

Challenges and solutions for sustainable development planning of semi-natural urban wetland ecosystem in Esplanāde (Daugavpils city)



Dr. biol. **Uldis VALAINIS**,
Daugavpils University,
Institute of Life Sciences and Technology



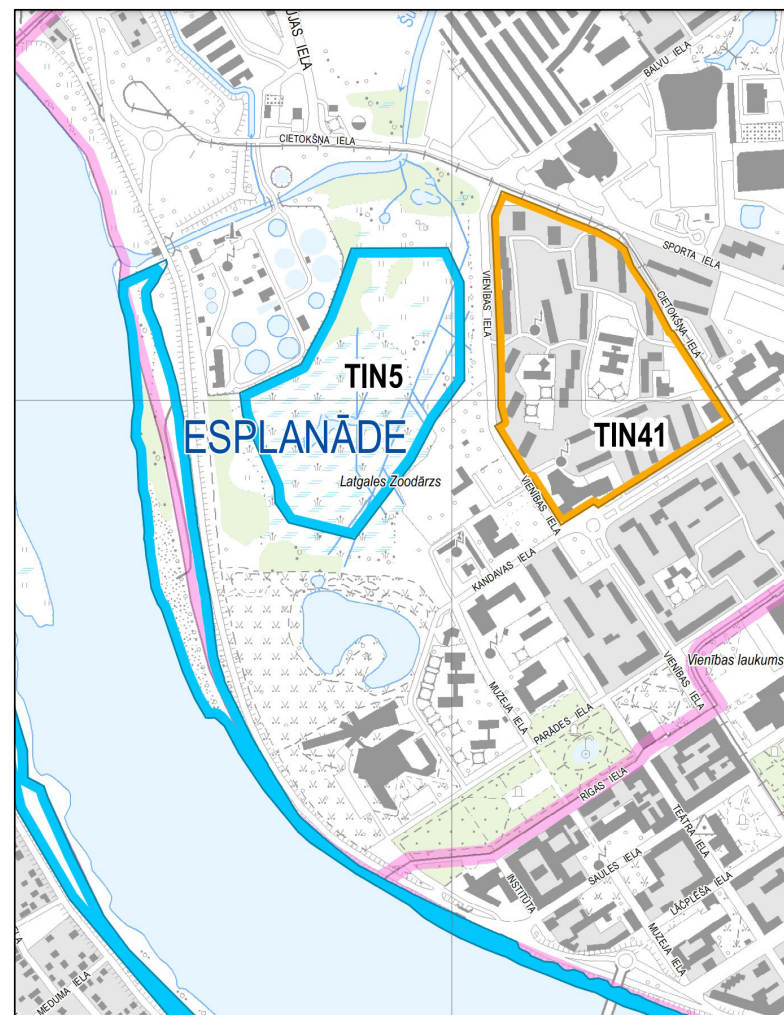
Esplanade wetland area



Land use in the Esplanade wetland area

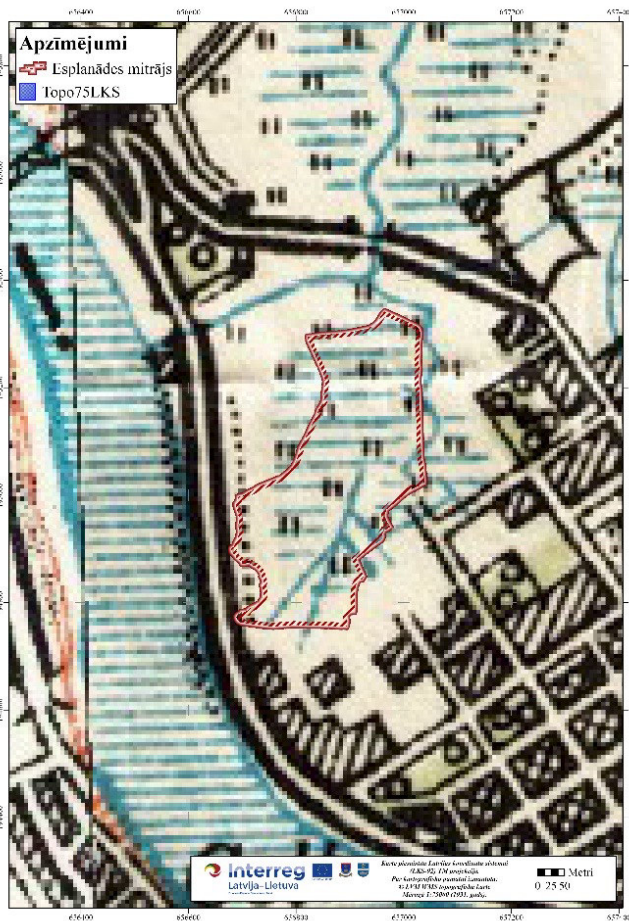


Land ownership in the area of the Esplanāde wetland



Esplanāde wetland area in Daugavpils city spatial plan

Historical aspects



Esplanāde wetland area in 1931

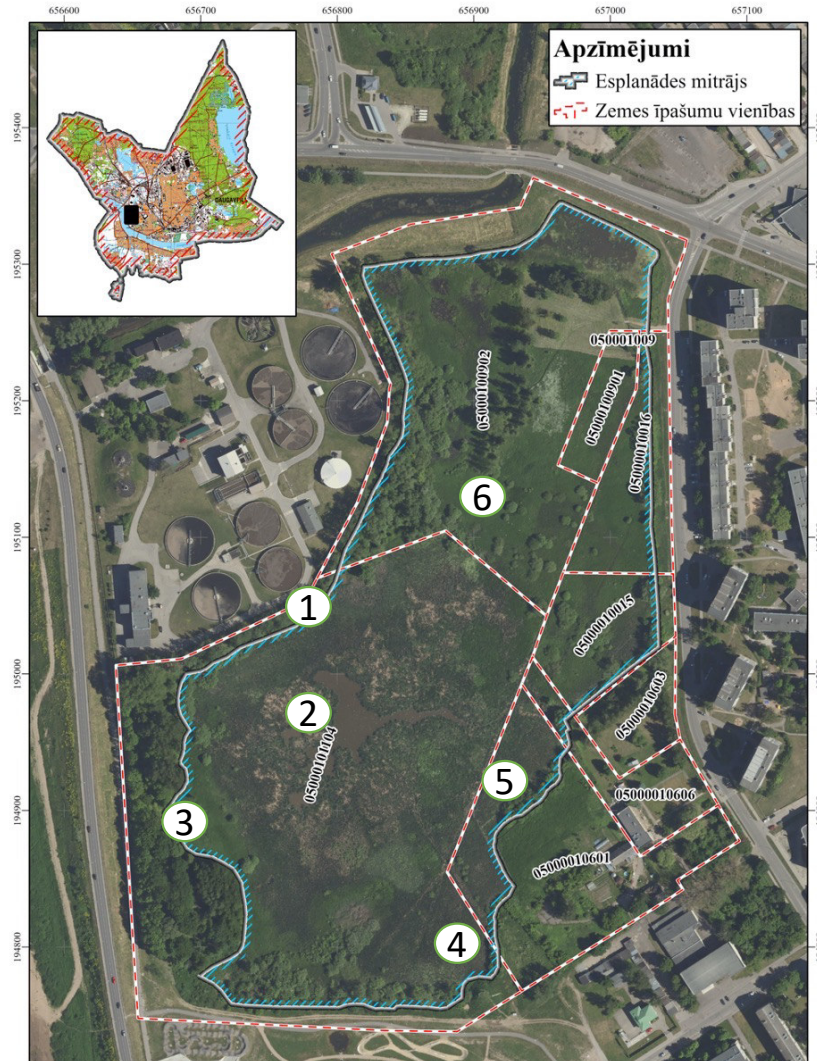


Esplanāde wetland area in 1975



Esplanāde wetland area in 2019.

Current situation











Inventory of natural values found in the Esplanade wetland

- An inventory of natural values found in the Esplanade wetland was carried out during the period from April 2021 to August 2021.
- Involved experts in the inventory - habitat expert, bird species expert, invertebrate species expert, fish expert, mammal species expert, amphibian and reptile species expert, as well as vascular plant expert. A hydrology expert, a GIS specialist, as well as a landscape planning specialist are also involved in the planning of management measures.

Specially protected and rare species found in the research area

No	English name	Latin name	Species status	Remarks
BIRDS				
1.	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	SPS, MS	Found in the territory
2.	Corncrake	<i>Crex crex</i>	SPS, BD I, RDB 2	Found in the territory
3.	Little Bittern	<i>Ixobrychus minutus</i>	SPS, BD I, RDB 1	Found in the territory
4.	Red-backed Shrike	<i>Lanius collurio</i>	SPS, BD I	Found in the territory
5.	Bluethroat	<i>Luscinia svecica</i>	SPS, BD I, RDB 4	Found in the territory
6.	Eurasian Penduline-Tit	<i>Remiz pendulinus</i>	SPS, RDB 3	Found in the territory
7.	Little Grebe	<i>Tachybaptus ruficollis</i>	SPS, RDB 3	Found in the territory
INVERTEBRATES				
8.	Musk beetle	<i>Aromia moschata</i>	RDB 4	Found in the territory
9.	Roman snail	<i>Helix pomatia</i>	SPS, HD V	Found in the territory
10.	Jet ant	<i>Lasius fuliginosus</i>	IAS	Found in the territory
AMPHIBIANS				
11.	European green toad	<i>Bufo viridis</i>	SPS, HD IV, RDB 3	Found in the territory
12.	Common Spadefoot toad	<i>Pelobates fuscus</i>	SPS, HD IV, RDB 4	Found in the territory
13.	Edible frog	<i>Pelophylax esculentus/lessonae</i>	HD IV	Found in the territory
MAMMALS				
14.	Pond bat	<i>Myotis dasycneme</i>	SPS, HD II, RDB 2	Found near the territory
15.	Daubenton's bat	<i>Myotis daubentonii</i>	SPS, HD II	Found near the territory
16.	Brandt's bat	<i>Myotis brandtii</i>	SPS, HD IV, RDB 3	Found near the territory
17.	Brown long-eared bat	<i>Plecotus auritus</i>	SPS, HD IV	Found near the territory
18.	Northern bat	<i>Eptesicus nilsoni</i>	SPS, HD IV	Found near the territory
19.	Parti-coloured bat	<i>Vespertilio murinus</i>	SPS, HD IV, RDB 3	Found near the territory
PLANTS				
20.	Early Marsh Orchid	<i>Dactylorhiza incarnata</i>	SPS	Found near the territory

SPS - specially protected species; **MS** - for conservation of the species, micro-reserves can be established;
BD - species included in the EU Birds Directive; **HD** - species included in the EU Habitats Directive

Black-headed Gull *Chroicocephalus ridibundus*



Black – headed Gull (Photo: J. Jansons)



Black – headed Gulls nesting colony in the Esplanade wetland (Photo: A. Erts)



Black – headed Gulls above the nesting colony in the Esplanade wetland (Photo: A. Erts)

Factors negatively affecting the natural values found in the territory:

- ✓ Changes of hydrological regime



Drained hay meadows in place of the existing Esplanāde wetland (1975)



Map of the drainage system in Esplanāde wetland area



Exavated extension of Šuņupe on the north of the Esplanade wetland area
(Photo: Karīna Dukule – Jekušenoka)



Some of drainage system elements are still functioning
(Photo: D. Krasnopojska)



Open water area in Esplanāde wetland in 1995



Open water area in Esplanāde wetland in 2017

✓ Increasing of plant biomass



(Photo: A. Erts)



(Photo: D. Krasnopoļska)

Monolithic stands of *Typha latifolia* and *Phragmites communis*

✓ Overgrowing with trees and bushes

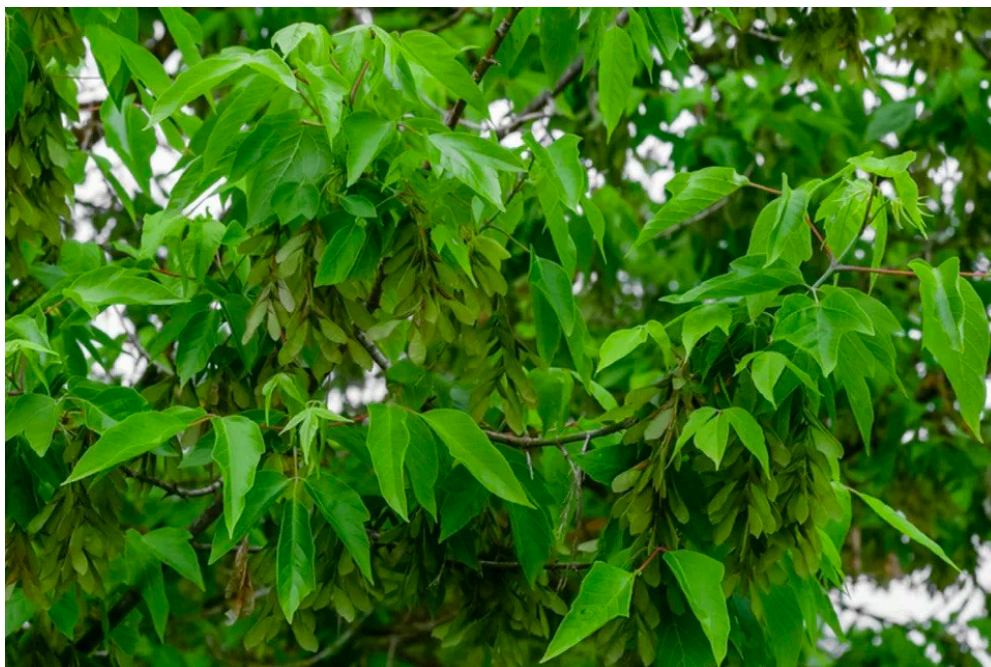


(Photo: A. Erts)



(Photo: D. Krasnopojska)

✓ Distribution of invasive alien species in the wetland area



Ash – leaved maple *Acer negundo* (Photo: D. Krasnopoļska)



Tatarian dogwood *Swida alba* (Photo: V. Ērmane)



Himalayan balsam
Impatiens glandulifera
(Photo: N. Romanceviča)



Wild cucumber
Echinocystis lobata
(Photo: U. Valainis)



Chinese sleeper *Perccottus glenii*
(Photo: Yuriy Kvach)



American mink *Mustela vison*
(Photo: Karīna Dukule - Jekušonoka)

- ✓ The impact of antropogenic factors on Esplanāde wetland



The periphery of the wetland is contaminated with garbage
(Photo: D. Krasnopojska)



Map of existing trodden trails in Esplanade wetland



(Photo: A. Erts)



(Photo: D. Krasnopoļska)



(Photo: U. Valainis)



(Photo: A. Erts)



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