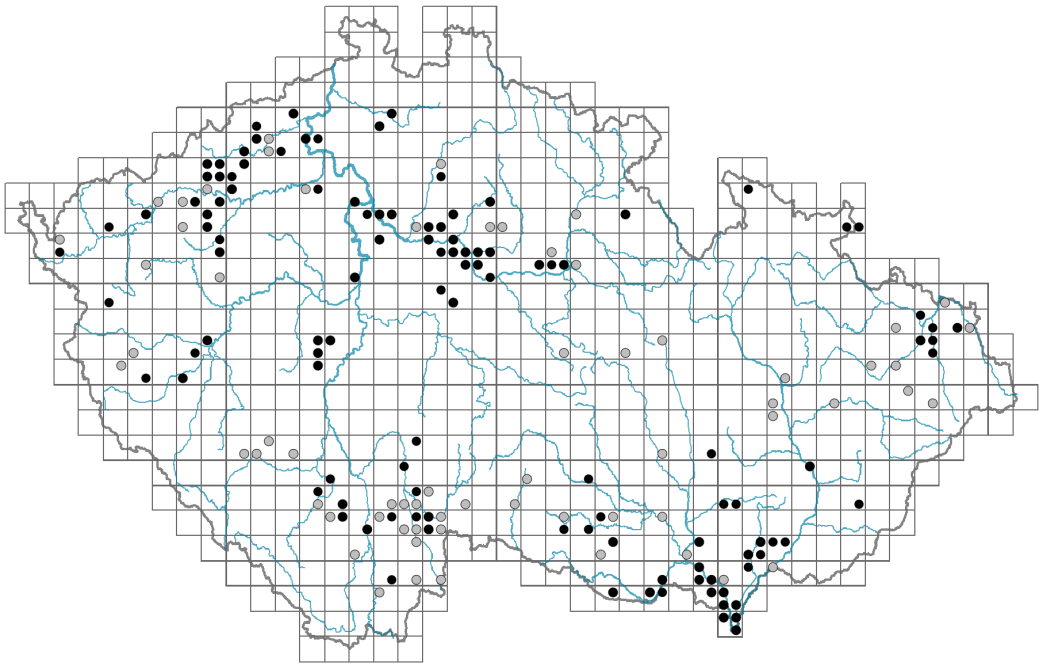
Ceratophyllum submersum

Distribution

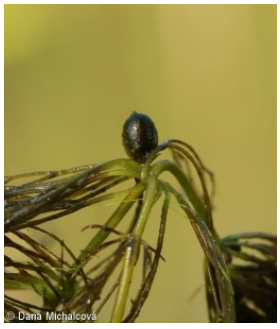


Map info

revised records

unrevised records

On the map are not visualized records without the coordinates and records marked as incorrect or doubtful.



Habitus and growth type

Height [m]: **0.3–1.2**
Growth form: **clonal herb**
Life form: **hydrophyte**

Leaf

Leaf presence and metamorphosis: **leaves present, not modified**
Leaf arrangement (phyllotaxis): **verticillate**
Leaf shape: **simple – forked**
Stipules: **absent**
Petiole: **absent**
Leaf life span: **evergreen**
Leaf anatomy: **hydromorphic**

Flower

Flowering period [month]: **June–September**
Flowering phase: **8 Clematis vitalba-Galium sylvaticum (mid-summer)**
Flower colour: **green**
Flower symmetry: **actinomorphic**
Perianth type: **reduced**
Perianth fusion: **reduced**

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Inflorescence type: **flores solitarii**
Dicliny: **monoecious**
Generative reproduction type: **facultative autogamy**
Pollination syndrome: **water-pollination**

Fruit, seed and dispersal

Fruit type: **dry fruit – nut**
Fruit colour: **brown**
Reproduction type: **mostly vegetatively, rarely by seed/spores**
Dispersal unit (diaspore): **fruit, infrutescence or its part, turion, shoot fragment**
Dispersal strategy: **Wolffia (mainly hydrochory)**
Myrmecochory: **non-myrmecochorous (b)**

Belowground organs and clonality

Shoot metamorphosis: **turion**
Storage organ: **turion**
Type of clonal growth organ: **turion**
Freely dispersible organs of clonal growth: **present**
Primary root: **absent**
Persistence of the clonal growth organ [year]: **1**
Number of clonal offspring: **6**
Lateral spreading distance by clonal growth [m]: **0**
Clonal index: **7**

Bud bank

Number of buds per shoot at the soil surface (root buds excluded): **5**
Number of buds per shoot at a depth of 0–10 cm (root buds excluded): **0**
Number of buds per shoot at a depth greater than 10 cm (root buds excluded): **0**
Size of the belowground bud bank (root buds excluded): **5**
Depth of the belowground bud bank (root buds exluded) [cm]: **1**
Number of buds per shoot at the soil surface (root buds included): **5**
Number of buds per shoot at a depth of 0–10 cm (root buds included): **0**
Number of buds per shoot at a depth greater than 10 cm (root buds included): **0**
Size of the belowground bud bank (root buds included): **5**
Depth of the belowground bud bank (root buds included) [cm]: **1**

Trophic mode

Parasitism and mycoheterotrophy: **autotrophic**
Carnivory: **non-carnivorous**
Symbiotic nitrogen fixation: **no nitrogen-fixing symbionts**

Karyology

Chromosome number (2n): **40 (72)**
Ploidy level (x): **2 (4)**
2C genome size [Mbp]: **1496.36**
1Cx monoploid genome size [Mbp]: **748.18**

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Genomic GC content: **40.3 %**

Taxon origin

Origin in the Czech Republic: **native**

Ecological indicator values

Ellenberg-type indicator values

Light indicator value: **5 – semi-shade plant, only exceptionally occurring in full light, but usually at more than 10% of the diffuse radiation incident in an open area**
Temperature indicator value: **8 – transition between values 7 and 9**
Moisture indicator value: **12 – permanently or almost permanently submerged aquatic plant**
Reaction indicator value: **7 – indicator of slightly acidic to slightly basic conditions, never occurring in very acidic conditions**
Nutrient indicator value: **7 – occurring at nutrient-rich sites more often than at average sites and only exceptionally at poor sites**
Salinity indicator value: **2 – oligohaline, often on soils with very low salt content**

Indicator values for disturbance

Whole-community disturbance frequency indicator value: **-0.31**
Herb layer disturbance frequency indicator value: **-0.31**
Whole-community disturbance severity indicator value: **0.19**
Herb layer disturbance severity indicator value: **0.23**
Whole-community structure based disturbance indicator value: **0.52**
Herb layer structure-based disturbance indicator value: **0.55**

Habitat and sociology

Occurrence in habitats

3 Aquatic vegetation

3A Macrophytic vegetation of eutrophic and mesotrophic still waters: **2 – optimum**

4 Wetland and riverine herbaceous vegetation

4A Reed-beds of eutrophic still waters: **1 – rare occurrence**
4B Halophilous reed and sedge beds: **1 – rare occurrence**
4C Eutrophic vegetation of muddy substrata: **2 – optimum**

Affinity to the forest environment

Affinity to the forest environment in Thermophyticum: **0 – taxon that does not spontaneously occur in Czech forests**
Affinity to the forest environment in Mesophyticum and Oreophyticum: **0 – taxon that does not spontaneously occur in Czech forests**

Diagnostic taxon

Diagnostic taxon of alliances: **VAC *Hydrocharition morsus-ranae***
Diagnostic taxon of associations: **VAC04 *Potamo-Ceratophylletum submersi***

Constant taxon

Constant taxon of associations: **VAC04 *Potamo-Ceratophylletum submersi***

Dominant taxon

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Dominant taxon of associations: **VAC04 *Potamo-Ceratophylletum submersi***

Ecological specialization indices

Ecological specialization index for all vegetation types: **5.5**

Ecological specialization index for non-forest vegetation: **5.5**

Colonization ability

Index of colonization success (ICS): **1**

Distribution and frequency

Floristic zone: **northern temperate, southern temperate, submeridional, meridional, subtropical, tropical**

Floristic region: **Europe, Asia**

Continentality degree: **6**

Distribution range extension along the continentality gradient: **5**

Elevational belt in the Czech Republic: **lowlands, colline belt**

Expansive taxon in the region: **Bohemian Thermophyticum, Bohemian Moravian Mesophyticum, Pannonian Thermophyticum**

Occurrence frequency in the basic grid mapping cells and quadrants of the basic grid mapping cells: 152

taxon.data.freq_in_quad: 229

Commonness in vegetation plots from the Czech Republic

Occurrence frequency in vegetation plots: **0.3 %**

Occurrence frequency in vegetation plots with a cover above 5%: **62.8 %**

Occurrence frequency in vegetation plots with a cover above 25%: **56.4 %**

Occurrence frequency in vegetation plots with a cover above 50%: **46.2 %**

Mean percentage cover in vegetation plots: **43.6 %**

Maximum percentage cover in vegetation plots: **88 %**

Number of habitats with taxon occurrence in the Czech Republic

Number of narrow habitats in which the taxon occurs: **4**

Number of narrow habitats in which the taxon has its optimum: **2**

Number of broad habitats in which the taxon occurs: **2**

Number of broad habitats in which the taxon has its optimum: **2**

Threats and protection

Red List 2017 (national categories): **C3 – vulnerable taxon**

Red List 2017 (IUCN categories): **LC – least concern**

Legal protection: **endangered taxon**

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