2.1. Latinsk navn (Latin name)

Luronium natans (L.) Rafin.

2.2 Rødlistestatus (redlist satus)

Sårbar. (Vulnerable)

2.3 Utbredelse (spreading/place)

Luronium natans is an European endemic. It occurs in Western and Central Europe, southern part of Scandinavia, in the range of the Atlantic and Subatlantic climate. The Oslo populations seems to be the northernmost in the whole range (the only in Norway?).

2.4 Lokaliteter i Norge (locations in Norway)

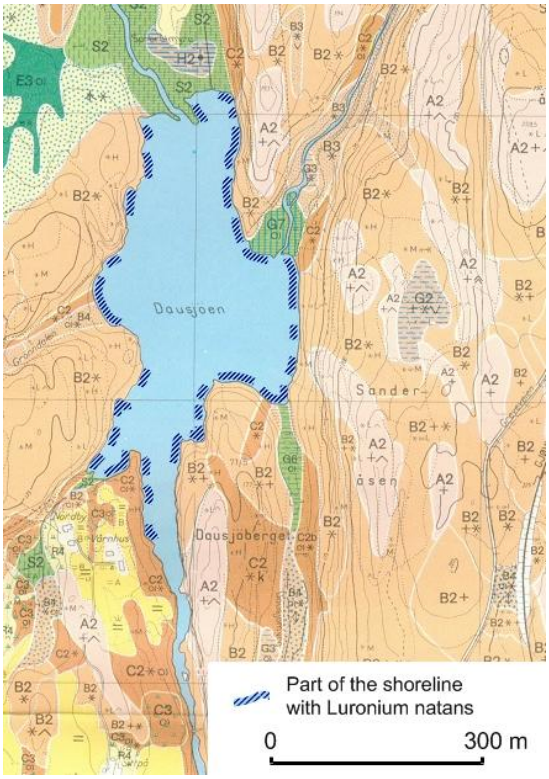
Oslo, Vestfold: Kimtahalvøya i Brunlanes, Larvik (nylig funnet).?

This location (Kinnhalvøya) has been investigated in 27.06.2010 and 19.07.2010. *Luronium natans* has not been found.

2.4.1. Lokaliteter i Oslo (locations in Oslo)

2 known

Location: 1. DAUSJØEN



Observations were made only from a shore, in eastern part of a lake! Plants could be observed only to the water depth of about 1.5 – 2 m and 3 – 5 m from the shoreline. *Luronium* can grow deeper- down to 3 m deep, but this area could not be examined from the shore (a boat is necessary).

Individuals: Very abundant, sometimes as many as 200 individuals / $1m^2$. If we estimate: 10 individuals /m^2 and 2000 m of shoreline x 3 m wide belt of occurrence = 60 000 (for 200 individuals / $1m^2$ = 1 200 000) individuals, or more.

Area: We estimate that *Luronium* is present on 60 – 70% of the lake shoreline. It grows more often on the Eastern side of the lake with the exception of a steep cliff in the southern part. It does not grow only in shallow, very muddy bays and in places where the water is immediately very deep. See the map.

Environment (habitat): Lake with stable water level. Plants prefer the depths between 10 – 100 cm. At that depth floating leaves can be visible. *Luronium* grows preferably on empty sandy bottom with a thin layer of organic sediment, but also together with: *Lobelia dortmanna, Juncus bulbosus, Equisetum limosum, Carex vesicaria, Lysimachia thyrsiflora, Alisma plantago –aquatica (*rarely*), Nuphar luteum*

Condition: There were two forms of *Luronium*: 1.water form (with floating and immersed leave rosettes) and 2.vegetative immersed form (without floating leaves only with immersed leave rosettes).

Plants were blooming very richly at a time of observation. Floating leaves of *Luronium* were visible on water surface from plants growing in depth 10 – 50 cm.

Care:

GPS-koordinates:

Date of watch: 9..07.2010

Owner:

Photos: No 3519, 3520, 3521, 3523 (R. Gramsz)

Observer: R. Gramsz,

Location: 2. BREISJØEN

Observations were made only from the shore!

Individuals: Abundant

Area: *Luronium* is present on ca 50% of the lake shoreline. Does not grow only in shallow, very muddy bays and where the water is immediately very deep. Also there is lack of *Luronium* close to the dam in Eastern part of a lake. See map.

Environment (habitat): This lake has changeable water level. Plants grow both on the expose shore and emerge in water. The highest concentration is observed along the present water level (about 1m below maximum). *Luronium* grows preferably on empty sandy bottom, but also together with: *Lobelia dortmanna, Juncus bulbosus, Ranunculus reptans, Isoëtes echinospora (?), Equisetum limosum, Carex vesicaria, Lysimachia thyrsiflora.*

Condition: All forms of *Luronium* were found: 1.water form (with floating and immersed leave rosettes), 2.vegetative, immersed form (without floating leaves, only with immersed leave rosettes) and 3.water-terrestrial form (only with floating, leathery leaves).

The water level was close to maximum at the time of observation. Floating leafs and flowers were on their way to surface (see photos). Seams that plants blooming is very rich this year.

Care: !!! – It will be very interesting to know (if it exists – data from limnigraph) the record of water level changes during as many years as possible.

GPS-koordinates: (See the map. Map datum (Kartdatum): WGS 84; Position format (Posisjonsformat): UTM UPS) GPS 1: 0603737/ 6650352; GPS 2: 0603700/ 6650374; GPS 3: 0603661/ 6650387; GPS 4: 0603616/ 6650450; GPS 5: 0603672/ 6650527; GPS 6: 0603661/ 6650635

Date of watch: 9.07.2010

Owner:

Photos: No 3529, 3531 (R. Gramsz)

Observer: R. Gramsz,

Location~~: 3. Alunsjøen~~

Individuals: Not found

Area: 2 places in small bays in Eastern and Southern part of a lake.

Environment (habitat): This lake is with changeable water level. Plants grows in a very shallow, both standing and flowing water in places where flow in streams forms pools still full of water. During maximum water level in the lake this places may be emerged in water but usually this water level is much lower.

At a day of observation the lake water level was at maximum. That means, it was 1 – 2 m of water over usually dry bottom of a bays were *Luronium* plants has been recently found.

With other plants:

Site 1. in water- *Alisma plantago-aquatica, Glyceria fluitans, Hippuris vugaris.* On shore- *Carex lasiocarpa* (dominant), *Carex stellulata, Carex rostrata, Carex vesicaria, Comarum palustre, Epilobium palustre, Equisetum fuviatile, Galium palustre, Juncus bufonius, Lysimachia thyrsiflora, Menyanthes trifoliata, Peucedanum palutre, Polygonum minor, Ranunculus reptans, Rorippa palustris cfr., Sphagnum squarrosum, Veronica scutelata*

Site 2. in water- *Alisma plantago-aquatica, Alopecurus aequalis, Glyceria fluitans, Juncus bufonius, Rorippa palustris cfr.,*

Condition: In so high level of water it was not possible to find *Luronium* but we hope that it still subsist in those places.

Care: !!! – It will be very interesting to know (if it exists – data from limnigraph) the record of water level changes during as many years as possible.

GPS-coordinates: Site 1. 0603583/ 6648856
Site 2. 0603376/ 6648625

Date of watch: 23.07.2010

Owner:

Photos: No 3565, 3566 (R. Gramsz)

Observer: R. Gramsz, J. Potocka

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We were looking for *Luronium natans* also in another lakes and we did **not** find it!

The following locations were examined:

- Kinnhalvoya – (photo no 3416, 3562, 3563, 3564) location known from literature – Halvorsen R., Grostad T. Kinnhalvoya I Brunlanes, Larvik i Vestfold og et funn av flytegro *Luronium natans* (L.) Rafin. Blyttia 60: 117 – 121.

- lakes close to Kinnhalvoya: Hallevatnet, Helgeroa?(lake N from Helgeroa), small lake W from Hallevatnet with GPS-coordinates: 0553965/ 6544199

- Svartkulp (photo no 3567), Setertjern, in Lillomarka

- Oyungen, Kalven, Finntjern, Kalvsjoen, Gaslungen, Rottungen- again this year

- Sandungen (during a dam rebuilding) and seweral another big lakes in Nordmarka

- Maridalsvannet – as last year, only small part of Nesbukta was examined

It is very difficult and inefficient to move along a shore of Maridalsvannet on foot. Canoe, kayak or rowing boat will make searching for Luronium much more efficient and easier.