



Long's Bulrush



Photo: © Atlantic Canada Conservation Data Centre

Scientific name

Scirpus longii

Taxon

Vascular Plants

COSEWIC Status

Special Concern

Canadian range

Nova Scotia

Reason for Designation

This globally vulnerable, long-lived wetland plant is restricted in Canada to a small region of Nova Scotia that supports nearly half of the world's population. The species is increasingly threatened by competition and shading from the invasive Glossy Buckthorn and native shrubs. Peat mining could be a future threat. Limited sexual reproduction and hybridization may also reduce survival of this sedge.

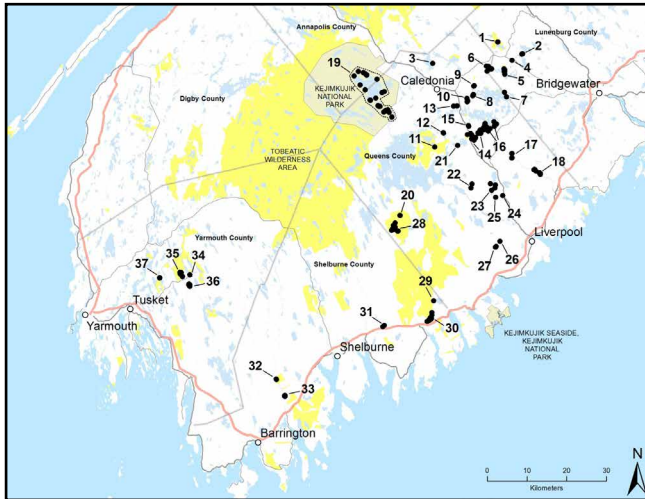
Wildlife Species Description and Significance

Long's Bulrush is a robust, perennial sedge of peatlands. It forms circular clones of vegetative shoots from stout underground rhizomes. Flowering stems, infrequent in most occurrences, are 100-180 cm long and terminate in a much-branched cluster of up to 1,000 spikelets, each containing up to 60 tiny flowers that develop a woolly appearance at maturity. The flower cluster is subtended by three leaflike bracts, which are dark and sticky at the base. In addition to these bracts, thick rhizomes, large stature and red-brown fruits (seed-like achenes), distinguish the species from co-occurring relatives.

Long's Bulrush is a globally Vulnerable (G2G3) species with a restricted world distribution, for which Canada bears a high conservation responsibility. Canadian occurrences (46+% of the global total) are in a much less disturbed landscape than most in the United States, and may be especially significant because they are at the northern limit of the species' global distribution. Long's Bulrush is one of many disjunct, Atlantic Coastal Plain plants that are rare in Canada, and of public interest in southern Nova Scotia. It is a locally dominant species in peatlands and its impressive 400+ year clone longevity is often mentioned in Coastal Plain flora nature interpretation.

Distribution

Long's Bulrush has a restricted global range extending from southern New Jersey, U.S.A. to southern Nova Scotia, Canada. No records are more than 70 km from the coast. Historical occurrences of this plant in Connecticut and New York have been lost to human development resulting in an almost 300 km gap in the range between New Jersey and eastern New England in Rhode Island, southern New Hampshire and southern Maine. In Canada, Long's Bulrush is known from 37 subpopulations in a 94 km by 90 km area of southwestern Nova Scotia, where there is strong evidence that many undiscovered occurrences exist.



Canadian distribution of Long's Bulrush in southern Nova Scotia. Protected areas are shaded yellow.

Habitat

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.

Biology

Long's Bulrush is a clonal perennial. Vegetative reproduction via rhizomes is the primary mode of growth and clones can be extremely long-lived, with some large clones estimated to be several hundred years old. Flowering is infrequent in most subpopulations and is often induced by disturbance such as fire and Muskrat herbivory. Flowering occurs in late May and June. Pollen is dispersed by wind and possibly also by insects. The mating system and self-compatibility have not been investigated. Seed-like achenes mature in mid- to late summer and may germinate immediately. Germination and establishment are limited unless atypical ecological conditions, such as fire, reduce plant and litter cover. Seed dispersal via wind and water occurs primarily in late summer and autumn, continuing into winter if stalks remain standing. Internal or external dispersal by waterfowl may be important for longer distance movement. Time to maturity is likely at least several

years, although flowering in the first year has been observed in New Jersey. Long-term seed banking could be significant given infrequency of flowering and increased seedling establishment associated with potentially infrequent disturbances. Rhizome fragmentation by ice or Muskrats appears to be important for dispersal along watercourses but is likely infrequent in peatlands away from water bodies.

Population Sizes and Trends

Population size is difficult to quantify because it is difficult to determine "mature individuals". The documented Canadian population is estimated at 2,700 clones containing 718,000 shoots, with the population of mature individuals probably best represented for status assessment by a number closer to 2,700. It is likely that undiscovered occurrences in southern Nova Scotia support additional clones and shoots at least equivalent in abundance to those currently documented.

The Canadian population appears to be relatively stable. All subpopulations documented in the last status report are extant, and with one possible exception there are no indications of significant declines. Glossy Buckthorn, natural succession, and potentially also localized all-terrain vehicle or development impacts, will likely cause low magnitude declines over the coming decades.

Threats and Limiting Factors

Threats to Long's Bulrush are mostly slow-moving or spatially limited. Shading by the invasive exotic shrub Glossy Buckthorn is not yet significant but is the largest and most widespread short-term threat, with 20 of 37 subpopulations occurring within 15 km of known invaded sites. At least four of these 20 subpopulations have Glossy Buckthorn on their immediate margins and Glossy Buckthorn can be expected throughout the Canadian range of Long's Bulrush (though not necessarily in all occupied habitat) within one to three times the presumed generation time of the bulrush.

Introgressive hybridization with the native and much more abundant Woolgrass Bulrush was detected at two of five subpopulations surveyed in a genetic analysis, and is believed to be an ongoing threat to genetic integrity of Long's Bulrush. This threat is heightened by the increased occurrence of Woolgrass Bulrush in disturbed sites such as

logging road ditches, but the longevity of clones and infrequency of flowering in Long's Bulrush substantially limits the threat's immediacy. Flooding by hydroelectric development undoubtedly eliminated subpopulations between 1900 and 1950 but is not expected to increase in the short-term. All-terrain vehicle use and natural succession are threats at some subpopulations. Peat mining is a potential future threat.

Infrequent flowering and resulting limited seed production, dispersal and establishment are significant limiting factors. The extent to which these are reduced in Canada from levels occurring prior to European settlement, because of human fire suppression or other factors, is not well understood.

Protection, Status, and Ranks

Long's Bulrush is listed as Special Concern under Schedule 3 of Canada's *Species at Risk Act*, and Vulnerable under the *Nova Scotia Endangered Species Act*, with each status conferring limited protection. Long's Bulrush is provided some legal protection under state endangered species acts in New Jersey, Rhode Island, New Hampshire, and Massachusetts. It is a Species of Special Concern in Connecticut, where it is presumed extirpated. NatureServe status ranks are G2G3 (Imperiled to Vulnerable) globally, Imperiled in United States (N2) and Imperilled to Vulnerable in Canada (N2N3), SX (Presumed Extirpated) in New York, SH (Potentially Extirpated) in Connecticut, S1 (Critically Imperiled) in Rhode Island and New Hampshire, S2 (Imperiled) in New Jersey, Massachusetts and Maine, and S2S3 (Imperilled to Vulnerable) in Nova Scotia.

Source: COSEWIC. 2017. COSEWIC assessment and status report on the Long's Bulrush *Scirpus longii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiv + 61 pp.

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