

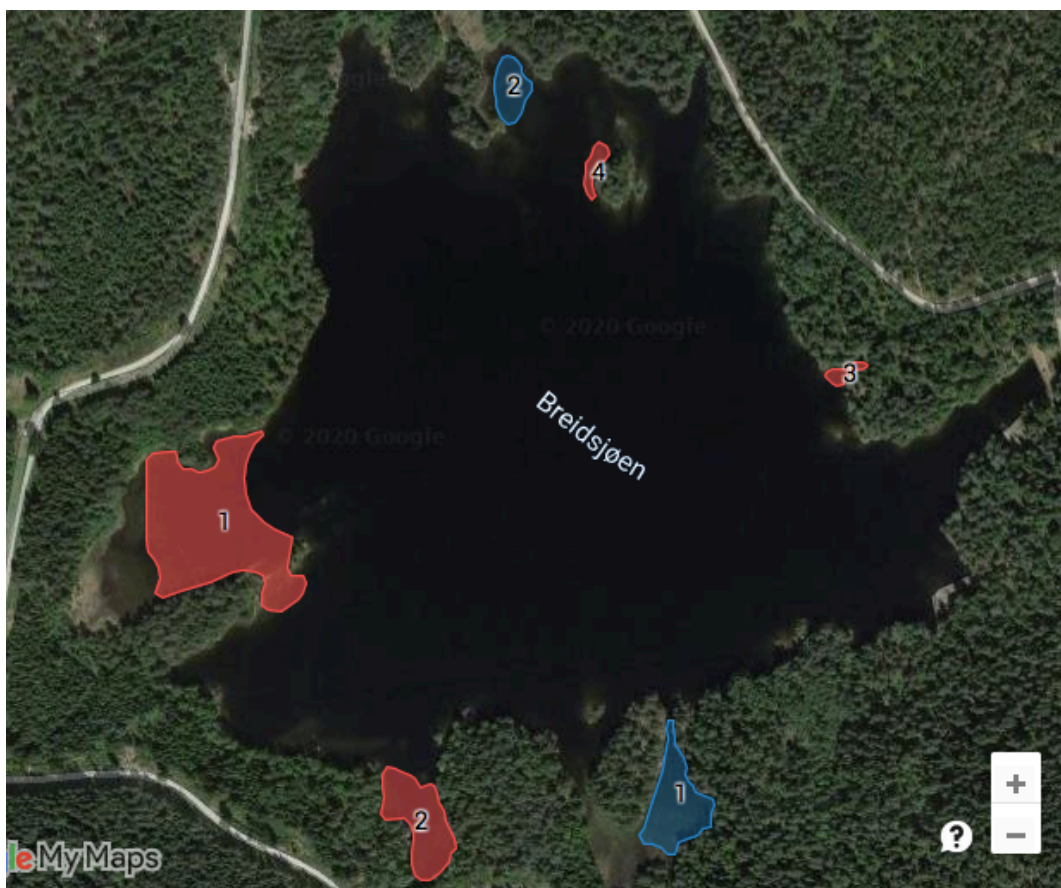
Implementation report

For project

Bevaring, flytegro, Breisjøen 2020

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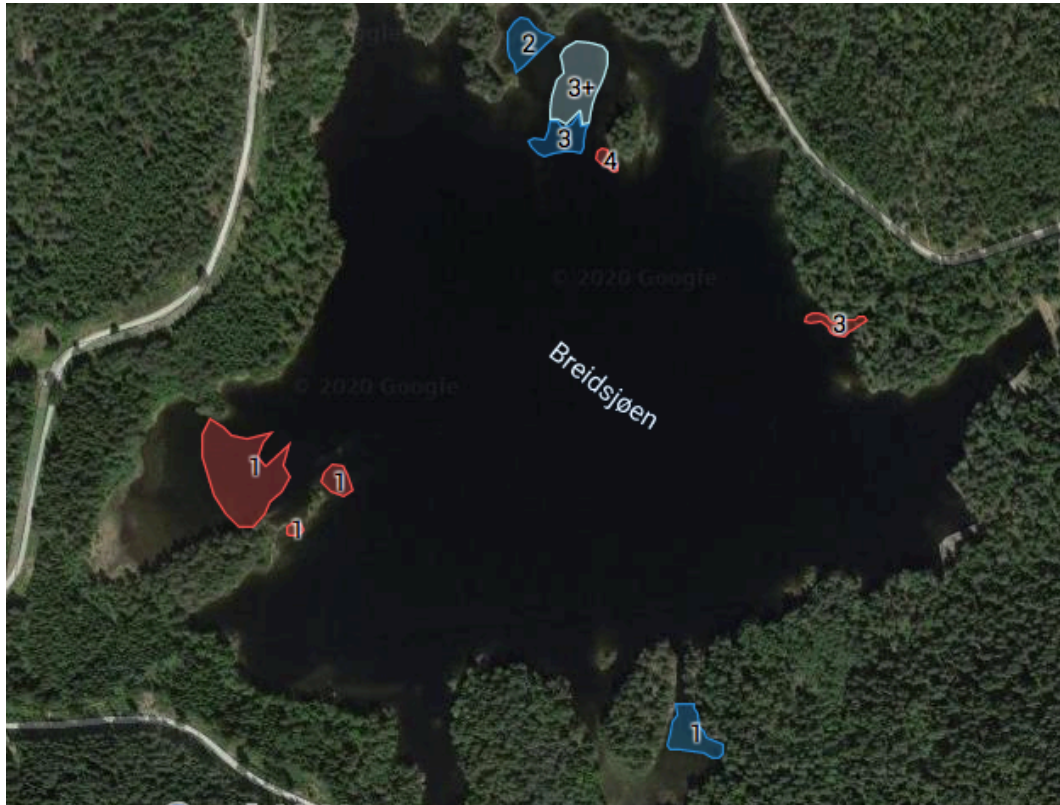
At the beginning of April, Vav started draining Breisjøen. During the first working meeting with representatives of Vav and Consto (contractor) on April 22, 2020, the water level in Breisjøen was already 2m lower and most of the *Luronium natans* flytegro were visible on the dry shore. After a local inspection of the lake, I was asked to make a map with the marking of individual places and ways to protect the flytegro. (see Map 1.)



Map 1. Preliminary map of the distribution of areas intended for irrigation (red) and for flooding, construction of small dams (blue).

This project has been approved for implementation with the exception of area no 2 (red). The project aimed to protect the flytegro in different ways in different depth zones and habitats.

Work on the construction of the dams and the installation of irrigation systems began immediately, but it took over a month to bring them to proper functioning. (Pumps were not immediately placed at the appropriate depth and, as the water level continued to decline, they became clogged with silt or remained on the dry shore)



Map 2. Completed layout of irrigation areas and dams after border correction and construction of "our dam" no 3.

The following irrigation systems and dams were built: (see Map 2.)

1. No 1 (red) Irrigation of the bay and peninsula in the Western part of the lake. This vast bay with a slightly sloping, silty bottom and abundant flytegro occurrence could ensure the survival of the plants if it could be kept wet or at least moist. An irrigation system was installed across the bay so that the sprinkled was a 20m wide strip and excess water flowed down below, moistening the rest of the exposed bay bottom. In this boggy bay, plank footbridges had to be built to provide access to the sprinklers. 3 sprinklers were placed higher on the peninsula to support plants in other habitats (at a depth of about 50 cm and 2 m from the normal water level) This system worked well - it allowed most of the plants on the irrigated surface to survive and grow as a terrestrial form. Some plants have been destroyed or damaged by grazing of the Canadian goose family and ducks. The system was dismantled on 10/21/2020 when most of the plants were already under water again.

2. No 3 (red) Irrigation of the small bay and the slope of the bottom in the eastern part of the lake. Plants growing on the bottom slope with a small layer of clay and silt at a depth of 30 cm to 1.5 m were to be protected here. There are 3 sprinklers here.

At this place, it was necessary to make the tape fence due to the frequent visits of people and the trampling of the plants.

This system worked well - it allowed most of the plants on the irrigated surface to survive and grow as a terrestrial form.

3. No 4 (red) Irrigation of the shores of the island in the northern part of the lake. Similarly to site "3", plants growing on the slope of the bottom with a small layer of clay and silt at a depth of 30 cm to 1.5 m were to be protected here. There are also 3 sprinklers here. This system worked well but relatively few plants survived here due to the washing away of the clay and silt.

4. No 1 (blue) Dam in the southern part of the lake. This dam was supposed to keep the plants shallow (20 -30 cm deep) what should enable their survival and cause a strong development of floating leaves and flowers. This dam did not have the expected effect. Only the plants on the shores of the pond survived.

5. No 2 (blue) Dam in the northern part of the lake. This dam was to provide the plants with "normal" living conditions throughout the reduced water level in Breisjøen.

At the end of May, when the water level was already 5 m below normal and all flytegro occurrences were exposed, we decided together with Bjørn Smevold that it would be worth building one more dam below the dam no.2. It would flood a large flat area of the bottom with abundant flytegro occurrence. With the approval of the Vav administration, we built this dam (no 3) out of plastic sandbags with the help of volunteers from Norsk Botanisk Forening. These dams and irrigation system (no 4) in N Breisjøen has ensured the protection of the flytegro in a variety of habitats and throughout its depth zone. Many means of protection have been used here and it was a great success:

Dam no 2 with a water depth of up to 60 -80 cm enabled the plant to rebuild an underwater, vegetative rosette of leaves. "Our dam" no 3, with a depth of up to 20 -30cm allowed the lush growth of the form with floating leaves and flowers. The deliberately overflowing water from dam no. 2 irrigated the surface of a large flat area (no 3+) of the bottom above "our dam" contributing to a very lush growth of the flytegro terrestrial form, and sprinkling on the slope of the island (no 4 (red)) kept some plant alive in terrestrial form.

Unfortunately, this area suffered from bird feeding.

Some damage was done by the Canadian goose family in May and June, but the ducks feeding here at night did a great deal of damage already during the filling of Breisjøen in October. Almost 100% of plants with floating leaves and a large part of the terrestrial form were destroyed.

Complementary transplantation of plants to Alunsjøen and within Breisjøen was performed in July and August.

However, this was done to a lesser extent than planned. Because of the rainy summer, many plants survived in wet areas in Breisjøen. A greater risk to the survival of plants would be to replant them than to leave them in their place.

As a protection against night frosts in September and October, we used frequent sprinkling of plants. Thanks to intense rains in October and an additional quantity of water from Aurevann, Breisjøen was filled before real frosts. So, fortunately, no other measures were needed to protect the plants from frost.



Photo 1. No 1 (red) Irrigation on the western bay.



Photo 2. No 3 (red) Irrigation of the small bay and the slope of the bottom in the eastern part of the lake.



Photo 3. No 1 (blue) Dam in the southern part of the lake.



Photo 4. No 2 (blue) Dam (on right), “our dam” no 3 and wet area no 3+ (center), No 4 (red) Irrigation (left) in the northern part of the lake.