	Small-flowered Grass-of-Parnassus	S1S2				Rocky seeps. Flowers August to September (Jepson Herbarium, 2021)	The Jepson Herbarium: <a href="https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=36285">https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=36285</a>
<i>Persicaria amphibia</i> var. <i>emersa</i>	Long-root Smartweed	S3?				Bloom on moist soil and are terrestrial-adapted. Flower June - September (Flora of North America)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242100087">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242100087</a>
<i>Persicaria careyi</i>	Carey's Smartweed	S1				Low thickets, swamps, bogs, moist shorelines, clearings, recent burns, cultivated ground. Flowering July - October (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250060697">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250060697</a>
<i>Persicaria pennsylvanica</i>	Pennsylvania Smartweed	S3S4				Moist, disturbed places, ditches, riverbanks, cultivated fields, shorelines of ponds and reservoirs. Flowers May - December (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250037745">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250037745</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Piptatheropsis canadensis</i>	Canada Ricegrass	S3				Dry sandy or gravelly soil. Open woods clearings, pine plantations, barrens, wooded slopes. Fruiting season-July (Minnesota Wildflowers).	Piptatherum canadense (Canadian Rice Grass): Minnesota Wildflowers
<i>Piptatheropsis pungens</i>	Slender Ricegrass	S2				Sandy dry forests and savannas on dunes and plains, usually with aspen, oak, jack pine, and/or red pine; rocky forests and summits; rock barrens (Reznicek, Voss & Walters, 2011).	MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. August 9, 2021. <a href="https://michiganflora.net/species.aspx?id=2186">https://michiganflora.net/species.aspx?id=2186</a> .
<i>Plantago rugelii</i>	Rugel's Plantain	S3				Grows in anthropogenic (man-made or disturbed habitat), grassland, meadows, fields (GoBotany, nd)	<a href="https://gobotany.nativeplanttrust.org/species/plantago/rugelii/">https://gobotany.nativeplanttrust.org/species/plantago/rugelii/</a>
<i>Platanthera flava</i>	Southern Rein-Orchid	S3				Found along the Tuskent River, Yarmouth Co., Medway River, Queens County and north to Kings and Colchester Co. (Kempton). Known from a variety of habitats: sandy, gravelly or peaty shorelines of lakes or streams; bogs, swamps and meadows. Flowers from May to August (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Platanthera flava var. flava</i>	Southern Rein Orchid	S2				Found along the Tuskent River, Yarmouth Co., Medway River, Queens County and north to Kings and Colchester Co. (Kempton). Known from a variety of habitats: sandy, gravelly or peaty shorelines of lakes or streams; bogs, swamps and meadows. Flowers from May to August (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Platanthera flava var. herbiola</i>	Pale Green Orchid	S2				Known from a variety of habitats: sandy, gravelly or peaty shorelines of lakes or streams; bogs, swamps and meadows. Found along the Tuskent River, Yarmouth Co., Medway River, Queens County and north to Kings and Colchester Co. (Kempton) (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Platanthera grandiflora</i>	Large Purple Fringed Orchid	S3				Found in north-central and Southwestern NS. Favours wet meadows and riparian habitats. Flowers in July.	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Platanthera hookeri</i>	Hooker's Orchid	S3				Scattered in most of the province, local in the southwestern counties. So far absent from the eastern shore. Grows in open dry forests of mixed conifers. Flower appear from May to August (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Platanthera huronensis</i>	Fragrant Green Orchid	S1S2				No good record found. Habitat are known from streamsides, in wetlands, even forests. Flowers throughout the summer (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Platanthera obtusata</i>	Blunt-leaved Orchid	S3S4				Fens, Forests, Meadows field and swamps	GoBotany
<i>Polygonum achoreum</i>	Leathery Knotweed	S1				Reported from Annapolis Royal and Annapolis River area but no extant collections - Typical plant of halophytic communities: salt marshes and beaches - Flowers from July to September (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Polygonum aviculare ssp. buxiforme</i>	Box Knotweed	S2S3				Roadsides, vacant lots, sidewalks, packed and nondrifting sands, borders of marshes and dunes. Flowering July - December (Flora of North America, nd)	<a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250060725">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250060725</a>
<i>Polygonum oxyspermum</i>	Sharp-fruit Knotweed	S2S3				Collected from Shelburne and Queens counties, east to Strait of Canso; Bras d'Or Lakes to northern Cape Breton - Found in damp sands and gravels on the coast - Terminally deciduous ocreae with prominent persistent veins; smooth achenes without tubercles (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Polygonum oxyspermum ssp. raii</i>	Ray's Knotweed	S2S3				Collected from Shelburne and Queens counties, east to Strait of Canso; Bras d'Or Lakes to northern Cape Breton - Found in damp sands and gravels on the coast - Ocreae are scarcely veined and nearly all deciduous; the achenes are roughened and sometimes tubercled (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Polypodium appalachianum</i>	Appalachian Polypody	S3				Nova Scotia distribution still remains unclear. Habitat is restricted to cliffs, rocky slopes, balds, ridges or ledges and talus. No sources that state specific spore production time, most likely during the general growing season in Nova Scotia: June to September (Go Botany and Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014, <a href="https://gobotany.nativeplanttrust.org/">https://gobotany.nativeplanttrust.org/</a>
<i>Potamogeton pulcher</i>	Spotted Pondweed	S3				Scattered in the southern half of Nova Scotia. The species is mainly found growing on muddy substrates at depths of approximately 10 cm to about 2 m, often within fairly dense stands composed of several submersed and emergent species. Plants at some sites (Carrigan Lake and Rhodenizer Lake) have been observed near shores within zones where water has receded entirely in the late summer, stranding plants on mud and peaty organic soil. An ability to tolerate extreme water level fluctuations is also suggested by Spotted Pondweed's occurrence on the Raynards Lake reservoir.	<a href="https://sararegistry.gc.ca/default.asp?lang=En&amp;n=3B4A8847-1&amp;offset=4&amp;toc=show#_03_13">https://sararegistry.gc.ca/default.asp?lang=En&amp;n=3B4A8847-1&amp;offset=4&amp;toc=show#_03_13</a>
<i>Potentilla canadensis</i>	Canada Cinquefoil	S2S3				Found on dry rock barrens and other open areas. Flowers in June. (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Potentilla litoralis</i>	Coastal Cinquefoil	S1				Coastal beaches (sea beaches), meadows and fields, ridges or ledges (GoBotany, nd). Flowering in the summer (Floras of Nova Scotia, nd)	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/potentilla/litoralis/">https://gobotany.nativeplanttrust.org/species/potentilla/litoralis/</a> , Flora of Nova Scotia: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250100339">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250100339</a>
<i>Proserpinaca pectinata</i>	Comb-leaved Mermaidweed	S3S4				<i>P. pectinata</i> grows in sphagnum peatlands, lacustrine peaty sands and gravels. Frequently seen in Yarmouth and Shelburne counties, becoming scarcer to Cumberland County. Flowers from June to October (Munro, Newell & Hill, 2014)	
<i>Ranunculus pensylvanicus</i>	Pennsylvania Buttercup	S1				Found in wet fields, ditches, marshes, along shores. Flowers June - August (Minnesota Wildflowers, nd)	Minnesota Wildflowers: <a href="https://www.minnesotawildflowers.info/flower">https://www.minnesotawildflowers.info/flower</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
							/pennsylvania-buttercup
<i>Ranunculus sceleratus</i>	Cursed Buttercup	S2				Anthropogenic (man-made or disturbed habitats), fresh tidal marshes or flats, marshes, swamps (GoBotany, n.d.). Flowers May - September (Minnesota Wildflowers, nd)	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/ranunculus/sceleratus/">https://gobotany.nativeplanttrust.org/species/ranunculus/sceleratus/</a>
<i>Rosa acicularis ssp. sayi</i>	Prickly Rose	S1				Across its range, it grows in a wide variety of forested and open habitats, with a wide variety of soil and moisture conditions. Flowers in the spring (Schori, 2003)	Schori, A. (2003). <i>Rosa acicularis</i> Lindley ssp. <i>sayi</i> (Schwein.) W. H. Lewis Bristly, Needle-spine, or Prickly Rose file:///C:/Users/Andy%20Walter/Downloads/Rosaacicularis%20(1).PDF
<i>Rumex persicarioides</i>	Peach-leaved Dock	S2?				Infrequently found around the coast from Amherst and Advocate to Queens county, Abundant on Sable Island; scattered in western Cape Breton Island - Found in open, organic coastal microsites, particularly of saltmarshes and barrachois - Flowers from July to October (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Rumex triangulivalvis</i>	Triangular-valve Dock	S2S3				Grows in moist areas and disturbed habitats, meadows and fields (GoBotany, nd)	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/rumex/triangulivalvis/">https://gobotany.nativeplanttrust.org/species/rumex/triangulivalvis/</a>
<i>Sagina nodosa</i>	Knotted Pearlwort	S3				Flowers from July to September. Coastal cliffs, sand flats and dune slopes. Cliffs, balds, or ledges, coastal beaches (sea beaches), meadows and fields, ridges or ledges Scattered from Annapolis to Guysborough counties. Nova Scotia Plants by Munro, Newell & Hill (2014).	<a href="https://gobotany.nativeplanttrust.org/species/sagina/nodosa/">https://gobotany.nativeplanttrust.org/species/sagina/nodosa/</a> . Nova Scotia Plants by Munro, Newell & Hill (2014)



Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Salix glauca</i> <i>var. cordifolia</i>	Beautiful Willow	S1				Sand and cobbles among granitic boulders, sandy alluvium, on exposed eskers, scree slopes, Sphagnum bogs, Empetrum heaths, snowbeds. Flowers late May - early July (Flora of North America, nd)	Flora of North America <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250095316">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250095316</a>
<i>Salix serissima</i>	Autumn Willow	S1				Fens, meadows and fields, swamps (GoBotany, nd). Also found in brackish marshy strands, marly lakeshores, treed bogs, gravelly stream banks, lakeshores. Flowers from early June to early July (Flora of North America, nd).	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/salix/serissima/">https://gobotany.nativeplanttrust.org/species/salix/serissima/</a> , Flora of North America <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242445867">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242445867</a>
<i>Samolus parviflorus</i>	Seaside Brookweed	S3				Prefers wet places, shallow water, often on tidal shores. It can also be found in brackish or salt marshes and flats, fresh tidal marshes or flats, riverine (in rivers or streams), swamps (GoBotany, nd; Newell, L. 1977)	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/samolus/valerandi/">https://gobotany.nativeplanttrust.org/species/samolus/valerandi/</a> , Newcomb, L. (1977)
<i>Saxifraga cernua</i>	Nodding Saxifrage	S1				Imperfectly drained moist areas (near creeks and lakeshores, on moist ledges and in exposed dry sites); acidic, or calcareous, or nitrophilous (often near Thule sites and human habitation), or circum-neutral. Spring to summer flowering time (Aiken et al. 2007)	Flora of the Canadian Arctic Archipelago, S.G. Aiken, M.J. Dallwitz, L.L. Consaul, C.L. McJannet, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc, L.J. Gillespie, A.K. Brysting, H. Solstad, and J.G. Harris.. <a href="https://nature.ca/aaflora/data/www/sxscn.htm">https://nature.ca/aaflora/data/www/sxscn.htm</a>
<i>Sceptridium dissectum</i>	Dissected Moonwort	S3				Frequent in the southwestern counties and scattered eastward to Cape Breton. Not abundant but often seen. Generally in sandy, gravelly, grassy or open soils. Spores from September to November (Munro et al., 2014).	Nova Scotia Plants - Munro et al., 2014

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Schoenoplectus americanus</i>	Olney's Bulrush	S3				Restricted to the upper edges of saltmarshes. Fruits from July to September. (Munro, et al. 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Scirpus longii</i>	Long's Bulrush	S3				Occurs in wetlands adjacent to five lakes and in two bogs in southwestern Nova Scotia. It has an estimated population of at least 80 colonial clusters. Long's Bulrush is a species of wet, acidic, nutrient-poor, open peatlands with limited cover of shrubs or trees taller than the herbaceous shoots. Occurrences are especially frequent and subpopulations are generally larger in peatlands subject to annual flooding from adjacent streams, rivers and lakes, but the species is also found in peatlands away from watercourses, mostly within seasonally wet areas with low standing biomass. Flowering is rare and identification is mainly through features of the leaves and circular growth. In the unlikely event that flowering occurs, look for flowers between June and early July.	Species Profile (Long's Bulrush) - Species at Risk Public Registry (canada.ca)  Species at Risk in Nova Scotia: Identification & Information Guide
<i>Senecio pseudoarnica</i>	Seabeach Ragwort	S3				Found only on gravelly seashores. Flowers from late July to August. Scattered along the entire Atlantic coast (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Sisyrinchium atlanticum</i>	Eastern Blue-Eyed-Grass	S3S4				Found in damp peat, sandy soils that are poorly drained. Flowers in June. (Munro, et al. 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Sisyrinchium fuscatum</i>	Coastal Plain Blue-eyed-grass	S1				Grows on sandy soils. Flowers from May to early July (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Solidago hispida</i>	Hairy Goldenrod	S1?				Grows in wooded banks and rocky shores. Infrequent, occasionally seen from Yarmouth to Colchester counties (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Solidago hispida var. hispida</i>	Hairy Goldenrod	S1?				Grows in wooded banks and rocky shores. Infrequent, occasionally seen from Yarmouth to Colchester counties (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Solidago rugosa var. sphagnophila</i>	Cedar-swamp Goldenrod	S1S3				Frequents waste soils, forests and fallow fields. Flowers late in August through September. Common throughout the province (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Spiranthes casei</i>	Case's Ladies'-Tresses	S2S3				Restricted to southwestern counties, Jordan Falls to Pubnico, Belleville and the Annapolis Valley. Seen in acidic, sandy soils on rock barrens or even roadsides. Flowers in September (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Spiranthes casei var. novaescotiae</i>	Case's Ladies'-Tresses	S2S3				Restricted to southwestern counties, Jordan Falls to Pubnico, Belleville and the Annapolis Valley. Seen in acidic, sandy soils on rock barrens or even roadsides. Flowers in September (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Spiranthes lucida</i>	Shining Ladies'-Tresses	S2S3				Few Know locations in central NS. Grows in alluvial soils and damp rocky shores. Found in thickets and meadows. Flowers appear in early July (Munro, et al., 2014).	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Symphotrichum boreale</i>	Boreal Aster	S3				Favours lacustrine gravels, streamsides and edges of peatlands. Flowers during August and September . Scattered from Yarmouth to Cape Breton uncommon (Munro, Newell & Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Torreyochloa pallida var. pallida</i>	Pale False Manna Grass	S1				The typical variety was historically found along the Tusket R. It may now be extirpated. Var. fernaldii is found throughout the province (Munro, et al., 2014). Frequents wet soils in bogs and meadows, marshes nad savnnahs. Flowers and fruits from June to August.	Munro M.C., Newell R.E., and Hill N.M. 2014. Nova Scotia Plants.
<i>Trichostema dichotomum</i>	Forked Bluecurls	S1				Relatively new to Nova Scotia. Found in anthropogenic/disturbed habitats, grasslands, meadows and fields, sandplains and barrens (GoBotany, nd). Flowers from August to October (Peterson & McKenny, 1968).	0
<i>Triglochin gaspensis</i>	Gaspé Arrowgrasses	S3S4				Tidal saltwater marshes, usually submerged daily. Flowering summer (July-August) (Flora North America).	Triglochin gaspensis - FNA (floranorthamerica.org)
<i>Triosteum aurantiacum var. aurantiacum</i>	Orange-fruited Tinker's Weed	S3				Dry-mesic to mesic forests, woodlands, and forest borders	<a href="https://gobotany.nativeplanttrust.org/species/triosteum/aurantiacum/">https://gobotany.nativeplanttrust.org/species/triosteum/aurantiacum/</a>

Scientific Name	Common Name	SRank	COSEWIC	SARA	NSESA	Habitat Description	Reference
<i>Utricularia resupinata</i>	Inverted Bladderwort	S3				Widespread localities from Digby Neck and Salmon River Lake (Digby Co.); Argyle and Great Pubnico Lake, (Yarmouth Co.); and Barren Lake (Richmond Co.) - Found along coastal plains - Flowers from July to September (Munro, Newell & Hill, 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Vaccinium corymbosum</i>	Highbush Blueberry	S3S4				Flowers appear in mid-June. Limited to bogs, rock barrens and lakeshores. Distinctly coastal plain in distribution, from Digby to Queens counties	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Veronica catenata</i>	Pink Water-Speedwell	S1				Shores of rivers or lakes, wetland margins (edges of wetlands) (GoBotany, nd). Flowers May - September (Minnesota Wildflowers, nd)	Go Botany: <a href="https://gobotany.nativeplanttrust.org/species/veronica/catenata/">https://gobotany.nativeplanttrust.org/species/veronica/catenata/</a> , Minnesota Wildflowers: <a href="https://www.minnesotawildflowers.info/flower/water-speedwell">https://www.minnesotawildflowers.info/flower/water-speedwell</a>
<i>Viola sagittata</i>	Arrow-Leaved Violet	S3S4				Sterile woods, clearing and fields. Flowers April - May (Munro, Newell & Hill 2014)	Nova Scotia Plants by Munro, Newell & Hill (2014).
<i>Viola sagittata var. ovata</i>	Arrow-Leaved Violet	S3S4				Open woods and thickets, disturbed ground, roadsides, powerline rights-of-way. Flowers April - June (Flora of North America, nd)	Flora of North America: <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250100962">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=250100962</a>
<i>Zizia aurea</i>	Golden Alexanders	S2				Found in meadows, shores, thickets and wooded swamps. Flowers May and June. Occasionally reported in: Pomquet and South River, Antigonish County, Upper Musquodoboit, Halifax County (Munro, Newell and Hill, 2014).	Nova Scotia Plants by Munro, Newell & Hill (2014).



**APPENDIX N. BAT ACOUSTIC MONITORING REPORT**

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# Wedgeport Wind Farm Project - Bat Acoustic Monitoring Baseline Report

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PREPARED FOR

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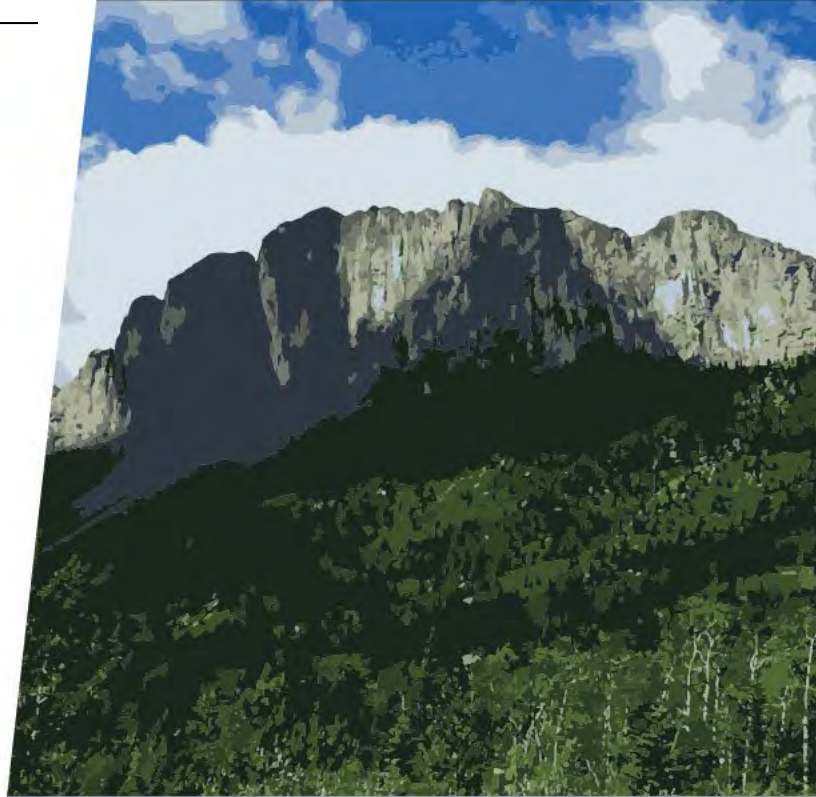
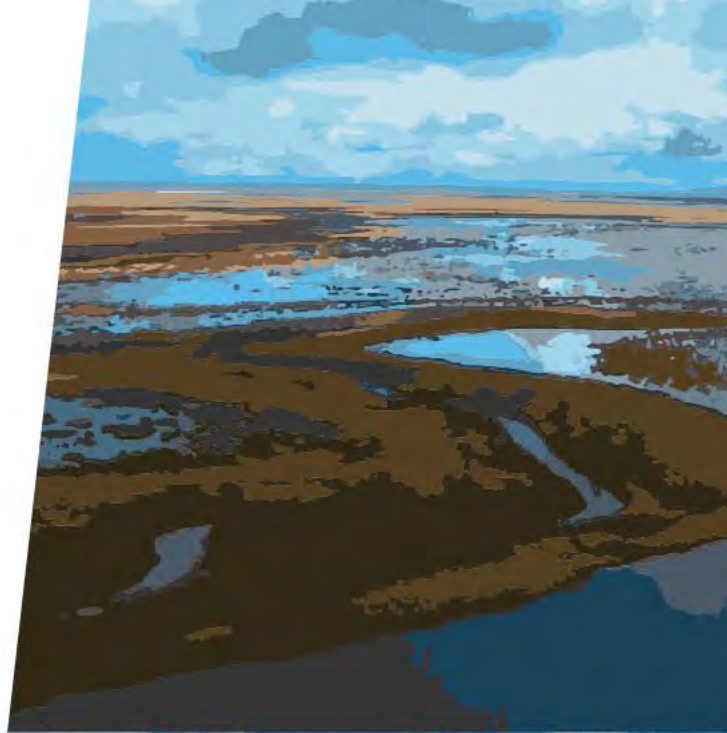
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## WEDGEPORT WIND FARM PROJECT

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## EXECUTIVE SUMMARY

McCallum Environmental Ltd (MEL) was retained by Wedgeport Wind Farm LP (Wedgeport Wind) to complete baseline bat acoustic surveys for the proposed Wedgeport Wind Farm Project (the Project), located in the Municipality of the District of Argyle, Nova Scotia. This assessment supports the preparation and submission of the provincial Environmental Assessment Registration Document (EARD).

Acoustic monitoring surveys for bats were completed at six locations continuously from May 10 to October 31, 2022, through the use of Wildlife Acoustic SM4BAT-FS detectors. The following observations were made from the data collected by the SM4BAT detectors:

- 191 total bat passes were recorded.
- 164 migratory bat species passes were recorded (86%).
- The average total passes per detector night for the Project Area over the entire survey period for all species was 0.18. The average migratory passes per detector night for the Project Area over the entire survey period was observed to be 0.15.
- There are no thresholds for bat passes and guidance for wind power projects in Nova Scotia. Therefore, Alberta Government protocols were reviewed and considered herein. Alberta adopts a Precautionary Principle whereby the following bat passes per night for migratory species is considered when determining project risk:
  - Less than 1 migratory bat passes per detector night = potentially acceptable risk
  - 1-2 migratory bat passes per detector night = potentially moderate risk
  - Greater than 2 bat passes per detector night = potentially high risk of bat fatalities
- Based on precautionary guidance from the Alberta Government the average of 0.15 migratory passes per detector night observed across the Project Area would be considered a potentially acceptable risk.





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## 1 INTRODUCTION

McCallum Environmental Ltd (MEL) was retained by Wedgeport Wind Farm LP (Wedgeport Wind) to complete baseline bat acoustic surveys for the proposed Wedgeport Wind Farm Project (the Project), located in the Municipality of the District of Argyle, Nova Scotia. This assessment supports the preparation and submission of the provincial Environmental Assessment Registration Document (EARD).

### 1.1 Regulatory Context

All seven species of bats known to occur in Nova Scotia are considered priority species, three of which are considered endangered under the *Species at Risk Act* (SARA). As part of the NSECC Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia (NSECC, 2021), Wedgeport Wind is required to determine whether significant numbers<sup>1</sup> of bats migrate through the area. Migratory bat species have higher risk of collision with wind turbines than resident species which generally forage between 1 – 10 m above ground level and seldom above 25 m, thus avoiding turbine blades (Erickson *et al.* 2002).

Known species of bats to occur in Nova Scotia, their rankings and migratory or resident species distinction are provided in Table 1.

**Table 1: Migratory and Resident Bat Species in Nova Scotia**

Scientific Name	Common Name	COSEWIC	SARA	NSESA	SRank	Migratory or Resident Species
<i>Myotis lucifugus</i>	Little brown myotis	Endangered	Endangered	Endangered	S1	Resident
<i>Myotis septentrionalis</i>	Northern myotis	Endangered	Endangered	Endangered	S1	Resident
<i>Perimyotis subflavus</i>	Tricolored bat	Endangered	Endangered	Endangered	S1	Resident
<i>Lasiurus cinereus</i>	Hoary bat	-	-	-	SUB, S1M	Migratory
<i>Lasiurus borealis</i>	Eastern red bat	-	-	-	SUB, S1M	Migratory
<i>Lasionycteris novtavigans</i>	Silver-haired bat	-	-	-	SUB, S1M	Migratory
<i>Eptesicus fuscus</i> <sup>1</sup>	Big brown bat	-	-	-	SNA	Migratory

<sup>1</sup> Significance is not defined in the guidance.



<sup>1</sup>There are very few records of big brown bats in Nova Scotia with Nova Scotia being outside of their documented range (Naughton 2012).

### 1.2 Assessment Spatial Boundaries

Bat acoustic monitoring was completed within the Project Area and adjacent lands to confirm species presence and abundance. Acoustic bat detector locations stationed within and surrounding the Project Area are provided in Figure 1 (Appendix A).

## 2 BASELINE PROGRAM METHODOLOGY

Completion of acoustic monitoring for bats was completed between May 10 to October 31, 2022, through the installation of six Wildlife Acoustic SM4BAT FS Bioacoustic data sensors (SM4BAT). SM4BAT detectors record ultrasonic bat calls through a transducer (microphone) and record them on a compact flash card for later download and analysis (Wildlife Acoustics, 2019). Acoustic bat monitoring was conducted to evaluate relative activity patterns by species or species groups over the monitoring period within and adjacent to the Project Area.

The SM4BAT detectors are equipped with SMM-U1 microphones which operate omnidirectionally. The microphones were further equipped with a foam windscreen to reduce wind interference and exposure to precipitation. Each microphone was pointed just below the horizontal to protect from precipitation while maximizing the volume of detection. The distance of microphone sensitivity to ultrasonic calls is subject to multiple design and environmental factors, with the dominant factor being atmospheric absorption of frequencies. Manufacture estimates state that the SMM-U1 microphone has a spherical detection volume with a 22.1m radius for 40 kHz frequencies, which increases (38.8 m) for lower (20 kHz) and decreases (6.5 m) for higher (100 kHz) frequencies. Prior to SM4BAT detector deployment the SMM-U1 microphones were calibrated to the manufacture's specifications.

All SM4BAT detectors operate in waterproof casements and are powered by 4 D-Cell batteries. Data was downloaded and the function of all SM4BAT detectors was checked at approximately two-week intervals during their operational period.

Detector stations were spaced approximately equidistant apart but offset to maximize east-west and north-south movement to cover as much of the Project Area and adjacent area as possible and to identify any potential flyways. Detector stations were placed prior to the Project layout being finalized.

The coordinates and operational periods of the detectors are provided in Table 2 and displayed on Figure 1 (Appendix A). The microphone at detector location Bat1 was affixed to a Meteorological tower (MET) at a height of ~30 m to capture potential bat activity within the lower reaches of the proposed turbine rotor arcs. No additional towers were available within the Project Area and microphones at detector locations Bat2 to Bat6 were fixed to tree limbs at heights ranging from 3 m to 4 m. Limbs surrounding the detector microphones were removed from the trees to reduce acoustic obstructions. Photos of each bat detectors and representative surrounding habitat are provided in Appendix B. Each microphone and detector were set to record from 1 hour before sunset to 1 hour after sunrise.



**Table 2: Bat Acoustic Detector Locations and Operational Periods**

Detector ID	UTM Coordinates (Zone 19 T)		Monitoring Commenced	Active Detector Nights	Monitoring Ended	Habitat Description
	Easting	Northing				
Bat1	740694	4848667	May 11, 2022	173	Oct 31, 2022	Open area, located on MET Tower (microphone elevated to 30 m)
Bat2	740857	4846042	May 10, 2022	174	Oct 31, 2022	Open Barren Habitat dominated by low shrubs
Bat3	739888	4845780	May 10, 2022	174	Oct 31, 2022	Clearing surrounded by softwood forest
Bat4	739736	4843936	May 10, 2022	174	Oct 31, 2022	Open barren habitat dominated by low shrubs
Bat5	739633	4848015	May 11, 2022	173	Oct 31, 2022	Riparian habitat adjacent to Black Pond
Bat6	741064	4847566	May 11, 2022	173	Oct 31, 2022	Softwood forest and shrub mosaic

Two specialized software systems, Kaleidoscope Pro and Analoook, were used by the undersigned to identify recorded bat files to species or species group. Kaleidoscope Pro (KSPro) uses sophisticated modelling to match recorded calls to an internal reference library, similar to voice recognition techniques. Analoook was used to construct frequency/time graphs from the bat calls recorded by the SM4BAT detectors. For each call, the slope, maximum frequency (i.e., the highest frequency), minimum frequency (i.e., the lowest frequency), and duration were determined, as those variables are believed to be species-specific. Each variable was then compared with a library of reference calls collected from individual bats that had been identified to species. Subsequently, the data was reviewed by the qualified biologist to define the species producing the bat call.

Bat calls (call) were defined as a single, recognizable vocalization from one bat, and a bat pass (pass) as one or more sequential calls, representing calls from a single bat, recorded in one SM4BAT digital file.



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To best determine bat counts (number of individual bats) multiple bat passes of the same species were grouped as one individual bat if the bat passes occurred within the same 1-minute time block. The 1-minute time block was selected as it provides the most appropriate time scale reflective of subtle changes in bat activity (Miller, 2001).

When calls could be identified to species, they were classified as:

- EPFU – *Eptesicus fuscus* (big brown bat);
- LABO - *Lasionycteris borealis* (eastern red bat);
- LACI - *Lasiurus cinereus* (hoary bat);
- LANO - *Lasionycteris noctivagans* (silver-haired bat);
- MYLU - *Myotis lucifugus* (little brown myotis);
- MYSE - *Myotis. Septentrionalis* (northern myotis); and
- PESU - *Perimyotis subflavus* (tri-colored bat).

Due to insufficient Calls/Pass or overlap in identifying call characteristics, passes that could not be identified to species were grouped into the following categories:

- Myotis – (MYLU, MYSE);
- HighF – High frequency bats (LABO/PESU/Myotis).

Once identified bat passes were analyzed for peak seasonal and temporal activity periods observed in the Project Area. Further analysis was completed to determine the abundance of migratory species (i.e., those at higher risk for mortality). Along with the identified migratory species the HighF species group is also considered in the migratory analysis as a conservative measure as this group has the potential to contain eastern red bat.



### 3 RESULTS

Data was analysed from all six bat detectors, the results of which are provided in Table 3. Summaries of total bat passes per detector night, average bat passes per detector night, and total presence for each species across the six monitoring locations is provided.

**Table 3: Number of Bats Identified, by Species or Species Group, per Detector Location within the Project Area.**

Species/Species Group	Bat Detector						Total
	Bat1	Bat2	Bat3	Bat4	Bat5	Bat6	
LABO <sup>1</sup>	---	1	---	2	15	6	24
LACI <sup>1</sup>	1	1	---	---	3	2	7
LANO <sup>1</sup>	14	14	21	34	18	9	110
High Frequency <sup>1</sup>	3	2	6	10	2	---	23
Myotis species	1	---	---	1	---	---	2
MYLU	2	4	4	2	7	3	22
PESU	---	1	1	---	1	---	3
Total	21	23	32	49	46	20	191
Detector Nights	173	174	174	174	173	173	1041
Average counts per detector night	0.12	0.13	0.18	0.28	0.27	0.12	0.18

<sup>1</sup>Considered as a migratory species or species group

During the monitoring period, there were a total of 191 bat passes recorded by six detectors. Of the 191 passes, 164 were of migratory species. Activity at the detectors sites was variable, ranging from 20 total passes at Bat6 to 49 total passes at Bat4 across the survey period. The average total passes per detector night for the Project Area over the entire survey period for all species was 0.18. The average migratory passes per detector night for the Project Area over the entire survey period was observed to be 0.15.

Migratory species or species group comprised 86% of the bat passes recorded. The most common species groups recorded during the monitoring period were the silver-haired bat (58%) followed by eastern red bat (13%), high frequency bats (12%), and little brown myotis (11%). Hoary bat, the myotis species group, and tricolored bat were also recorded comprising the remaining 6% of bat passes.

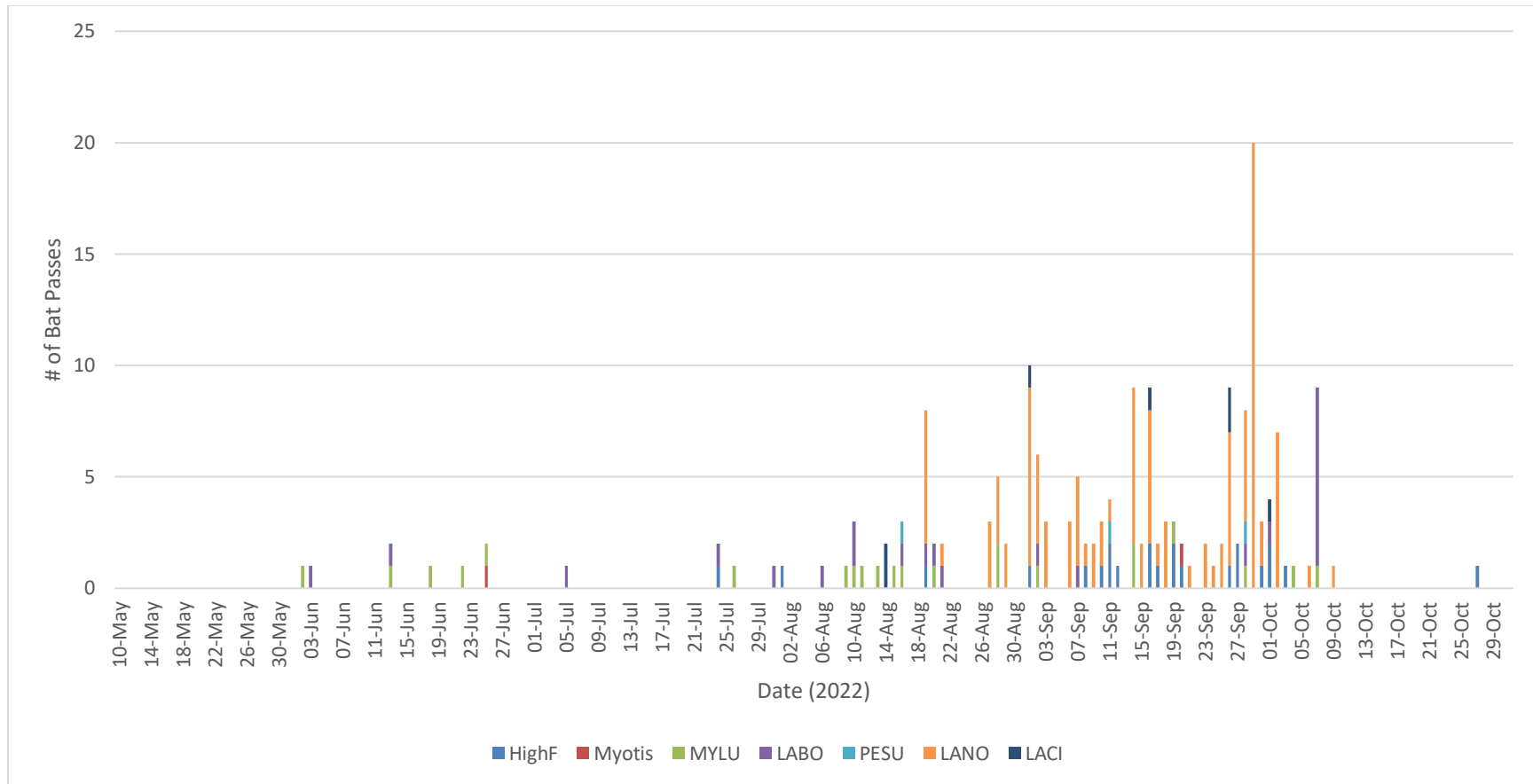


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During the 2022 monitoring period (May 10 to October 31, 2022), bat activity was first recorded on June 2, 2022. Bat activity increased starting in mid August with more than five bat passes occurring in a single night on eight separate nights before peaking on September 29, 2022, with 20 bat passes occurring. Following the peak in bat activity at the end of September bat activity decrease sharply with only a single bat pass recorded following October 10, 2022. Seasonal bat activity levels across the Project Area are displayed in Figure 1.



## WEDGEPORT WIND FARM PROJECT



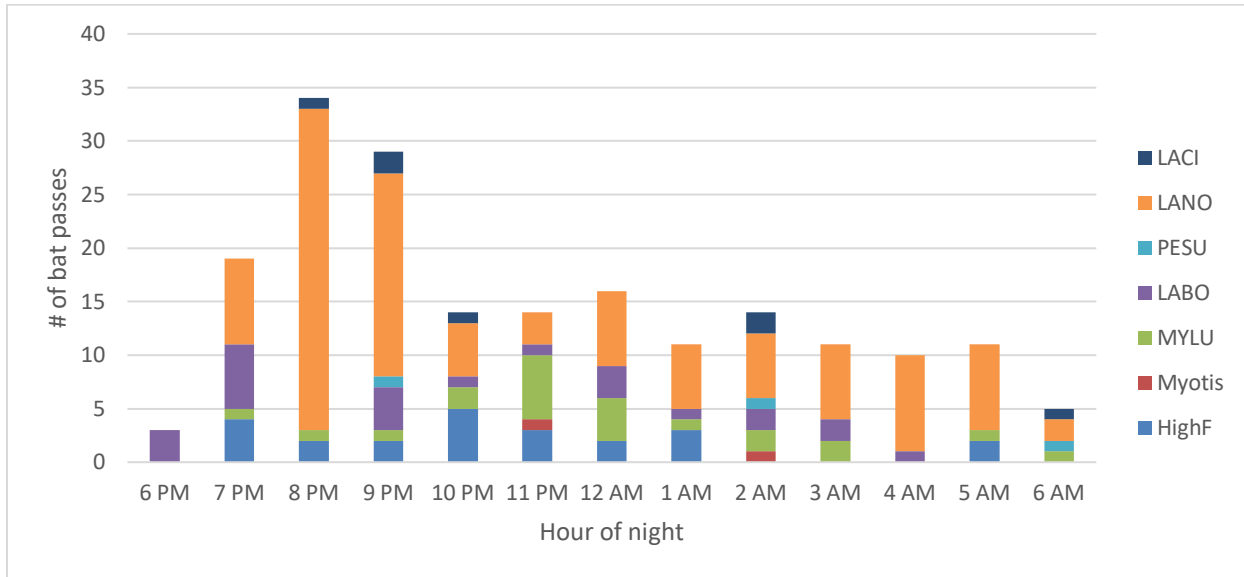
**Figure 1: Nightly Bat Passes Across the Project Area.**





## WEDGEPORT WIND FARM PROJECT

Across the results, bat activity was relatively consistent throughout the night, beginning near dusk (6:00 pm to 7:00 pm) and increasing sharply through the first few hours after sunset (8:00 pm to 9:00 pm) after which activity remained consistent before tapering off and ceasing just before sunrise (6:00 am). Nightly temporal distribution of bat activity is provided in Figure 2.



**Figure 2: Temporal Distribution of Nightly Bat Activity within the Project Area.**

## 4 SUMMARY

There are low levels of bat activity across the Project Area with a total of 191 bat passes recorded via six bat acoustic detectors between May 10 and October 31, 2022. The majority (86%) of recorded bat passes were identified as migratory species and were predominantly determined to be silver-haired bats. Peak bat activity occurred in late September with a total of 20 bat passes recorded in a single night. The average total passes per detector night for the Project Area over the entire survey period for all species was 0.18. On average 0.15 migratory passes per detector night occurred for the Project Area from May 10 to October 31, 2022.

## 5 LIMITATIONS

The following limitations are present for the bat acoustic monitoring program:

- Bat detectors were placed prior to Project layout being finalized.
- Bat passes do not necessarily represent individuals as multiple recordings could be from the same bat.
- The extent of bat detector coverage is less than the total Project Area.
- Bat detector microphones can only detect calls within a range of 40 m.



## 6 CLOSING

This report has been prepared to support the Project's development and understand bat species presence and activity use across the Project Area. This report will support the necessary mitigation sequence to reduce and/or avoid impacts to bats where possible through the Project's EARD.

This report has considered relevant factors and influences pertinent within the scope of the assessment and has completed and provided relevant information in accordance with the methodologies described herein.

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## WEDGEPORT WIND FARM PROJECT

### APPENDIX A. FIGURES

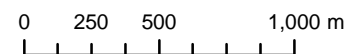
**FIGURE 1**

Bat Acoustic Monitor Locations  
 Wedgeport, NS

-  Acoustic Bat Detector
-  Highway
-  Local Road
-  Resource Access
-  Track
-  Trail
-  Driveway
-  NSTDB Contour line (5 m)
-  NSTDB Mapped Watercourse
-  NSECC Mapped Wetlands
-  NSTDB Open Water
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 19N  
 Projection: Transverse Mercator  
 Datum: North American 1983 CSRS  
 Units: Meter

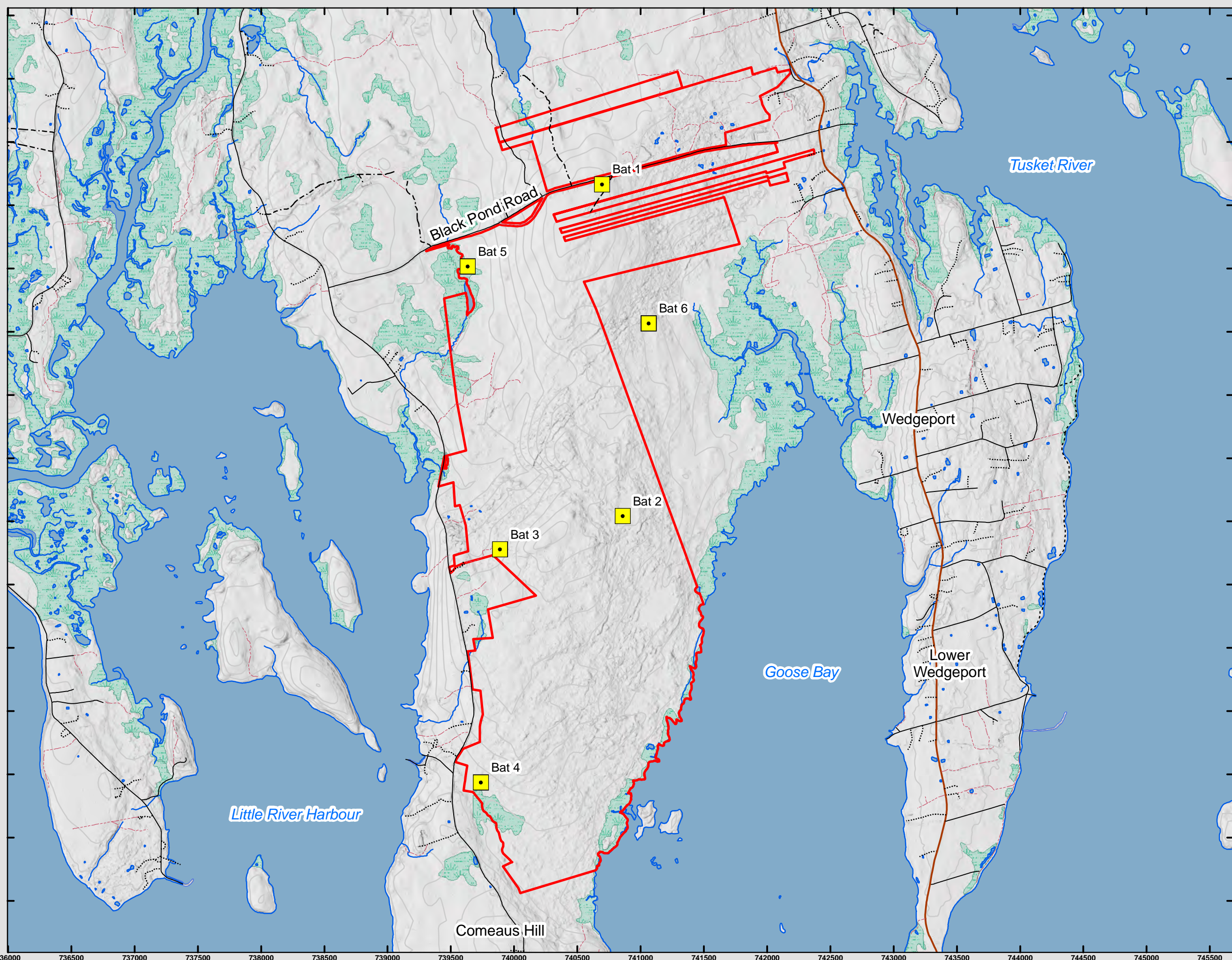


1:28,000 Scale when printed @ 11" x 17"

Drawn By: MD Project Number: 21-576  
 Reviewed By: RG Date: 2022-11-23



McCallum Environmental Ltd.





## WEDGEPORT WIND FARM PROJECT

### APPENDIX B. PHOTOLOG

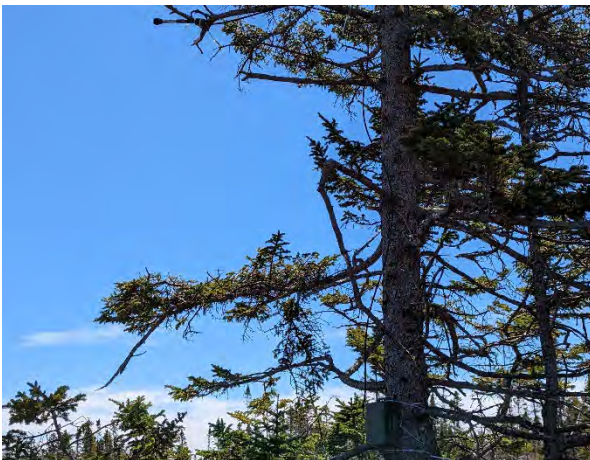
**Appendix B: Photolog**



**Photo 1: Installation of Bat 1**



**Photo 2: Representative habitat surrounding Bat 1**



**Photo 3: Installation of Bat 2**



**Photo 4: Representative habitat surrounding Bat 2**



**Photo 5: Installation of Bat 3**



**Photo 6: Representative habitat surrounding Bat 3**



**Photo 7: Installation of Bat 4**



**Photo 8: Representative habitat surrounding Bat 4**



**Photo 9: Installation of Bat 5**



**Photo 10: Representative habitat surrounding Bat 5**





**Photo 11: Installation of Bat 6**



**Photo 12: Representative habitat surrounding Bat 6**