

Palmetto





Native Plants Common to Florida and Nova Scotia

NUMBER 1 IN A SERIES

Rarity and Geographic Range

By Diane LaRue

An investigation into plant species occupying widely differing climatic zones such as Florida and Nova Scotia provides an opportunity for a fascinating journey of exploration, both in the field and in the literature. This journey delves into topics as diverse as geological history, paleogeography, climate and sea level change, plant migration, rarity, endemism, glaciation, and what constitutes habitat.





Florida and Nova Scotia

Geographically, climatically and botanically, we easily recognize many differences between Florida and Nova Scotia. Both are peninsulas surrounded by sea. Florida has 1,197 miles (1,995 km) of shoreline and is 450 miles (725 km) long, north to south. Nova Scotia's shoreline extends about 4,620 miles (7,500 km), and the province is 300 miles (500 km) long, measured from northeast to southwest. Both have considerable surface water in the form of bogs, marshes, lakes, rivers, and other wetlands. Areas of karst topography exist in both locations – limestone in Florida; gypsum in Nova Scotia – complete with associated sinkholes and plant species that prefer alkaline soils. Florida is mostly flat – its highest elevation is about 300 feet (95 m) above sea level, while Nova Scotia's mountains range up to 1,800 feet (550 m) in elevation.

Portions of Florida's land mass has been continually occupied by plants and animals for 25 million years, Nova Scotia for less than 12,000 years. Nova Scotia's geographic location allows for extremes of climate, with freezing temperatures and snow during the winter,

Above: Various plants and habitats of Nova Scotia.

Photos by Diane LaRue, unless otherwise indicated.

1. Lakeshore habitat for *Lachnanthes caroliniana* (Carolina bloodroot). The shrub line on the shore indicates the edge of ice scour. The mounds of litter, sand, and gravel indicate the ice line from the previous winter.
2. Nova Scotia – lake with water lilies, pickerel weed, spike rushes, and a rush species. Although northern forest may be seen in the background, the aquatic species have a similar look to those in Florida.
3. A solid stand of salt marsh cordgrass in a Nova Scotian salt marsh. (Photo by Alain Belliveau)
4. *Viburnum nudum* (wild raisin or witherod) growing with black huckleberry, leatherleaf, rhodora and lambkill. Known as possumhaw in Florida, *V. nudum* grows in flatwoods, bogs, and swamps. In Nova Scotia, it is found along streams, lakes, and woodland edges.
5. Netted chain fern with bladder sedge and northerly shrub species.
6. Boggy lakeshore with narrow-leaved sundew, brown beaksedge, threeway sedge, bog aster, and marsh St. John's-wort.
7. A bog at Digby Neck in southwestern Nova Scotia, which forms a habitat for rose pogonia, grass pink, sweetgale, bog goldenrod, dwarf huckleberry, lambkill and ground juniper.
8. *Epigaea repens* (mayflower or trailing arbutus) growing in Nova Scotia. (Photo by Alain Belliveau)

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Native Plants Common to Florida and Nova Scotia – Rarity and Geographic Range

while Florida's winters are milder, rarely freezing and without snow. Partly due to its mild climate, Florida's human population has increased to well over 18 million, and while Nova Scotia has less than a million inhabitants, both areas have experienced massive changes in land use over the past couple of hundred years.

Florida's flora is characterized by tropical, sub-tropical and temperate species with more than 4,200 taxa (Wunderlin, 2011, p. 1); Nova Scotia's by temperate, boreal and arctic-alpine species with around 1,500 taxa (Zinck, 1998, p. vi). Over 450 plant species occur in both Florida and Nova Scotia. Some 200 of these are non-native species introduced to North America, and approximately 250 species are native to both localities, despite today's vast differences in climate and the geological processes that formed the topography and soils of each locale.

When sea level was lower (up to 120 m lower 18,000 years ago), both Nova Scotia and Florida had more land mass than either does today. Nova Scotia was part of the continental land mass that included what is now New Brunswick and New England, and Florida extended to the continental shelf. In both places, remnants of sunken forests covered by sea water can be found today.

Although Florida escaped glaciation, Nova Scotia was covered by ice several times in the past million years. Its flora developed relatively recently – during the past 10,000 to 12,000 (ice-free) years, re-vegetating from vast offshore refugia exposed during maximum glaciation and from species migrating from more southerly populations.

Before sea level rose from melting glaciers, many species belonging to the Atlantic Coastal Plain Flora (ACPF) established in the southwestern part of Nova Scotia and to a lesser extent in other areas of the province. Some of these species occur today as disjunct populations – they are not found between Nova Scotia and New Jersey, but do occur throughout the ACPF and south into Florida. Many species common to both Nova Scotia and to Florida are not simply widespread across temperate regions of North America, although many of the mutual species are cosmopolitan in range. The Atlantic Coastal Plain Flora in Nova Scotia and its many endangered species will be the subject of an upcoming article.

Habitat Preference

Although species that are common to both locations may have a wide geographic and climatic range, those that are found in wetland communities in Florida generally inhabit wetland communities throughout their range. Cosmopolitan species grow in similar hydrologic and soil conditions, even when the climate is drastically different and the soil has been produced under different geological conditions. When we find a blueberry (*Vaccinium* spp.), we know the soil it grows in is acidic, whether it is moist, roadside soil in Nova Scotia or xeric sand pine scrub soil in Florida.

Species that do not have specific habitat needs and inhabit several types of ecosystems are more likely to be common. Species

that have specific habitat requirements are more likely to be rare or threatened, especially when that habitat is being lost.

Habitat disturbances play important roles in the species composition of plant communities. Fire is a primary disturbance influencing species composition in Florida, and although fire plays a role in Nova Scotia, it is less important than ice. Ice plays a major role – on lakeshores in particular, the yearly ice scouring combined with low nutrient conditions affects what species are able to survive. For example, *Lachnanthes caroliniana* (Carolina bloodroot), which is common throughout Florida, is a species at risk in Nova Scotia. But it is able to grow on some southwestern lakeshores, sometimes prolifically. It is successful because ice scour and the low nutrient environment eliminate other species that might compete (Photo 1).

Familiar Species

Even though Florida has a very diverse flora, many species are common and familiar. When these species also grow in Nova Scotia, they are easily recognizable to the plant enthusiast.

Familiar species that occur in both locations are found in salt marsh, bog, lakeshore and dune habitats, as well as others. If we narrow our viewpoint the scene looks familiar. Throughout much of Nova Scotia, looking at the shallow water of lakeshores during the warmer months of the year is much like looking at freshwater marshes in Florida. *Nymphaea odorata* (American water lily), found throughout North America, *Pontederia cordata* (pickerelweed) and *Sparganium americanum* (American bur-reed), both common throughout eastern North America, and *Sagittaria latifolia* (broadleaf arrowhead), common throughout North America, are present. Of course if it is May, you might be wearing a tee shirt in Florida and see these plants in bloom, but would need a jacket in Nova Scotia, where none would be in bloom (Photo 2).

Both Florida and Nova Scotia support common and familiar species in their salt marsh communities. Florida has an estimated 420,000 acres (170,000 ha) of salt marsh; Nova Scotia has over 42,000 acres (17,000 ha) (<http://www.gov.ns.ca/nse/wetland/>; http://www.sms.si.edu/irlspec/Salt_marsh.htm). *Spartina alterniflora* (saltmarsh cordgrass) occurs as a solid stand all along the Atlantic coast in the low marsh, where it is often inundated when the tide is in (Photo 3). Other salt marsh or seaside species common along the Atlantic coast from Florida to Newfoundland are *Limonium carolinianum* (sea lavender), *Distichlis spicata* (seashore saltgrass), *Spartina patens* (saltmeadow cordgrass), *Cakile edentula* (searocket) and on sandy beaches, *Chamaesyce polygonifolia* (seaside spurge or seaside sandmat).

Same Species, Different Communities

Although the more than 250 native species occurring in both areas inhabit similar habitats, the community of plants they grow with are mostly quite different. In Nova Scotia, many grow with

northern species. For example, *Osmunda regalis* var. *spectabilis* (royal fern) and *O. cinnamomea* var. *cinnamomea* (cinnamon fern) grow throughout eastern North America in moist areas. In Florida they grow in swamps, bogs and marshes with other species that do not grow very far to the north. But in Nova Scotia they may grow with *Gaylussacia baccata* (black huckleberry), *Rhododendron canadense* (rhodora), *Chamaedaphne calyculata* (leatherleaf), and *Kalmia angustifolia* (lambkill or sheep laurel), all of which are more northerly species that reach no further south than the mountains of Georgia. These shrub species are common throughout Nova Scotia.

Viburnum nudum (possumhaw in Florida; wild raisin or witherod in Nova Scotia) grows in flatwoods, bogs and swamps in Florida and along streams, lakes and woodland edges in Nova Scotia. Photo 4 shows it growing with companion plants such as royal fern and *Ilex verticillata* (winterberry), which also occur in Florida, along with common Nova Scotian shrubs: black huckleberry, leatherleaf, rhodora and lambkill.

Bogs and boggy lakeshores in Nova Scotia also contain species that occur in both Florida and Nova Scotia. *Woodwardia virginica* (Virginia chain fern) is common in swamps and wet hammocks throughout Florida. It occurs in southwest Nova Scotia in swamps, bogs and lakeshores. Photo 5 shows it alongside the common shrubs mentioned above, as well as *Carex intumescens* (greater bladder sedge), which also occurs in Florida's northern counties. Photo 6 shows a boggy lakeshore in southwest Nova Scotia with a community of *Drosera intermedia* (water sundew), *Dulichium arundinaceum* (threeway sedge) and *Triadenum virginicum* (Virginia marsh St. John's-wort). These also occur in bogs and swamps of Florida's northern counties and central peninsula. Other plants in this photo are *Oclemena nemoralis* (bog aster) and *Rhynchospora fusca* (brown beaksedge) which only occur as far south as Pennsylvania, where both are critically imperilled.

Photo 7 shows a bog at Digby Neck in southwestern Nova Scotia containing several species that are found in Florida, including two orchids – *Calopogon tuberosus* var. *tuberosus* (grass pink) and *Pogonia ophioglossoides* (rose pogonia) – which are frequently found in Florida's northern and central counties in bogs, swamps and marshes. Digby Neck also contains *Gaylussacia dumosa* (dwarf huckleberry), another species that ranges from Florida to Nova Scotia.

Many of the common species that grow in bog and other wetland communities in Nova Scotia have a more northern distribution. *Solidago uliginosa* (bog goldenrod) and *Juniperus communis* (ground juniper) grow south to Alabama and Georgia, but are rare there and considered critically imperilled. *Myrica gale* (sweetgale) is a very common shrub in Nova Scotia along edges of streams and lakes and in swamps, bogs and heaths. It grows south to North Carolina where it is critically imperilled. *Andromeda polifolia* var. *glaucophylla* (bog rosemary) grows in the

eastern Canadian provinces and northern states, then south to West Virginia where it is critically imperilled.

Geographic Range

Temperate species common in Florida may reach their northern limit in Nova Scotia and have specific habitat needs there, and be considered rare. Temperate species common in Nova Scotia may reach their southern limit in Florida. Several of the species mentioned, and many more not mentioned, grow only in Florida's northern counties. For example, in Florida, the rare plant *Epigaea repens* (trailing arbutus) is found in dry hammocks only in Liberty County. This plant, known as mayflower in Nova Scotia, is common and well known for its fragrant, early spring blossoms. It is the provincial flower. Photo 8 shows it growing in dry woods in Nova Scotia.

Whether rare or common, plants continue to fascinate us with why they grow where they do, and how they got there.

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On-line

<http://www.natureserve.org/explorer/>

This resource is excellent for distribution and conservation ranking of all US and Canadian species.

<http://florida.plantatlas.usf.edu/>

This resource is excellent for distribution of species within Florida, and for photo reference.

<http://museum.gov.ns.ca/mnh/nature/nhns/about.htm>

Nova Scotia's natural history described from two perspectives: Topics and Habitats. This is the electronic copy of a book of more than 500 pages. It is easy to use and search.

About the Author

Diane LaRue worked for many years for the Nova Scotia Department of Transportation and Infrastructure Renewal as a vegetation consultant and through that work became fascinated with the world of native plants. She spends her time researching rare plants in Nova Scotia during the warmer months and migrating south in the winter. Diane spent several years in the Colorado River Delta in Mexico, and the last three winters in Florida. She has produced many reports and published a book: *Common Wildflowers and Plants of Nova Scotia* (Nimbus Publishing) 2004. She is currently a Research Associate at the Mersey Tobeatic Research Institute in Kempthorne, Nova Scotia.



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Editorial Content

We welcome articles on native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for guidelines, deadlines and other information.

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The purpose of the Florida Native Plant Society is to conserve, preserve, and restore the native plants and native plant communities of Florida.

Official definition of native plant:

For most purposes, the phrase Florida native plant refers to those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.

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