



REPUBLIC OF ESTONIA  
MINISTRY OF EDUCATION  
AND RESEARCH

## ACTIVITY REPORT BSP AIR QUALITY OBSERVATIONS DURING THE ACADEMIC YEAR OF 2020/2021

Under the air quality program, students are directed to deal with bioindication.

During the academic year of 2020/2021, students of 16 schools attended the air quality program. The youngest participants were from the 3rd, and the oldest from the 11th grade. Most of the observation results were received from 8th-grade students (95 individual responses, and 8 from classes). 9th graders submitted 40 responses (39 individually and 1 as a class). 4th graders submitted 25 responses (24 individually and 1 as a class), 3rd graders submitted 25 responses, 5th graders submitted 8 responses (5 individually and 3 from classes), 7th graders submitted 4 responses, 6th graders submitted 3 responses (1 individually and 2 from classes) and 11th graders submitted 2 responses.

**The program consists of three parts.** In the first part, the observation object is conifers, in the second part lichens, and in the third part *Rhytisma acerinum*, the fungus that causes tar spot of maples. Each part of the program can be completed separately.

**The first part of the observation** (conifers) was completed by students from three schools: Kadrina Keskkool, Põlva Kool and Tallinna 32. Keskkool.

Tallinna 32. Keskkool submitted their conifer observation results for the first time, Kadrina Keskkool's and Põlva Kool's conifer observation locations vary by year, and therefore conclusions about air quality can not be drawn.

**The second part of the observation** (lichens) was completed by students from five schools: Audentese Kool, Kadrina Keskkool, Põlva Kool, Pärnu-Jaagupi Põhikool and Tallinna 32. Keskkool.

The observation results are similar across the years, therefore we can not infer that there have been any significant changes in the air quality.

Tamsalu Gümnaasium responded to the *Ramalina farinacea* and *Ramalina fraxinea* observations that were announced in the spring. They found *Ramalina fraxinea* in Tamsalu.

**The third part of the observation** (*Rhytisma acerinum*) was filled by students from 16 schools: Audentese Kool, Audru Kool, Gustav Adolphi Gümnaasium, Kadrina Keskkool, Kohtla-Järve Maleva Põhikool, Kohtla-Järve Täiskasvanute Gümnaasium, Loxsa Gümnaasium, Narva Vanalinna Riigikool, Põlva Kool, Pärnu-Jaagupi Põhikool, Risti kool, Tallinna 21. Kool, Tallinna 32. Keskkool, Tamsalu Gümnaasium, Viimsi Kool, Värska Gümnaasium. The high turnout rate was unprecedented and likely caused by the fact that the observation form for the third part was distributed to schools during a separate campaign.

It turned out that 44% of the observed maples had *Rhytisma acerinum* on some leaves, 28% had *Rhytisma acerinum* on almost all the leaves and 28% had no *Rhytisma acerinum*. The highest rate of trees with no *Rhytisma acerinum* was observed in Narva (38.9% of all

observed trees), Põlva (30.3% of all observed trees), Audru (25% of all observed trees), Tallinn (11.8% of all observed trees), Kohtla-Järve (11.1% of all observed trees) and Tamsalu (9.1% of all observed trees). Based on these results, generalizations about the air quality (more precisely about the sulfur pollution) can not be drawn. Firstly, because the amount of observations vastly differs by region. Secondly, the appearance of *Rhytisma acerinum* on maple leaves may show an absence of sulfur pollution in the air, but the absence of *Rhytisma acerinum* may be caused by *Rhytisma acerinum* spores not having reached all the regions yet.

Urve Lehestik

UNESCO Baltic Sea Project's air quality program manager in Estonia