Roman Gramsz **29.10.2020**

Implementation report

For project

Kartlegging og overvåking, flytegro Breisjøen 2020

20SD8D0A

This is a short report on a part of the ongoing project. A full detailed report will be prepared at a later date.

From mid-April, from the beginning of the lowering of the water level in Breisjøen, observations of Luronium natans reactions to changes in the environment were carried out. Within a few days after the banks were drained, all the plants lost (dried) the rosettes of underwater leaves, i.e. all their apparatus needed for photosynthesis. In places that were humid all the time - clay and silty plants could survive, while where a thin layer of clay and silt had been washed away, the plants quickly dried up and died.
The protective measures taken consisted in building 3 dams that ensured the plants stay in the water and installing irrigation systems that kept the plants and the soil in which they grew moist.
In dam no. 1 only a small part of the plants growing on the perimeter of the pond were saved. A thick layer of organic sediments flowed to the surface of the water and the plants growing there died (?)
Dam no 2 with a depth of 60 - 80 cm allowed the plants to recreate the underwater rosette of leaves, to produce floating stolons and to bloom.
In the dam no 3 with a depth of 20 - 30 cm, the plants formed floating leaves and bloomed profusely.
The irrigation systems provided the plants with a moist substrate which enabled them to develop a rosette of trrestrial leaves and survive. Plants watered on flat surfaces with a thick layer of clay and silt developed the best, while plants growing on the slopes where the clay and silt were washed out, survived in small amounts.

Checking the effectiveness of transplanting plants to Alunsjøen I carried out on July 23 and July 31 - August 1 with the use of a pontoon and a tube for underwater observation (vattenkikare).

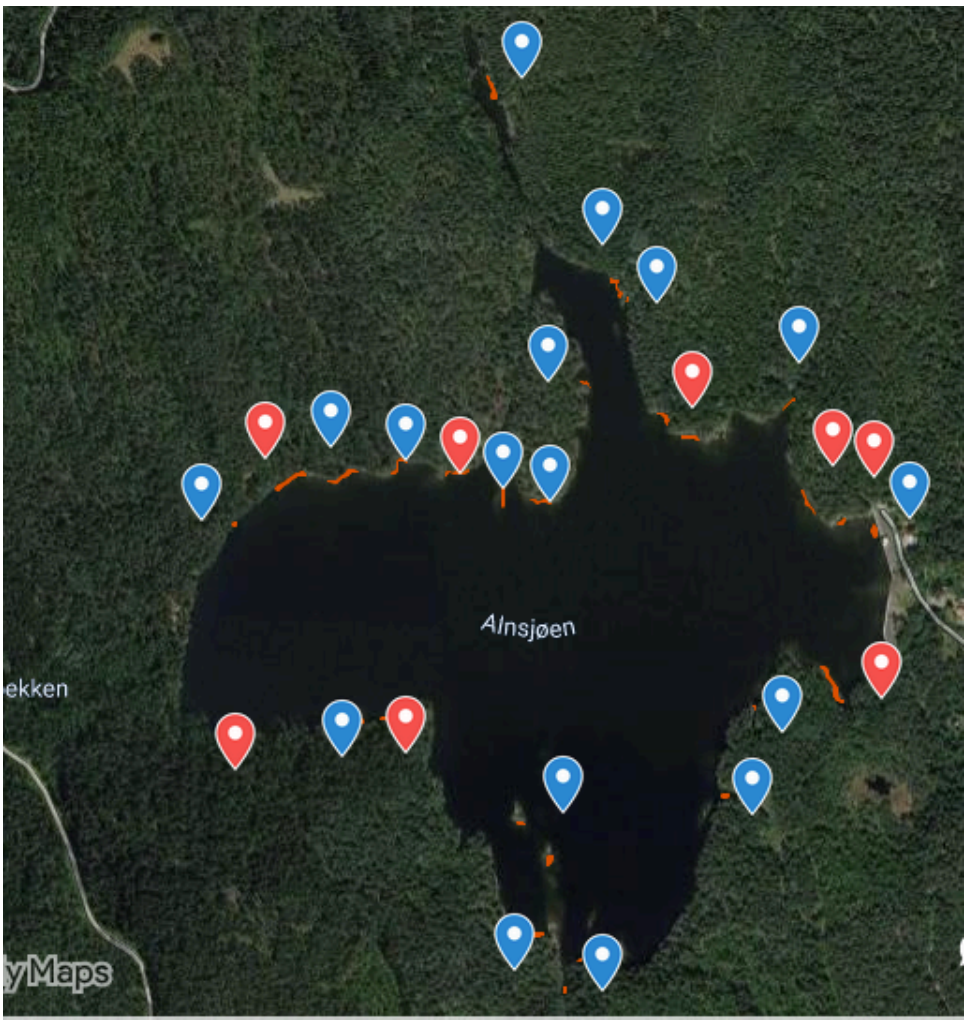
The result was not very impressive - for 25 planting places only in 8 of them I confirmed the presence of *Luronum* ... Map 1.

This year's relatively cold and rainy summer meant that *Luronium natans* in natural habitats produced very few floating leaves and flowers, mainly in the shallow places up to a water depth of about 20-30 cm. It means that plants have not been visible on the surface of water when they grow deeper than 30 cm. Most of plants were planted last year in Alunsjøen on the

depth 40 – 80 cm and some of them even deeper. (At planting, the water level in Alunsjøen was 35-40 cm below the maximum.)

It is very difficult to identify the underwater form of *Luronium* from the surface of the water, especially if it grows dispersed and together with a similar species as *Juncus bulbosus*. It is therefore possible that I may not have noticed the plant. Next year may be better for these observations, because plants that managed to establish themselves there will develop better and will be more visible.

I expected a better result, but on the other hand, there is a certainty that at 8 sites, in different parts of the lake, *Luronium* has adopted and there is a chance that it will develop there.



Map 1. Result of transplanting Luronium to Alunsjøen. As of August 1, 2020.
The 2019 planting locations are marked in red. Places where the presence of *Luronium* has been confirmed in 2020 - red points. Blue points - not confirmed.

In July and August, the plants were transplanted around Breisjøen to better survival sites and to Alunsjøen.
It seems that transplanting plants in a terrestrial form with a compact lump of the substrate gives better results than transplanting forms growing in water. (as was done last year).

Photo 1. Well developed terrestrial form with stolons ready for replanting.

Photo 2. These plants were transplanted to Alunsjøen with good results.

Photo 3. A terrestrial form with a compact lump of the substrate transplanted as a test to dam no 3. All plants survived and developed floating leaves.

There were also unexpected threats - bird feeding.
In May, the family of the Canadian goose was feeding on only all the regenerating terrestrial rosettes of leaves.
But the real tragedy was when the ducks were feeding at night in October while the lake was refilled. The ducks destroyed almost 100% of the plants from dam no. 3, a large part of the plants from the shallower places of dam no. 2 and a significant part of the plants growing as a land form.

Photo 4. Dam no.3 with abundant growth of the terrestrial form of Luronium and the form with floating leaves. 25.07.2020.

Photo 5. Same area damaged (eaten) by ducks. 11.10.2020.