

Canadian waterweed (*Elodea canadensis*)



Nuttall's waterweed (*Elodea nuttallii*)



Photos © Armin Jagel, www.botanik-bochum.de

<p>Common name(s) in English</p>	<p><i>Elodea canadensis</i>: Canadian waterweed. Common waterweed. American waterweed. American elodea. Canadian pondweed. Water thyme. Ditch moss. Broad waterweed. Anacharis.</p> <p><i>Elodea nuttallii</i>: Nuttall's waterweed. Nuttall's pondweed. Western waterweed. Free flowered/free-flowering waterweed. Nuttall's water thyme.</p>
<p>... and in other languages</p>	<p>Canadian waterweed: Danish: Vandpest. Almindelig vandpest. Dutch: Brede Waterpest. Estonian: Kanada vesikatk. Kanada vesihain. Finnish: Vesirutto. Kanadanvesirutto. French: Elodée du Canada. Peste d'eau. German: Kanadische Wasserpest. Latvian: Elodeja. Lithuanian: Kanadine elodeja. Norwegian: Vasspest. Polish: Moczarka kanadyjska. Swedish: Vattenpest. Vanlig vattenpest.</p> <p>Nuttall's waterweed: Danish: Smalbladet vandpest. Dutch: Smalle Waterpest. German: Schmalblättrige Wasserpest. Nuttalls Wasserpest. Swedish: Smal vattenpest.</p>
<p>Scientific name</p>	<p>Canadian waterweed: <i>Elodea Canadensis</i> Nuttall's waterweed: <i>Elodea nuttallii</i></p>
<p>Organism group</p>	<p>Vascular plants. Frogbit family (Hydrocharitaceae).</p>

<p>Size and appearance</p>	<p>Canadian waterweed: Has long, trailing stems that can grow to a couple of metres in length. The leaves, which are 6–15 mm long and 1.5–4 mm wide, are arranged in whorls along the stem. The plant has white, thread-like roots. The white, single-sex flowers appear from July to September.</p> <p>Nuttall’s waterweed: Like Canadian waterweed, has trailing, metre-long stems. As in that species, the leaves are arranged in whorls, but here they are slightly shorter (6–13 mm) and appreciably narrower (no more than 1.5 mm), and they may be a somewhat paler green. In general, plants of this species are somewhat smaller and more “delicate” than Canadian waterweed.</p> <p>Both species: Male and female flowers are produced on different plants. So far, only female plants of the two species have been found in Europe. The species reproduce vegetatively by means of loose fragments and stem tips that disperse by water or are carried to new sites by birds or humans. Even tiny fragments can develop into new plants.</p>
<p>May be confused with</p>	<p>The two species may be confused with each other, but, as indicated above, Canadian waterweed (<i>Elodea canadensis</i>) has broader leaves than Nuttall’s (<i>E. nuttallii</i>). In Canadian waterweed, the leaves of the stem tip are broad and tongue-like, rather than narrow and strongly recurved. Nuttall’s waterweed has a more freely branched stem. Another difference between the species is that in Nuttall’s waterweed the male flowers (which admittedly are rarely produced) break off and float to the surface. Nuttall’s waterweed is still considerably rarer than Canadian waterweed, but seems to be spreading ever more widely in Europe and may even, in places, have the potential to outcompete its relative.</p> <p>A closely related species, Brazilian elodea or Brazilian waterweed (<i>Egeria densa</i>), is often sold for use in aquaria.</p>
<p>Geographical origin</p>	<p>Canadian waterweed: North America: Canada.</p> <p>Nuttall’s waterweed: North America (named after Thomas Nuttall, who studied the flora of the American West in the early 19th century).</p>
<p>First observed in Swedish waters</p>	<p>Canadian waterweed: 1871, in ponds in the Uppsala area.</p> <p>Nuttall’s waterweed: 1991, at Ängby near Stockholm.</p>
<p>Occurrence in Swedish waters</p>	<p>Canadian and Nuttall’s waterweed are freshwater plants, and do not occur in salt water or in brackish water too strongly affected by salt water (see below regarding habitats). Canadian waterweed is to be found, however, in Swedish and Finnish coastal waters of the Gulf of Bothnia, for instance in confined inlets in areas where marked postglacial crustal uplift is occurring.</p> <p>In fresh waters, Canadian waterweed is found widely across Sweden, from Skåne in the south to Dalarna in the north, with some occurrences even further north. Less is known about how common Nuttall’s waterweed is, but the species has been found in various freshwater bodies in Skåne, Västergötland and Norrbotten. In Lake Mälaren, this species is more abundant than Canadian waterweed.</p>
<p>Occurrence in other areas (coastal or inland waters)</p>	<p>Canadian waterweed: Was introduced to Europe from North America around 1840. It is reported to have been discovered for the first time in Europe in 1836, in a pond in Ireland, and six years later finds were made in Britain (Scotland). The first find in Germany was in 1859, in</p>

	<p>the vicinity of Berlin. Today the species occurs throughout Germany, but is beginning to be supplanted by its relative Nuttall's waterweed. Canadian waterweed is now also to be found throughout Poland. The species was first recorded in Denmark in 1870 (and is now established and common there), in Sweden in 1871 (now established and common), in Finland in the 1870s (now established and common), but not until 1925 in Norway. It was discovered in Estonia in 1905 (now established and common), in Latvia in 1872 (now established and common), in Lithuania in 1884 (now established and common), and in European areas of Russia in 1870 (now established and common). Canadian waterweed has also spread to countries in Asia, to Australia and New Zealand, and from Europe on into North Africa.</p> <p>Nuttall's waterweed: Was probably introduced into Europe from North America in the 20th century. When the species was first discovered in Britain in 1914, however, it was identified as <i>Hydrilla verticillata</i>, and a definite identification of <i>Elodea nuttallii</i> was not made until 1974. From the continent of Europe, finds were reported from Belgium in 1939 (with a definite identification in 1955) and the Netherlands in 1941. In Germany the species was discovered in a botanical garden in 1953, and has since spread across the country. There are also reports of finds in Denmark (1974). It is not unlikely that additional finds have been made, but that they have been mistaken for Canadian waterweed. Nuttall's waterweed now appears to be becoming increasingly widespread, even to the extent of outcompeting Canadian waterweed.</p>
<p>Probable means of introduction</p>	<p>Canadian waterweed may have been used in aquaria, which were then emptied into rivers and lakes. In addition, the species may have accompanied other plants or timber imported into Europe. Further dispersal to neighbouring countries, or within countries, can also be brought about by birds. Movements of recreational craft between water bodies are another means by which the species can spread.</p>
<p>Habitat(s) in which species occurs</p>	<p>Canadian and Nuttall's waterweed are freshwater species, but also occur in brackish-water areas significantly affected by fresh water (confined inlets, estuaries). In general, though, Canadian waterweed and, to an increasing extent, Nuttall's waterweed are chiefly to be found in lakes, ponds, slow-moving rivers and wetlands.</p> <p>Both species are submerged plants. They prefer calcareous, nutrient-rich waters (pH 6.5–10) and sediments, and grow best on firm substrates with a high mineral content. In eutrophicated waters they have a competitive advantage over other aquatic plants. They also contribute to internal nutrient cycling in water bodies, as they take up nutrients from sediments. These species are tolerant of shade and are therefore able to survive even in turbid waters. Although they are freshwater plants, they can cope with salinities of up to 2.5 psu. The optimum water temperature range is 10–25°C, but both species can withstand quite cold water. Under a layer of closed, snow-covered ice, plants can survive even in water at a temperature of just 1–4°C. The two species tend to grow in relatively shallow water, preferably no deeper than about 3 m, but Canadian waterweed has been found down to depths of 16 m. Nuttall's waterweed seems to be able to grow in deeper water than Canadian.</p>
<p>Ecological effects</p>	<p>Both these <i>Elodea</i> species form dense stands – like thick carpets – that reach all the way to the surface of the water. This compact mass of plant material prevents penetration of sunlight, changing conditions for other plants. Animal life, too, is affected by the dense, spreading stands. In addition, the nutrient status of the water can be altered if large quantities of biomass from the species are broken down, exacerbating eutrophication. As they grow, Canadian and Nuttall's</p>

	waterweed can displace other plant species.
Other effects	Dense canopies of Canadian and Nuttall's waterweed cause significant problems for boat traffic and fisheries. A large abundance of these species also makes waters unsuitable for bathing and other recreational uses.
Additional information	<p><i>Elodea canadensis</i> is also known by several synonyms:</p> <ul style="list-style-type: none"> • <i>Anacharis canadensis</i> • <i>Anacharis canadensis</i> var. <i>planchonii</i> • <i>Elodea brandegae</i> • <i>Elodea ioensis</i> • <i>Elodea linearis</i> • <i>Elodea planchonii</i> • <i>Helodea canadensis</i> • <i>Philotria canadensis</i> • <i>Philotria linearis</i> <p>For <i>Elodea nuttallii</i>, too, there are several synonyms:</p> <ul style="list-style-type: none"> • <i>Anacharis occidentalis</i> • <i>Anacharis nuttallii</i> • <i>Elodea columbiana</i> • <i>Elodea minor</i> • <i>Elodea occidentalis</i> • <i>Philotria angustifolia</i> • <i>Philotria minor</i> • <i>Philotria nuttallii</i> • <i>Philotria occidentalis</i> • <i>Udora verticillata</i> var. <i>minor</i>
<p><i>FIND OUT MORE: Canadian waterweed (Elodea canadensis)</i></p> <ul style="list-style-type: none"> • Swedish Museum of Natural History: (Virtual flora): Vattenpest (<i>Elodea canadensis</i>) In Swedish only http://linnaeus.nrm.se/flora/mono/hydrocharita/elode/elodcan.html • North European and Baltic Network on Invasive Alien Species: <i>Elodea canadensis</i> http://www.nobanis.org/speciesInfo.asp?taxaID=822 • Wikipedia: Vattenpest (<i>Elodea canadensis</i>) http://sv.wikipedia.org/wiki/Vattenpest • BioPix: Vattenpest (<i>Elodea canadensis</i>) http://www.biopix.dk/Species.asp?Language=sv&Searchtext=Elodea%20canadensis&Category=Planter • Baltic Sea Alien Species Database: <i>Elodea canadensis</i> http://www.ku.lt/nemo/directory_details.php?sp_name=Elodea+canadensis • Alien species in Poland: <i>Elodea canadensis</i> http://www.iop.krakow.pl/ias/species.asp?83 • European Nature Information System Database (EUNIS): <i>Elodea canadensis</i> http://eunis.eea.europa.eu/species-factsheet.jsp?idSpecies=186340&idSpeciesLink=186340 • Aquatische Neopyhten in Nordrhein-Westfalen: <i>Elodea canadensis</i> http://www.aquatischeNeophyten.de/Webseiten%20NEU/Pflanzenseiten%20neu/Elodea%20canadensis.htm • Botanischer Garten, Ruhr-Universität Bochum: <i>Elodea canadensis</i> http://www.ruhr-uni-bochum.de/boga/html/Elodea_canadensis_Foto2.html •  82 kB: DAEC, Bureau de protection de la nature et du paysage du canton de Fribourg: Elodée du Canada. http://www.fr.ch/pna/neophytes/fiches/elodee.pdf • Ulster Museum Sciences Division: Flora of Northern Ireland: <i>Elodea canadensis</i> http://www.habitas.org.uk/flora/species.asp?item=2113 • Washington State: Department of Ecology: American Waterweed - A Common Native Plant http://www.ecy.wa.gov/programs/wq/plants/native/elodea.html • Washington State: Department of Ecology: Submersed plants: <i>Elodea canadensis</i>. http://www.ecy.wa.gov/programs/wq/plants/plantid2/descriptions/elocan.html 	

http://www.ecy.wa.gov/programs/wq/plants/plantid2/photopages/photo_elodea.html

- US Dep. of Agriculture: Natural Resources Conservation Service: Canadian waterweed
<http://plants.usda.gov/java/profile?symbol=ELCA7>
- Aquatic Plants of the North (Minnesota, USA): Canadian waterweed
<http://www.rook.org/earl/bwca/nature/aquatics/elodeacan.html>
- Walking among the S-weeds: *Elodea canadensis*
<http://www.s-weeds.net/familjer/monocots/alismatales/elodeacan.html>

FIND OUT MORE: Nuttall's waterweed (Elodea nuttallii)

- Swedish Museum of Natural History: (Virtual flora): Smal vattenpest (*Elodea nuttallii*)
In Swedish only
<http://linnaeus.nrm.se/flora/mono/hydrocharita/elode/elodnut.html>
- North European and Baltic Network on Invasive Alien Species (Nobanis): *Elodea nuttallii*
<http://www.nobanis.org/speciesInfo.asp?taxaID=4046>
- European Nature Information System Database (EUNIS): *Elodea nuttallii*
<http://eunis.eea.europa.eu/species-factsheet.jsp?idSpecies=186344&idSpeciesLink=186344>
- Aquatische Neopyhten in Nordrhein-Westfalen: *Elodea nuttallii*
<http://www.aquatischeNeopyhten.de/Webseiten%20NEU/Pflanzenseiten%20neu/Elodea%20nuttallii.htm>
- Ulster Museum Sciences Division: Flora of Northern Ireland: *Elodea nuttallii*
<http://www.habitas.org.uk/flora/species.asp?item=2115>
- Washington State: Department of Ecology: American Waterweed - A Common Native Plant
<http://www.ecy.wa.gov/programs/wq/plants/native/elodea.html>
-  Washington State: Department of Ecology: Submersed plants: *Elodea nuttallii*
<http://www.ecy.wa.gov/programs/wq/plants/plantid2/descriptions/elocan.html>
http://www.ecy.wa.gov/programs/wq/plants/plantid2/photopages/photo_elodeanuttallii.html
- Aquatic Plants of the North (Minnesota, USA): Western waterweed
<http://www.rook.org/earl/bwca/nature/aquatics/elodeanut.html>
- Aquatic Weed Control LLC: *Elodea canadensis*. *Elodea nuttallii*
http://www.awc-america.com/plant_id_utility/plants/elocan.html
- Walking among the S-weeds: *Elodea nuttallii*
<http://www.s-weeds.net/familjer/monocots/alismatales/elodeanutt.html>

PHOTO CREDIT

© Armin Jagel
<http://www.botanik-bochum.de/>

- This factsheet on *Elodea canadensis* and *Elodea nuttallii* was created on 1 September 2006
- First update: 6 November 2006
- Translated by Martin Naylor on 1 December 2006
- Second update ("Find out more" only): 16 December 2006