

<https://doi.org/10.22364/iarb.2022.01>

Natura 2000 excellence values and management challenges in the protected landscape area “Augšdaugava”

Elmīra Boikova*¹, Lelde Eņģele², Gunta Evarte-Bundure¹, Gaidis Grandāns¹,
Gunārs Pētersons¹, Mihails Pupiņš¹, Uldis Valainis¹

¹ Institute of Biology, University of Latvia, Riga, Jelgavas 1, LV-1004

² The Latvian Fund for Nature

* Corresponding author: elmira.boikova@lu.lv

Abstract: The ideal or long-term goal of the management plan is to preserve the natural and cultural-historical values of the “Augšdaugava”. It means to preserve the unchanged section of the Daugava River and the adjacent territory, its landscape structure, habitat and species diversity, in the same time promoting sustainable values and socio-economic interests. This complicated goal is demonstrated in the new functional zonation and management proposals.

Key words: EU habitats, rare and threatened species, risk factors, functional zonation, management plan

Introduction

The goal of biodiversity according to the European Environment Agency – good status or increasing trend still is not reached: 1/3 of species & habitats still is not in a good condition and further deterioration is in progress (H. Bruyninckx, 2021). There are 27 850 Natura 2000 sites in Europe. In Latvia, the Natura 2000 network includes 333 territories. The protected landscape area “Augšdaugava” belongs to the Natura 2000 site with an area of 52 078 ha and represents the largest site among the landscape-protected areas in Latvia. The characterization of this unique territory is based on three pillars: the upper Daugava region is formed by geomorphologically unchanged nine river meanders forming the landscape of the ancient valley from the Latvian state border to the Daugavpils City by 98 km long. At the country border, Daugava River flows as a lowland (potomal) river. Near the town Krāslava the valley becomes deeper (40 m) and broader (2–4.5 km) starting to flow via meanders. The protected landscape area represents 27 European Union-protected habitats with flora and fauna species. belonging to both Latvia’s and EU protection.

A peculiar cultural environment has historically developed by merging the way of life of several nations already from Vikings. Today it manifests itself in a rich and unique architectural, cultural, and historical heritage.

Results and discussion

The most significant part of the protected habitats and species are concentrated in the territory of the nature park “Daugavas loki” forming the key zone in the protected landscape area. The microclimate of the Daugava valley especially the very dense net of ravines and the calcareous soils hosts unique vegetation. Some plants can be considered elements of the steppes in the Latvian flora. Due to the warm summers some plant species whose main distribution area is in central Europe. are found there. For a lot of species this region belongs as border zone of their distribution from north and east. The Daugava River valley is an important migration path for new species. According to the data obtained historically as well as during elaboration of the management plan for the protected landscape area “Augšdaugava”, more than 900 species of vascular plants, 71 of which are specially protected, are found there. In this Natura 2000 site, 38 bird species are nesting which are included in Annex I of the Birds Directive. And in addition to them, 16 specially protected bird species have been identified. In the “Augšdaugava” experts have found 26 specially protected insect species in Latvia and 12 of them are included in the annexes of the Habitats Directive. Four protected species of fish and one lamprey species, as well as 20 rare and protected species of mollusks, four of which are included in the annexes of the Habitats Directive. The “Augšdaugava” area is of immense importance for the conservation of bat species: nine species have been identified all of which are specially protected in Latvia and are included in Annex IV of the Habitats Directive. “Augšdaugava” is rich in reptile and amphibian fauna. There are 11 amphibian species (or 85% of Latvian amphibian species) and five reptile species (or 71% of Latvian reptile species) are included in the annexes of the Habitats Directive.

Table 1. Protected habitats in the landscape area “Augšdaugava”

EU habitat code. name	Habitat area (ha) in the protected landscape area	Ratio of protected landscape area habitat to the total Latvia habitat area (%)	Assessment of the situation in Latvia
1	2	3	4
Freshwater habitats			
3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	59.80	1.11	U2d
3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> – type vegetation	259.3	0.43–0.65	U1s
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i>	1532.06	8.96–13.43	U1s
3270 Rivers with muddy banks with <i>Chenopodion rubri p.p.</i> and <i>Bidention p.p.</i> vegetation	19.96	159.28–238.92 ha	XX
Natural and semi-natural grassland habitats			
6120 Xeric sand calcareous grasslands	18.56	2.4–3.19	U2x
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)	383.7	6.62–8.61	U2d
6230 Species-rich <i>Nardus</i> grasslands, on silicious substrates in mountain areas	1.36	0.22–0.28	U2d
6270 Fennoscandian lowland species-rich dry to mesic grasslands	252.33	1.25–1.63	U2d
6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	5.17	0.12–0.16	U2x
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	119.59	17.83–23.21	U1s
6450 Northern boreal alluvial meadows	122.38	0.68–0.88	U2d
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	28.04	0.52–0.68	U2d
Mire habitats			
7110 Active raised bogs	4.67	0.042–0.005	U1s
7120 Degraded raised bogs still capable of natural regeneration	0.96	0.006–0.008	U2x

7140 Transition mires and quaking bogs	49.25	0.58–0.74	U1s
7160 Fennoscandian mineral-rich springs and springfens	16.2	2.26–2.87	U1x
7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)	0.56	1.12–1.83	U1s
Forest habitats			
9010 Western Taiga	1073.76	1.47–2.21	U2x
9020 Fennoscandian hemiboreal natural old broad-leaved deciduous forests (<i>Quercus. Tilia. Acer. Fraxinus or Ulmus</i>) rich in epiphytes	32.1	0.23–0.29	U2s
9050 Fennoscandian herb-rich forests with <i>Picea abies</i>	110.81	1.01–1.03	U2x
9060 Coniferous forests on. or connected to. glaciofluvial eskers	3.16	0.19	U2x
9080 Fennoscandian deciduous swamp woods	59.81	0.26–0.29	U2d
9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>	10.31	0.03–0.06	U1x
9180 Tilio-Acerion forests of slopes. screes and ravines	227.18	3.66–4.25	U1x
91D0 Bog woodland	123.7	0.11–0.21	U1s
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion. Alnion incanae. Salicion albae</i>)	32.81	0.29–0.4	U1x
91T0 Central European lichen Scots pine forests	5.15	0.20–0.21	U1x
	FV: The state of protection is favourable;		
	U1: The state of protection is unfavourable-Inadequat;		
	U2: The state of protection is unfavourable-bad;		
	XX: The state of protection is unknown;		
Trend in the conservation status of the species – positive. D – negative. S – stable or unknown. Source: Latvia report to the EU, 2019.			

According to the assessment, there are 27 EU habitat types in the protected nature area, but with low habitat quality (U1, U2). There are many reasons for this situation in the territory. Although this is Natura 2000 site and covered 51% by forests, their management by Joint Stock Company “Latvia’s State Forests” (LVM) by 65% is industrially motivated. Increasing trend in clearcutting in the last three years, new technical roads (data from the State Forest Agency. VMD, 2020) illustrates the negative impact on forests, especially fragmentation of high conservation value habitats. Also, private owners are far away from the will to introduce good practice in forest management. Agriculture is responsible for pesticides, phosphorus, and nitrate leakage to

the environment, especially in water ecosystems. Therefore, in this management plan for the first time, a new approach is recommended to reduce the eutrophication effect on several lakes (Boikova et al., 2021). A long-lasting problem is not recultivated sand and gravel quarries. These territories are suitable for the establishment of invasive plant species. There is a strong necessity to improve the knowledge of nature's values and the possibility to manage the area in a more sustainable way.

The first functional zonation of this large area was created. Five functional zone, each of which with different management, were proposed. The largest one is the landscape protection zone with 65% of the total area, and the second is the nature park zone "Daugavas loki" ("Meanders of Daugava") – 25.5%. nature reserve zone – 5.8%. neutral zone – 2.9% and strictly protected zone – 0.3%. Recommended new management activities for the period between 2022 and 2034 are presented:

- Administrative and organizational arrangements – six activities,
- Protection and management of nature values – 23 activities,
- Organization and harmonization of tourism and recreation – 32 activities,
- Education and information activities – 20 activities,
- Management of cultural and historical values – six activities,
- Research and monitoring – five activities.

Acknowledgements

The Landscape area "Augšdaugava" protection and management plan for the period 2022–2034 is financed by the project 'Preconditions for better biodiversity preservation and ecosystem protection in Latvia' or simply the 'Nature Census' and co-funded by the European Union Cohesion Fund: www.daba.gov.lv (Nr. 5.4.2.1/16/I/001)

References

- Boikova, E., Enģele, L. Līcīte, V., Suško, U. 2021. Protected water habitats in the landscape area "Augšdaugava". 79th International Scientific Conference of the University of Latvia, Innovative and applied research in Biology, Proceedings, Volume 3, p. 7.
- Bruyninckx, H. 2021. *Biodiversity in Europe: the state of nature and objectives to 2030*. New Policies, Practices and Science for Biodiversity, 15.12.2021, p. 18.
- European Union Protected Habitats in Latvia*. Interpretation manual 2nd edition. 2013. Ed. Auniņš, A. 359 p.