

ERASMUS IP „Soil & Water“ field trip 06.09.2013 Tartu – Meenikunno – Piusa – Taevaskoja – Tartu

Aim of the trip: to study wetland and pine forest ecosystems

Time table:

8:00 departure from Tartu at EMÜ sport hall

9:30 – 13:00 Meenikunno bog

14:00 Piusa sandstone caves

18:00 Ahja river valley landscape protection area (Taevaskoja)

21:00 arrival to Tartu at EMÜ sport hall

Meenikunno bog

The Meenikunno Nature Park was formed in 1981 as a bog protection area with the aim of protecting the Meenikunno bog, Lakes Must and Valge bordering it to the east and the undulating landscape around them (Figure 1). The nature park is in Veriora municipality on Ilumetsa forest district land. While marshes in Estonia generally formed when the thousands of lakes left by the last ice age became overgrown, Meenikunno mostly came about as a result of the swamping of the dry, sandy land, beginning in the boreal climatic period more than 8000 years ago. The bog's peat layers are saturated with water with only a partial layer of sand beneath them, giving the impression of it "hanging in the air". What this means is that the groundwater is deep and there is a dry layer under the bog. The process of forming the bog has lasted thousand of years and continues very actively to this day, with hollows and 3 bog lakes emerged, a bog pool in the making, and large numbers of islands – the largest of which are Pikksaar and Pähklisaar. Local stories say that the Swedes built a wooden pathway through Meenikunno during the Northern War.

The landscape reserve comprises Meenikunno bog. Valgejärv lake is one of the most transparent in Estonia and in contrast, the waters of Lake Nohipalu Mustjärv are among the darkest in Europe. During the excursion, relevé of plant species was done on several places of the bog. The pH of the lake water (pH around 4.5) was assessed by field methods.



Figure 1. Meenikunno bog

Piusa sandstone caves

Caves (Figure 2) have emerged as a result of manual mining of glass-sand during 1922-1970 and represent a system of underground galleries with sandstone columns and vaulted ceilings. Since 1970 pit-mining was started in some parts of the area.

In 1950s hibernating bats were discovered in the caves. Since 1958 when bats became legally protected in Estonia, they have been counted here regularly. Count data shows the constant increase in number of bats hibernating in Piusa Caves. In 1999 over 3000 bats from five species were counted here: pond bat (*Myotis dasycneme*), Daubenton's bat (*Myotis daubentonii*), Brandt's bat (*Myotis brandtii*), brown long-eared bat (*Plecotus auritus*) and northern bat (*Eptesicus nilssonii*). In 1981 cave came under protection rules for the Nature Reserve of Piusa Caves. The aim of the Reserve is to protect the biggest colony of bats in Baltic states and to preserve geologically interesting artificial object (caves). The participants discussed the plant succession on abandoned sand pits and the aim of nature protection in the area.



Figure 2. Piusa caves and sandstone mining area.

Ahja river valley landscape protection area (Taevaskoja)

The Ahja River ancient valley (Figure 3) nature park is one of the oldest landscape protection areas in Põlva County and Estonia as a whole, formed in 1957. It is located midstream along the Ahja River in the area between Koorvere and the Otteni (a.k.a. Valgesoo) mill. The aim of the nature park is to preserve the landscape integrity of the Ahja River, its deep valley with its additional valleys and the towering sandstone outcrops on the valley slopes, the forest growing on the sides of the valley and the meadows on the valley floor. It is in this area of the nature park that the relief of the ancient valley is at its most diverse and the landscape at its most beautiful. In geomorphology terms, the surrounding tablelands have an absolute height of between 50 and 100 meters. They cleave their way through the large Põlva-Ahja-Luutsna valley, one part of which is Ahja's ancient valley. These negative surface forms divide the area into individual uplands. The gradient of the river in the nature park is 1.1-1.6 m/km, lending the river its mid-course mountain river character. The most eye-catching element of the nature park has to be its picturesque cliffs, which achieve their maximum height and splendor in the Kiidjärve-Valgesoo area. There is something ancient, majestic and mysterious about these rocks, whose sands settled here millions of years ago and whose surfaces were worn away to smoothness by the powerful waters of history.

The most famous of the outcrops is Suur-Taevaskoja, which is 150 meters long and 24 meters high (Figure 3). This cliff, the river beneath it, the meadows surrounding it and the dark coniferous forests that form its backdrop have such a powerful emotional effect that the area has been famous as something of a sanctuary for centuries. And it is right here that you might come across Ahja's most famous birds – its brightly coloured kingfishers and white-fronted dippers. The landscape of the park is dominated by forests – light and dry heath and moor forests, mainly pine, and older, more fertile spruce forests. The river generally flows through the forests. On several places, forest tree composition and dynamics was introduced to the participants. The large number of rare plants in the nature park (*Pleurospermum*

austriacus, a Category II protected species) was also discussed and brought in connection to the landscape dynamics and forest management. The nature protection plays a crucial role in the area and therefore many discussions among the participants considered the options for tourism and protection.



Figure 3. Ahja river valley and Suur Taevaskoja