The project “Stepping stones towards ensuring long-term favourable conservation status of Aquatic warbler in Lithuania” (LIFE MagniDucatusAcrola) No. **LIFE15 NAT/LT/001024** is financed by the EU LIFE Programme, Ministry of Environment of the Republic of Lithuania and project partners.

ANALYTICAL REPORT ON CANDIDATE SITES FOR EXTENDING "STEPPING STONE" HABITAT NETWORK OF AQUATIC WARBLER BREEDING RANGE IN LITHUANIA AND BELARUS

Compiled by:
Žymantas Morkvėnas
Dr. Aleksandr Kozulin
Gintaras Riauba
Kristina Valavičiūtė

Vilnius, 2018

Contents

1. Introduction

Aquatic Warbler (*Acrocephalus paludicola*), previously common and widespread species in Europe, during the last century disappeared from many European countries. Nowadays its global population is estimated to be approximately 11 000 singing males, which regularly being recorded in less than 40 sites, situated in Central and Eastern Europe. Few years ago Aquatic Warbler regularly bred in 6 countries – Belarus, Germany, Poland, Ukraine, Hungary and Lithuania, irregularly in Russia and Latvia. However, since 2011 birds were not recorded breeding in Hungary and Germany[1].

Aquatic Warbler is highly specialised species, adapted to occupy sedge fen mires and similarly structured open wetland habitats with a vegetation height usually lower than 1 m and a water level slightly above the soil surface. In recent decades the vast majority of such habitats in Europe faced extinction or degradation due to drainage and habitat destruction for agriculture or peat extraction. Remaining fens also are overgrowing with reeds and woody vegetation due to eutrophication or abandonment of former land use.

Aquatic Warbler – the rarest and the only globally threatened passerine bird species of continental Europe. The species is listed in Annex I of the EU Birds Directive (2009/147/EC), Bern convention Annex II, Bonn convention Annex I. In a year 2003 competent authorities of 15 countries signed "Memorandum of Understanding Concerning Conservation Measures for the Aquatic Warbler" and decided to work closely together to improve the conservation status of the species through its breeding, migrating and wintering range. The Memorandum of Understanding forms an important political umbrella for the international cooperation between the parties, to protect the species by implementation of actions important for the species survival.

The project "Stepping stones towards ensuring long-term favourable conservation status of Aquatic Warbler in Lithuania" (LIFE MagniDucatusAcrola) No. LIFE15 NAT/LT/001024 is financed by the EU LIFE Programme, Ministry of Environment of the Republic of Lithuania and project partners. Main objectives of the project are:

- Reduction of fragmentation of Aquatic Warbler breeding habitats in Lithuania and Belarus and stimulation of connectivity between isolated population;
- Development and application of new conservation measures;
- Setting up long-term socioeconomic preconditions to maintain AW breeding habitats.

This report is compiled as a result of joint work of project team in Belarus and Lithuania, and includes the results of the analysis of peatlands, that are potentially important as a stepping-stone sites for breeding Aquatic Warbler populations in both countries.

The objective of the report is to provide key information on selected sites, which will later be used in preparation of a long-term strategy for establishing a coherent network of "stepping-stone" habitats with the aim to ensure ecological connectivity of existing local breeding populations of Aquatic Warbler. The objective is also connected with the updates of existing species action plans in both countries Belarus and Lithuania, and is planned to be achieved by in-depth GIS analysing of current land cover and use, and shortlisting areas, which, after appropriate restoration, could potentially become suitable as breeding grounds of Aquatic Warbler. It was foreseen, that potential areas (mainly peatlands, damaged by drainage, former exploitation of peat, or land use for agriculture) will be shortlisted based on multiple criteria including evaluation of geomorphological and hydrological conditions, vegetation structure, land-use and socio-economic factors.

[1] Tanneberger, F. & Kubacka, J. (eds.) (2018) The Aquatic Warbler Conservation Handbook. Brandenburg State Office for Environment (LfU), Potsdam.

The results of the analysis – list of potential stepping-stone sites – should be considered as a preliminary result of an initial site selection process. Here presented sites will be further evaluated in the context of possibilities to restore vegetation conditions suitable for establishing local population of Aquatic Warbler. Site visits to the sites are foreseen for the final evaluation of preselected sites. Meetings with local stakeholders (land owners, representatives of local communities, local specialists of agriculture) will also take place during the further site evaluation, since expectations of the land owners' and their willingness to change current farming practices will be considered as one of the most important criteria for future management of the site.

The analysis was held according the methodology, agreed between the experts involved in the project activities, and has been implemented in several stages. Detailed description of methodology applied is provided in the later sections of this report.

2. Background information

It is widely accepted, that habitat loss in breeding sites of Aquatic Warbler during the last century has led to an increased isolation of subpopulations throughout the whole species breeding range. The species is considered facing further rapid decline in numbers and contraction of the breeding range, while habitat destruction, drainage, eutrophication and unsuitable land use are recognised being the main limiting factors affecting all subpopulations. Forming of network of stepping-stone sites (interconnected patches of suitable habitats) thus is visible as an appropriate tool to ensure possibilities for the species to occupy a new breeding sites, thus reducing the large fragmentation of existing habitats and the isolation of existing populations.

All of the species currently occupied breeding areas amount to 382 km^2, while the area of potentially suitable and restorable habitat in the occupied breeding sites is currently estimated at about 3822 square kilometres[2]. Thus, only a small part of it is currently suitable and occupied. Moreover, a large amount of potentially suitable and restorable habitat exists in other sites that do not currently hold any breeding Aquatic Warblers. It is currently stated, that nearly 70 % (about 440000 ha) of Lithuanian peatlands are drained and are mainly used for agriculture, forestry or peat extraction[3]. At the moment about 19000 ha (72 % of all drained bogs devoted for peat extraction)[4] of exploited peatlands in Lithuania are abandoned and are overgrowing with trees (mainly birch) reeds and bushes, and in general form wetlands, that are of low natural value. In most cases in Lithuania land use in such sites is assigned for forestry.

Nearly 39 % (251395 ha) peatlands in Lithuania are used for agriculture and 95 % of them are drained. There are in total about 130000 ha of permanent meadows on peatland soils (former open marshlands, regularly flooded lowland meadows, exploited bogs etc.). All the Aquatic Warbler breeding sites in Lithuania are found in sedge dominated alluvial meadows and fen mires, thus we assume, that existing permanent meadows on peatlands are the most important kind of agricultural land, which could be after some management easily transformed to sedge dominated open grasslands. Sufficiently large areas (patches) of such meadows in line with adequate spatial distribution could be used as stepping-stone habitats for Aquatic Warbler.

Various species of organisms that live in fragmented landscape are using patches of suitable habitat, which assures supply of vital resources (e.g. food, water, shelter, breeding places etc.). If

[2] Tanneberger, F. & Kubacka, J. (eds.) (2018) The Aquatic Warbler Conservation Handbook. Brandenburg State Office for Environment (LfU), Potsdam.

[3] Valatka, S., Stoškus, L. & Pileckas, M. (2018) Lietuvos durpynai. Kiek jų turime, ar racionaliai naudojame? Gamtos paveldo fondas, Vilnius. ISSBN 978-609-8181-18-0

[4] GIS database of Lithuanian peatlans v5. Nature Heritage Fund. (2018). Analysis held by M. Pileckas.

patches of suitable habitat form system of sites, that can be accessed and used by individuals for breeding or temporary stay on the way to remote breeding sites, they thus can be considered as a stepping-stone sites. In long-term perspective system of interconnected patches assure viability of local populations.

"Stepping-stone" approach is introduced in Landscape connectivity concept in ecology and helps to understand how species survive in fragmented landscapes. A patch of a significant natural area is considered suitable for particular species if it enables possibility to successfully carry out some part of its life cycle. How big a patch is needed depends on the concrete needs of species. These stepping stones can act as refuges for seeds or animals moving between larger patches. Corridors, like stepping stones, connect larger patches of habitat to one another allowing movement of organisms from one refuge to the next. Moving between significant patches of habitat is critical for maintaining healthy populations of organisms. Ecologists refer to this as habitat connectivity. One of the reasons it is so important for organisms to access other habitat patches in a fragmented landscape is to help maintain a healthy breeding population of individuals. When a habitat is fragmented into patches, and the population too isolated, the gene pool for a particular species may become too limited, making the population vulnerable to inbreeding and disease. Closer proximity between patches allows for greater population (and genetic) exchanges and may diversify the overall gene pool of a population of a species in a given area.

3. Methodology

The geographical environment and climatic conditions of both the Lithuanian and the Belarusian territories determine that the countries are in the zone of excess humidity. Only about 70 % of precipitation evaporates out there, and excess moisture, depending on the conditions of the relief and soils, can create preconditions for the formation of peatlands. In permanently waterlogged soils peat layer formation occurs if not all remnants of plants are decomposed. Depending on the dominant plant species and hydrology of the site, three main types of peat bogs – raised bog, fen, or transitional mire – can be formed during the process of peat formation.

In the middle of the 20th century, about 47% of the territory of Lithuania was evaluates as land with excess moisture of the soil, and another 7,4 % of the country's territory was covered by swamps[5]. In Belarus the area covered by swamps is relatively higher and it is estimated that the peatlands occupy about 11.5% of the country's territory[6]. Nearly 81,6 % (2 103 800 ha) of all the Belarusian peatlands consists of fens[7], while in Lithuania this type of eutrophic swamps makes about 78% (513 000 ha) of all peatlands[5]. Nearly 67 % of peatlands in Lithuania are drained, and in Belarus total amount of drained peatlands is about 60 %, thus in most cases state of the peatlands type refers to historical data (type of the peat, accumulated in peat layer of former wetland).

The fact that among all types of peatlands in both countries fen mires are dominated type of peatland, suggests assumption, that restoration of this type of habitat has the greatest potential to recover potential stepping-stone habitats for Aquatic Warbler. It is likely that in most cases recovery of important habitat conditions could be achieved by restoring favourable hydrological regime and change in current land use practices, if they are not compatible with the maintenance of open, natural, sedge-dominated grassland.

---

[5] Valatka, S., Stoškus, L. & Pileckas, M. (2018) Lietuvos durpynai. Kiek jų turime, ar racionaliai naudojame? Gamtos paveldo fondas, Vilnius. ISSBN 978-609-8181-18-0

[6] Козулин, А. В., Тановицкая, Н. И., Бамбалов, Н. Н. (2017) Болота Беларуси. Минск. – 105 с.

[7] Bambalov, N., Kozulin, A., Rakovich V. (2005) Peatlands in Belarus. In: Steiner G. M. (ed.) „Mires from Siberia to Tierra del Fuego". Linz : Oberösterreichisches Landesmuseum, 2005.

Peatland analysis were held using existing comprehensive GIS datasets, which were available in both countries. In Belarus GIS database "Peatlands of Belarus" (www.peatlands.by) was used as a data source for evaluation of peatlands. The database "Peatlands of Belarus" was developed on the basis of the peatlands inventory data conducted by the Scientific-Practical Centre of Natural Resources of the Belarusian National Academy of Sciences (SPC; MagniDucatusAcrola Project partner in Belarus) and the Institute for Nature Management of the National Academy of Sciences of Belarus, as part of an international project of UNDP-GEF in year 2016. The main purpose of the database is to systematize and present the current state (area, boundaries, status of protection and use) of the peatlands of Belarus in the following categories: natural swamps, drained peatlands (exploited peatlands, fund for peatland development, land fund). The database allows to analyse data on spatial distribution of peatlands, has data on protected plant and animal species, other biological resources and peat reserves. The database contains data on 8972 peatlands and includes all natural and damaged raised bogs, fens and transitional mires of Belarus.

In Lithuania analysis of existing peatland GIS database[8] was performed in order to shortlist areas potentially suitable as stepping-stone sites for Aquatic Warbler. The selection of peatlands was carried out in several stages and detailed procedure of site-selection and criteria used in different stages are described in section 3.2.

3.1. Candidate site selection in Belarus

In Belarus a database of exploited peatlands, containing information on 2037 (Fig. 1) different exploited peat-extraction sites, was used for the selection of potential stepping-stone areas. During initial screening of the sites all peatlands, where peat extraction could by renewed, were excluded from further evaluation. So in total data of 800 candidate sites were evaluated in the context of suitability to restore Aquatic Warbler habitats in the potential stepping-stone sites.

Data on exploited peatlands were collected and systematized by SPC specialists during long-term research, thus expert judgement was used to select areas, where peat extraction is no longer taking place, and proper site management can be applied in order to restore conditions, required for establishment of sedge dominated wetland vegetation. During the site selection procedure various socio-economic and physical criteria, such as condition of the drainage system, suitability for farming, current land use, demographic situation etc., were used.

The candidate sites were evaluated using criteria of cost-effective management possibility as well, so abandoned peatlands that already has sufficient amount of suitable habitats (or at least fragments of it) were rated as most suitable. Presence of alluvial meadows, open sedge fen habitats, transitional mires etc., was evaluated using vegetation monitoring data, that were obtained during the previous studies. The size, location and configuration (shape) of the area was also considered among the most important criteria for candidate site selection, because bigger areas, that lays near existing Aquatic Warbler breeding sites, borders with open landscape (preferably semi natural meadows) and has proper shaping (rather compact), has more potential to fit the needs for establishing a new population of Aquatic Warbler. It is expected, that the areas that fit above mentioned criteria, will require reasonable amount of management activities to be implemented, which will be limited to proper management of hydrological regime (safeguarding the right amount of water and its quality during the vegetation period) and removal of small trees, bushes and dense reed stands. Implementation of these activities will ensure reestablishment of sedge dominated habitats in the sites.

[8] Lithuanian Geological service. 2005. Digital data on Lithuanian swamps and peatlands (M 1:200000).

The above mentioned criteria correspond to the secondary criteria No. 3-4 used for candidate site selection in Lithuania (see section 3.2. for details).

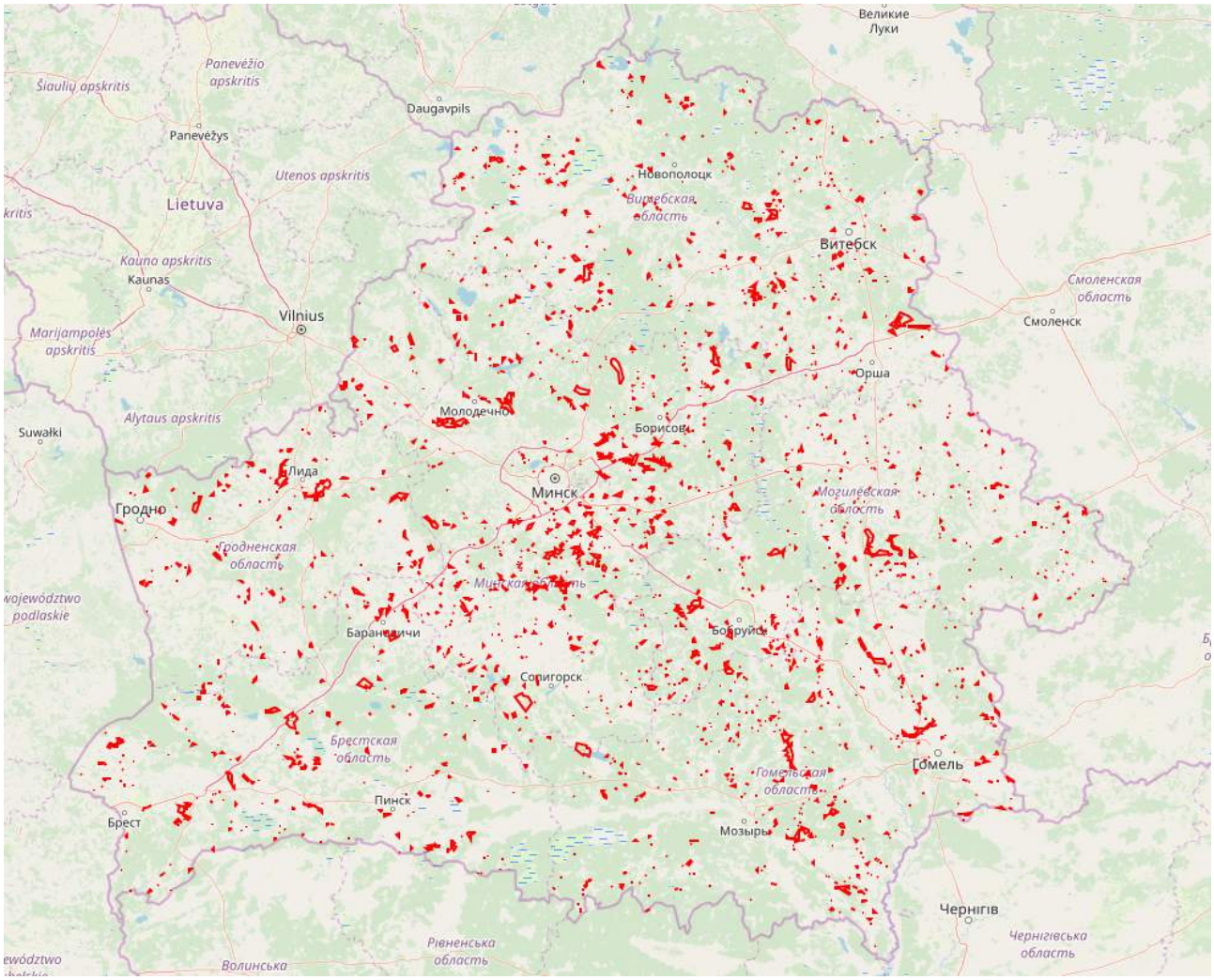


Fig. 1 Spatial distribution of extracted peatlands (red contours; n=2037) in Belarus. Data source: www.peatlands.by.

3.2. Criteria and procedure for candidate site selection in Lithuania

In order to evaluate current "stepping stone" habitat network for Aquatic Warbler conservation in Lithuania two sets of criteria (primary and secondary) were applied in order to screen suitable peatlands. GIS database of Lithuanian peatlands[9], created by Lithuanian Geological Service under the Ministry of Environment and data from Cadastre of Lithuanian peatlands[10], was used as a main data source for site evaluation. In total 11112 peatlands in the GIS database of Lithuanian peatlands were evaluated using primary criteria, combining attribute data from both above mentioned data sources. Carrying out this task GIS software was used.

[9] Lithuanian Geological service. 2005. Digital data on Lithuanian swamps and peatlands (M 1:200000).

[10] L. Grigaravičienė, A. Janukonis, R. Kunskas, R. Liužinas (red.), R. Rajeckas, J. Urbonienė. 1995. Lietuvos durpynų kadastras. LR Aplinkos apsaugos ministerija, Kraštotvarkos departamentas. Vilnius. I-III t.

Primary criteria

A set pf primary criteria for peatland evaluation consisted of indicators, mainly connected with spatial distribution, size and shape of the sites. The criteria were used to eliminate all the sites, that does not meet the needs of the species due to insufficient area of potentially suitable habitat or too big isolation. Two, 5 km and 50 km wide, buffer zones (Fig. 2) were used for selection of peatlands according the criteria described below.

First of all, combination of two criteria – minimal size of the peatland and distance to existing Aquatic Warbler's breeding sites – was applied, to select the smallest and the most remote areas. All peatland areas, that were less than 1 ha in size and the distance to the nearest Aquatic Warbler breeding site was more than 5 km, were automatically removed from further analysis. These criteria are quite important in the evaluation process and is best to be applied at the first stage of work, because it sorts out a lot of small polygons. If the peatland fell inside the 5 km wide buffer zone, polygons bigger than 1 ha in size were considered as potentially suitable for further evaluation. Moving further from AW breeding sites up to 50 km, favourable habitats supposed to be bigger than 10 ha. So all the polygons that were bigger than 10 ha and fell inside the 50 km buffer zone of the known Aquatic Warbler breeding sites, were suggested as potentially suitable for further evaluation. So peatlands less than 10 ha were automatically removed from 50 km buffer zone. For all remaining polygons, that were left outside the 50 km buffers from the known Aquatic Warbler breeding sites, the threshold value of 30 ha was used as a minimum. So for further evaluation only peatlands bigger than 30 ha were left if they were located beyond 50 km from the nearest AW breeding site.

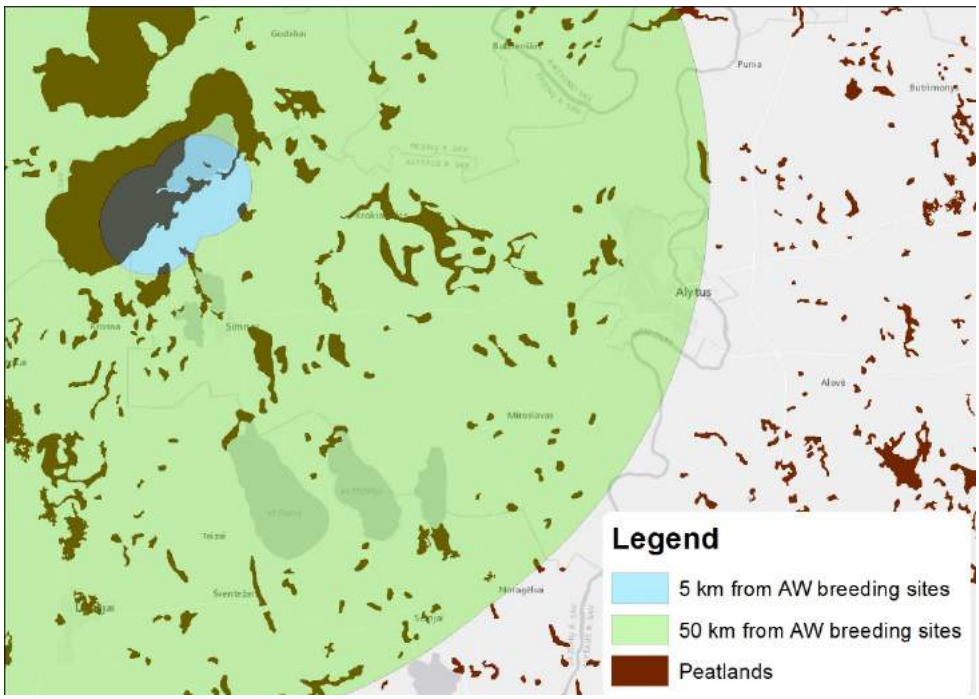


Fig. 2 Buffer zones of 5 and 50 km, used for selection of peatlands according to the criteria of size and distance from existing Aquatic Warbler (AW) breeding sites.

After the first step remaining polygons has to comply with the requirements of area configuration. It is being applied in order to exclude very narrow peatlands, that are situated mainly near rivers. In 1 km distance the width and length ratio of the given area has to be less than 1:5 to be considered as favourable. Also the parts with >1:10 ratio were not included (minus such parts the size criteria have to meet requirements mentioned earlier).

Type of the peatland was also taken to the account, because favourable conditions for restoration of suitable Aquatic Warbler habitat could be found in peatlands, (formerly) predominated by three types of natural habitats: alluvial meadows, alkaline fens, marshes and transitional mires. Only peatlands, where restoration of sedge dominated vegetation is possible, were considered as suitable. Raised bogs can be evaluated as suitable only if they were extracted completely and remained layer of lowland peat is estimated to be no less than 50 cm. It was agreed, that with proper hydrological regime, which could be favourable for restoration of sedge dominated plant communities, such type of peatland could serve as a potential habitat for Aquatic Warbler.

It is important to note that at this stage of evaluation the above mentioned criteria were applied without concern of current situation. At the moment it has not been assessed whether the area is overgrown by trees or bushes. Current condition of drainage system, mineralization of he remained peat layer, land use and other conditions were also not evaluated at these stage. The main point of this evaluation was to select peatlands, that meet the criteria of the potential Aquatic Warbler habitat in terms of shape, size and type of remained peat. After this stage remaining areas were evaluated with further and more detailed criteria.

After screening database against the above mentioned criteria 1707 peatlands remained for further evaluation using secondary criteria (Fig. 3, Table 2).

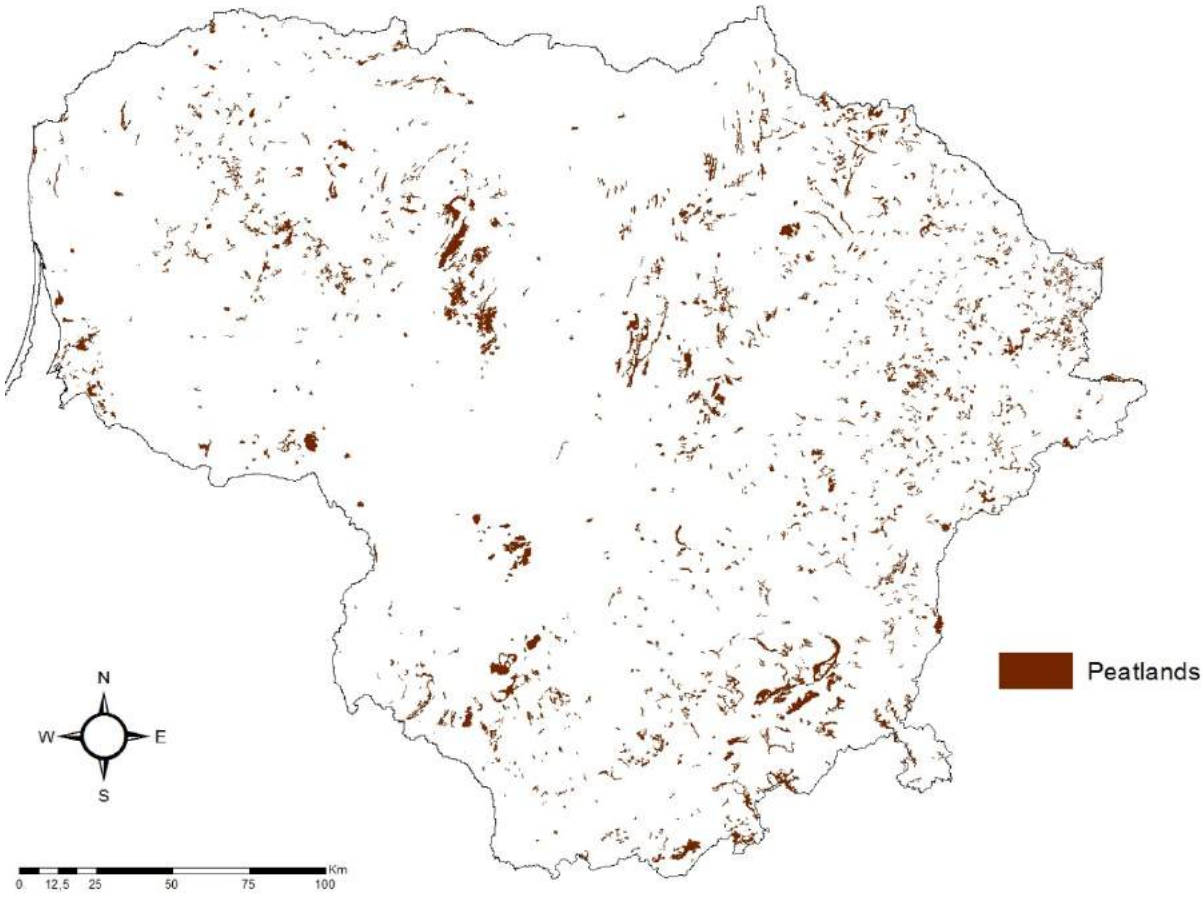


Fig. 3 Peatlands (n=1707) assessed using secondary criteria.

Secondary criteria

Secondary criteria were developed in order to obtain final list of 50-100 sites, that would be the most valuable in context of suitability for designation them as a stepping-stone sites for Aquatic Warbler. In order to achieve this goal, all remaining areas were reviewed and ranked according their suitability to restore habitats of the Aquatic Warbler. All territories were reviewed using orthophoto base maps[11] using GIS software and ranked according criteria (see below), mainly connected with current land use, status of natural or semi-natural suitable habitats, conservation status (e.g. presence of a protected area with favourable conservation regime) peatland size and location, type of neighbouring landscapes etc. Below are the criteria used for ranking of peatlands:

4 – peatland already has (at least) fragments of suitable habitats (e.g. alluvial meadows, open sedge-dominated fen or transitional mire habitats etc.), is big enough, lays near existing AW breeding sites, borders with open landscape (preferably semi natural meadows), has proper shaping (rather compact) and requires minimal management (e.g. removal of willows and reeds, optimisation of hydrological regime and quality of the water) to restore or expand sedge dominated habitats, etc. This rank also could be given to open natural or semi-natural meadows on peat soils, mainly not significantly disturbed by plots of arable land, where some management (water level regulation, single removal of solitary bushes and trees in abandoned parts, etc.) is required to restore suitable habitats, has proper shape, neighbours with other similar sites (has possibility to be expanded in the future) etc. Favourable conservation status (e.g. being a part of Natura 2000 site with favourable conservation regime) was used as preferred but optional condition.

3 – peatlands potentially suitable for restoration of open habitats, but requires significant investments and results are not 100% guaranteed. This category includes mainly extracted peatlands of fen type, where the peat extraction was completed not more than 5-10 years ago and which are represented mainly by open peat areas. Such peatlands can be restored in short time by water level regulation, single removal of solitary bushes and trees in abandoned parts, and requires means of method of replanting of mire vegetation. This rank also could be given to open natural or semi-natural meadows on peat soils, mainly not significantly disturbed by plots of arable land, where some management (water level regulation, single removal of bushes/trees in abandoned parts, etc.) is required to restore suitable habitats, has proper shape, neighbours with other similar sites (has possibility to be expanded in the future) etc. Favourable conservation status (e.g. being a part of Natura 2000) was used as preferred but optional condition.

2 – this category includes extracted peatlands of fen type, where the peat extraction was completed more than 10 years ago, and which are in great extent (more than 50%) overgrown with trees, shrubs and reeds. Usually the sites are abandoned and tending overgrow by shrubs and trees, sometimes already designated for forestry, despite existing fragments of open wetlands (which usually overgrown with reeds). We put in this category also sites of open drained peatlands dominated by arable land. Usually in this category we also put peatlands surrounded (isolated) by forests (because we were not sure how big the open peatland should be to became suitable Aquatic Warbler site, when it is surrounded by forests). Favourable conservation status (e.g. being a part of Natura 2000) was used as preferred but optional condition.

1 – suitable exceptionally on theoretical level only. Peatland is too small or highly isolated (e.g. surrounded by forests or other sorts of unsuitable habitats). Also this category was given to the sites, when any other categories could not be assigned ("not sure").

0 - sites that have no practical possibilities to serve as stepping-stone habitats for Aquatic Warbler: peatland usually to small (30-50 ha), isolated (sites are solitary in landscapes, distance to neighbouring sites is more than 10 km, or neighbouring sites are small and has a rating of no more than "2") sites devoted to arable agriculture or fully overgrown with trees (forest land).

[11] ORT10LT ©, National Land Service under the Ministry of Agriculture, 2015-2017 (http://www.nzt.lt/nzt/)

Additional GIS data layers were used during the peatland evaluation according to secondary criteria. The purpose of the land and the intensity of its use were assessed using digital data of the State cadastre of the forest of Republic of Lithuania[12], and Database of declarations for agricultural payments[13]. Information on special protected areas of EU importance (Natura 2000 sites) collected using spatial dataset of State Cadastre for Protected Areas of Lithuania[14], and data on presence of three types of natural habitats important for Aquatic Warbler (Alluvial meadows (6440), Transitional mires and quaking bogs (7140) and Alkaline fens (7230)) were obtained from dataset of natural habitats of EU importance[15].

After evaluation of peatlands using secondary criteria we rated in total 1707 peatlands according to a number of criteria, that are important for further selection of potential AW stepping-stone sites. The peatlands were rated from 0 (least suitable) to 4 (most suitable), and "Hot-Spot" analysis was performed using ArcGIS Online tool. During the "Hot-spot" analysis all peatlands, according their ratings and spatial distribution, were assigned to clusters of best rated sites located within a distance of 16 km. A threshold value of 16 km was used based on data from Nemunas Delta region (biggest Aquatic Warbler breeding site in western Lithuania), where in one particular breeding season movement of ringed Aquatic Warbler individuals are constantly observed between several territories, which are located within a distance of 16 km (oral report by V. Eigirdas). All the birds of Nemunas Delta are suggested to form one big local population therefore it can be assumed that birds of the same local population can use several sites with suitable habitat within a distance of 16 km. For further analysis, only those peatlands that were assigned to specific clusters were selected (third-level selection according the criteria of Hot-spot analysis). In total, 191 peatlands were assigned to specific clusters, so an additional screening of the sites was carried out to reduce the number of potential stepping stone areas to 50-100.

A following additional scoring (fourth level criteria) was used to conduct a final list of potential stepping stone sites:

- A peatland falls into 50 km buffer zone of existing Aquatic Warbler breeding site; Or peatland is big enough (>1000 ha) to maintain its own local population (several big peatlands outside the Hot-spot clusters were scored according this criterion) – 1 point;
- Favourable land use: significant amount (nearly 50 % of the area) of suitable habitat (sedge dominated meadows or other semi natural meadows) already in place. Arable land or forested/abandoned area takes up to 20-30 percent of the peatland area – 1 point;
- It is possible to restore and connect at least two neighbouring peatlands which are within a distance of 2 km; or it is possible to expand area of the existing peatland, as peat soils occupy much larger areas, so it is possible to restore a larger area of former wetland – 1 point;
- The area of the peatland is over 200 ha – 1 point.

In total, 102 peatlands with at least 3-4 points were selected as a final result for a more detailed description and further evaluation.

[12] Forest cadastre data © State Forest Survey service under the Ministry of Environment of the Republic of Lithuania, 2017-09-13

[13] Database of declarations for agricultural payments 2017 © National Paying Agency under the Ministry of Agriculture of the Republic of Lithuania

[14] Data of State Cadastre for Protected Areas of Lithuania © State Service for Protected Areas under the Ministry of Environment, 2018-01-30

[15] Spatial dataset of Natural habitats of EU importance in Lithuania © Institute of Botany, Nature research centre, 2015-02-18

4. Results

4.1. Overview on primary and secondary screening

Belarus

In order to identify peatlands suitable for restoring potential habitats for Aquatic Warbler, the condition of 2037 disturbed peatlands was studied. During the process of evaluation of peatlands, the current state of disturbed peatlands was studied. Based on the study of departmental materials and analysis of space imagery, data was obtained on the area of disturbed peatlands and their current use. Out of 284,8 thousand hectares of exploited peatlands 143,4 thousand hectares are subject to environmental rehabilitation. Of these, 15 peatlands with a total area of 22672 hectares were selected to restore potential habitats of the Aquatic Warbler (see Annex I for detailed description of individual sites). The overall location of the selected territories in the territory of Belarus is shown in Fig. 5.

Table 1.

Disturbed peatlands of Belarus, recommended for rewetting with the aim to create potential habitats for the Aquatic Warbler

	Name of the peat deposit site	Criteria	Cadastral number	Administrative region, district	Type of use	Area of the plot for rewetting. ha
1	Zvanets	4		Brest, Drogichin, Kobrin	Fen mire	8916
2	Sporovski	4		Brest, Bereza	Fen mire	2123
3	Mikulishki	2	13	Grodno, Oshmiany	Partly extracted peatland	683
4	Karvelishki1	2	15	Grodno, Oshmiany	Extracted peatland	520
5	Krasnyi Bor	2	7	Grodno, Ostrovets	Extracted peatland	509
6	Zarechie	2	246	Grodno Korelichi	Extracted peatland	343
7	Ushanskoe	2	248	Grodno Korelichi	Extracted peatland	142
8	Krupka	3	184	Grodno, Lida	Under extraction	648
9	In the floodplain of	3	67	Grodno Voronovo	Under extraction	792

	the Ditva River					
10	Petriki	2	31	Grodno Ostrovets	Extracted peatland	526
11	Chist	2	72	Minsk Vileika	Extracted peatland	1346
12	In the floodplain of the Essa river	2	257	Minsk Krupki	Extracted peatland	1884
13	Grichino-Starobinskoe	3	1186	Minsk Soligorsk	Extracted and under extraction	2190
14	Bulev Mokh	3	816	Minsk, Soligorsk	Extracted and under extraction	1654
15	Belmont	3	112	Vitebsk, Braslav	Extracted and under extraction	396
	Total					**22672**

Lithuania

The primary criteria were used to analyse the data of all peatlands (n=11112), presented in the Lithuanian peatland cadastre. In total, 1707 peatlands meet the primary criteria and were further evaluated using secondary criteria. All peatlands were ranked according the criteria, and these data were used to isolate the peatlands, located in areas with the highest concentration of potentially most valuable peatlands. The Hot-spot analysis revealed that clusters of the most valuable and spatially not significantly isolated peatlands are located in different parts of Lithuania (Fig. 4). In total, several clusters of peatlands have emerged covering peatlands of various sizes around all known breeding sites of Aquatic Warbler in the existing project areas (Nemunas Delta region, surroundings of Lake Žuvintas and Wetlands in surroundings of Apvardai Lake) and several new sites. These are peatland complexes located in western Lithuania, mostly located in the Varniai Regional Park (a total of 54 separate peatlands), a group of 24 peatlands at the junction of Molėtai, Širvintos and Vilnius districts (eastern part of Lithuania), and about 10 lowland peatlands at the junction of Utena and Rokiškis districts (north-eastern part of Lithuania). Clusters containing less than 10 potentially suitable peatlands were identified in other parts of Lithuania as well.

After the Hot-Spot analysis, 191 peatlands belonging to clusters of the most valuable peatlands, were selected for final shortlisting according the fourth level criteria, described in page 11. In total, 102 peatlands were selected as a final result for a more detailed description and further in-site evaluation. Data on changes of some characteristics of peatlands during the evaluation process are presented in Table 2.

Table 2.

Change of some data on peatlands during the main stages of site selection

		Primary data	Peatland data after first selection		Peatland data after secondary selection (102 peatlands)		
		Data of 11112 peatlands	Data of 1707 peatlands	% of primary data	Data of 102 peatlands	% of primary data	% of first selection data
Area, ha		511999,11	265691,90	51,89	32243,69	6,30	12,14
Drained, units		7764	1582	20,38	98	1,26	6,19
Current state	In operation of exploitation, units	81	62	76,54	6	7,41	9,68
	Potential Ramsar area, units	26	14	53,85	3	11,54	21,43
	Preserved, units	5	4	80,00	0	0,00	0,00
	Neglected, units	49	45	91,84	6	12,24	13,33
Type	Fen, units	2782	1306	46,94	93	3,34	7,12
	Transitional, units	123	12	9,76	0	0,00	0,00
	Peatland, units	7823	339	4,33	6	0,08	1,77
	Bog, units	382	49	12,83	3	0,79	6,12

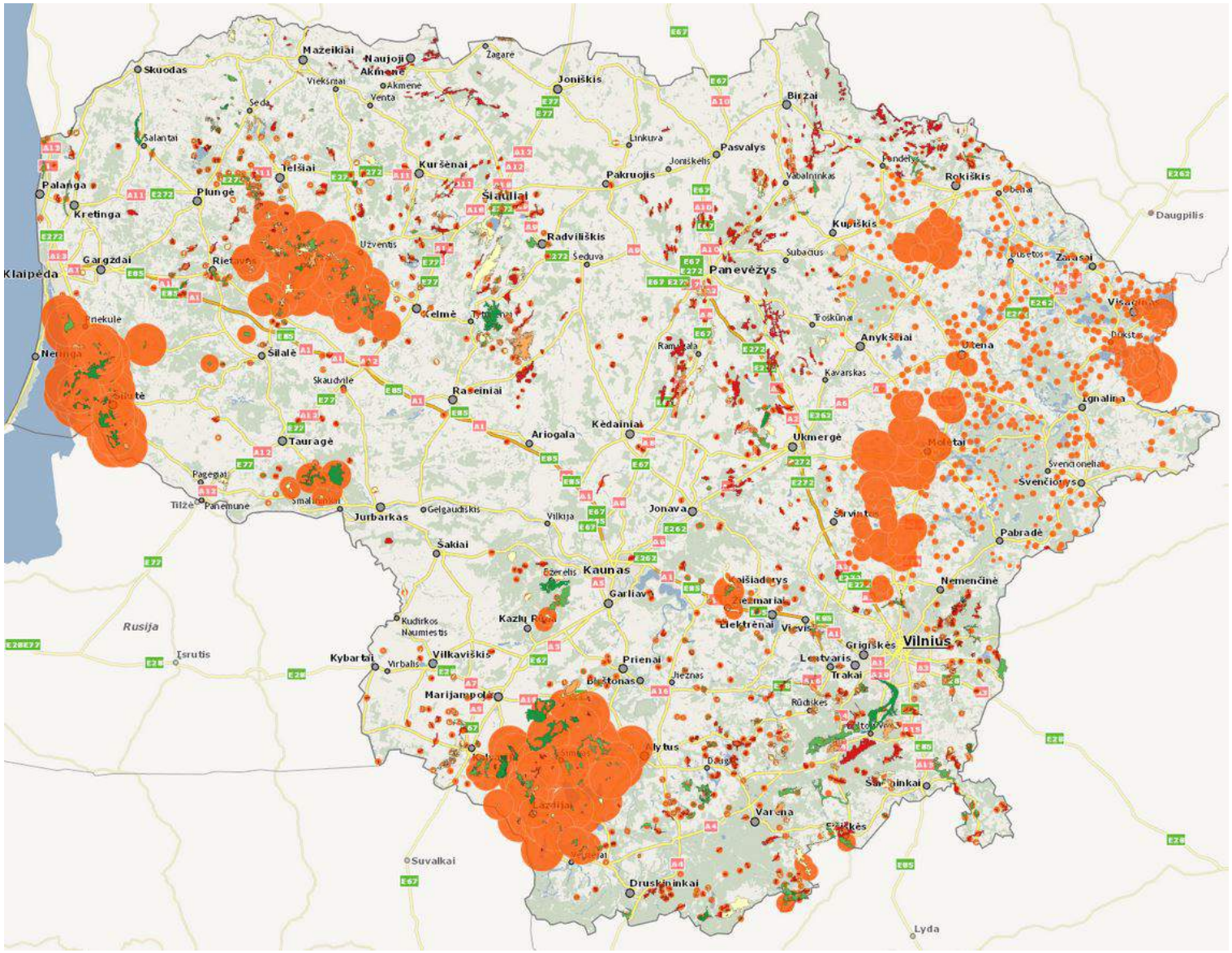


Fig. 4 Distribution of clusters of the most valuable peatlands in Lithuania revealed by “Hot-Spot” analysis.

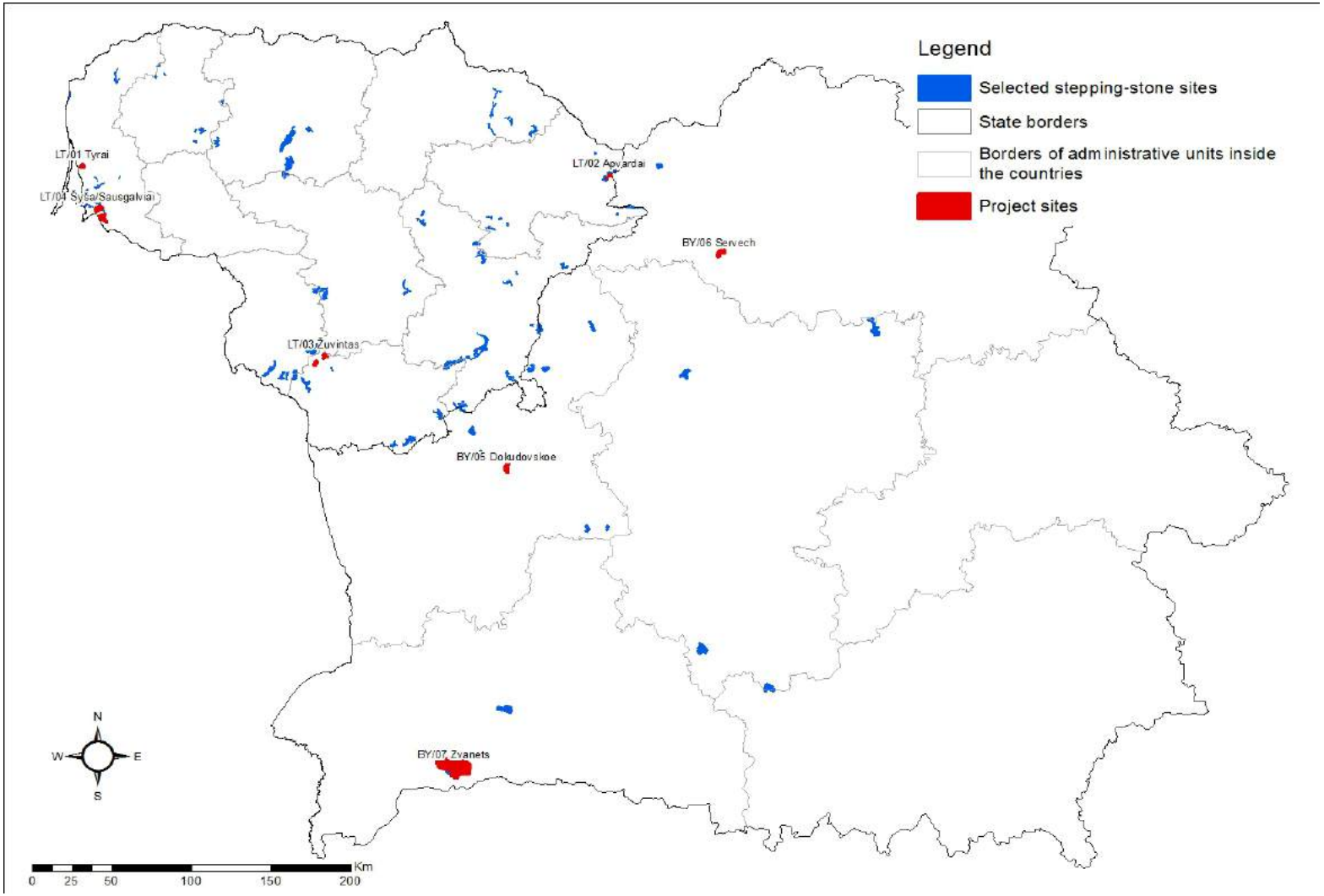


Fig. 5 Distribution of selected potential Aquatic Warbler stepping-stone sites in Lithuania and Belarus.

4.2. General description of suggested stepping-stone habitat network in Lithuania and Belarus and recommendation towards achieving the Aquatic Warbler habitat connectivity in practice

The distribution of all selected peatlands in Lithuania and Belarus is shown in Figure 5. The number of potential stepping-stone territories selected in Lithuania is higher than in Belarus, and they are more or less evenly distributed throughout the country. The size, natural environment, current hydrological regime and main characteristics of land use are quite different, therefore it is difficult to summarize the selected areas without more detailed analysis. In Belarus, the territories cover the south-western and central parts of the country, are relatively large, have a similar natural environment, and include mainly exploited or nearly-exploited peatlands, where the existing legislation and peculiarities of land use already allow for the planning of specific preliminary habitat restoration activities and measures for their maintenance. The majority of territories in Lithuania include areas of private land, which is drained and used for agriculture. Some of the peatlands are abandoned, overgrown with woody vegetation, hence they are assigned to forestry activities.

The general strategy for selecting peatlands for restoring Aquatic Warbler habitats in Belarus is as follows. At the first stage it is planned to fully restore the key habitats of the species in Europe – Zvanets and Sporovskoe mires. Currently only central parts of these mires are being restored under different projects, and their peripheral parts remain unsuitable for the Aquatic Warbler breeding because of ongoing overgrowing with shrubs and reeds. Restoration of these peripheral parts of the key Aquatic Warbler habitats is planned at the first stage of the Strategy implementation. This will allow in a short time to ensure the stabilization and increase in the number of the Aquatic Warbler in the sites.

Significant part of the Zvanets mire was drained, and agricultural melioration systems were created there. However, at present a significant part of the melioration systems is out of use due to different reasons, and a fen mire can be restored in such areas easily. Such former melioration systems are also included in the Strategy for creation of new Aquatic Warbler habitats.

At the second stage it is planned to start works on rewetting of peatlands, where the peat extraction has just been completed. Use of the method of accelerated restoration of peatlands by means of planting mire vegetation will allow creating in short time period a network of new Aquatic Warbler habitats within its distribution range.

At the third stage it is planned to conduct rewetting of peatlands, where the peat was extracted many years ago, and which are overgrown with shrubs. Restoration of such peatlands to initial state of a sedge mire will be quite long process (up to 50-100 years), but smaller areas of sedge mire in extracted sites can be restored within several decades.

In Lithuania, most of the territories are drained peatlands, whose suitability for restoration of Aquatic Warbler habitats will be determined only after visiting the site. During the field visits, data on the current status of potential Aquatic Warbler habitats, the peculiarities of the economic use, and the condition of the drainage system will be evaluated. Meetings with landowners, local residents and other stakeholders will also be held in order to evaluate socio-economic conditions of the area, to assess the possibility of restoring habitats important for Aquatic Warbler. Such work will determine guidance for further habitat restoration and long-term conservation strategy of

aquatic warbler in an attempt to establish a seamless breeding range for the species. Site-visits to all the preselected sites will be organised in 2019, the data will be summarized in a special report.

A detailed site analysis will make it possible to compile a final list of potential stepping stone areas to be included in the species protection plan. The species actions plan will be supported by list of areas, which, after appropriate restoration, could potentially become suitable as aquatic warbler breeding grounds, and serve as a stepping-stone sites for establishing new local populations of Aquatic Warbler. These documents will also set out the most important stages (priorities) for establishing network of stepping-stone stone sites, that will ensure long-term conservation of the species. During the planning of specific conservation measures, it is important to maintain the spatial distribution of potential areas (distance to existing Aquatic Warbler breeding sites, area of the sites and possibility to connect adjacent suitable areas), and to consider habitat restoration possibilities, including geomorphological, land-use and socio-economic factors. Further development of Aquatic Warbler habitat network should be ensured through the development and implementation of specific projects.

5. Annexes

List of selected stepping-stone sites in Belarus (p. 20-53)

List of selected stepping-stone sites in Lithuania (p. 54-114)

Annex I. List of selected stepping-stone sites in Belarus

SEDGE FEN-MIRE "ZVANETS"

Coordinates: N52°04.365 - E24°45.845

Administrative district: Brest region, Drogichin, Kobrin district

Nearest populated locality: in the north – village Novoselki, in the south – village Povitie, Radostovo

Area of the peat deposit site: 13196 ha

Area of the disturbed part of the fen mire site subject to restoring: 8916 ha

Type of the peatland according to prevailing peat type: Zvanets mire is the largest sedge fen mire in Europe. It is being overgrown with shrubs and reeds.

Current land user: The whole territory of the mire is protected area of Republican importance (zakaznik). The southern part of the mire was drained for agriculture. But the part of melioration system, adjacent to the protected area, is out of agricultural use now due to different reasons. Currently this part belongs to "reserve lands" and can be joined to the protected area in the future.

Current state: The central part of the mire with an area of about 6000 ha is represented mainly by the open sedge fen mire and is the key breeding habitat of the Aquatic Warbler. Works on removal of shrubs and reeds are being conducted in the area under different projects, aimed at maintaining this central part of the mire in the state, suitable for the Aquatic Warbler breeding.

The peripheral parts of the Zvanets mire, which previously were also breeding sites of the Aquatic Warbler, are completely overgrown with shrubs and reeds. At present these areas are not included in projects on restoration of Aquatic Warbler habitats due to high cost of their restoration. Nevertheless, restoration of these degraded mire parts will let to considerably enlarge the area of the Aquatic Warbler habitats and increase its population size.

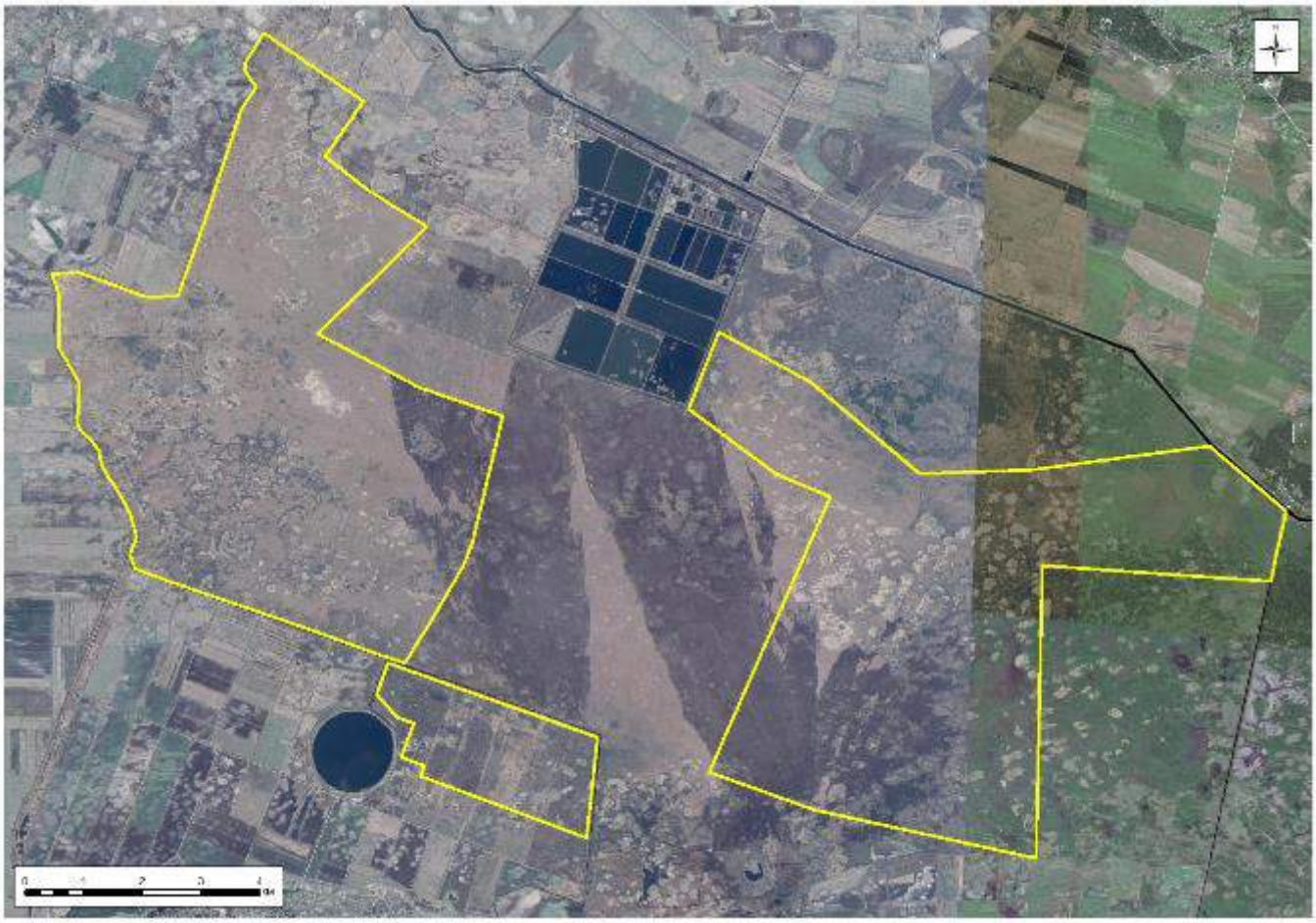


Fig. 1. Aerial image of the disturbed part of the Zvanets fen mire, subject to restoration

Besides, significant area, adjacent to the protected area in the south, is occupied by the melioration system, which is out of use due to different reasons. The sedge fen mire can be restored in these previously drained areas, which will enlarge the species habitat area.

Assessment of the trend of vegetation development in the mire in case of restoration*:* As the experience of similar works conducted in the central part of the protected area shows, the removal of shrubs and reeds and regular mowing will let to restore open sedge mire within five years and almost double the number of the Aquatic Warbler.

SEDGE FEN-MIRE "SPOROVSKI"

Number of the peat deposit site:

Coordinates: N52°22 992 - E25°19 622

Administrative district: Brest region, Bereza, Drogichin district

Nearest populated locality: Bereza

Area of the peat deposit site: 11620 ha

Area of the disturbed part of the fen mire site subject to restoring: 2123 ha

Type of the peatland according to prevailing peat type: Sporovski is one of the largest sedge fen mires in Europe. It is being overgrown with shrubs and reeds.

Current land user: The whole territory of the mire is protected area of Republican importance (zakaznik).

Fig. 2. Aerial image of the disturbed part of the Sporovski fen mire, subject to restoration

Current state: The central part of the mire with an area of about 3000 ha is represented mainly by the open sedge fen mire and is the key breeding habitat of the Aquatic Warbler. Works on removal of shrubs and reeds are being conducted in the area under different projects, aimed at maintaining this central part of the mire in the state, suitable for the Aquatic Warbler breeding.

The peripheral parts of the Sporovski mire, which previously were also breeding sites of the Aquatic Warbler, are completely overgrown with shrubs and reeds. At present these areas are not included in projects on restoration of Aquatic Warbler habitats due to high cost of their restoration. Nevertheless, restoration of these degraded mire parts will let to considerably enlarge the area of the Aquatic Warbler habitats and increase its population size.

Assessment of the trend of vegetation development in the mire in case of restoration: As the experience of similar works conducted in the central part of the protected area shows, the removal of shrubs and reeds and regular mowing will let to restore open sedge mire within five years and almost double the number of the Aquatic Warbler.

"MIKULISHKI" (MIRE ZHELVI)

Number of the peat deposit site: 13

Coordinates: N54°23¹616¹¹; E25°40¹840¹¹

Administrative district: Oshmiany

Nearest populated locality: in the north – village Slotishki, in the east – village Buniany, in the south – village Mikulishki, in the west – village Bujanishki

Area of the peat deposit site: 1956 ha

Area of the extracted part of the peat deposit site subject to rewetting: 683 ha

Type of the peatland according to prevailing peat type: The territory in question is watershed mire in the upper stream of the river Miarkis. The southern part of the mire is mostly fen mire; in the northern part transition mire type prevails. The area of the mire prior to drainage was 1956 ha; the peat depth varies from 0.5 to 2.0 m.

Current land user: Most of the territory in question is under management of the State Forestry Enterprise "Smorgonskiy Forestry". Peat deposit fields and part of the extracted peat fields are under management of the peat extraction company, but the most part of withdrawn land is in the State Land Fund.

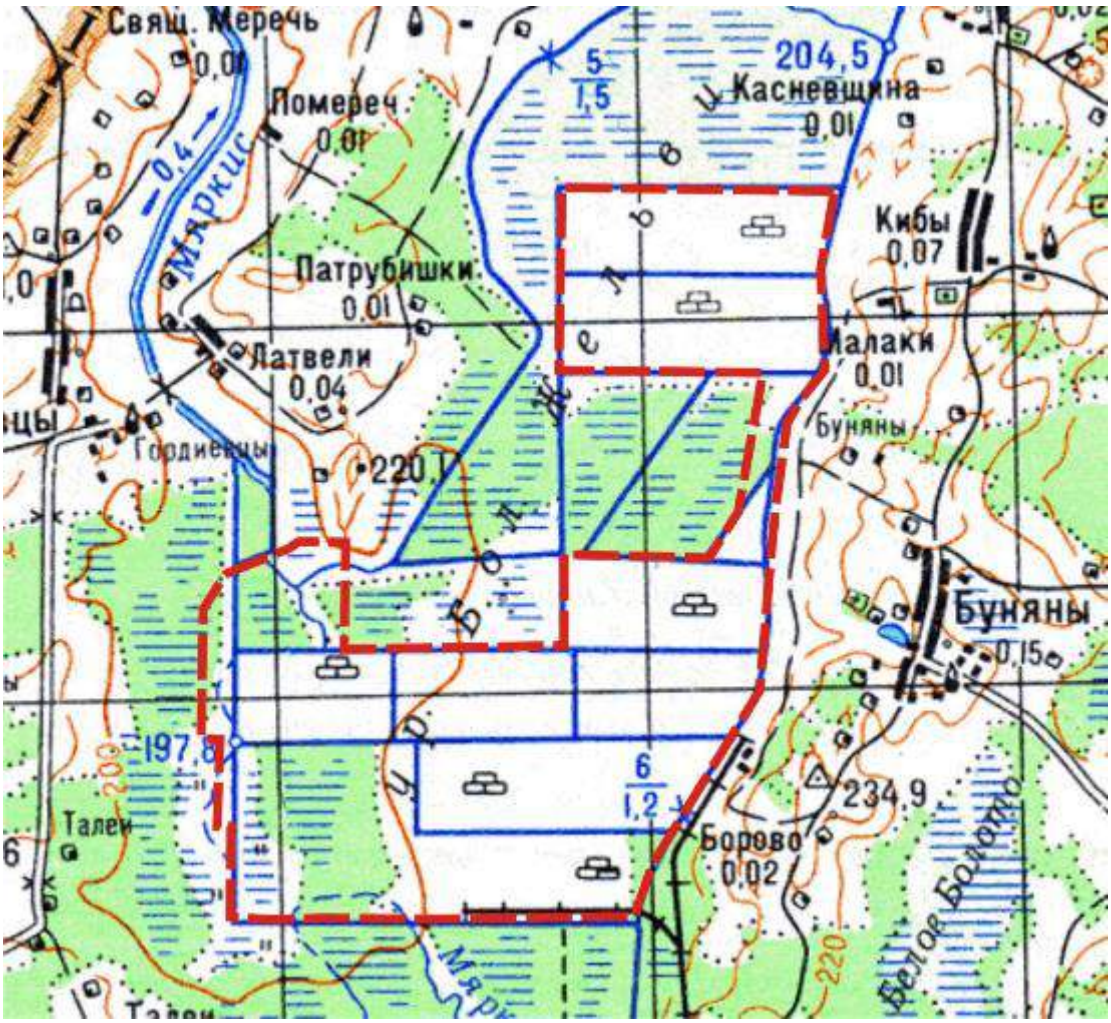


Fig. 3. Scheme of the extracted part of the peatland Mikulishki, subject to rewetting

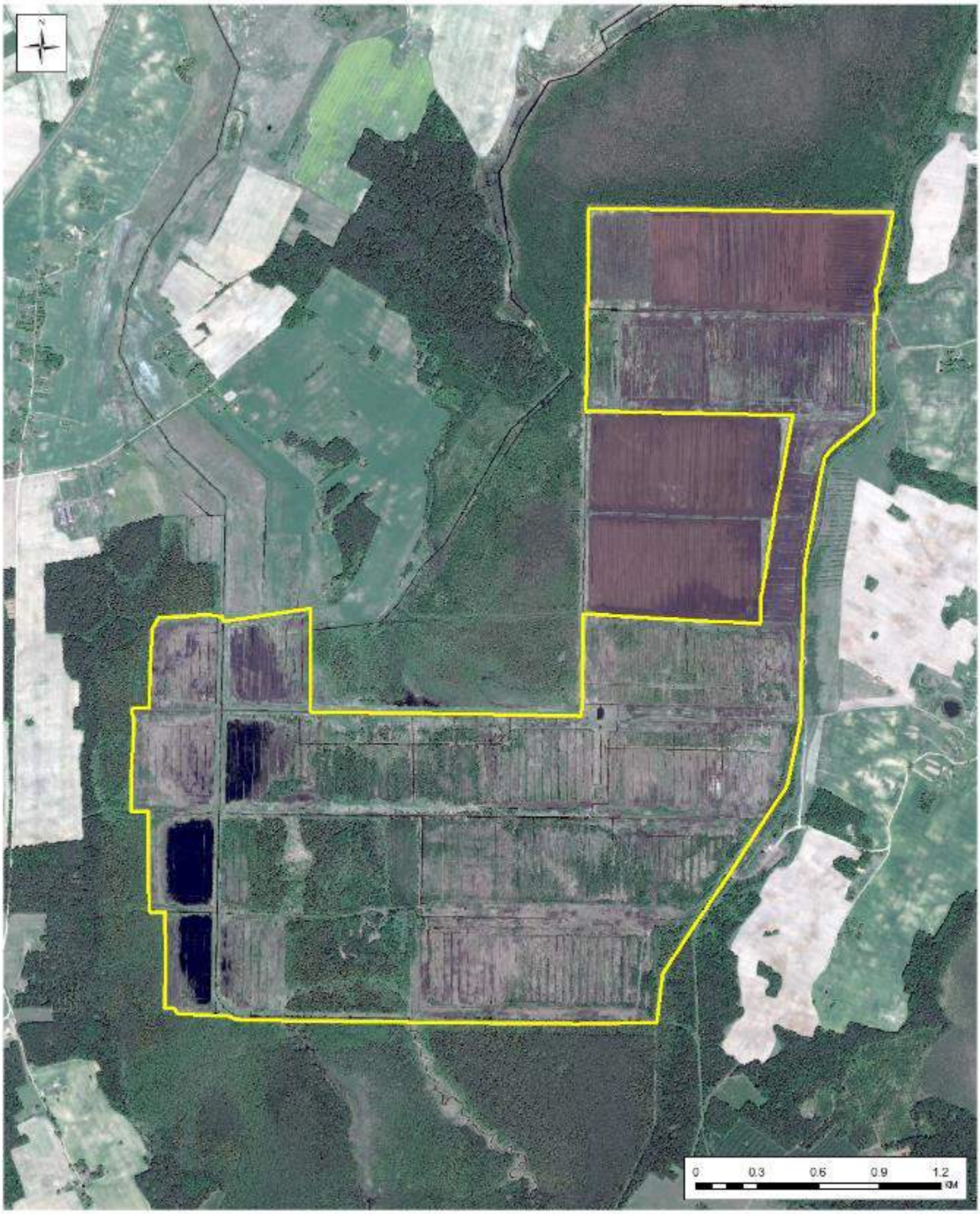


Fig. 4. Aerial image of the extracted part of the mire massif Mikulishki, subject to rewetting

Current state: The peat deposit site is represented by the mire in the upper stream of the river Miarkis. About 30% of the mire massif is drained, extracted or is currently used for peat extraction. Most territory of the extracted peatland was transferred under the authority of the Smorgon Forestry without its reclamation and with functioning drainage network. Part of this territory is becoming overgrown with willow shrubs and birch trees, and another part exists for a long time as open peat fields.

Currently the main land use forms on the territory of the mire massif are peat extraction, forestry and hunting.

The mire has a near-border position with Latvia, and insufficiently purified water from the peat extraction ground is discharged to the canalized trans boundary river Miarkis.

Assessment of the trend of vegetation development in the mire in case of rewetting: During the first stage when the groundwater level on the extracted plots of the mire is increased and stabilized, Cotton grass-Sphagnum and reed-sedge communities will be formed depending on the hydro chemical and soil conditions. Tree stands dominated by birch and pine will develop on the elevated parts. In the drained parts in the north-eastern part of the mire natural forest-mire communities, mainly sphagnum ones, will recover.

PEAT DEPOSIT SITE "KORVELISHKI-1"

Number of the peat deposit site: 15

Coordinates: N54^{o}22^{1}916^{11}; E25^{o}48^{1}032^{11}

Administrative district: Oshmiany

Nearest populated locality: in the north – village Kutskuny, in the east – village Berniki, in the south – Bolby, in the west - Velbutovo.

Area of the peat deposit site: 1354 ha

Area of the extracted part of the peat deposit site subject to rewetting: 520 ha

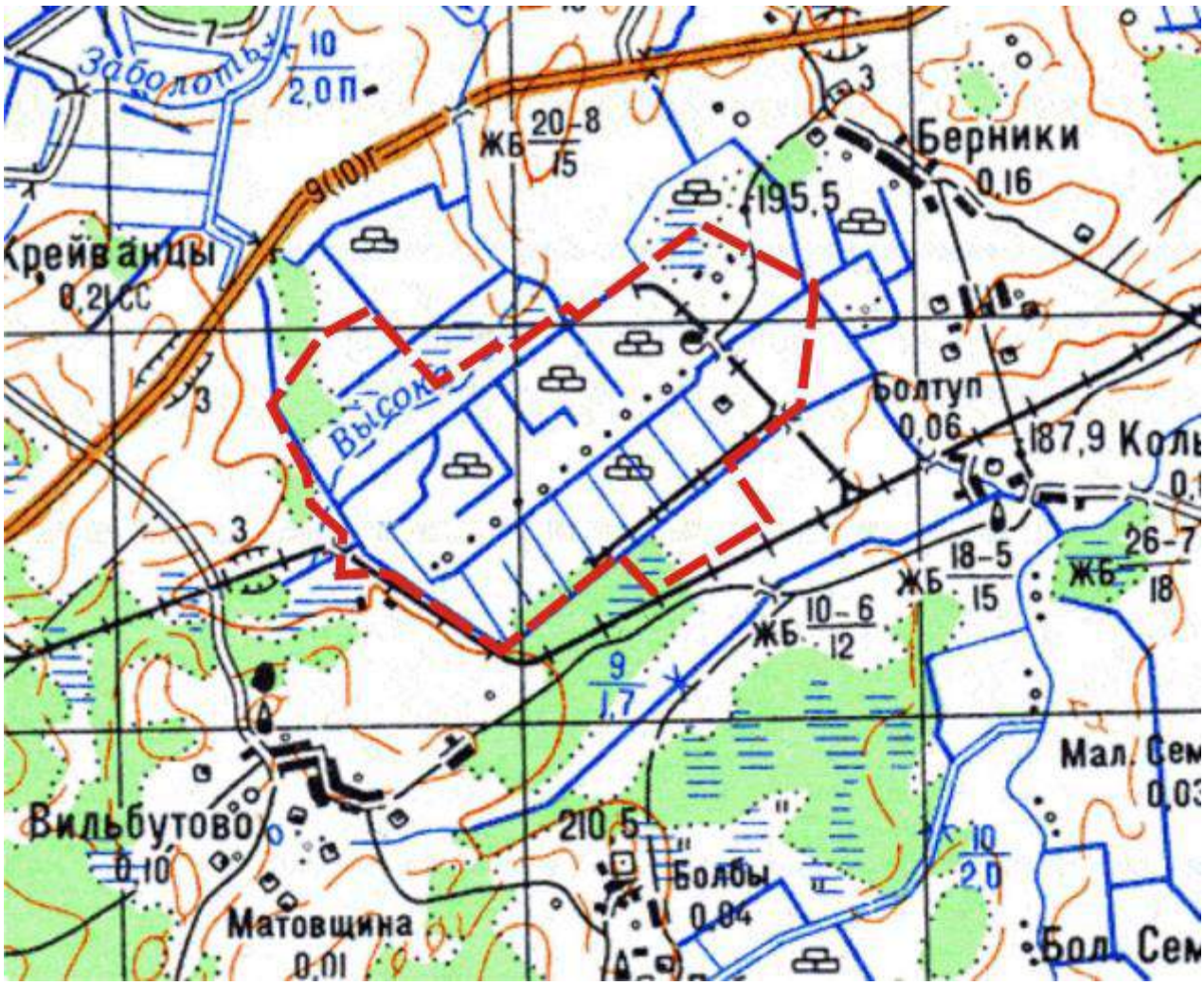


Fig. 5. Scheme of the part of the mire massif Korvelishki-1

Mire type: Before the drainage it was large fen mire, situated in the floodplains of rivers Oshmianka, Zabolot and Goruzhanka. The part Korvelishki-1 is located in the floodplain of the canalized river Vysoka - tributary of the river Zabolot. The area of this plot is about 400 ha; residual peat depth is over 0.5 m. Fen peat deposits prevail.

Current land user: Lands of the extracted peat deposit site are under management of local agricultural enterprises, Oshmiany enterprise “Selkhozchimia” (“RaiAgroservis”) or included in the State Land Fund.

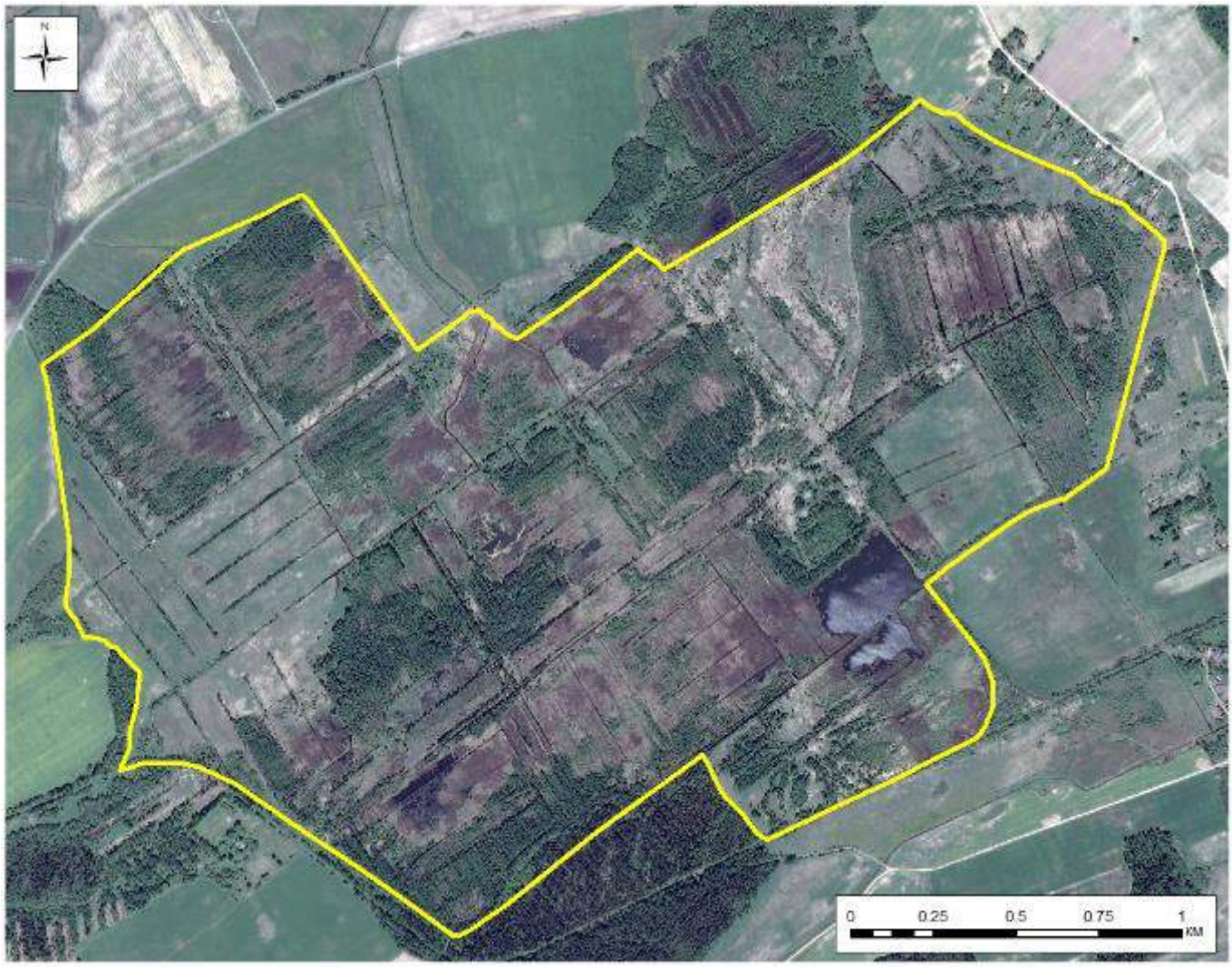


Fig. 6. Aerial image of the part of the mire massif Korvelishki-1

Current state: The entire considered part of the mire massif Korvelishki was drained and used for peat extraction in the 60-80ies years of the last century. After the end of peat extraction extracted fields were partly reclaimed for agriculture, partly transferred to the State Land Fund without reclamation. Currently extracted parts are becoming overgrown with weed-ruderal vegetation, willow shrubs and birch trees.

Assessment of the trend of vegetation development in the mire in case of rewetting: When the groundwater level on the extracted plots of the mire is increased and stabilized, reed-sedge and reed-shrub communities will be formed depending on the hydro chemical and soil conditions. Tree stands dominated by birch and pine will develop on the elevated parts.

PEAT DEPOSIT SITE "KRASNYI BOR"

Number of the peat deposit site: 7

Coordinates: N55°13¹580¹¹; E26°44¹362¹¹

Administrative district: Ostrovets

Nearest populated locality: in the west – township Kalveliai (Lithuania)

Area of the peat deposit site: 837 ha

Area of the extracted part of the peat deposit site subject to rewetting: 509 ha

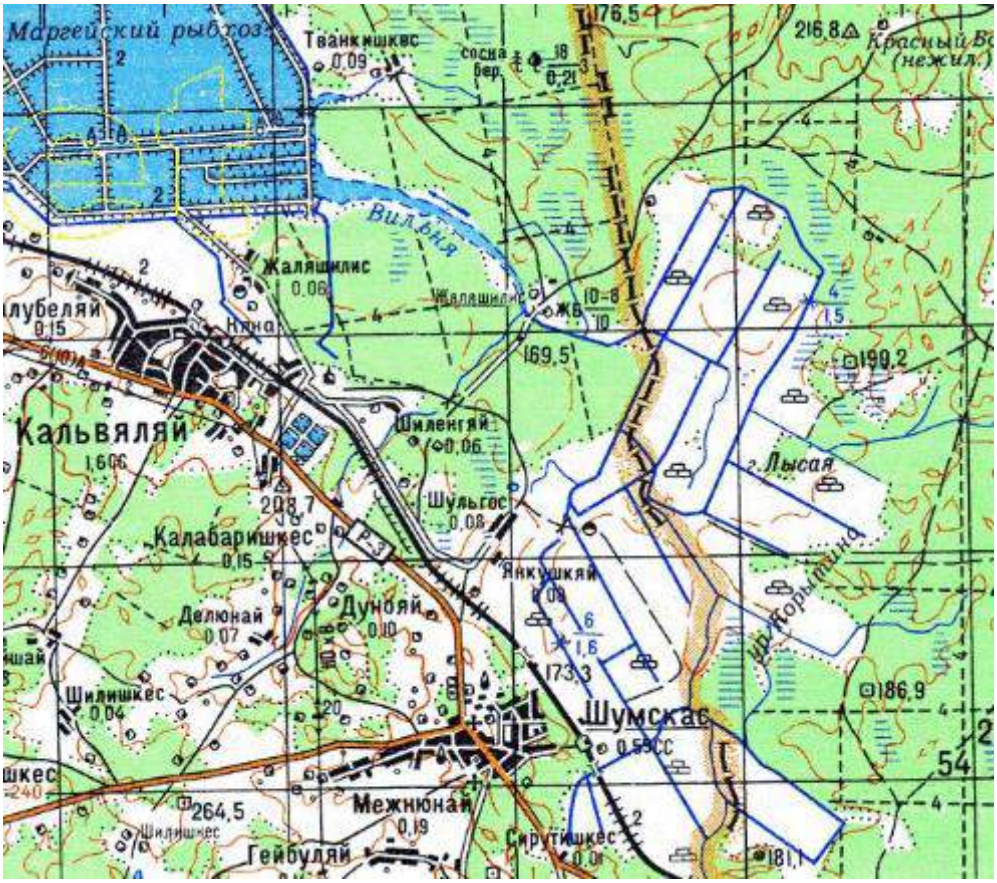


Fig. 7. Scheme of the peat deposit site Krasnyi Bor

Type of the peatland according to prevailing peat type: The territory in question is extracted peat deposit site in the upper stream of the river Vilnia with prevailing peat of fen type. The area of the peatland is 837 ha, peat depth – over 0.5 m.

Current land user: Extracted peat fields were transferred under authority of the State Forestry Enterprise "Ostrovetskiy Forestry" of Palushskoe Forestry.


N
0
0.25
0.5
0.75
1
KM

Fig. 8. Aerial image of the peat deposit site Krasnyi Bor

Current state: The peat deposit site Krasnyi Bor has a trans boundary position with Lithuania and was developed during the Soviet period from both the Belarusian and Lithuanian sides. After the end of peat extraction, extracted fields on the Belarussian side with functioning network of drainage canals were transferred to the State Forest Fund, and in Lithuania these were reclaimed for agricultural use. Currently the former peat extraction ground is slowly overgrowing with trees and shrubs. Functioning drainage network and long-lasting decrease of the groundwater level led to degradation of mires adjacent to the perimeter of the former peat extraction ground.

Land use efficiency is low. Lands exposed to peat extraction are at different stages of recovery; however, this process is very slow due to unstable hydrological regime. There is no prospect of obtaining marketable forest products from this territory in the nearest decades. There is still a threat of fire because of low groundwater level.

The mire has a trans boundary position with Lithuania, and water from the former peat extraction ground is discharged to the canalized trans boundary river Vilnia, and further to the fish farm Margeiskiy.

Assessment of the trend of vegetation development in the mire in case of rewetting: When the groundwater level on the extracted plots of the mire is increased and stabilized, reed-shrub and reed-sedge communities will be formed depending on the hydro chemical and soil conditions. Tree stands dominated by birch and pine will develop on the elevated parts.

Restoration of the mire Krasnyi Bor is very important for maintenance of the hydrological regime and wetland biological and landscape diversity on both sides of the border. So, it is recommended to conduct work on recovery of the extracted peatland and restoration of the adjacent drained mires at the area of 837 ha by means of restoration and maintenance of the optimal groundwater level.

PEAT DEPOSIT SITE "ZARECHIE"

Number of the peat deposit site: 246

Coordinates:

Administrative district: Korelichi

Nearest populated locality: in the south – Tsirin

Area of the peat deposit site: 1250 ha

Area of the extracted part of the peat deposit site subject to rewetting: 343 ha

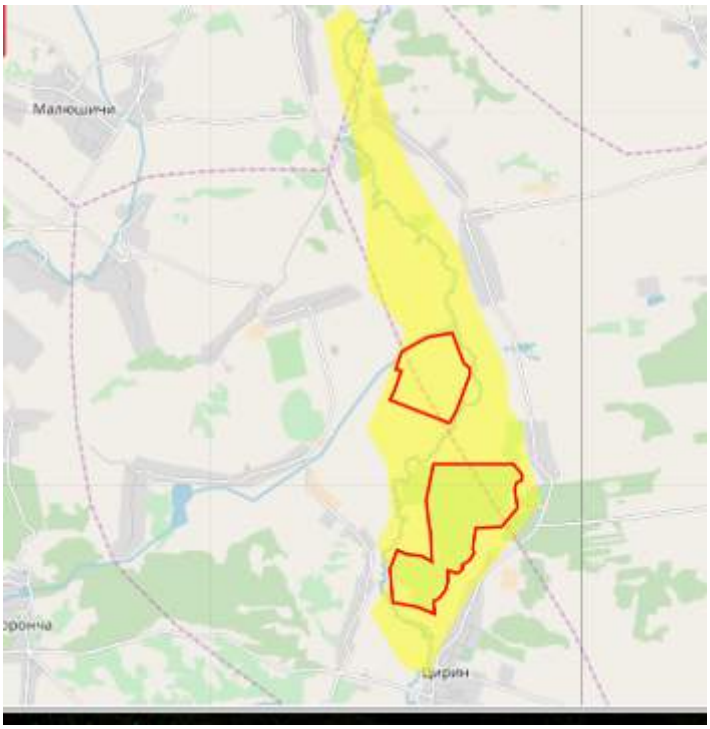


Fig. 9. Scheme of the peat deposit site Zarechie (borders of the extracted plot).

Type of the peatland according to prevailing peat type: The peatland Zarechie is situated in the floodplain of the small river. Prior to the drainage it was fen mire. The peatland's area covers 1250 ha; peat depth is over 0.5 m.

Current land user: Extracted peat fields belong to the Land Fund and are under the management of agricultural enterprises of the Korelichi district.

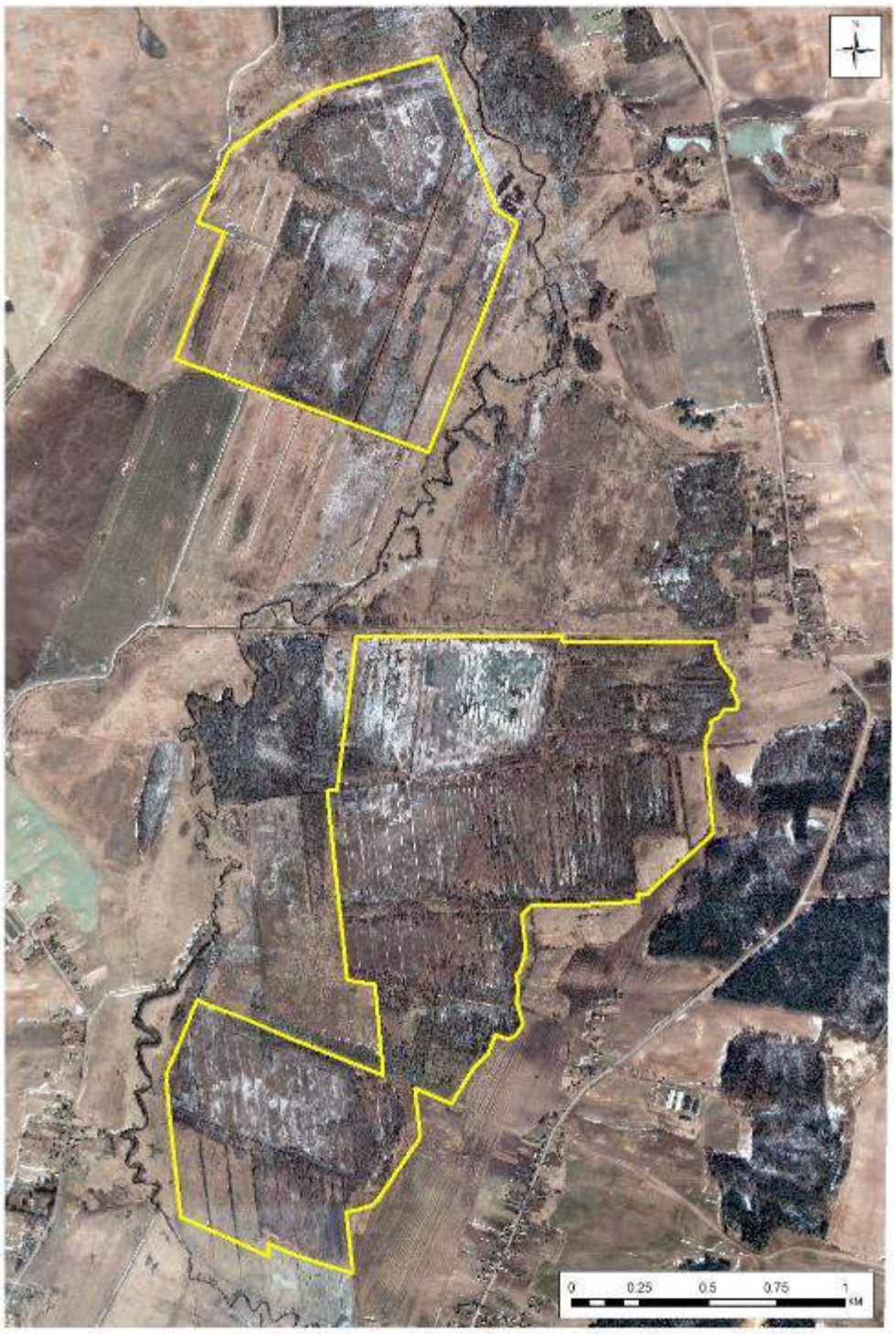


Fig. 10. Aerial image of the peat extraction site Zarechie

Current state: The peatland is situated in the floodplain of the small river. It was sedge mire, used for haymaking. After drainage and peat extraction a part of the extracted peatland was used in agriculture for haymaking. Currently extracted parts are overgrown with reeds and shrubs. There are also significant open areas, overgrown with ruderal vegetation.
Assessment of the trend of vegetation development in the mire in case of rewetting: At the first stage of rewetting reed-sedge mire will be formed with further transition to sedge mire.

PEAT DEPOSIT SITE "USHANSKOE"

Number of the peat deposit site: 248

Coordinates:

Administrative district: Korelichi

Nearest populated locality: in the south – Bolshie Zhukhovichi

Area of the peat deposit site: 441 ha

Area of the extracted part of the peat deposit site subject to rewetting: 142 ha

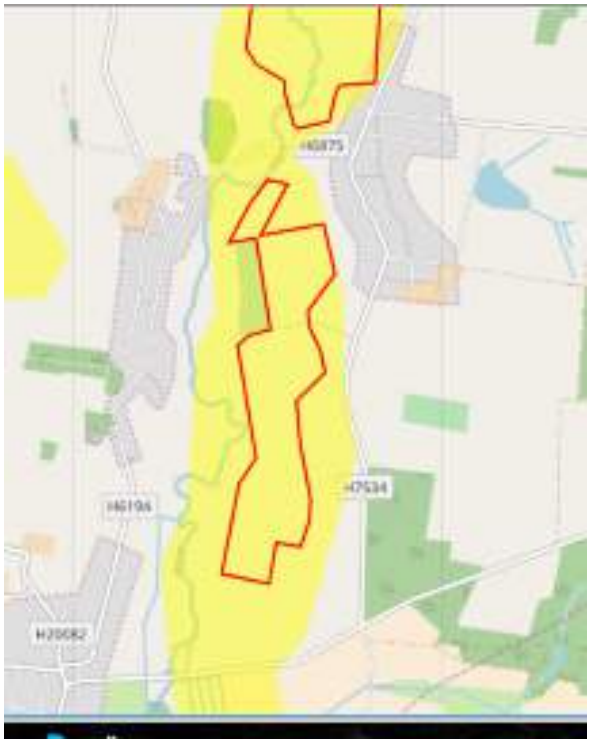


Fig. 11. Scheme of the part of the peat deposit site Ushanskoe
(borders of the extracted plot, subject to rewetting)

Mire type: Before the drainage it was sedge fen mire. It is situated in the floodplain of the river Usha. The mire is completely drained and most of it was used for peat extraction. Currently it represents mostly open parts among reeds and shrubs. Some parts are used for grazing and haymaking. The area of the mire is 411 ha; peat depth is over 0.5 m.

Current land user: Extracted peat fields are under the management of agricultural enterprises of the Korelichi district, and in the Land Fund.

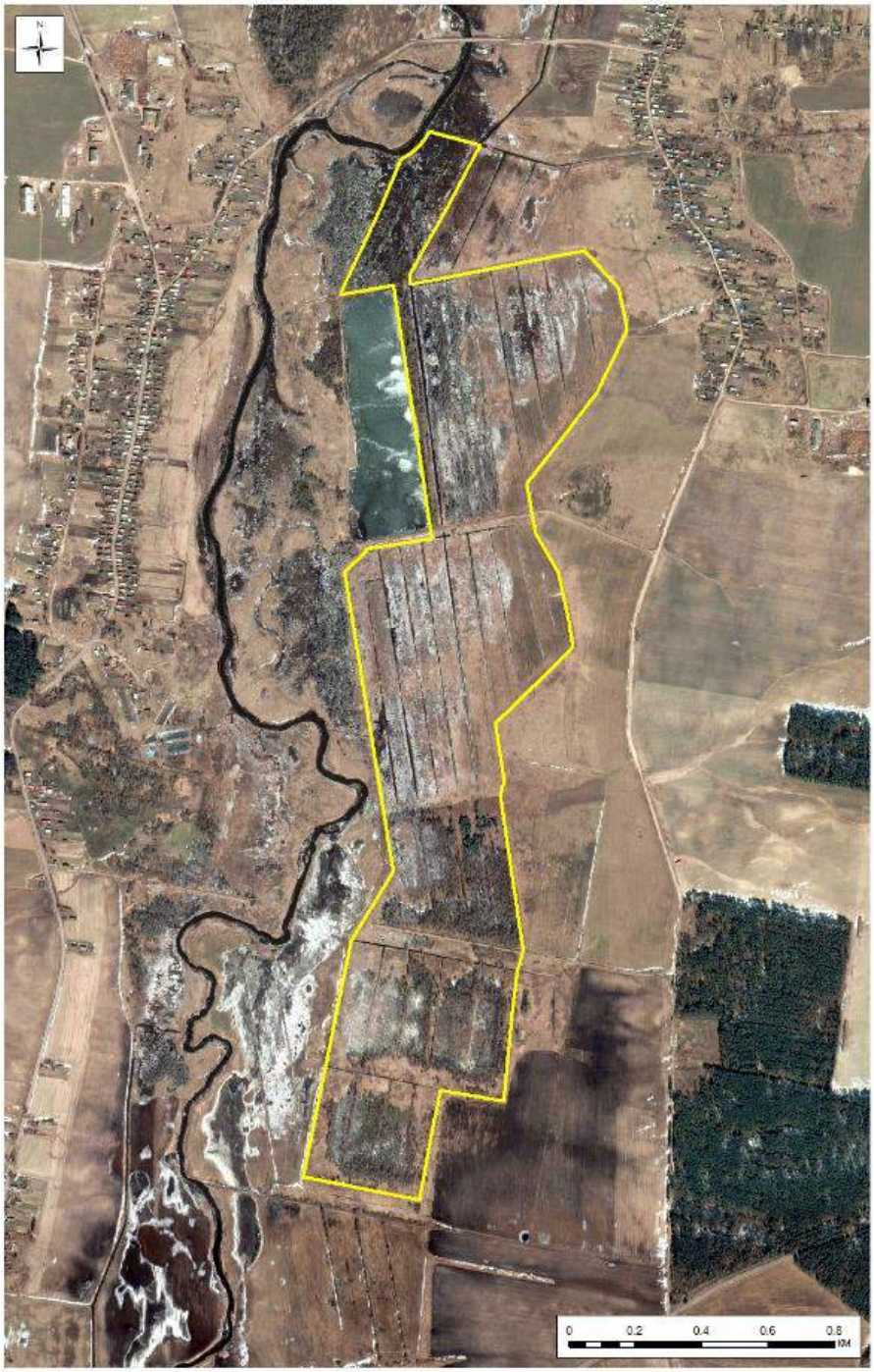


Fig. 12. Aerial image of the peat deposit site Ushanskoe

Assessment of the trend of vegetation development in the mire in case of rewetting: When the water level is raised to soil surface level, reed-sedge mire will be formed. Elevated parts will be occupied by white birch forest and shrubs.

PEAT DEPOSIT SITE "KRUPKA"

Number of the peat deposit site: 184

Coordinates:

Administrative district: Lida

Nearest populated locality: in the east – Ditva

Area of the peat deposit site: 648 ha

Area of the extracted part of the peat deposit site subject to rewetting: 648 ha

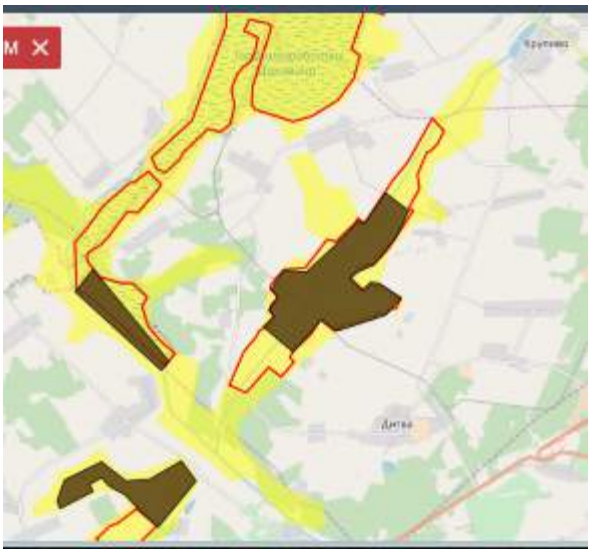


Fig. 13. Scheme of the peatland Krupka

Type of the mire according to the prevailing peat type: The peat deposit site Krupka is of fen type. It is situated in the catchment of the Ditva River and occupies an area of 615 ha. Currently the peat extraction is ongoing on the 429 ha area by the peat extraction company Ditva. The peat depth before the drainage was from 1 to 2.5 m.

Current land user: The land belongs to the peat extraction company Ditva.

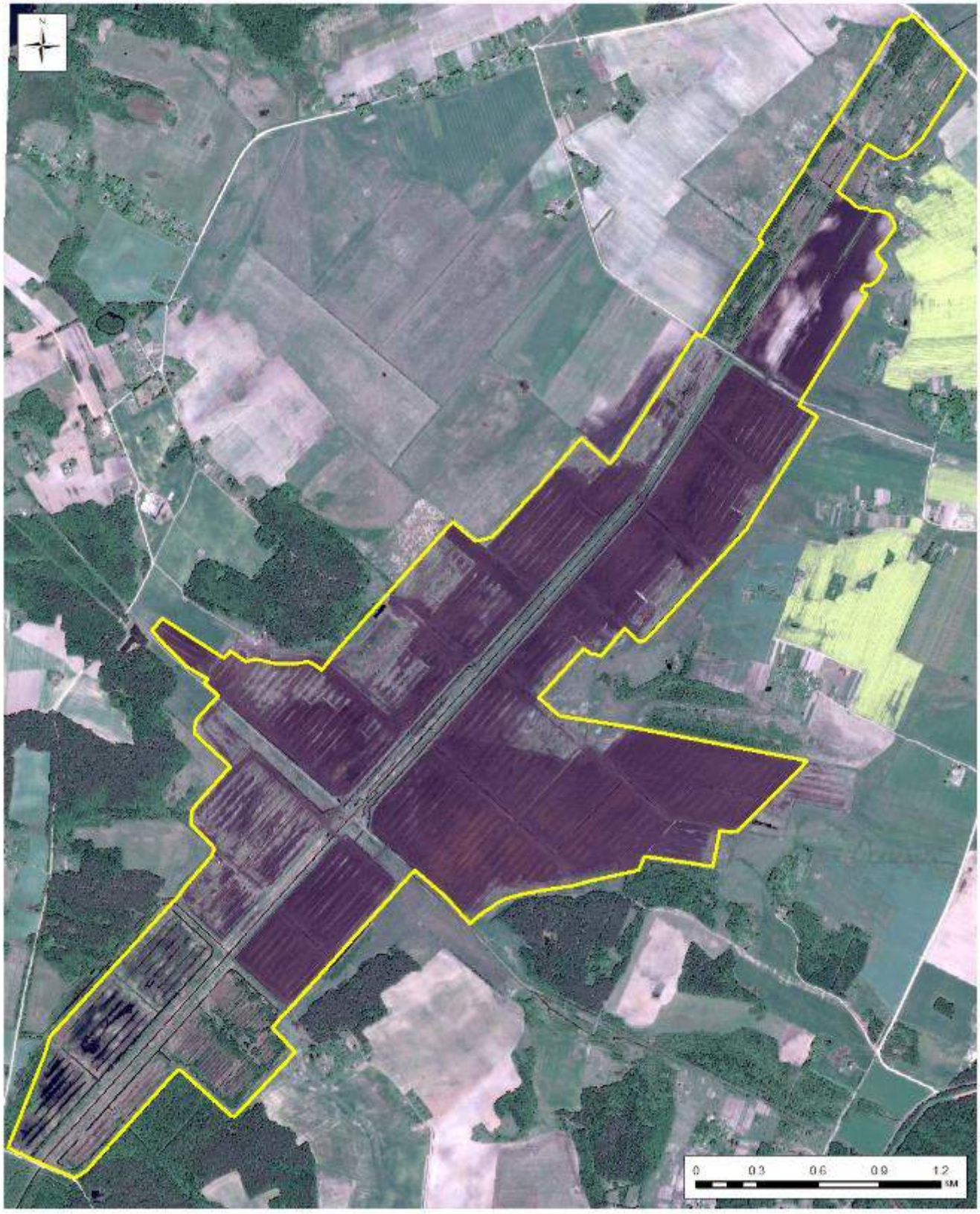


Fig. 14. Aerial image of the extracted part of the peat deposit site Krupka, subject to rewetting.

Current state: There is peat extraction going on in the peat deposit site Krupka. The peat extraction is planned to be finished in 2020-2025. The project states that after the end of the peat extraction the site will be rewetted.

Assessment of the trend of vegetation development in the mire in case of rewetting: As extracted areas remain totally open, they are suitable for rewetting with use of sedge planting. After the end of the peat extraction, separate plots will be rewetted. Then other parts are rewetted as peat extraction is completed on them.

THE FLOODPLAIN OF THE DITVA RIVER

Number of the peat deposit site: 67

Coordinates:

Administrative district: Grodno Region, Voronovo District

Nearest populated locality: in the north – village Gorodische

Area of the peat deposit site: 792 ha

Area of the peatland under development: 792 ha

Fig. 15. Scheme of the extracted part of the peat deposit “In the floodplain of the Ditva River” and its part which is under development

Mire type: The peat deposit site is situated in the floodplain of the Ditva River. Before the drainage it was sedge fen mire of floodplain position.

Current land user: The area belongs to the peat extraction company “Ditva”. The peat extraction will continue until 2025. The project stipulates rewetting after the completion of the peat extraction.

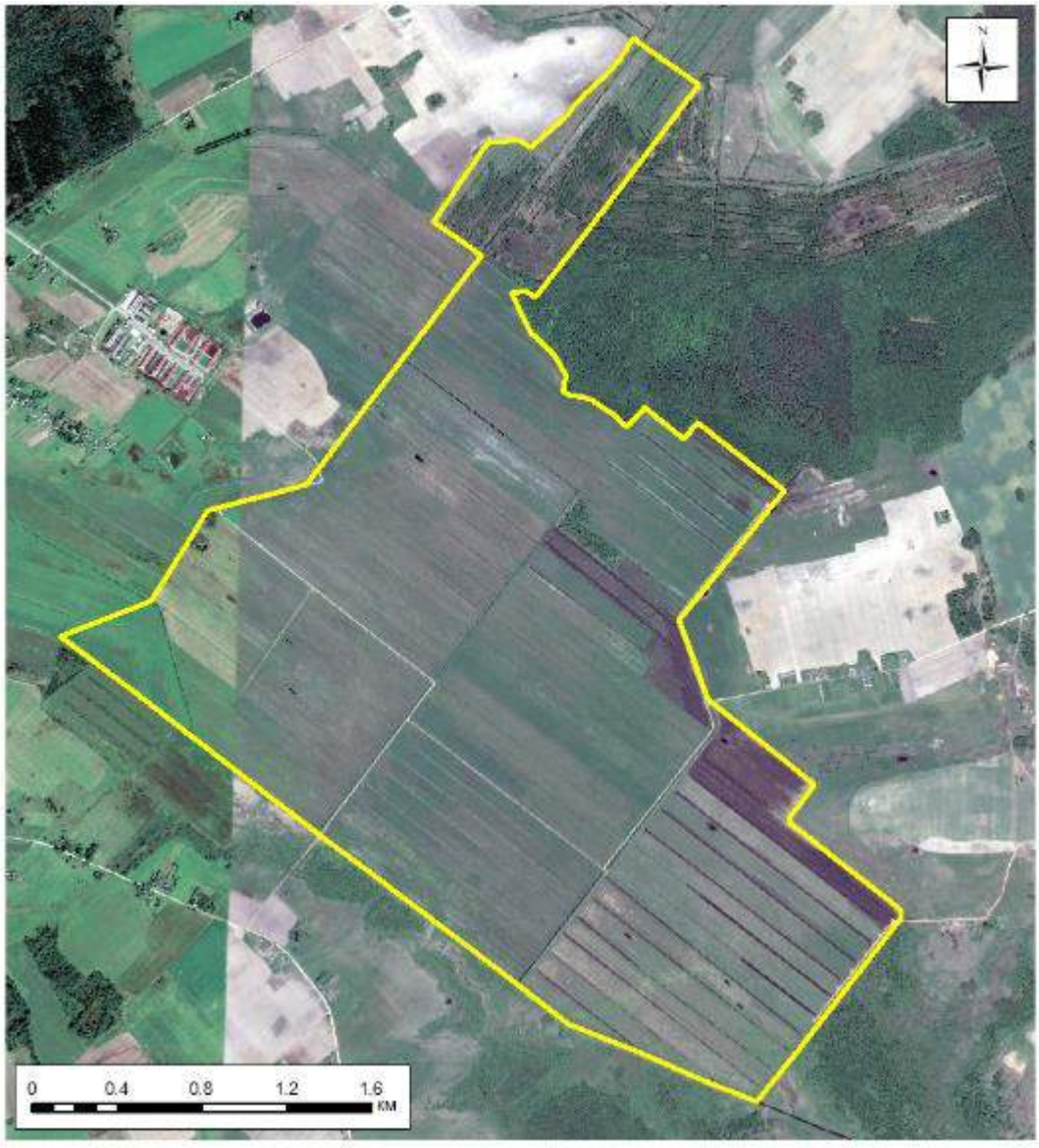


Fig. 16. Aerial image of the part of the peat deposit site, recommended for rewetting.

Current state: The site represents open peat, where peat extraction is conducted.

Assessment of the trend of vegetation development in the mire in case of rewetting: Rewetting is planned to be conducted by the peat extraction company “Ditva” on separate parts as soon as the peat extraction is completed on them. The site is suitable for rewetting with sedge planting due to absence of vegetation.

PEAT DEPOSIT SITE “PETRIKI”

Number of the peat deposit site: 31

Coordinates:

Administrative district: Grodno Region, Ostrovets District

Nearest populated locality: in the north – village Rymdiuny

Area of the peat deposit site: 526 ha

Area of the extracted part of the peat deposit site: 526 ha

Fig. 17. Scheme of the extracted peat deposit “Petriki”

Mire type: The peat deposit site is situated in the floodplain of the river Oshmianka. Before the drainage it was sedge fen mire.

Current land user: The site is under the management of Ostrovetskiy Forestry.

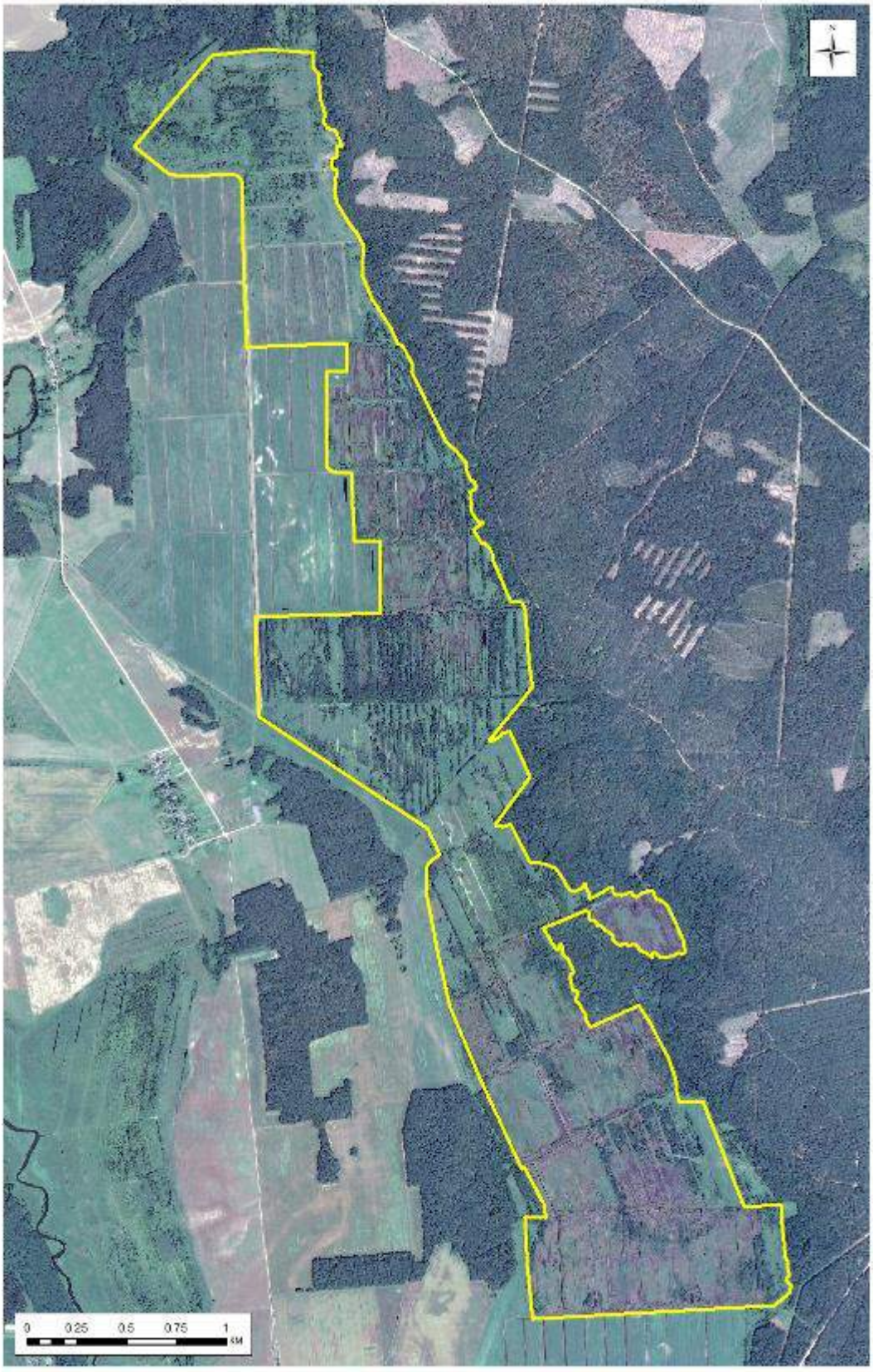


Fig. 18. Aerial image of the extracted peat deposit Petriki, recommended for rewetting

Current state: The peat extraction was finished in the 1970-ies. After the peat extraction open areas of the peatland are becoming gradually overgrown with shrubs and forest. Peat fires were observed here repeatedly. Currently the site is open peat where the peat extraction is conducted.

Assessment of the trend of vegetation development in the mire in case of rewetting: Fen mire will be formed after rewetting.

PEAT DEPOSIT SITE "CHIST"

Number of the peat deposit site: 72

Coordinates:

Administrative district: Minsk Region, Vileika District

Nearest populated locality: in the west – village Raevka

Area of the peat deposit site: 2257 ha

Area of the extracted part of the peat deposit site subject to rewetting: 1346 ha

Fig. 19. Scheme of the part of the peat deposit "Chist"

Mire type: The extracted peat deposit is situated in the above flood-plain terrace of the Vilia River. Before the drainage it was fen mire.

Current land user: The site is under the management of Vileiskiy Forestry.

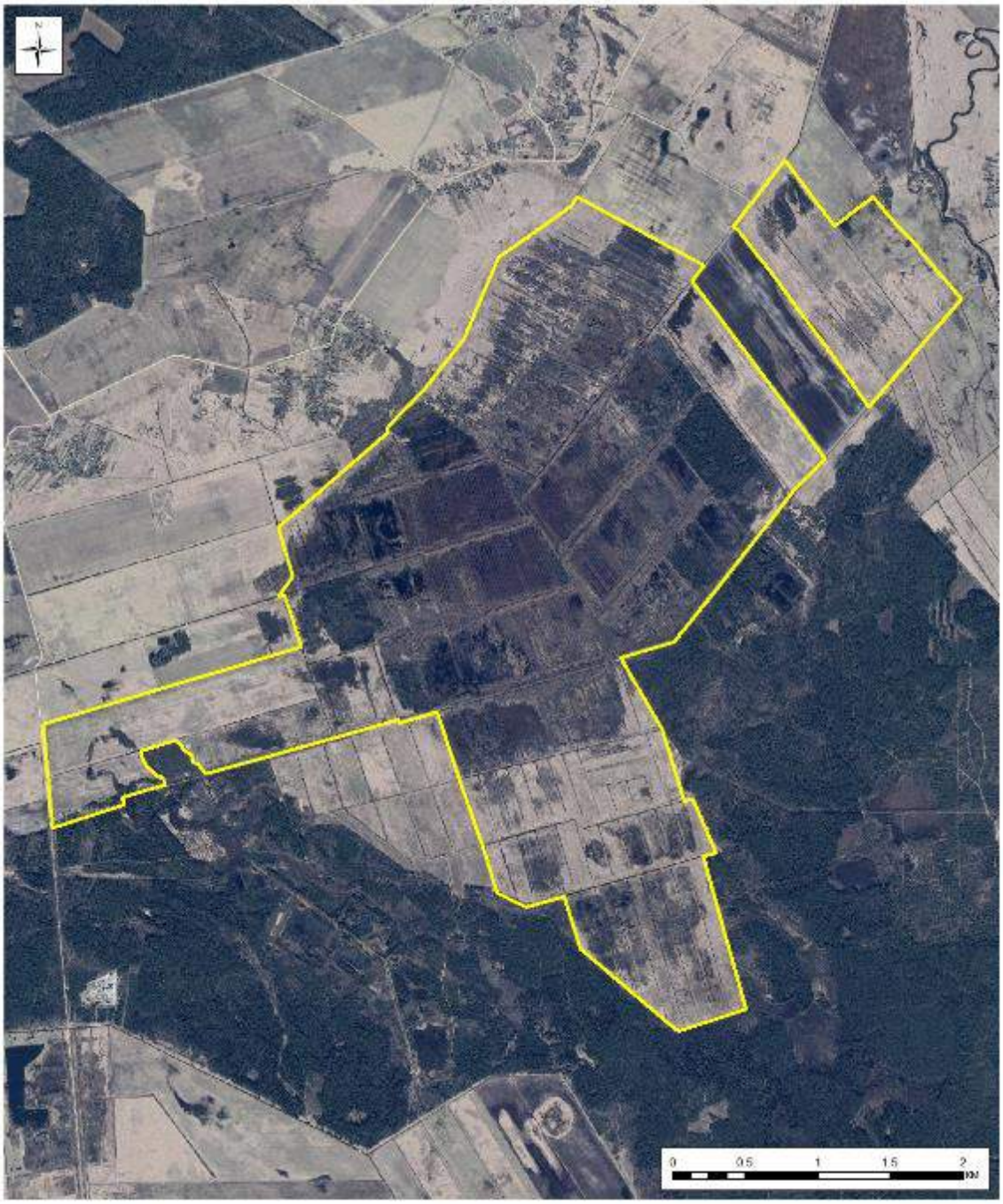


Fig. 20. Aerial image of the extracted peat deposit “Chist”, recommended for rewetting

Current state: The peat extraction was finished in the 1970-ies. Open areas of the extracted peatland are becoming gradually overgrown with shrubs and trees. Peat fires were observed here repeatedly.

Assessment of the trend of vegetation development in the mire in case of rewetting: Fen mire will be formed after rewetting.

THE FLOODPLAIN OF THE ESSA RIVER

Number of the peat deposit site: 257

Coordinates:

Administrative district: Minsk Region, Krupki district

Nearest populated locality: in the west – village Kholopenitchi

Area of the peat deposit site: 2257 ha

Area of the extracted part of the peat deposit site subject to rewetting: 1884 ha

Fig. 21. Scheme of the part of the peat deposit “In the floodplain of the Essa River”

Mire type: The extracted peat deposit site is situated in the floodplain of the Essa River. Before the drainage it was fen mire.

Current land user: The site is under management of the Krupskiy Forestry and agricultural users.

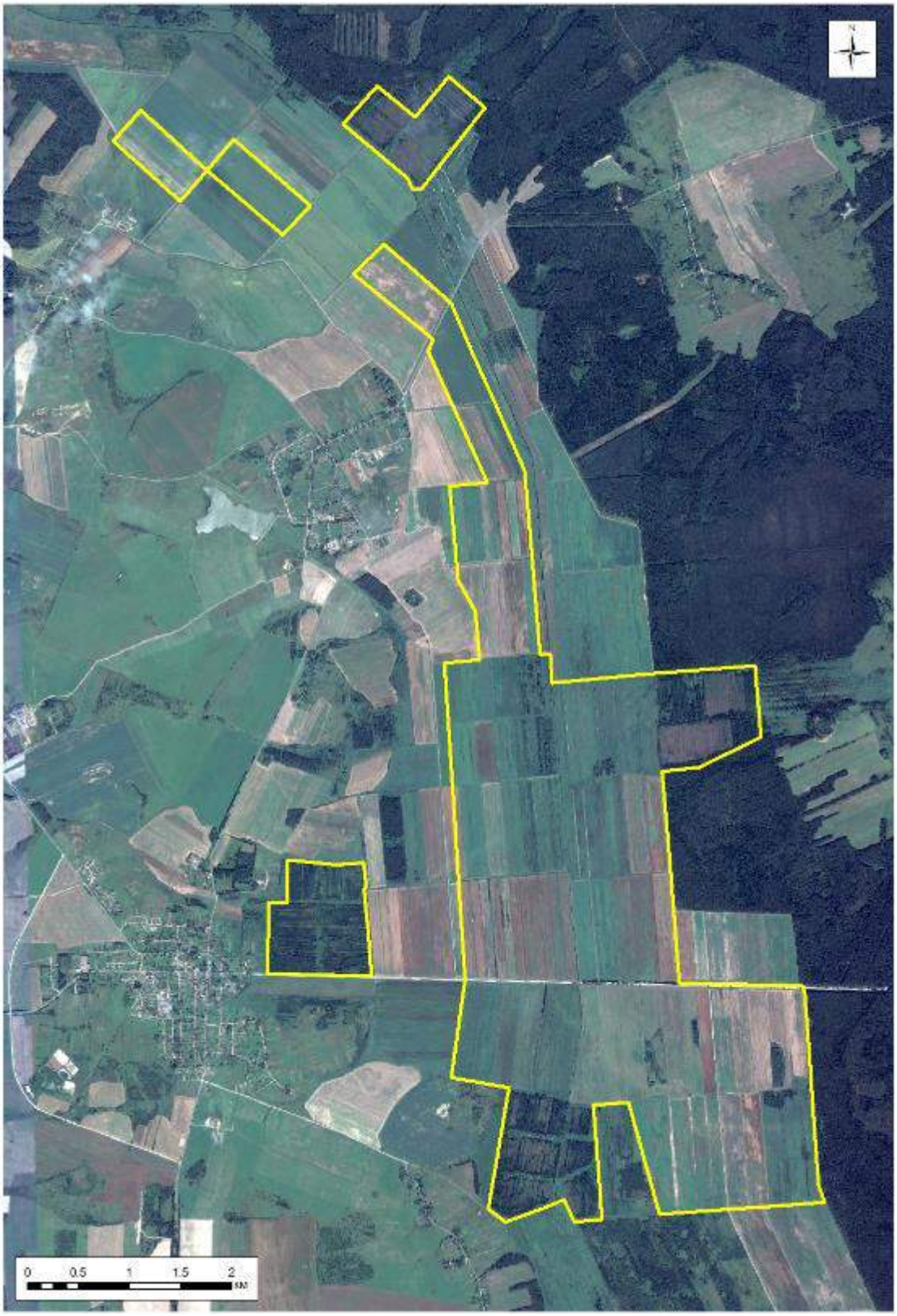


Fig. 22. Aerial image of the extracted peat deposit “In the floodplain of the Essa River”

Current state: The peat extraction was finished in the 1980-ies. Some parts of the peatland after extraction are used for agriculture. 436 ha of drained peatland subject to rewetting have been transferred to Krupskiy Forestry.

Assessment of the trend of vegetation development in the mire in case of rewetting: Fen mire will be formed after rewetting.

PEAT DEPOSIT SITE "GRICHINO-STAROBINSKOE"

Number of the peat deposit site: 1186

Coordinates:

Administrative district: Minsk Region, Soligorsk District

Nearest populated locality: in the west – town Starobin

Area of the peat deposit site: 21452 ha

Area of the extracted part of the peat deposit site subject to rewetting: 2190 ha

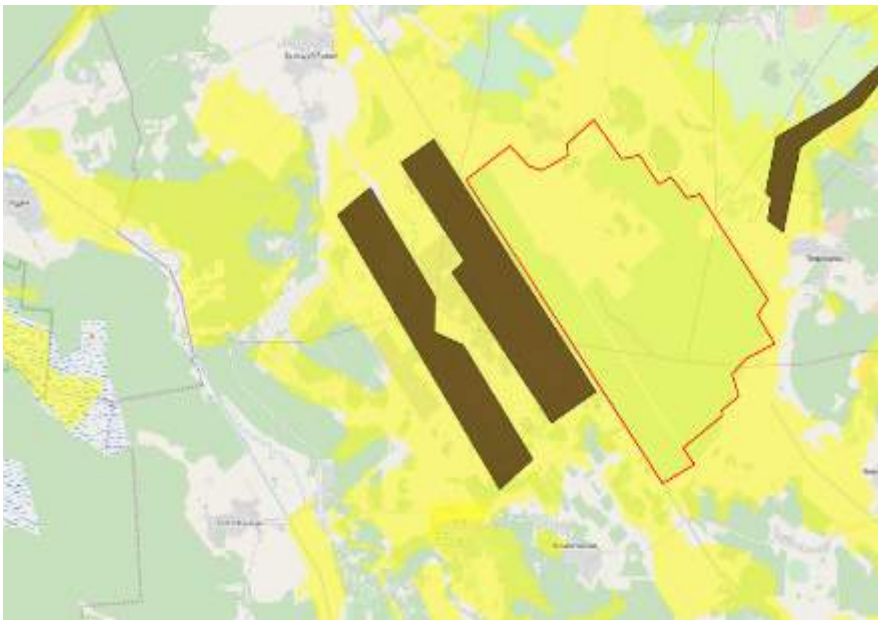


Fig. 23. Scheme of the peat deposit site "Grichino-Starobinskoe"

Mire type: Before the drainage the site was one of the largest sedge fen mires in the Polesie region. It is situated in the floodplain of the Moroch River.

Current land user: Extracted parts and parts under extraction, which are subject to rewetting, are used by Starobinskiy Forestry and peat extraction company “Starobinskoe”.

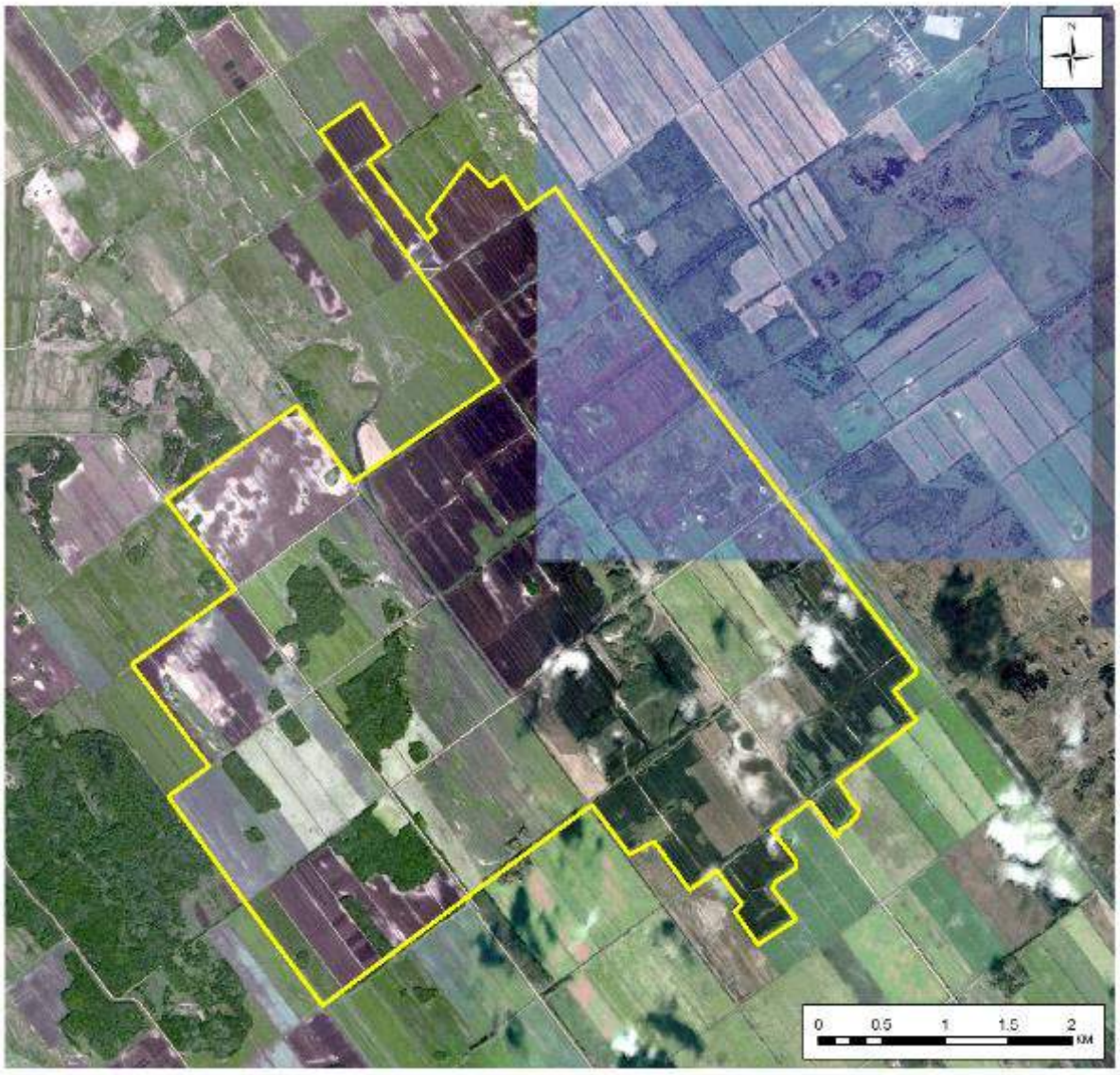


Fig. 24. Aerial image of the part of the extracted peat deposit site “Grichino-Starobinskoe”, subject to rewetting.

Current state: Peat extraction was finished on the most of the peatland several years ago; the rest area is under extraction. According to the project, all extracted parts should be rewetted. Currently extracted areas are represented by open peat with forming ruderal vegetation.

Assessment of the trend of vegetation development in the mire in case of rewetting: Sedge fen mire will be formed after rewetting; method of accelerated rewetting can be used.

PEAT DEPOSIT SITE "BULEV MOKH"

Number of the peat deposit site: 816

Coordinates:

Administrative district: Minsk Region, Soligorsk District

Nearest populated locality: in the west – town Zhitkovichi

Area of the peat deposit site: 11770 ha

Area of the extracted part of the peat deposit site subject to rewetting: 1654 ha

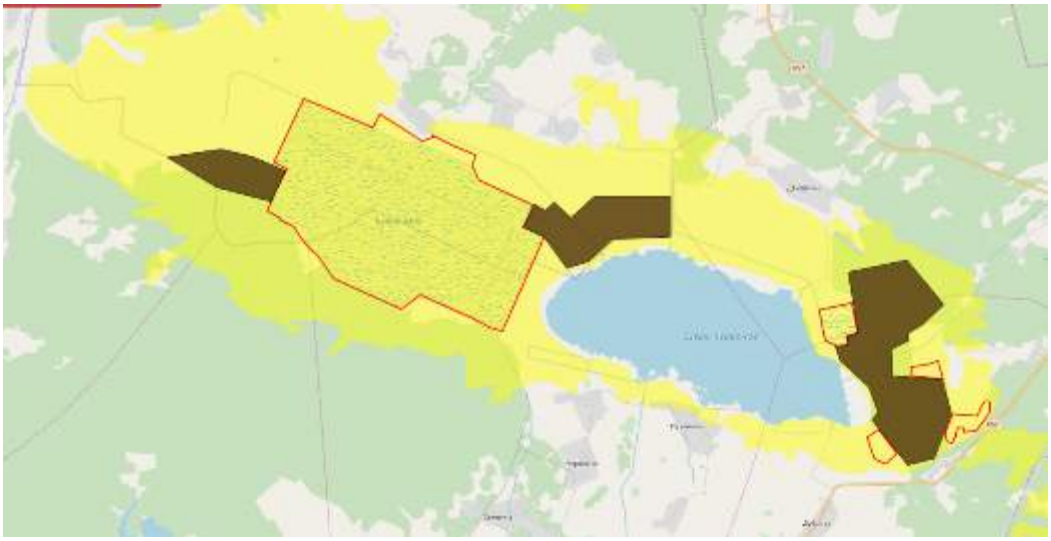


Fig. 25. Scheme of the peat deposit site "Bulev Mokh"

Mire type: Before the drainage it was one of the largest sedge fen mires in the Polesie region. It is situated in the above flood-plain terrace of the Pripyat River.

Current land user: Extracted parts and parts under extraction, which are subject to rewetting, are used by Starobinskiy Forestry and peat extraction company "Zhitkovichskoe".

Fig. 26. Aerial image of the part of the extracted peat deposit site “Bulev Mokh”, subject to rewetting

Current state: Peat extraction was finished on the most of the peatland’s territory several years ago; the rest area is under extraction. According to the project, all extracted parts should be rewetted. In 2007-2009 about 3500 ha of extracted peatlands were rewetted, representing now mosaic territory with open water, above-water vegetation (Typha), sedge communities and shrubs. About 1000 ha of extracted lands remain drained, and these now are open peat with forming ruderal vegetation.

Assessment of the trend of vegetation development in the mire in case of rewetting: Sedge fen mire will be formed after rewetting; method of accelerated rewetting can be used.

PEAT DEPOSIT SITE "BELMONT"

Number of the peat deposit site: 112

Coordinates:

Administrative district: Vitebsk Region, Braslav District

Nearest populated locality: in the west – village Pagostcha

Area of the peat deposit site: 2312 ha

Area of the extracted part of the peat deposit site subject to rewetting: 396 ha

Fig. 27. Scheme of the peat deposit site "Belmont"

Mire type: Before the drainage it was large fen mire in the Braslav Poozerie region. It is situated in the floodplain of the lake Driviaty.

Current land user: Extracted parts and parts under extraction, which are subject to rewetting, are used by peat briquetting plant "Braslavskiy".

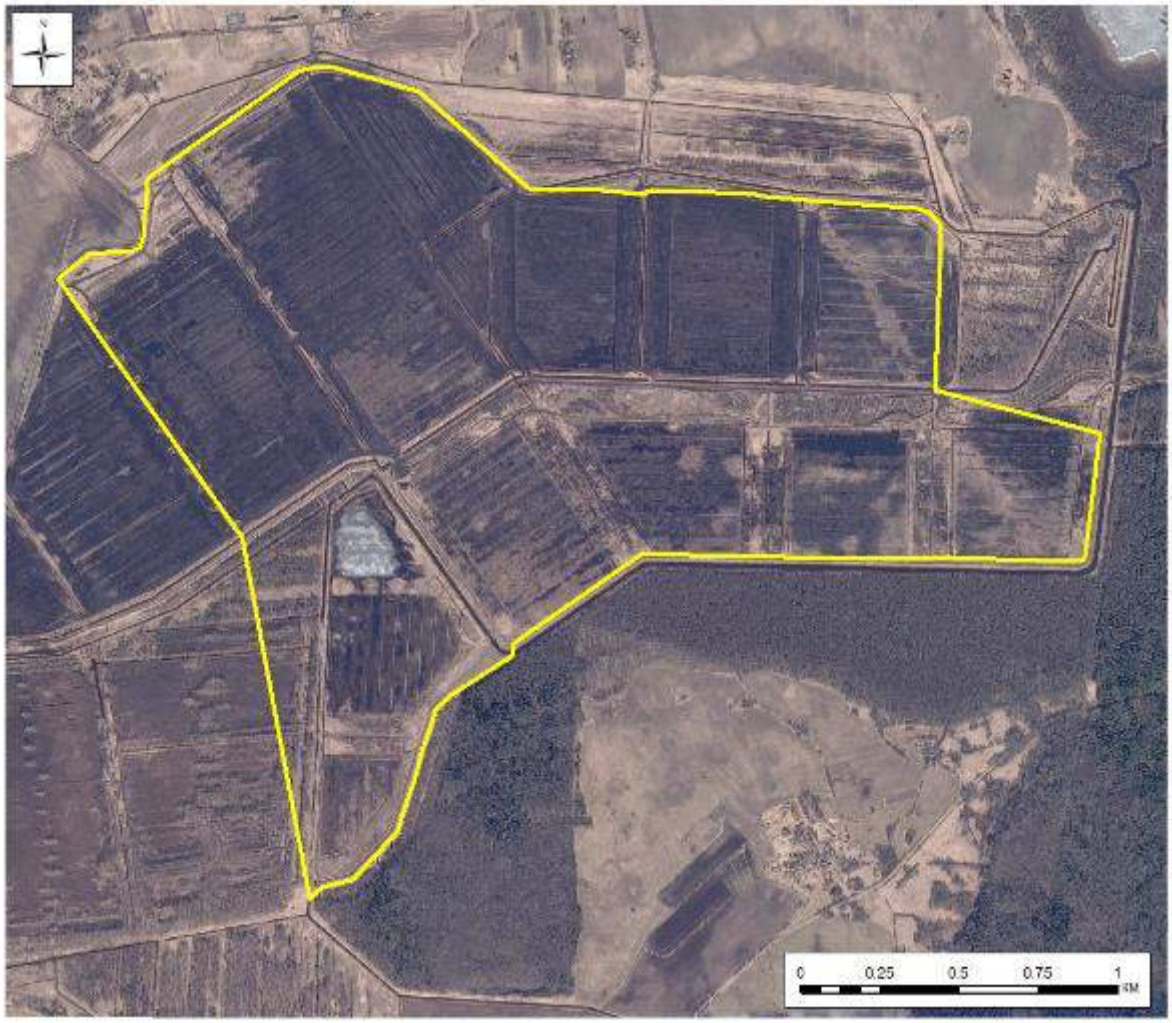


Fig. 28. Aerial image of the part of the extracted peat deposit “Belmont”, subject to rewetting

Current state: Peat extraction was finished on the most of the peatland’s territory several years ago; the rest area is under extraction. According to the project, all extracted parts should be rewetted. In 2007-2009 about 1500 ha of extracted peatlands were rewetted, representing now mosaic territory with mostly open water and above-water vegetation (reed). About 1257 ha of extracted lands remain drained, and these now are open peat with forming ruderal vegetation

Assessment of the trend of vegetation development in the mire in case of rewetting: Sedge fen mire will be formed after rewetting; method of accelerated rewetting can be used.

Annex II. List of selected stepping-stone sites in Lithuania

Selected „Stepping stone“ habitats for Aquatic warbler conservation in Lithuania

Lithuanian swamp and moor map created by Lithuanian Geological Survey under the Ministry of Environment was used as a base together with cadastre of Lithuanian petland (1995). Original map is composed of 11 112 swamp and moor polygons, that make up 511 999.15 ha. After primary criteria were applied 1 707 polygons left. They made up 265 691.90 ha – 51.89% of all polygons. Polygons, that were overgrown by forest needed to be eliminated. There was 799 (86 493.05 ha of which 59 750.52 ha was fully forested area) of such polygons. After these steps were applied, all remaining polygons were evaluated with additional information, such ass land use, natural habitats, N2000 areas, orthophotos and experts knowledge of these areas. Eventually 96 polygons were selected, they make up 48 589.33 ha, which is 9.49% comparing to primary data.

Further descriptions of selected areas are given. They have numbers that were assigned randomly for convenience and they do not mean any type of prioritization.

Codes for natural habitats that will be mentioned in selected areas descriptions:

1130 – Estuaries

2330 – Inland dunes with open *Corynephorus* and *Agrostis* grasslands

3140 – Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.

3150 – Natural eutrophic lakes with *Magnopotamion* or *Hydracharition* – type vegetation

3160 – Natural dystrophic lakes and ponds

3260 – Water courses of plain to montane levels with the *Ranuncilio fluviatilis* and *Callitricho-Batrachion* vegetation

3270 – Rivers with muddy banks with *Chenopodion rubric* p.p. and *Bidention* p.p. vegetation

6120 – Xeric and calcareous grasslands

6230 – Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)

6410 – Molinia meadows on calcareous, peaty or clayey-siltladen soils

6430 – Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

6450 – Northern boreal alluvial meadows

6510 – Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)

7110 – Active raised bogs

7120 – Degraded raised bogs still capable of natural regeneration

7140 – Transitional mires and quaking bogs

7160 – Fennoscandian mineral-rich springs and springfens

7220 – Petrifying springs with tufa formation (Cratoneurion)

7230 – Alkaline fens

91D0 – bog woodland

9020 – Fennoscandian hemiboreal natural old broad-leaved deciduous forests (Quercus, Tilia, Acer, Fraxinus or Ulmus) rich in epiphytes

9050 – Fennoscandian herb-rich forests with Picea abies

9080 – Fennoscandian deciduous swamp woods

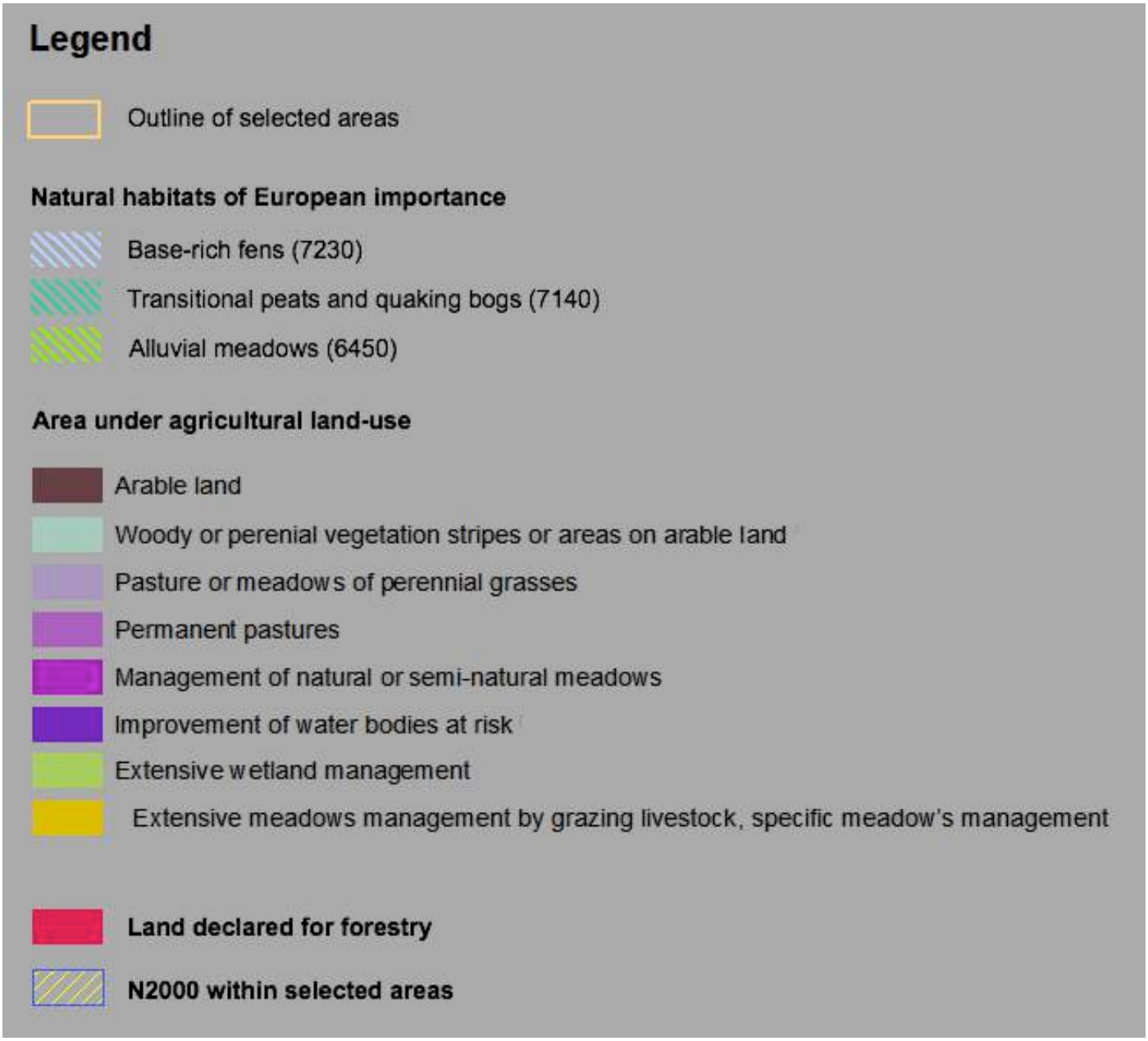


Figure 1 Legend for maps that are given further (Figure 2-57)

Peatlands in Višakis, Jūrė and Pilvė river valleys

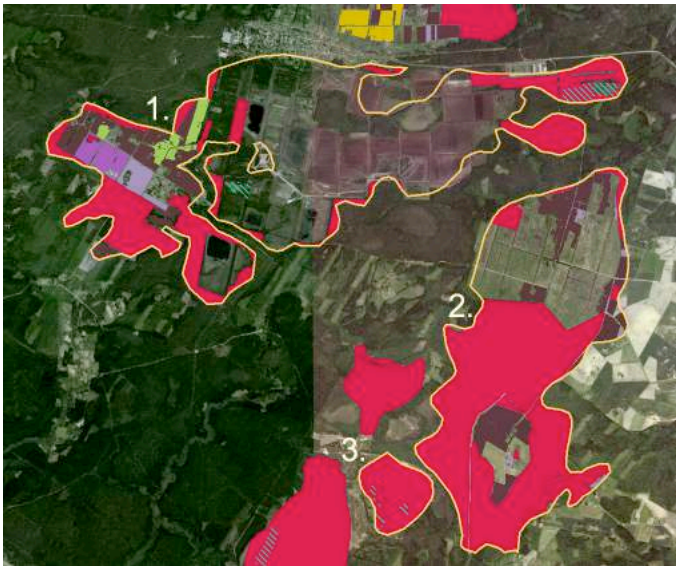


Figure 2 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 1
Name of the peat site: "Ežerėlis"
Coordinates: N 54.868101 E 23.603751
Administrative district: between Kaunas and Kazlų Rūda district municipalities
Size of the peatland: 1687,94 ha

Site No. 2
Name of the peat site: "Žiemkelis"
Coordinates: N 54.835186 E23.662247
Administrative district: Kaunas municipality district
Size of the peatland: 1250,95 ha

Site No. 3
Name of the peat site: "Kajackaraistis"
Coordinates: N 54.815569 E 23.631804
Administrative district: between Kaunas and Kazlų Rūda district municipalities
Size of the peatland: 103,47

Table 1 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 1**	**Size in area No. 2**	**Size in area No. 3**
Land declared for forestry, ha		394,18	690,89	103,47
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	101,47	162,78	
	Permanent pastures, ha	31,37		
	Pasture or meadows of perennial grasses, ha	21,43	8,46	
	Extensive wetland management, ha	15,19		
	Extensive wetland management, ha	13,58		
Natural habitats of European importance	Transitional peat and quaking bogs (7140), ha	7,13		7,67

Alluvial meadows of drained Rivers Grumblys and Cigonė near Vilkyčiai

Figure 3 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 4
Coordinates: N 55.503028 E 21.372885
Administrative district: Šilutė district municipality
Size of the peatland: 66,45 ha

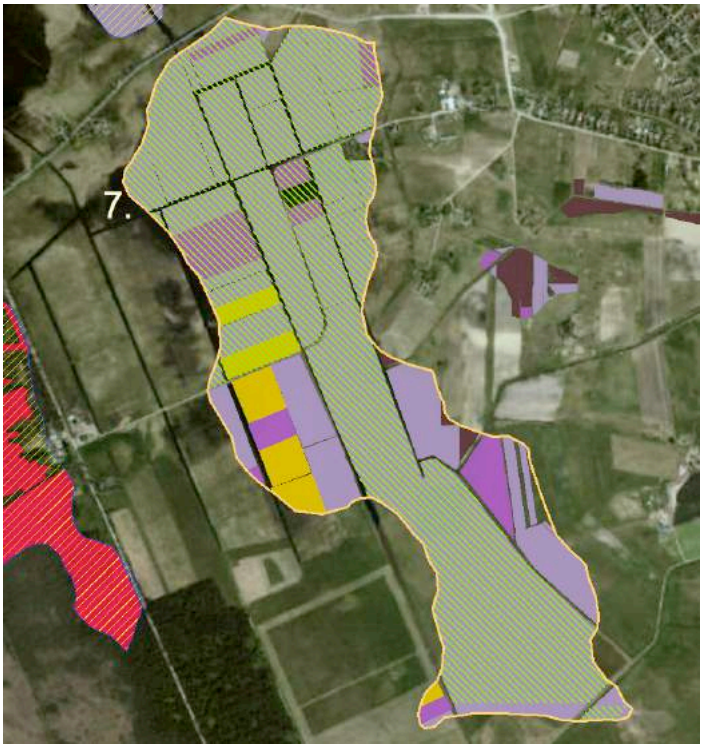
Site No. 5
Coordinates: N 55.494327 E 21.388543
Administrative district: Šilutė district municipality
Size of the peatland: 14,55 ha

Site No. 6
Coordinates: N 55.482642 E 21.39811
Administrative district: Šilutės district municipality
Size of the peatland: 30,68 ha

Table 2 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 4**	**Size in area No. 5**	**Size in area No. 6**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	3,34	2,32	0,09
	Permanent pastures, ha	2,40		
	Pasture or meadows of perennial grasses, ha	50,10	8,94	28,24
Natural habitats of European importance	Alluvial meadows (6450), ha		11,25	

Alluvial meadow of drained Voryčia and Rupkalvė near Rusnė



Site No. 7
Coordinates: N 55.310662 E 21.428481
Administrative district: Šilutė district municipality
Size of the peatland: 208,52 ha

Figure 4 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 3 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 7**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1,07
	Permanent pastures, ha	16,78
	Pasture or meadows of perennial grasses, ha	161,05
	Management of natural or semi-natural meadows, ha	12,34
Natural habitats of European importance	Alluvial meadows (6450), ha	154,16

Alluvial meadows of drained Šyša and Pamarukas near Rusnė

Site No. 8
Coordinates: N 55.353222 E 21.384071
Administrative district: Šilutė district municipality
Size of the peatland: 72,25 ha

Site No. 9
Coordinates: N 55.350598 E 21.428481
Administrative district: Šilutė district municipality
Size of the peatland: 202,42 ha

Figure 5 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Natura 2000*: both No. 8 and No. 9 areas are within LTSIU0013 AND LTSLUB001 Natura 2000 territories. They were established for protection of natural habitats of European importance: 1130, 2330, 3160, 3270, 6120, 6450, 7110, 7120, and species of European importance: *Botaurus stellaris, Circus aeruginosus, C. pygargus, Haliaeetus albicilla, Porzana porzana, P. parva, Crex crex*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 4 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 8**	**Size in area No. 9**
Land declared for forestry, ha		4,22	5,72
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha		0,06
	Pasture or meadows of perennial grasses, ha	46,45	139,68
	Management of natural or semi-natural meadows, ha		13,61
Natural habitats of European importance	Alluvial meadows (6450), ha	38,33	49,05

Peatlands in Vokė and Merkys river valleys

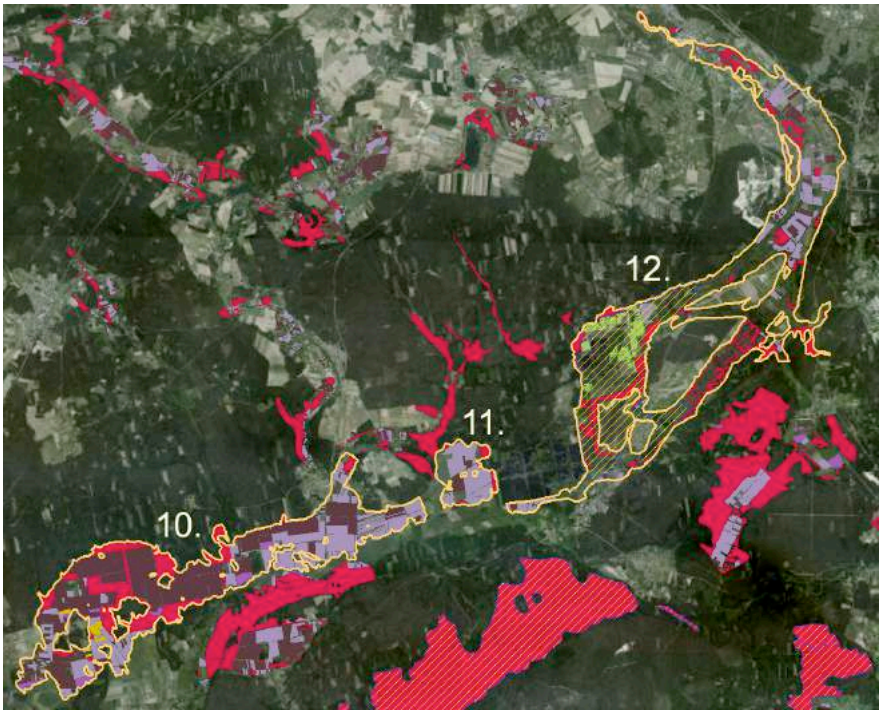


Figure 6 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 10
Name of the peat site: "Naujienos"
Coordinates: N 54.432451 E 24.917171
Administrative district: between Trakai, Varėna and Šalčininkai district municipalities
Size of the peatland: 2897,26 ha

Site No. 11
Peat between Naujienos and Baltoji Vokė peats
Coordinates: N 54.466045 E 25.052245
Administrative district: Trakai district municipality
Size of the peatland: 357,14 ha

Site No. 12
Name of the peat site: "Baltoji Vokė"
Coordinates: N 54.500529 E 25.142792
Administrative district: between Trakai, Varėna and Šalčininkai district municipalities
Size of the peatland: 3710,96 ha

Natura 2000*: No. 12 area is within Natura 2000 territories LTSAL0005 and LTSALB003, that were established for protection of species of European importance: *Triturus cristatus, Bombina bombina, Luscinia svecica*.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 5 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 10**	**Size in area No. 11**	**Size in area No. 12**
Land declared for forestry, ha		201,19	33,61	505,96
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1188,38	32,91	86,97
	Permanent pastures, ha	73,00		2,99
	Pasture or meadows of perennial grasses, ha	738,28	215,78	325,70
	Management of natural or semi-natural meadows, ha	30,91		
	Extensive wetland management, ha	1,99		108,09
Natural habitats of European importance	Alluvial meadows (6450), ha			

Peatlands in Širvinta river valley

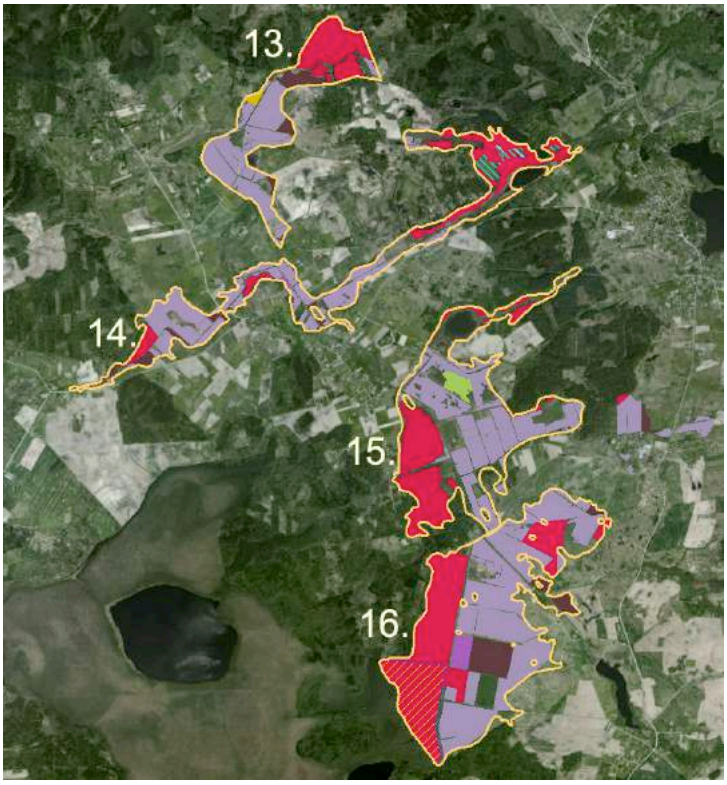


Figure 7 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 13
Name of the peat site: "Šilas"
Coordinates:
Administrative district: between Širvintos and Molėtai district municipalities
Size of the peatland: 155,00 ha

Site No. 14
Name of the peat site: "Juodiškiai"
Coordinates:
Administrative district: between Širvintos and Molėtai district municipalities
Size of the peatland: 214,23 ha

Side No.15
Name of the peat site: "Velniaraistis"
Coordinates: N 55.052211 E 25.217009
Administrative district: between Širvintos and Molėtai district municipalities
Size of the peatland: 299,02 ha

Site No. 16
Meadow near Velniaraistis peat
Coordinates: N 55.029561 E 25.222986
Administrative district: between Vilnius and Molėtai district municipalities
Size of the peatland: 420,11 ha

Natura 2000*: No. 16 area is within Natura 2000 territory LTSIR0003, that was established for protection of habitats of European importance: 3160, 7110, 7140, 9020, 9050, 91D0.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 6 Size (ha) of various features and land use within selected areas

Land use and habitat features		Size in area No. 13	Size in area No. 14	Size in area No. 15	Size in area No. 16
Land declared for forestry, ha		42,87	50,25	74,73	141,75
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	13,20	11,78	1,00	30,08
	Permanent pastures, ha		0,95	0,02	8,71
	Pasture or meadows of perennial grasses, ha	72,64	79,35	113,83	181,71
	Extensive wetland management, ha			7,57	
	Management of natural or semi-natural meadows, ha	1,98			
Natural habitats of European importance	Base-rich fens (7230), ha		1,88		
	Transitional peat and quaking bogs (7140), ha		8,27		

Peatlands in Šešupė river valley

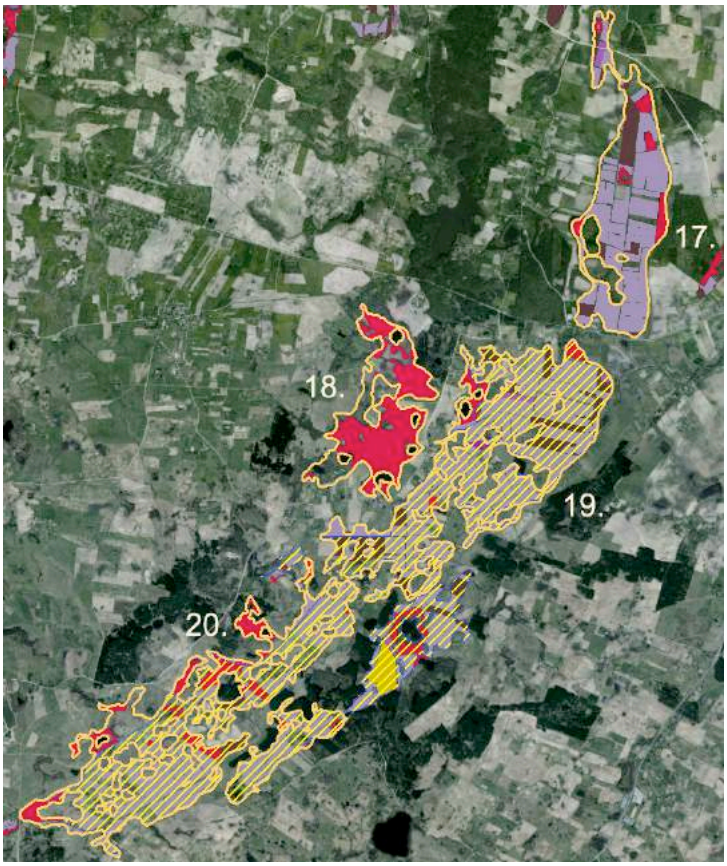


Figure 8 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 17
Name of the peat site: "Jurgežeriai"
Coordinates: N 54.426651 E 23.18265
Administrative district: Kalvarijos district municipality
Size of the peatland: 235,98ha

Site No. 18
Name of the peat site: "Būdviečiai"
Coordinates: N 54.400238 E 23.133756
Administrative district: Kalvarijos district municipality
Size of the peatland: 154,69 ha

Site No. 19
Name of the peat site: "Juodeliai"
Coordinates: N 54.380362 E 23.124807
Administrative district: Kalvarijos district municipality
Size of the peatland: 722,24 ha

Site No. 20
Name of the peat site: "Aguonis"
Coordinates: N 54.364556 E 23.114761
Administrative district: Kalvarijos district municipality
Size of the peatland: 56,71 ha

Natura 2000*: No. 19 area is within Natura 2000 territory LTKALB001, that was established for protection of species of European importance: *Crex crex, Circus aeruginosa, C. pygargus, Porzana porzana, Anthus campestris*.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 7 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 17**	**Size in area No. 18**	**Size in area No. 19**	**Size in area No. 20**
Land declared for forestry, ha		17,43	97,78	69,77	2,72
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	29,55	0,95	60,21	
	Permanent pastures, ha	2,95		5,58	0,10
	Pasture or meadows of perennial grasses, ha	150,40	1,17	401,13	33,30
	Management of natural or semi-natural meadows, ha			1,67	
Natural habitats of European importance	Alluvial meadows 6450		0,67	2,57	

	Transitional peat and quaking bogs (7140), ha		0,88		

Radviliškis peat

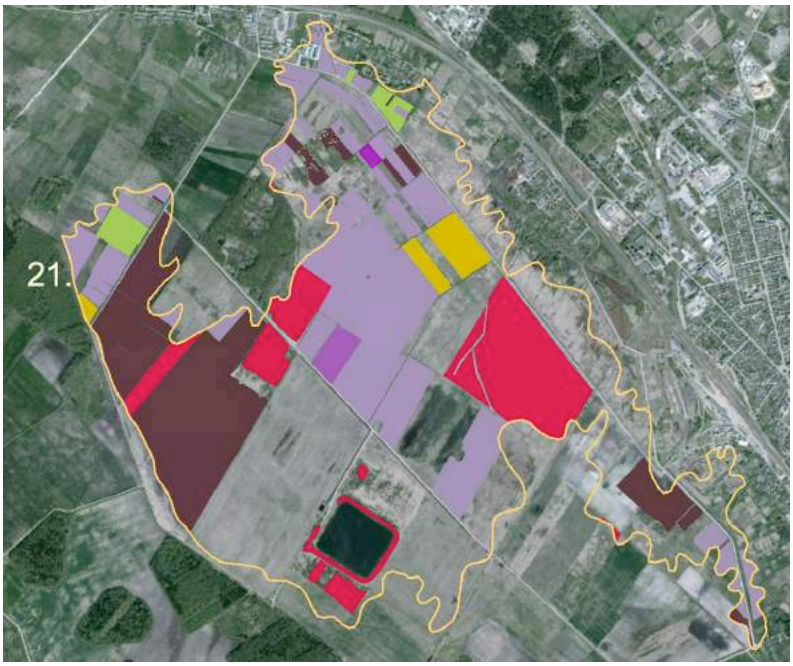


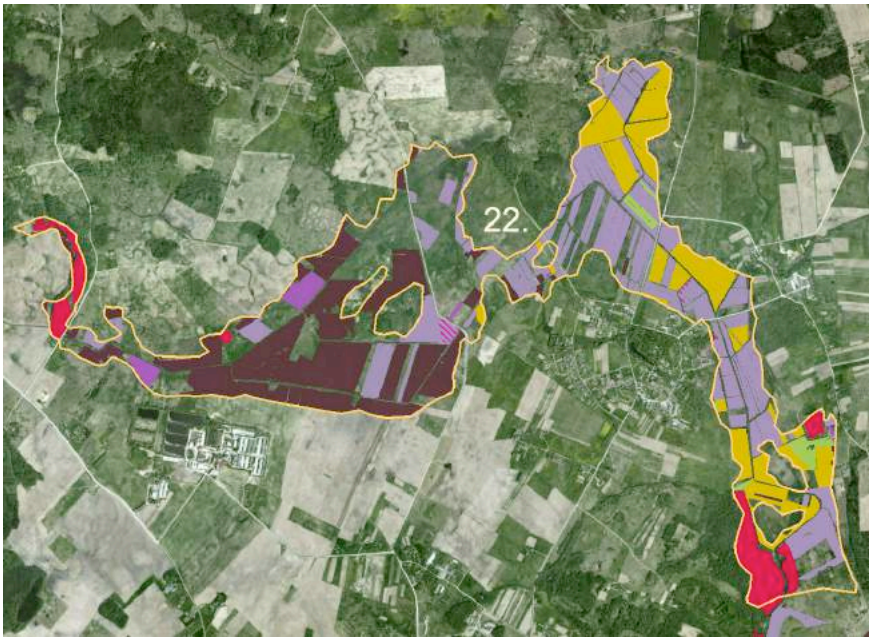
Figure 9 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 21
Name of the peat site: "Radviliškis"
Coordinates: N 55.811571 E 23.495956
Administrative district: Radviliškis district municipality
Nearest populated locality: near Radviliškis
Size of the peatland: 599,97 ha

Table 8 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 21**
Land declared for forestry, ha		**64,71**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	88,59
	Permanent pastures, ha	4,80
	Pasture or meadows of perennial grasses, ha	118,36
	Management of natural or semi-natural meadows, ha	0,96
	Extensive meadows management by grazing livestock, ha	11,02
	Extensive wetland management, ha	7,68

Nemenčia peat



Site No. 22
Name of the peat site: "Nemenčia"
Coordinates: N 54.904084 E 25.457201
Administrative district: Vilnius district municipality
Size of the peatland: 507,78 ha

Figure 10 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 9 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 22**
Land declared for forestry, ha		**26,68**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	114,09
	Permanent pastures, ha	7,91
	Pasture or meadows of perennial grasses, ha	126,95
	Specific meadow's management, ha	0,79
	Extensive meadows management by grazing livestock, ha	75,89
	Extensive wetland management, ha	6,52
Natural habitats of European importance, ha	Alluvial meadows (6450), ha	2,29

Petalands in Alka-Erla river valley

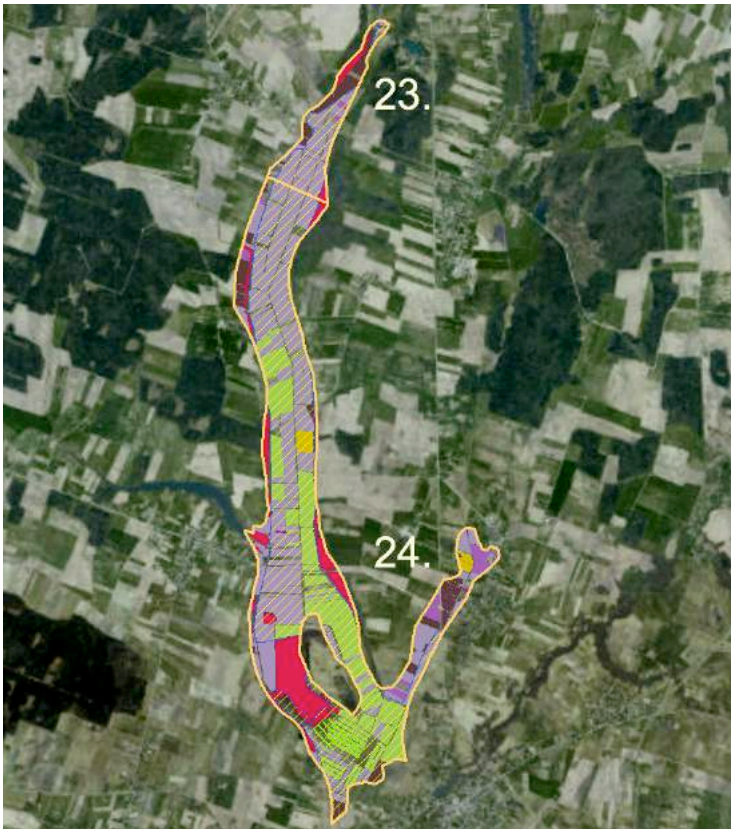


Figure 11 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 23
Name of the peat site: "Alka-Erla"
Coordinates: N 56.083885 E 21.538214
Administrative district: between Skuodas and Kretinga district municipalities
Size of the peatland: 745,05 ha

Site No. 24
Name of the peat site: "Palaukė"
Coordinates: N 56.133402 E 21.540542
Administrative district: Skuodas district municipality
Size of the peatland: 87,69 ha

Natura 2000*: areas No. 23 and No. 24 are within Natura 2000 territory LTSKUB002, that was established for protection of species of European importance: *Crex crex*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 10 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 23**	**Size in area No. 24**
Land declared for forestry, ha		7,25	76,71
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	17,14	36,25
	Permanent pastures, ha	2,50	17,65
	Pasture or meadows of perennial grasses, ha	44,89	310,49
	Management of natural or semi-natural meadows, ha		0,70
	Specific meadow's management, ha		9,32
	Extensive wetland management, ha		172,50
Natural habitats of European importance	Alluvial meadows (6450), ha		17,42

Pajūris peat

Figure 12 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 25
Name of the peat site: "Pajūris"
Coordinates: N 56.980781 E 21.08372
Administrative district: Palanga district municipality
Size of the peatland: 306,16 ha

Table 11 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 25**
Land declared for forestry, ha		**94,64**
Area under agricultural land-use, plots declared for payment schemes under RDP	Extensive wetland management, ha	7,04

Peatlands in Kirsna, Gasda and Vaponė river valleys

Site No. 26
Name of the peat site: "Raudeniškiai"
Coordinates: N 54.370998 E 23.26435
Administrative district: Kalvarija district municipality
Size of the peatland: 251,39 ha

Site No. 27
Name of the peat site: "Palnyčia"
Coordinates: N 54.347007 E 23.241053
Administrative district: Kalvarija district municipality
Nearest populated locality: to south from Kalvarija
Size of the peatland: 393,80 ha

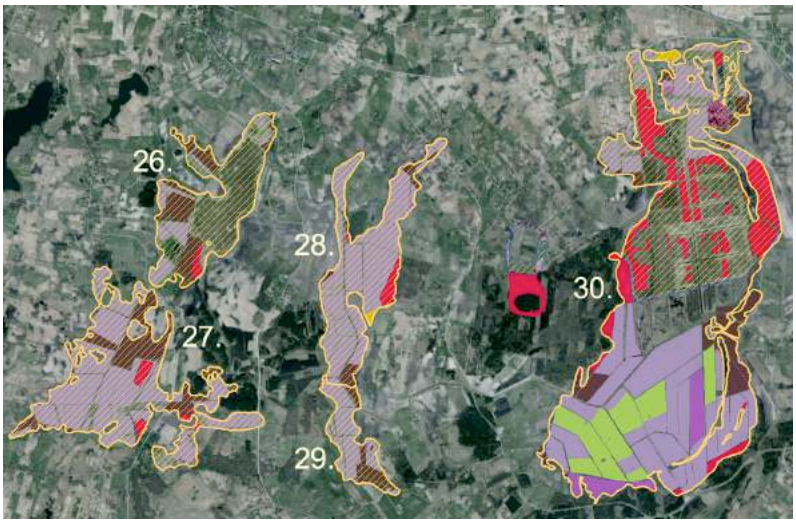


Figure 13 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 28
Name of the peat site: "Turlojiškė"
Coordinates: N 54.360104 E 23.295464
Administrative district: Kalvarija district municipality
Size of the peatland: 256,21 ha

Site No. 29
Name of the peat site: "Mockava"
Coordinates: N 54.337132 E 23.300556
Administrative district: Kalvarija district municipality
Size of the peatland: 83,58 ha

Site No. 30
Name of the peat site: "Sūsia"
Coordinates: N 54.355849 E 23.375419
Administrative district: between Kalvarija and Lazdijai district municipalities
Size of the peatland: 1451,02 ha

Natura 2000*: areas No. 26, 27, 28, 29 and 30 are within Natura 2000 territory LTKALB001, that was established for protection of species of European importance: *Crex crex, Circus aeruginosa, C. pygargus, Porzana porzana, Anthus campestris*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 12 Size (ha) of various features and land use within selected areas

Land use and habitat features		Size in area No. 26	Size in area No. 27	Size in area No. 28	Size in area No. 29	Size in area No. 30
Land declared for forestry, ha		4,93	13,28	11,76		170,35
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	53,76	74,43	16,05	19,19	90,46
	Permanent pastures, ha		1,05		1,41	48,77
	Pasture or meadows of perennial grasses, ha	39,60	245,34	47,57	54,97	441,84
	Specific meadow's management, ha					3,92
	Management of natural or semi-natural meadows, ha			1,75		
	Extensive wetland management, ha			2,82		131,80
Natural habitats of European importance	Alluvial meadows (6450), ha					12,84

Peatlands of drained Kirsna, Krokšliaravis and Raišupis

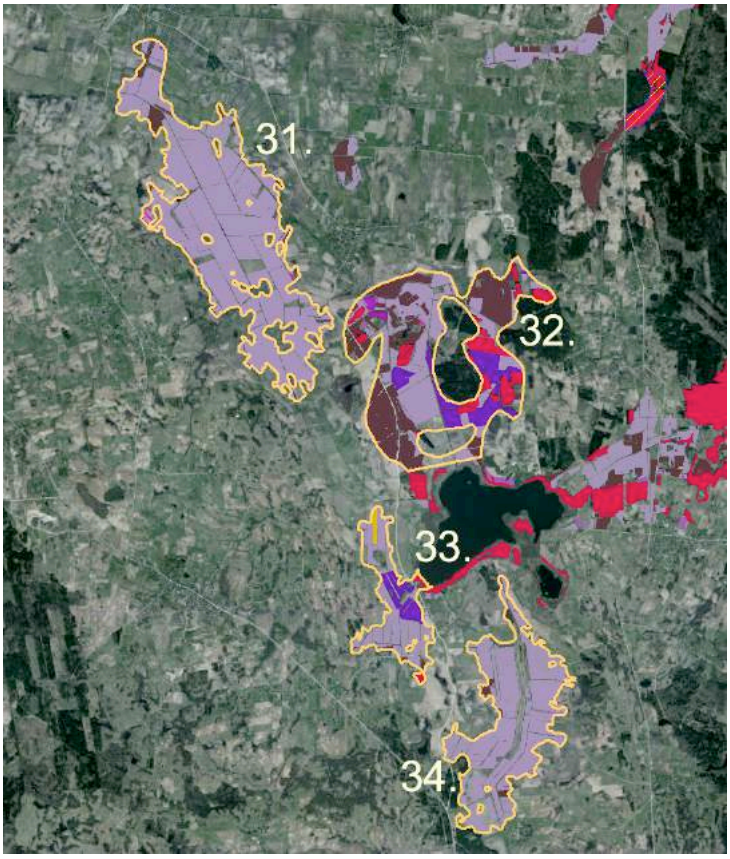


Figure 14 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 31
Name of the peat site: "Kirsna"
Coordinates: N 54.329074 E 23.460781
Administrative district: Lazdijai district municipality
Size of the peatland: 430,86 ha

Site No. 32
Name of the peat site: "Rimietis I"
Coordinates: N 54.31181 E 23.498598
Administrative district: Lazdijai district municipality
Size of the peatland: 378,00 ha

Site No. 33
Name of the peat site: "Karužai"
Coordinates: N 54.286753 E 23.494605
Administrative district: Lazdijai district municipality
Size of the peatland: 97,97 ha

Site No. 34
Name of the peat site: "Raišupis"
Coordinates: N 54.271947 E 23.517768
Administrative district: Lazdijai district municipality
Size of the peatland: 232,06 ha

Table 13 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 31**	**Size in area No. 32**	**Size in area No. 33**	**Size in area No. 34**
Land declared for forestry, ha			39,34	2,59	
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	16,73	116,43	2,80	7,51
	Permanent pastures, ha	0,44	1,06		1,20
	Pasture or meadows of perennial grasses, ha	362,53	105,07	54,37	168,64
	Management of natural or semi-natural meadows, ha		3,63		
	Improvement of water bodies at risk, ha		41,39	15,10	
	Extensive meadows management by grazing livestock, ha			2,28	

Natural habitats of European importance	Alluvial meadows 6450	5,14	0,68		

Peatlands of drained Šušvė

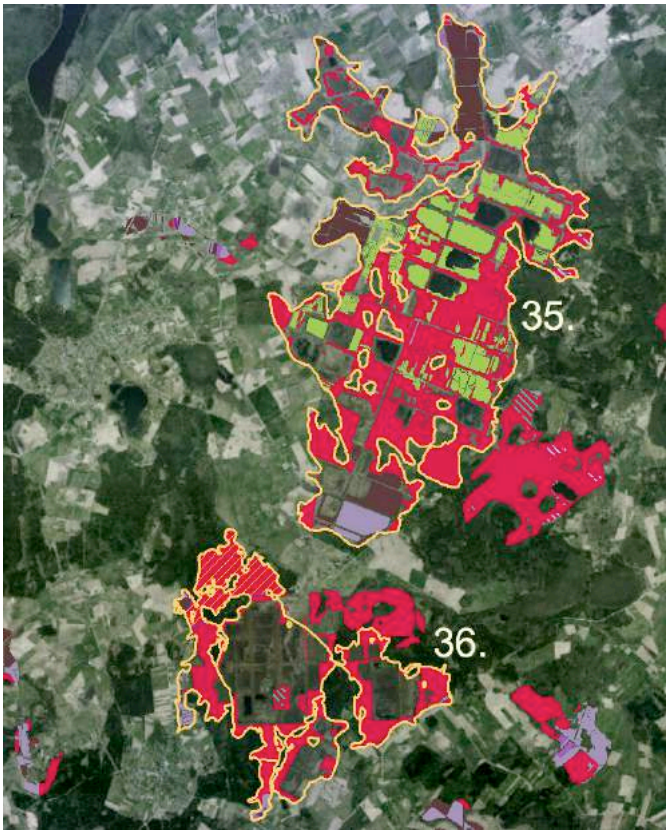


Figure 15 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 35
Name of the peat site: "Tytuvėnai"
Coordinates: N 55.605899 E 23.3049
Administrative district: between Kalvarija and Radviliškis district municipalities
Size of the peatland: 2537,71 ha

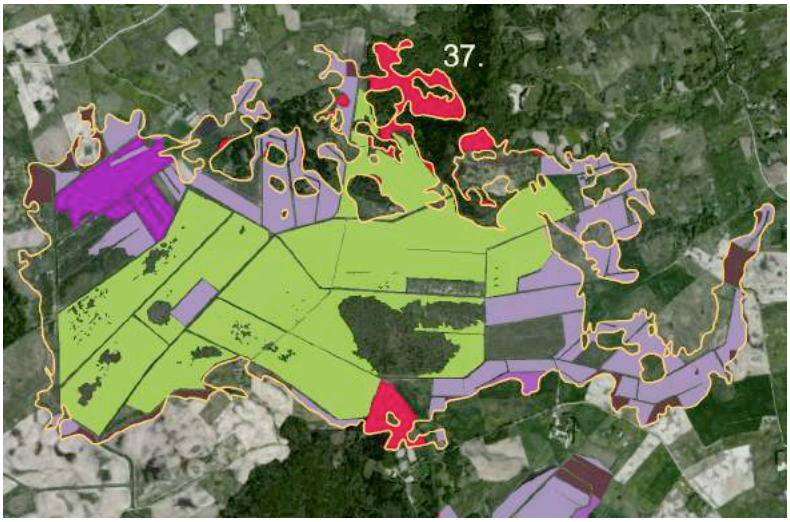
Site No. 36
Name of the peat site: "Šiluva"
Coordinates: N 55.547161 E 23.254943
Administrative district: between Kelmė and Radviliškis district municipalities
Size of the peatland: 1000,41 ha

Natura 2000*: area No. 36 is within Natura 2000 territory LTKEL0012, that was established for protection of habitat of European importance: 91D0.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 14 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 35**	**Size in area No. 36**
Land declared for forestry, ha		1000,00	500,00
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	243,88	3,01
	Permanent pastures, ha	4,25	0,15
	Pasture or meadows of perennial grasses, ha	57,84	1,24
	Extensive wetland management, ha	192,18	
Natural habitats of European importance	Transitional peat and quaking bogs (7140), ha		5,37
	Base-rich fens (7230), ha	6,14	

Bajorai peat



Site No. 37
Name of the peat site: "Bajorai"
Coordinates: N 55.134249 E 25.153361
Administrative district: between Ukmergė, Molėtai and Širvintos district municipalities
Size of the peatland: 593,38 ha

Figure 16 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 15 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 37**
Land declared for forestry, ha		**26,44**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	17,15
	Permanent pastures, ha	2,18
	Pasture or meadows of perennial grasses, ha	115,91
	Management of natural or semi-natural meadows, ha	22,79
	Extensive meadows management by grazing livestock, ha	237,33

Dysna peat

Figure 17 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 38

Name of the peat site: "Dysna"
Coordinates: N55.326627 E 26.679997
Administrative district: Ignalina district municipality
Size of the peatland: 826,00 ha

Natura 2000*: area No. 38 is within Natura 2000 territories LTIGN0032 and LTIGNB001, that were established for protection of species of European importance: *Triturus cristatus, Bombina bombina, Lutra lutra, Cygnus Cygnus, Porzana porzana, Crex crex, Philamacus pugnax, Anser albifrons*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 16 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 38**
Land declared for forestry, ha		**11,86**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	15,18
	Permanent pastures, ha	4,10
	Pasture or meadows of perennial grasses, ha	106,68
	Specific meadow's management, ha	2,23
	Aquatic warbler protection in natural or semi-natural meadows, ha	430,08

Meadow of drained Kilnelė near Kalveliai

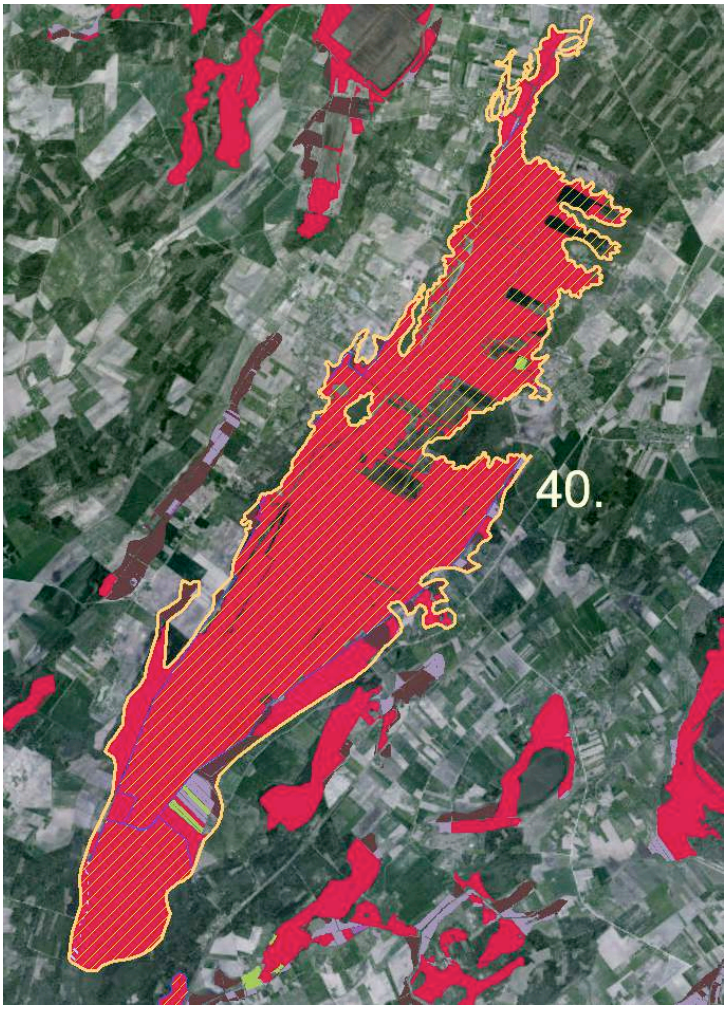
Figure 18 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 39
Coordinates: N 54.646123
Administrative district: Vilnius district municipality
Nearest populated locality: to north from Kalveliai
Size of the peatland: 113,62 ha

Table 17 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 39**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,80
	Permanent pastures, ha	1,04
	Pasture or meadows of perennial grasses, ha	1,17

Peatland of drained Šimša and Krioklys rivers



Site No. 40
Name of the peat site: "Didysis tyrulis"
Coordinates: N 55.748275 E 23.281194
Administrative district: between Šiauliai, Radviliškis and Kelmė district municipalities
Size of the peatland: 4310,89 ha

Figure 19 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 18 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 40**
Land declared for forestry, ha		**3591,71**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	142,04
	Pasture or meadows of perennial grasses, ha	45,39
	Extensive wetland management, ha	18,19
Natural habitats of European importance, ha	Base-rich fens (7230), ha	7,05

?

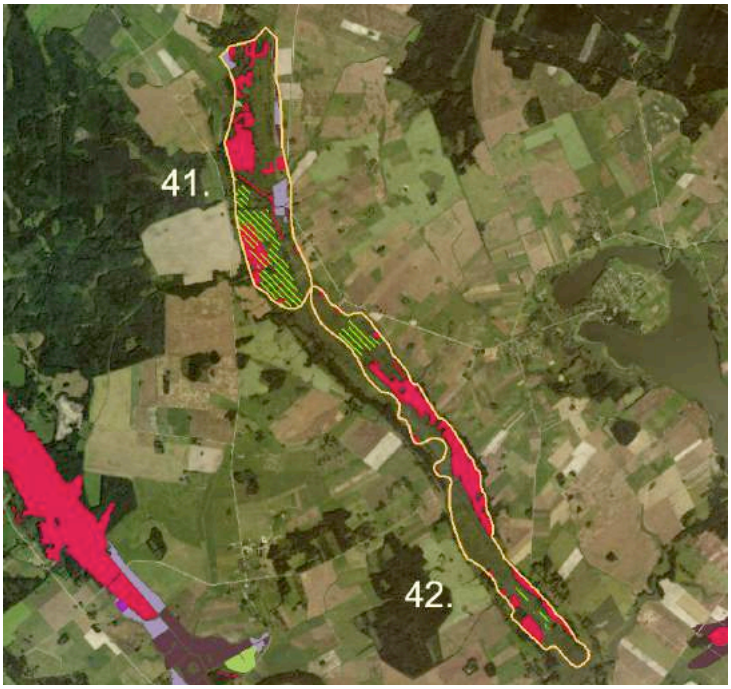


Figure 20 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 41
Coordinates: N 55.823683 E 25.302676
Administrative district: between Rokiškis and Kupiškis district municipalities
Size of the peatland: 192,28 ha

Site No. 42
Name of the peat site: "Šetekšna"
Coordinates: N 55.794104 E 25.34036
Administrative district: between Kupiškis and Rokiškis district municipalities
Size of the peatland: 189,26 ha

Table 19 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 41**	**Size in area No. 42**
Land declared for forestry, ha		43,35	51,34
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	5,07	0,13
	Pasture or meadows of perennial grasses, ha	9,57	
Natural habitats of European importance	Alluvial meadows (6450), ha	42,55	12,83

Peatlands near Kintai

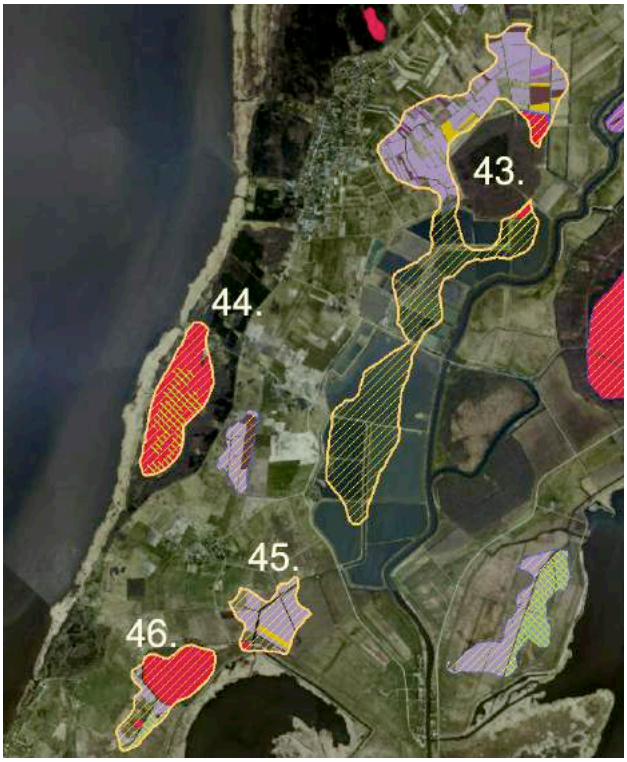


Figure 21 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 43
Name of the peat site: "Kintai"
Coordinates: N 55.40262 E 21.281246
Administrative district: Šilutė district municipality
Size of the peatland: 373,34 ha

Site No. 44
Name of the peat site: "Muižė"
Coordinates: N 55.393664 E 21.236571
Administrative district: Šilutė district municipality
Size of the peatland: 77,42 ha

Site No. 45
Coordinates: N 55.363488 E 21.234772
Administrative district: Šilutė district municipality
Size of the peatland: 65,78 ha

Site No. 46
Coordinates: N 55.369847 E 21.279343
Administrative district: Šilutė district municipality
Size of the peatland: 48,98 ha

Natura 2000*: areas No. 43, 44, 45 and 46 are within Natura 2000 territory LTSIU0013, that was established for protection of habitats of European importance: 1130, 2330, 3160, 3270, 6120, 6450, 7110, 7120, and species of European importance: *Botaurus stellaris, Circus aeruginosa, C. pygargus, Heliaeetus albicilla, porzana porzana, P. parva, Crex crex*.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 20 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 43**	**Size in area No. 44**	**Size in area No. 45**	**Size in area No. 46**
Land declared for forestry, ha		8,76	76,20	39,70	0,89
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	11,35			
	Permanent pastures, ha	4,75			
	Pasture or meadows of perennial grasses, ha	88,12	0,46	12,93	32,68
	Specific meadow's management, ha	6,99			
	Extensive meadows management by grazing livestock, ha				2,37
Natural habitats of European importance	Alluvial meadows 6450		34,47	4,99	

Alluvial meadows between Atmata and Rusnaitė rivers

Site No. 47
Coordinates: N 55.332165 E 21.279343
Administrative district: Šilutė district municipality
Size of the peatland: 47,44 ha

Site No. 48
Coordinates: N 55.332165 E 21.290768
Administrative district: Šilutė district municipality
Size of the peatland: 28,83 ha

Figure 22 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 49
Coordinates: N 55.341328 E 21.307249
Administrative district: Šilutė district municipality
Size of the peatland: 34,85 ha

Site No. 50
Coordinates: N 55.333557 E 21.332389
Administrative district: Šilutė district municipality
Size of the peatland: 142,77 ha

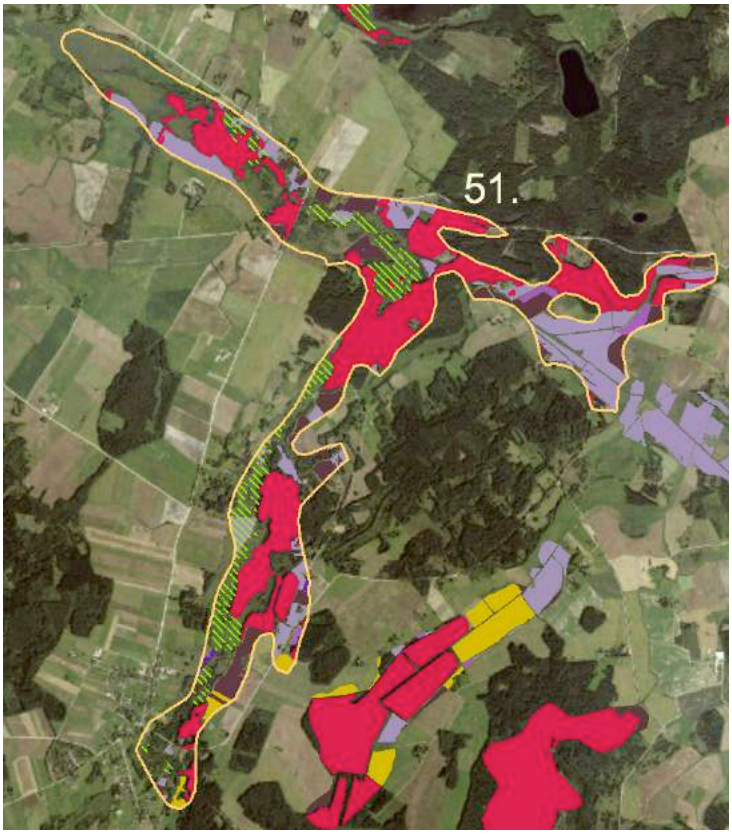
Natura 2000*: areas No. 47, 48, 49 and 50 are within Natura 2000 territory LTSIU0013, that was established for protection of habitats of European importance: 1130, 2330, 3160, 3270, 6120, 6450, 7110, 7120, and species of European importance: *Botaurus stellaris, Circus aeruginosa, C. pygargus, Heliaeetus albicilla, porzana porzana, P. parva, Crex crex*.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 21 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 47**	**Size in area No. 48**	**Size in area No. 49**	**Size in area No. 50**
Area under agricultural land-use, plots declared for payment schemes under RDP	Pasture or meadows of perennial grasses, ha	8,05	9,24	20,73	34,58
	Aquatic warbler protection in natural or semi-natural meadows, ha	34,22	11,83	0,25	
Natural habitats of European importance	Alluvial meadows 6450	42,78	8,66	24,14	40,74

Meadow by Nemunėlis river



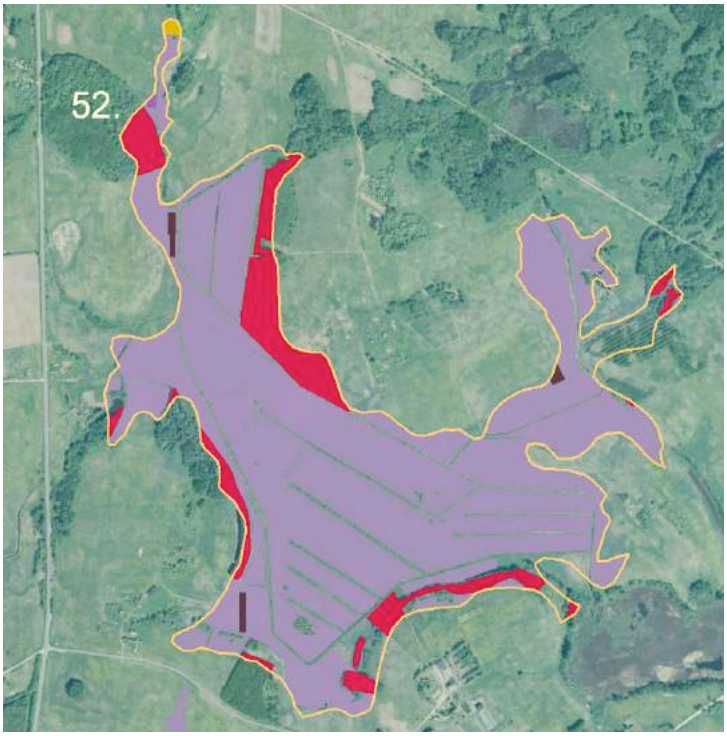
Site No. 51
Coordinates: N 56.03182 E 25.397982
Administrative district: Rokiškis district municipality
Nearest populated locality: to north from Kazlitiškis
Size of the peatland: 541,63 ha

Figure 23 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 22 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 51**
Land declared for forestry, ha		**158,87**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	43,35
	Permanent pastures, ha	5,69
	Pasture or meadows of perennial grasses, ha	76,95
	Improvement of water bodies at risk, ha	1,12
	Specific meadow's management, ha	1,42
	Extensive wetland management, ha	3,58
Natural habitats of European importance, ha	Alluvial meadows (6450), ha	53,62

Rutiniškis peat



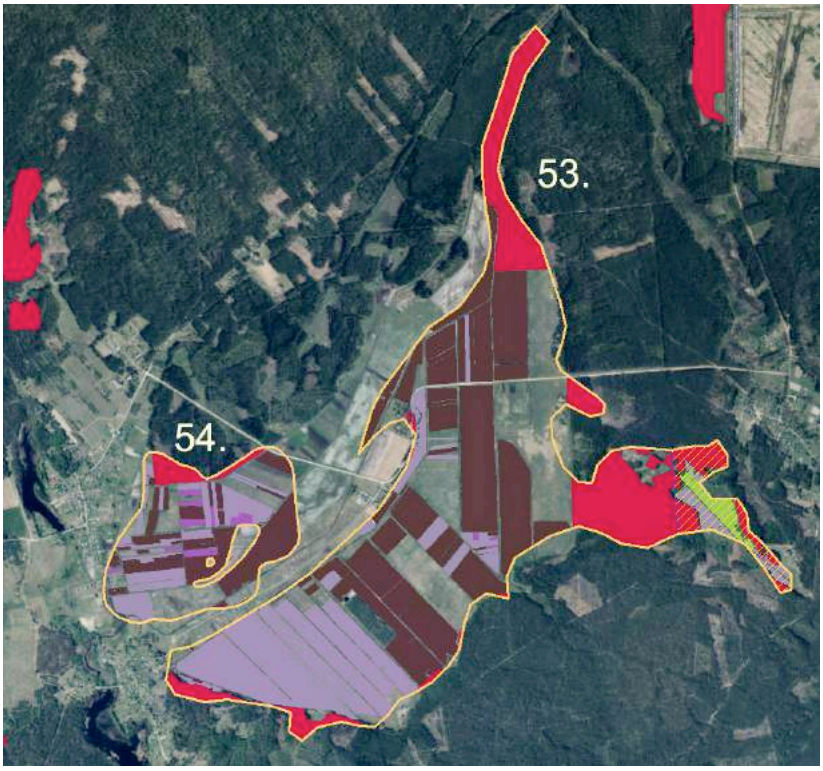
Site No. 52
Name of the peat site: "Rutiniškis"
Coordinates: N 55.649534 E 26.352399
Administrative district: Zarasai district municipality
Size of the peatland: 122,42 ha

Figure 24 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 23 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 52**
Land declared for forestry, ha		**12,58**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,63
	Permanent pastures, ha	0,09
	Pasture or meadows of perennial grasses, ha	89,78
	Extensive wetland management, ha	0,19

Peatlands of drained Grūda



Site No. 53
Name of the peat site: "Kabeliai"
Coordinates:
Administrative district: Varėna district municipality
Size of the peatland: 461,23 ha

Site No. 54
Name of the peat site: "Grūda"
Coordinates: N 53.947583 E 24.305779
Administrative district: Varėna district municipality
Size of the peatland: 103,97 ha

Figure 25 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

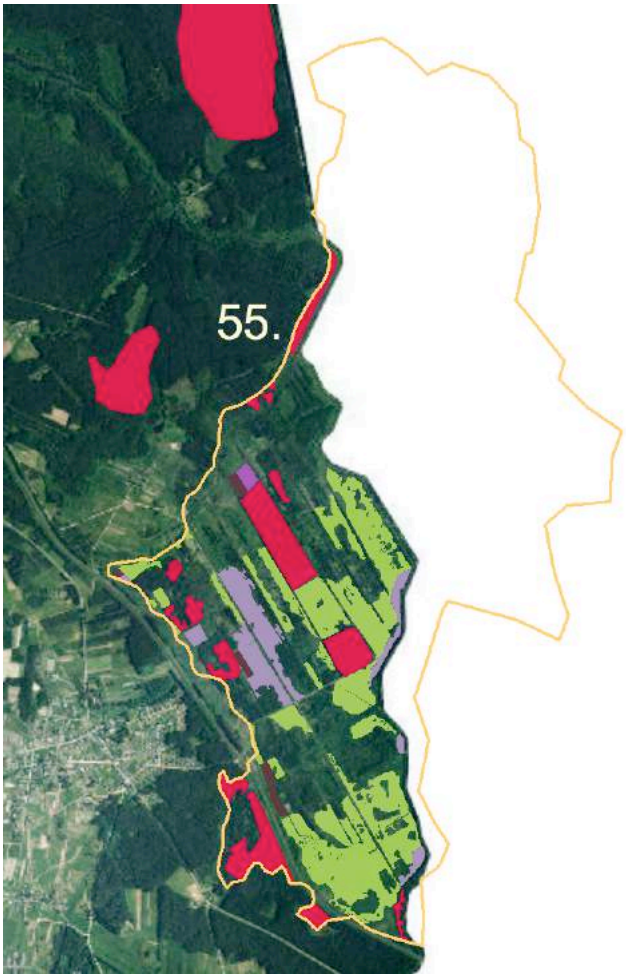
Natura 2000*: area No. 53 is within Natura 2000 territories LTVAR0017 and LTVARB005, that were established for protection of species of European importance: *Tetrao tetrix, T. urogallus, aegolus funereus, Caprimolous europaeus, coracias garullus, Lullula arborea, Alcedo altis,* and habitats of European importance: 2330, 3260, 6120, 6430, 7140, 7220.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 24 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 53**	**Size in area No. 54**
Land declared for forestry, ha		83,08	5,98
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	149,53	35,41
	Permanent pastures, ha	0,55	4,89
	Pasture or meadows of perennial grasses, ha	93,23	23,51
	Extensive wetland management, ha	4,90	

Jankuškai peat



Site No. 55
Coordinates: N 54.621271 E 25.751037
Administrative district: Vilnius district municipality
Size of the peatland: 1076,63 ha

Figure 26 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 25 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 55**
Land declared for forestry, ha		**52,24**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	4,69
	Permanent pastures, ha	1,61
	Pasture or meadows of perennial grasses, ha	26,06
	Extensive wetland management, ha	109,28

Peatland in Aukštoji and Strauzgėlė river valleys

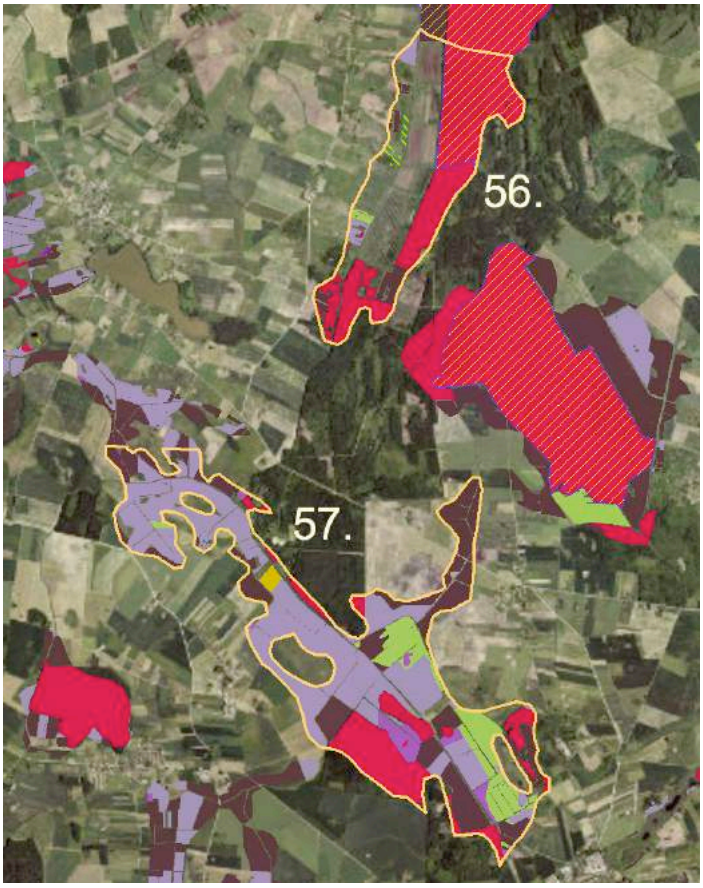


Figure 27 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 56
Name of the peat site: "Mikėnai"
Coordinates: N 55.317088 E 24.628728
Administrative district: Ukmergė district municipality
Size of the peatland: 424,36 ha

Site No. 57
Name of the peat site: "Salos"
Coordinates: N 55.261614 E 24.622523
Administrative district: Ukmergė district municipality
Nearest populated locality: to west from Ukmergė
Size of the peatland: 814,00 ha

Natura 2000*: area No. 56 is within Natura 2000 territories LTUKM0003 and LTUKMB001, that were established for protection of species of European importance: *Lynx lynx, Euphydryas aurinia, E. maturna, Lutra lutra, Ciconia nigra, Aguila pomarina, Grus grus, Picus canus, Dendrocopos leucotos*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 26 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 56**	**Size in area No. 57**
Land declared for forestry, ha		195,56	115,26
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	21,06	186,54
	Permanent pastures, ha	0,16	25,29
	Pasture or meadows of perennial grasses, ha	9,41	315,41
	Extensive wetland management, ha	2,97	73,92
	Extensive meadows management by grazing livestock, ha		5,05
Natural habitats of European importance	Alluvial meadows (6450), ha	6,06	

Peatlands of drained Lomena river

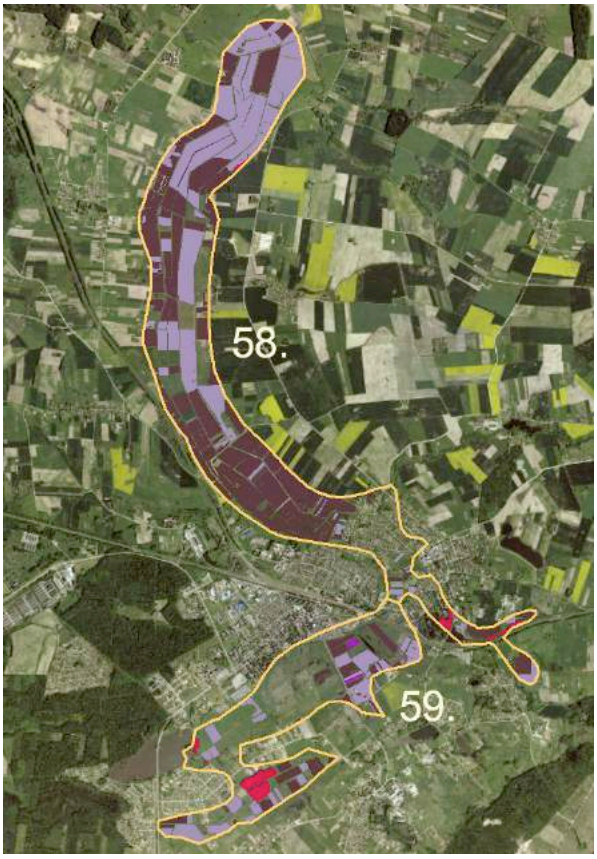


Figure 28 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 58
Name of the peat site: "Lomena"
Coordinates: N 54.885109 E 24.434977
Administrative district: Kaišiadorys district municipality
Size of the peatland: 693,61 ha

Site No. 59
Name of the peat site: "Žiebena"
Coordinates: N 54.852229 E 24.451846
Administrative district: Kaišiadorys district municipality
Size of the peatland: 314,02 ha

Table 27 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 58**	**Size in area No. 59**
Land declared for forestry, ha			9,70
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	266,27	32,58
	Permanent pastures, ha	0,50	1,75
	Pasture or meadows of perennial grasses, ha	198,69	47,57

Amalvas palios peat

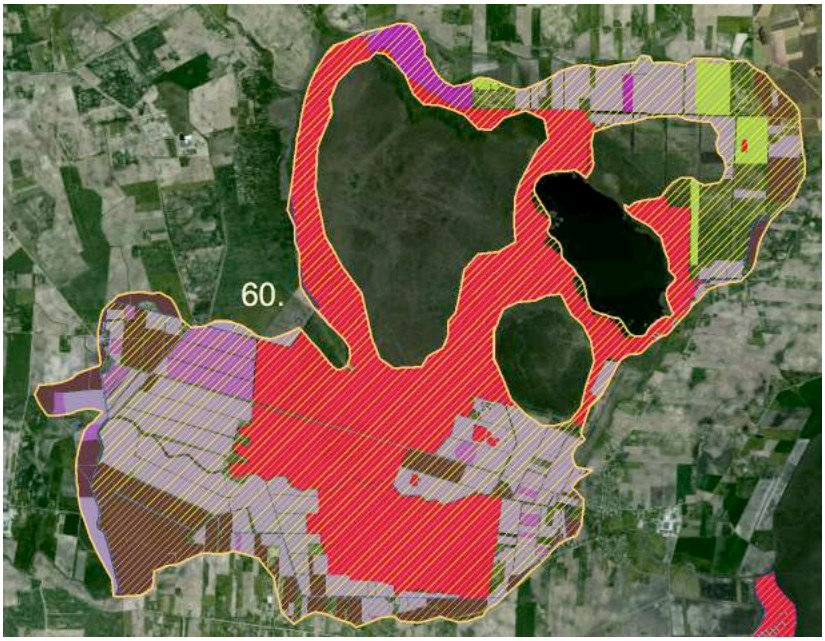


Figure 29 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

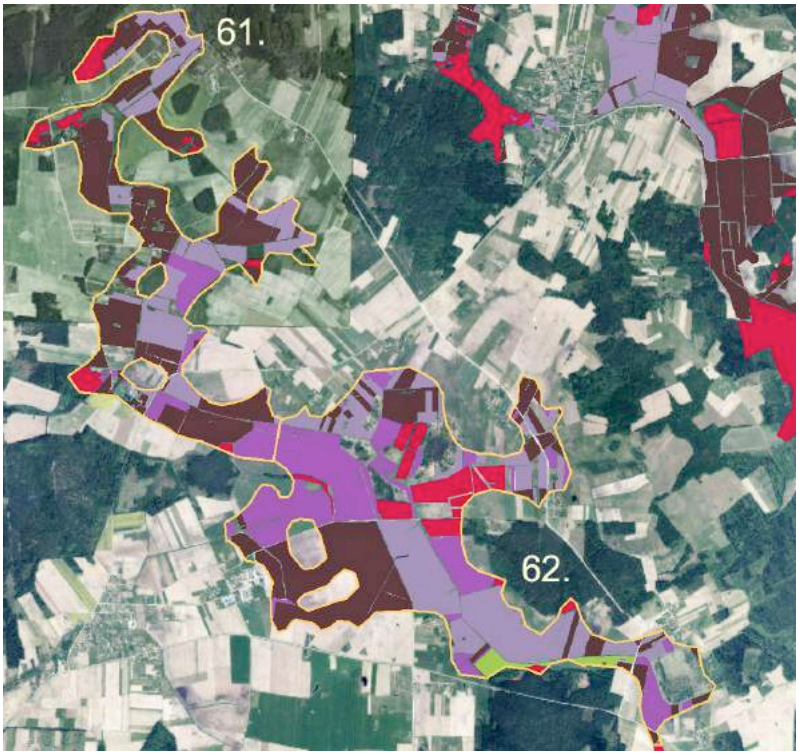
Site No. 60
Name of the peat site: "Amalvas palios"
Coordinates: N 54.507456 E 23.546375
Administrative district: Marijampolė district municipality
Size of the peatland: 2721,23 ha

Natura 2000*: area No. 60 is within Natura 2000 territories LTALY0005 and LTALYB001, that were established for protection of species of European importance: *Botaurus stellaris, Circus aeruginosa, C. pygargus, Tetrao tetrax, Crex crex, Porzana porzana, P. parva, Grus grus,* and habitats of European importance: 2140, 3160, 6410, 6430, 6450, 6510, 7110, 7120.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 28 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 60**
Land declared for forestry, ha		**1096,51**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	344,94
	Permanent pastures, ha	100,19
	Pasture or meadows of perennial grasses, ha	716,27
	Management of natural or semi-natural meadows, ha	49,32
	Extensive wetland management, ha	60,81

Peatlands of drained Nočia and Šipeta rivers



Site No. 61
Name of the peat site: "Tarakonai"
Coordinates: N 54.351916 E 25.429147
Administrative district: Šalčininkai district municipality
Size of the peatland: 453,55 ha

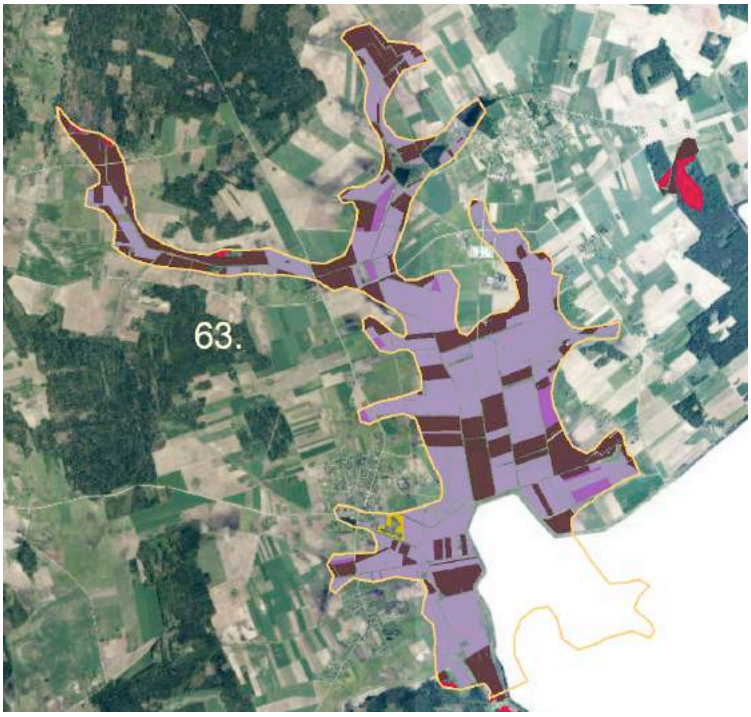
Site No. 62
Name of the peat site: "Didžioja"
Coordinates: N 54.336161 E 25.468617
Administrative district: Šalčininkai district municipality
Size of the peatland: 678,70 ha

Figure 30 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 29 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 61**	**Size in area No. 62**
Land declared for forestry, ha		24,53	52,16
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	210,37	167,58
	Permanent pastures, ha	39,34	159,08
	Pasture or meadows of perennial grasses, ha	106,21	165,25
	Extensive wetland management, ha		11,70

Kariukonys peat



Site No. 63
Name of the peat site: "Kariukonys"
Coordinates: N 54.119919 E 24.777038
Administrative district: Varėna district municipality
Size of the peatland: 985,34 ha

Figure 31 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 30 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 60**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	258,61
	Permanent pastures, ha	21,50
	Pasture or meadows of perennial grasses, ha	405,06
	Extensive wetland management, ha	2,68

Kalviškiai peat

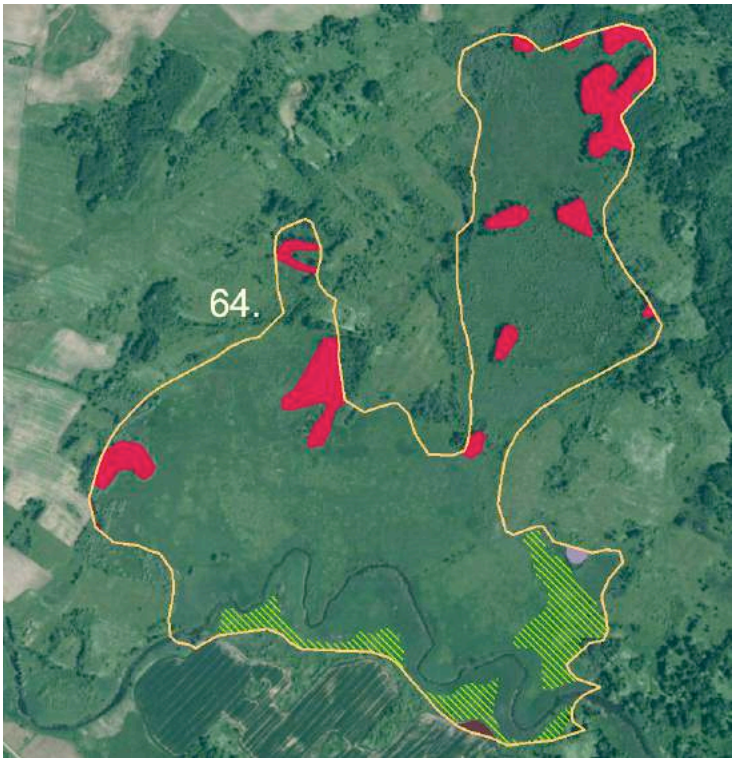


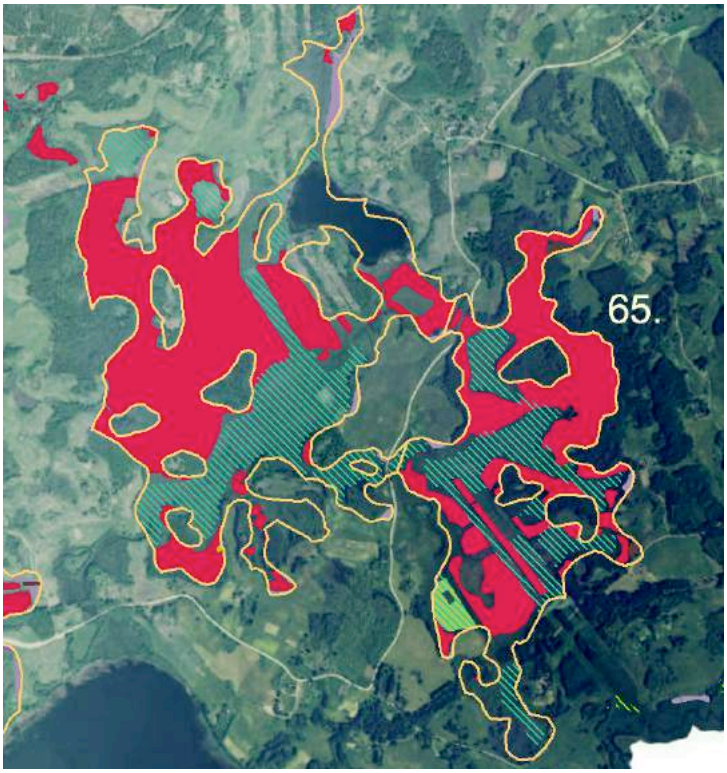
Figure 32 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 64
Name of the peat site: "Kalviškiai"
Coordinates: N 55.286016 E 26,549034
Administrative district: Ignalina district municipality
Size of the peatland: 103,71 ha

Table 31 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 64**
Land declared for forestry, ha		**7,32**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,25
	Permanent pastures, ha	0,17
Natural habitats of European importance	Alluvial meadows (6450), ha	7,13

Gaidė peat



Site No. 65
Name of the peat site: "Gaidė"
Coordinates: N 55.54817 E 26.543543
Administrative district: Ignalina district municipality
Size of the peatland: 303,94 ha

Figure 33 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 32 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 65**
Land declared for forestry, ha		**7,32**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,25
	Pasture or meadows of perennial grasses, ha	9,20
	Specific meadow's management, ha	0,11
	Extensive wetland management, ha	2,75
Natural habitats of European importance	Transitional peat and quaking bogs (7140), ha	79,53

Peatlands around Apvardai, Žilmas and Alksnas lakes

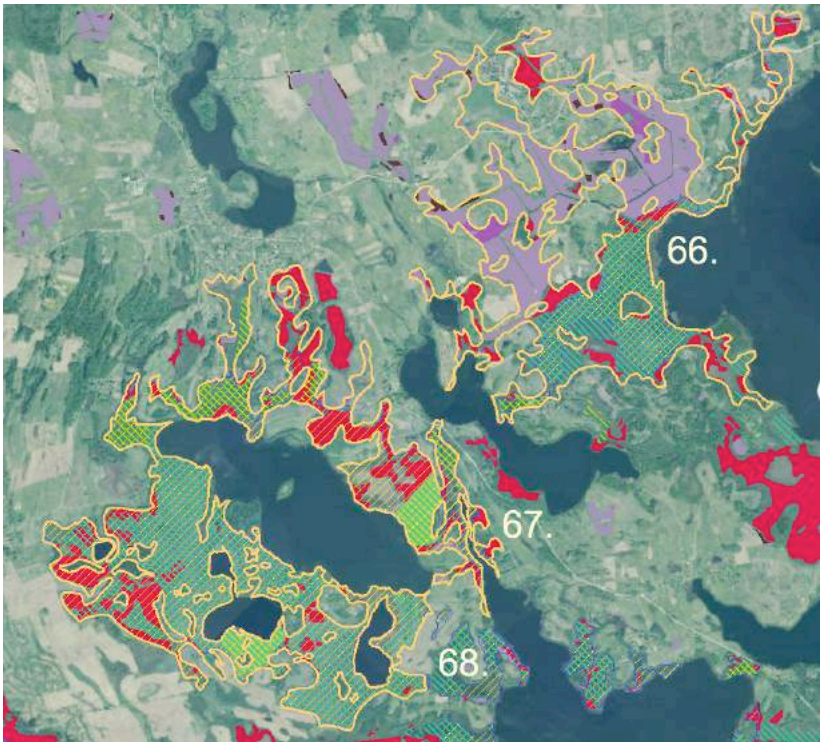


Figure 34 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 66
Name of the peat site: "Agarinis raistas"
Coordinates: N 55.520261 E 26.496791
Administrative district: Ignalina district municipality
Size of the peatland: 411,96 ha

Site No. 67
Name of the peat site: "Vilnokai"
Coordinates: N 55.507945 E 26.455831
Administrative district: Ignalina district municipality
Size of the peatland: 182,86 ha

Site No. 68
Name of the peat site: "Mieleikiškė"
Coordinates: N 55.495446 E 26.433419
Administrative district: Ignalina district municipality
Size of the peatland: 303,12 ha

Natura 2000*: area No. 66 is within Natura 2000 territory LTIGN005, that was established for protection of species of European importance: *Porzana porzana.* Areas No. 67 and 68 are within Natura 2000 teritory LTIGN0001, that was established for protection of *Porzana porzana* and of habitats of European importance: 6230, 6430, 7140.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 33 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 66**	**Size in area No. 67**	**Size in area No. 68**
Land declared for forestry, ha		38,02	53,73	44,85
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	5,88	0,17	0,09
	Permanent pastures, ha	12,57	0,84	0,10
	Pasture or meadows of perennial grasses, ha	131,87	8,65	0,43
	Extensive wetland management, ha		15,36	10,60
Natural habitats of European importance	Alluvial meadows (6450), ha	3,50	29,42	8,76
	Transitional peat and quaking bogs (7140), ha	97,20	14,38	170,70

Labūnavėlė peat

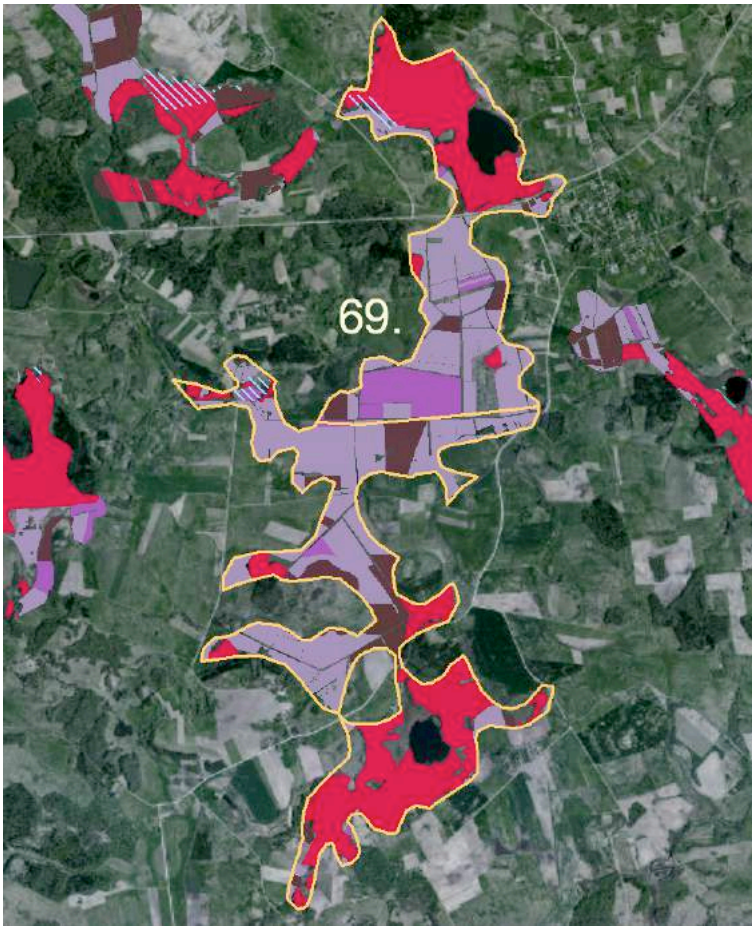


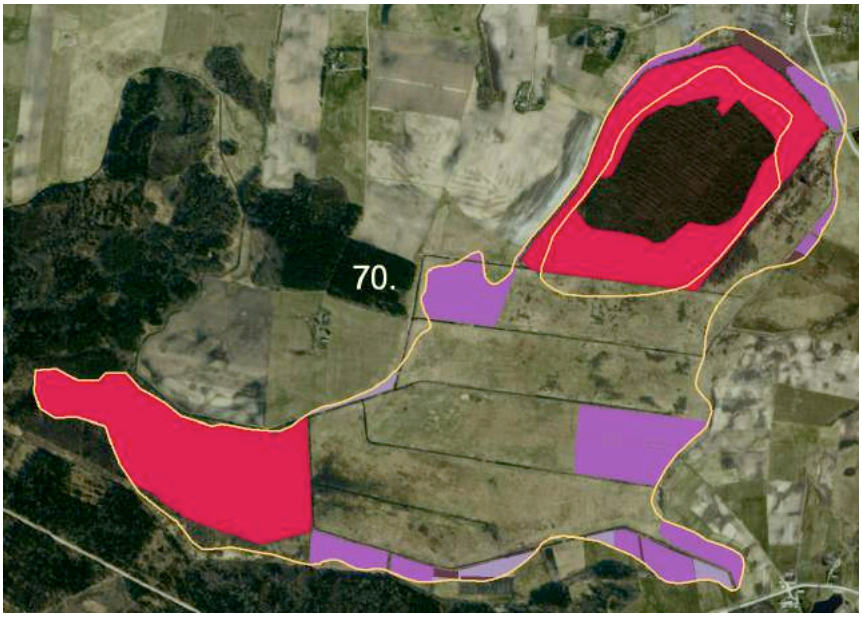
Figure 35 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 69
Name of the peat site: "Labūnavėlė"
Coordinates: N 55.735011 E 22.575387
Administrative district: Kelmė district municipality
Size of the peatland: 581,26 ha

Table 34 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 69**
Land declared for forestry, ha		**342,96**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	47,54
	Permanent pastures, ha	32,96
	Pasture or meadows of perennial grasses, ha	215,92
Natural habitats of European importance	Base-rich fens (7230), ha	7,15

Raudonbalė peat



Site No. 70
Name of the peat site: "Raudonbalė"
Coordinates: N 56.171228 E 21.969735
Administrative district: Mažeikiai district municipality
Size of the peatland: 151,02 ha

Figure 36 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 35 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 70**
Land declared for forestry, ha		**34,42**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1,72
	Permanent pastures, ha	21,07
	Pasture or meadows of perennial grasses, ha	2,16

Raudonoji peat

Site No. 71
Name of the peat site: "Raudonoji"
Coordinates: N 56.253917 E 21.982526
Administrative district: Mažeikiai district municipality
Size of the peatland: 80,33 ha

Figure 37 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 36 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 71**
Land declared for forestry, ha		**13,20**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1,46
	Permanent pastures, ha	3,57
	Pasture or meadows of perennial grasses, ha	7,78
	Extensive wetland management, ha	6,11

Peatlands of drained Siesartis river

Site No. 72
Name of the peat site: "St. Jonas meadow"
Coordinates: N 55.226641 E 25.284248
Administrative district: Molėtai district municipality
Size of the peatland: 111,33 ha

Site No. 73
Name of the peat site: "Siesartis"
Coordinates: N 55.226201 E 25.294995
Administrative district: Molėtai district municipality
Size of the peatland: 137,33 ha

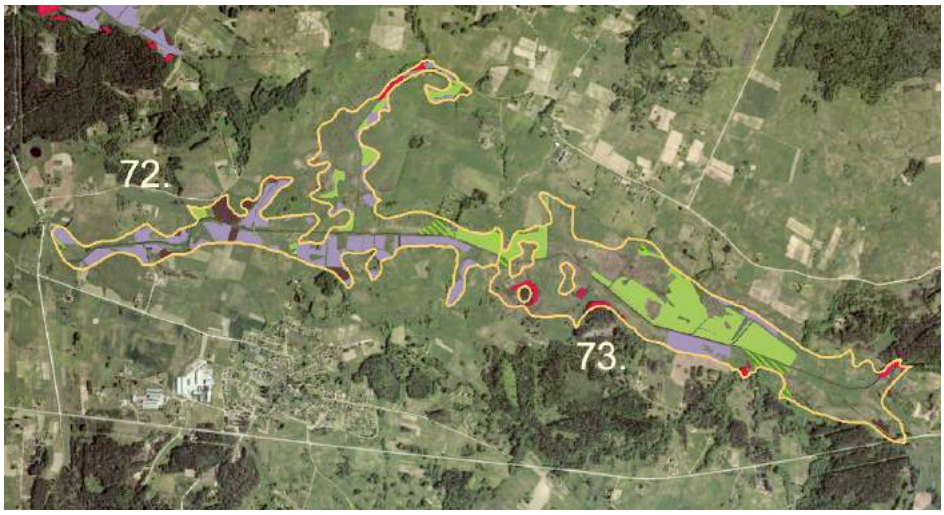


Figure 38 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 37 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 72**	**Size in area No. 73**
Land declared for forestry, ha		1,41	3,24
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	5,44	0,76
	Pasture or meadows of perennial grasses, ha	32,57	6,74
	Extensive meadows management, ha	4,14	17,12
	Extensive wetland management, ha	5,68	13,18
Natural habitats of European importance	Alluvial meadows (6450), ha	2,92	3,73

Inketras peat

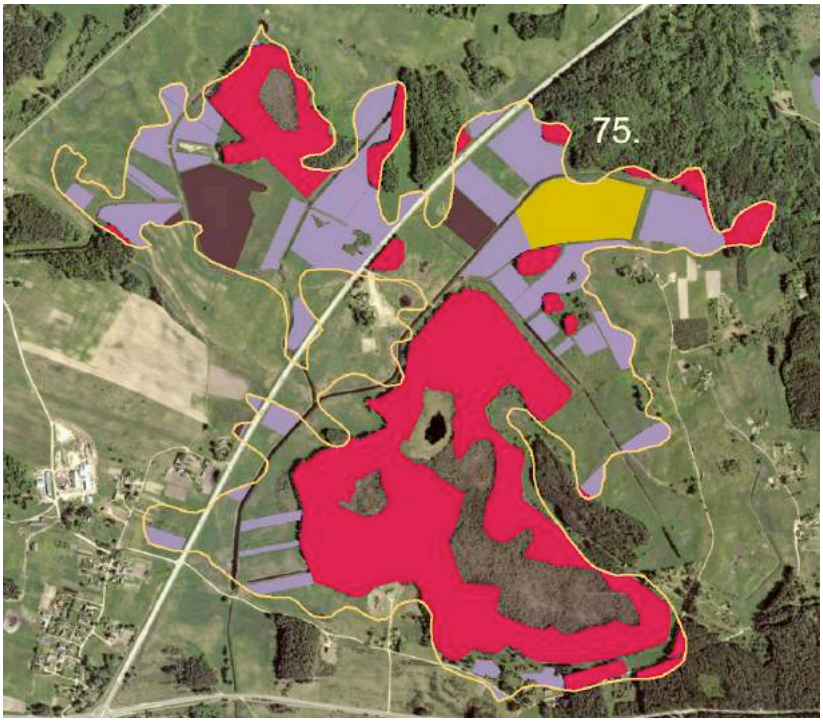
Site No. 74
Name of the peat site: "Inketras"
Coordinates: N 55.278426 E 25.39064
Administrative district: Molėtai district municipality
Size of the peatland: 166,42 ha

Figure 39 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 38 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 74**
Land declared for forestry, ha		**20,86**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,46
	Pasture or meadows of perennial grasses, ha	2,83
	Extensive wetland management, ha	91,19

Samanykštis peat



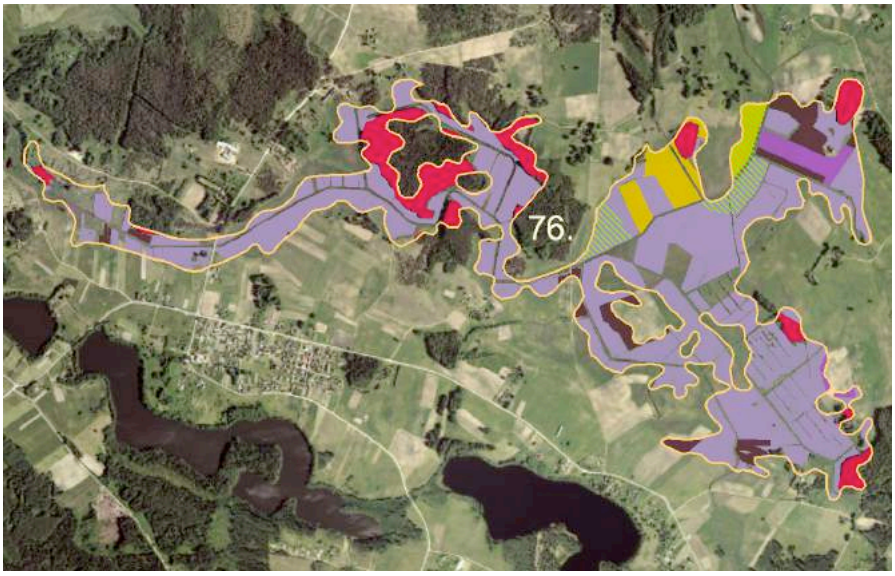
Site No. 75
Name of the peat site: "Samanykštis"
Coordinates: N 55.244751 E 25.468639
Administrative district: Molėtai district municipality
Size of the peatland: 202,05 ha

Figure 40 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 39 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 75**
Land declared for forestry, ha		**67,27**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	7,23
	Pasture or meadows of perennial grasses, ha	38,13
	Extensive meadows management by grazing livestock, ha	6,64

Mediniškiai peat



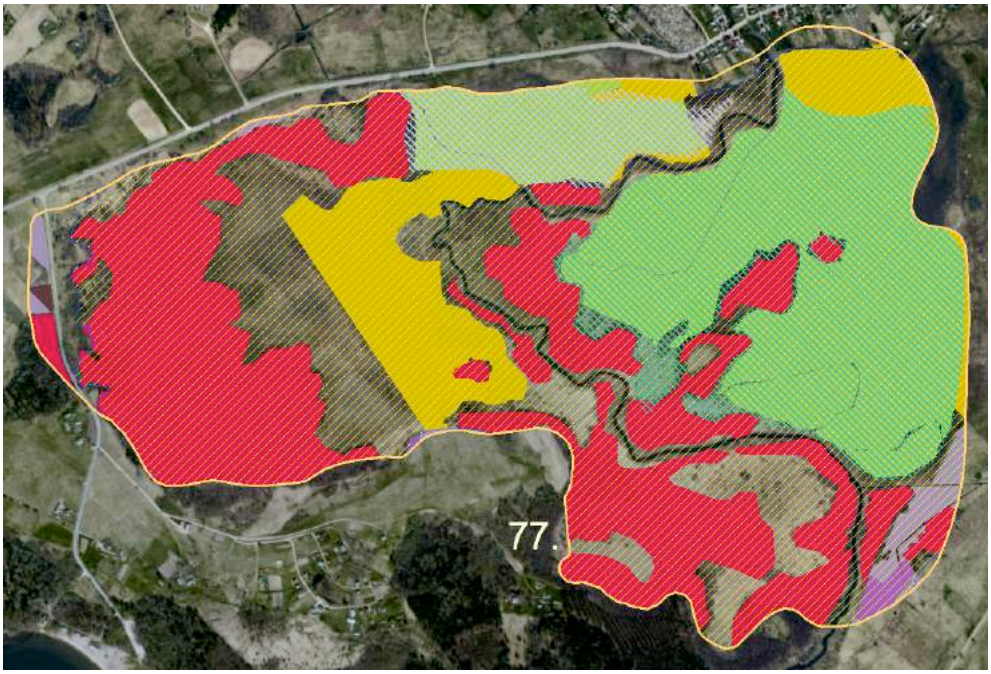
Site No. 76
Name of the peat site:
"Mediniškiai"
Coordinates: N 55.289358 E 25.299624
Administrative district: Molėtai district municipality
Size of the peatland: 187,29 ha

Figure 41 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 40 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 75**
Land declared for forestry, ha		**17,79**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	10,00
	Permanent pastures, ha	4,64
	Pasture or meadows of perennial grasses, ha	110,80
	Extensive meadows management by grazing livestock, ha	9,13
Natural habitats of European importance	Alluvial meadows (6450), ha	8,90

Debesnas peat



Site No. 77
Name of the peat site: "Debesnas"
Coordinates: N 55.733682 E 22.356628
Administrative district: Telšiai district municipality
Size of the peatland: 228,39 ha

Figure 42 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Natura 2000*: area No. 77 is within Natura 2000 territory LTTEL0005, that was established for protection of habitats of European importance: 6230, 6410, 6430, 6510, 7120, 7140, 7230, 9080.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 41 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 77**
Land declared for forestry, ha		**72,25**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	0,22
	Permanent pastures, ha	0,99
	Pasture or meadows of perennial grasses, ha	3,46
	Extensive wetland management, ha	1,84
	Extensive meadows management by grazing livestock, ha	24,84
Natural habitats of European importance	Base-rich fens (7230), ha	14,43
	Traditional peat and quaking bogs (7140), ha	57,87

Gražulė peat

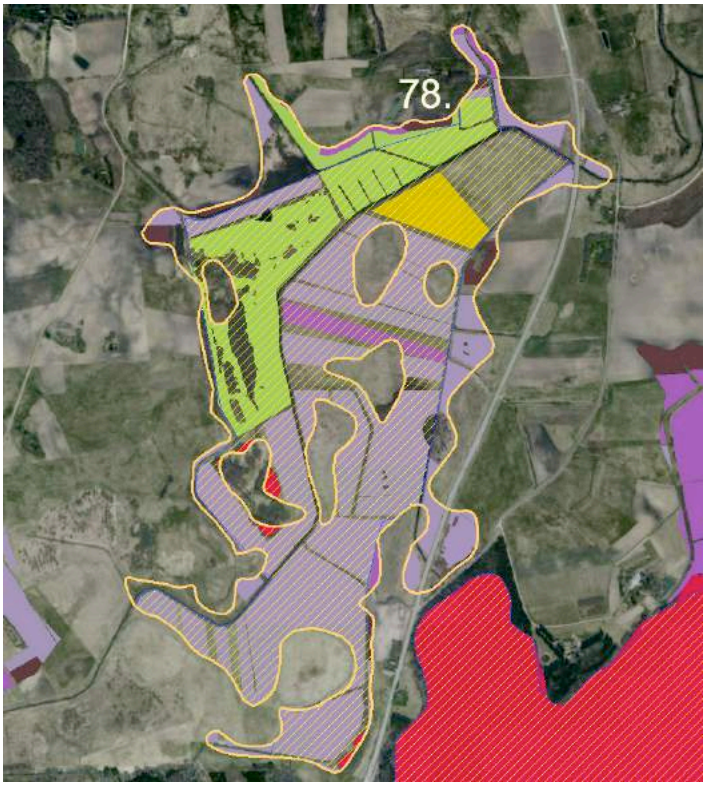


Figure 43 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

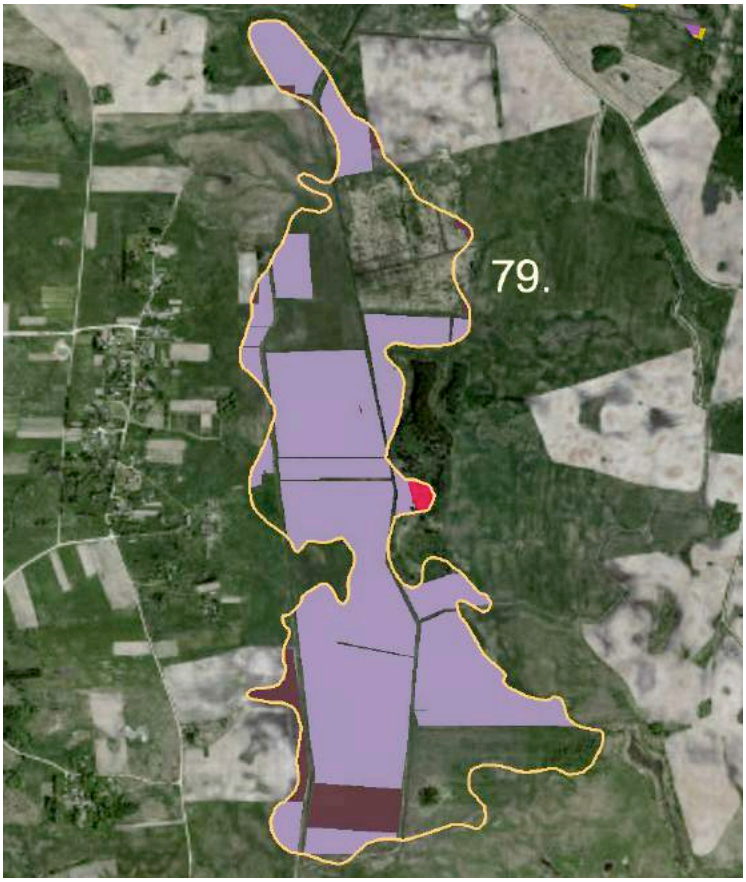
Site No. 78
Name of the peat site: "Gražulė"
Coordinates: N 55.795773 E 22.35374
Administrative district: Telšiai district municipality
Size of the peatland: 101,70 ha

Natura 2000*: area No. 78 is within Natura 2000 territory LTTELB001, that was established for protection of species of European importance: *Botaurus stellaris, Circus pygargus, Porzana porzana, P. parva, Childonias niger, Luscinia svecica*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 42 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 78**
Land declared for forestry, ha		**0,45**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1,71
	Permanent pastures, ha	2,82
	Pasture or meadows of perennial grasses, ha	46,42
	Extensive wetland management, ha	9,73
	Extensive meadows management by grazing livestock, ha	3,21

Griciūnai peat



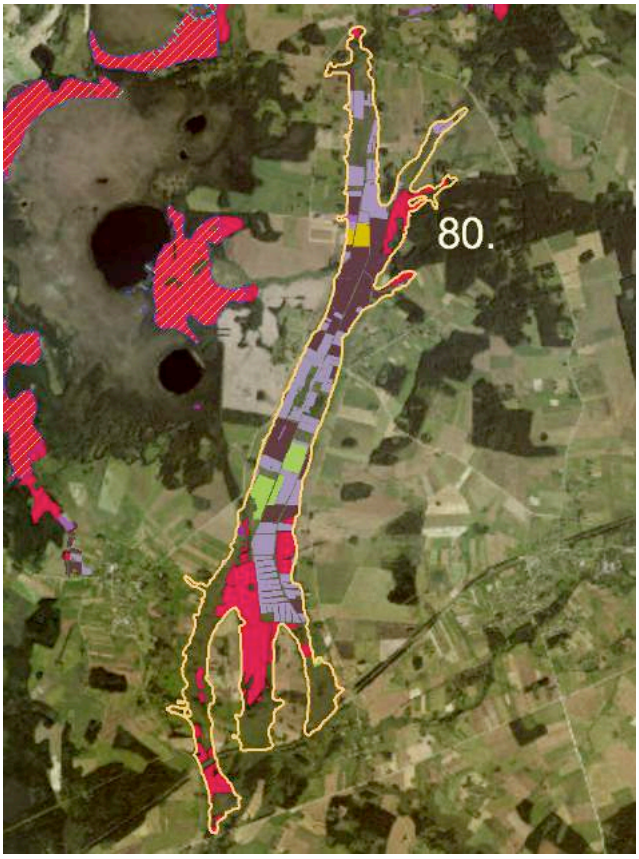
Site No. 79
Name of the peat site: "Griciūnai"
Coordinates: N 54.956603 E 25.542906
Administrative district: Vilnius district municipality
Size of the peatland: 116,79 ha

Figure 44 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 43 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 78**
Land declared for forestry, ha		**0,51**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	6,20
	Pasture or meadows of perennial grasses, ha	68,00

Laičių bala peat



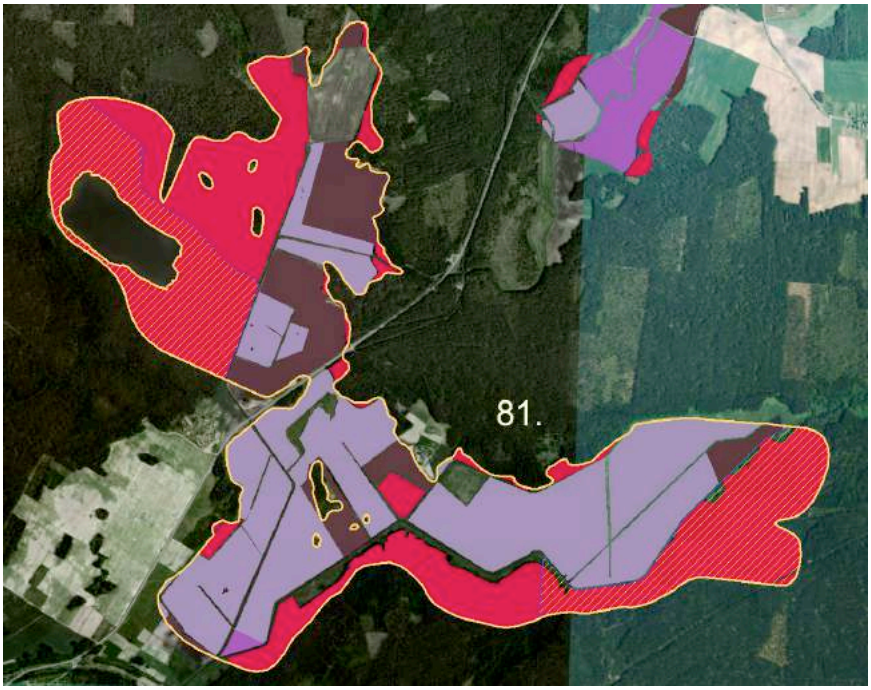
Site No. 80
Name of the peat site: "Laičių bala"
Coordinates: N 55.924112 E 25.340451
Administrative district: between Rokiškis and Kupiškis district municipalities
Size of the peatland: 698,69 ha

Figure 45 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 44 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 80**
Land declared for forestry, ha		**116,70**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	104,67
	Permanent pastures, ha	2,21
	Pasture or meadows of perennial grasses, ha	145,98
	Management of natural or semi-natural meadows, ha	1,19
	Extensive wetland management, ha	22,53
	Extensive meadows management by grazing livestock, ha	9,43

Belkiškė peat



Site No. 81
Name of the peat site: "Belkiškė"
Coordinates: N 54.98786 E 26.008749
Administrative district: Švenčionys district municipality
Nearest populated locality: to south-west from Švenčionys
Size of the peatland: 744,73 ha

Figure 46 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Natura 2000*: area No. 81 is within Natura 2000 territories LTSVE0001 and LTSVEB004, that were established for protection of species of European importance: *Tetrao urogallus,* and habitats of European importance: 3160, 7140, 91D0.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 45 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 81**
Land declared for forestry, ha		**312,38**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	86,20
	Permanent pastures, ha	2,17
	Pasture or meadows of perennial grasses, ha	267,24

?

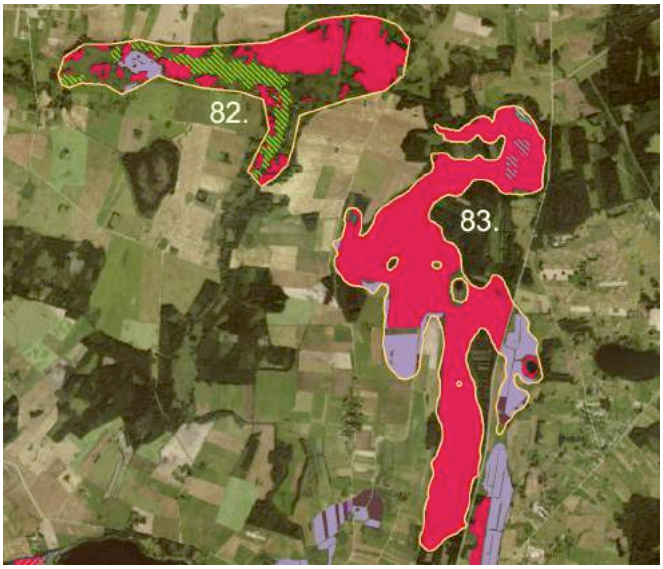


Figure 47 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 82
Name of the peat site: "Lėškupis"
Coordinates: N 55.875549 E 25.495143
Administrative district: Rokiškis district municipality
Size of the peatland: 258,27 ha

Site No. 83
Name of the peat site: "Čypiškio bala"
Coordinates: N 55.853763 E 25.52611
Administrative district: Rokiškis district municipality
Size of the peatland: 403,06 ha

Table 46 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 82**	**Size in area No. 83**
Land declared for forestry, ha		106,61	326,63
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	1,19	6,58
	Pasture or meadows of perennial grasses, ha	7,02	42,91
Natural habitats of European importance	Alluvial meadows (6450), ha	42,86	
	Transitional peat and quaking bogs (7140), ha		5,94
	Base-rich fens (7230), ha		0,93

Dirmiškė peat

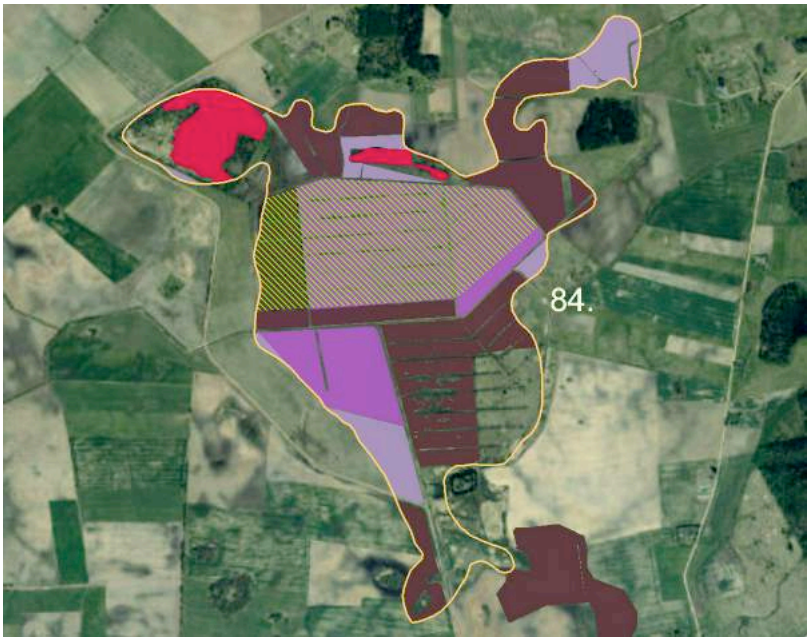


Figure 48 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 84
Name of the peat site: "Dirmiškė"
Coordinates: N 55.96965 E 22.622196
Administrative district: Šiauliai district municipality
Size of the peatland: 168,41 ha

Table 47 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 84**
Land declared for forestry, ha		9,95
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	55,25
	Permanent pastures, ha	48,71
	Pasture or meadows of perennial grasses, ha	14,17
Natural habitats of European importance	Alluvial meadows (6450), ha	43,64

Peatlands of drained Dumblė, Verseka and Aklianka rivers

Figure 49 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 85
Name of the peat site:
"Miežiškiai"
Coordinates: N 54.1806 E 24.924479
Administrative district:
Šalčininkai district municipality
Size of the peatland: 315,75 ha

Site No. 86
Name of the peat site:
"Jurzdika, Kaupras"
Coordinates: N 54.17466 E 24.966312
Administrative district:
Šalčininkai district municipality
Size of the peatland: 861,17 ha

Site No. 87
Name of the peat site: "Dumblė"
Coordinates: N 54.151062 E 24.990572
Administrative district:
Šalčininkai district municipality
Size of the peatland: 589,64 ha

Table 48 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 85**	**Size in area No. 86**	**Size in area No. 87**
Land declared for forestry, ha		0,46	9,99	36,18
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	100,67	297,58	140,69
	Permanent pastures, ha	26,19	28,52	10,07
	Pasture or meadows of perennial grasses, ha	100,38	350,35	146,92
	Management of natural or semi-natural meadows, ha	5,31		

Alksnos lanka peat

Site No. 88
Name of the peat site: "Alksnos lanka"
Coordinates: N 56.125031 E 22.032842
Administrative district: Plungė district municipality
Size of the peatland: 100,25 ha

Figure 50 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 49 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 88**
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	4,29
	Permanent pastures, ha	11,80
	Pasture or meadows of perennial grasses, ha	61,68

Degėsiai peat

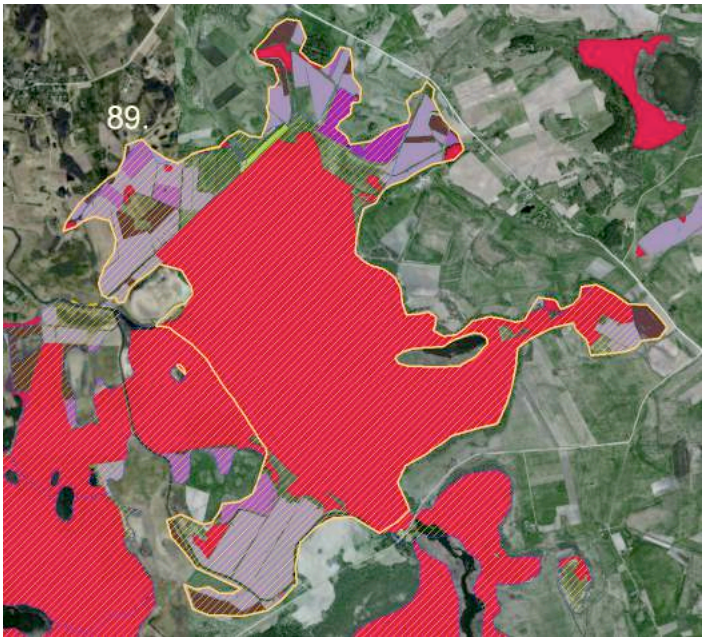


Figure 51 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 89
Name of the peat site: "Degėsiai"
Coordinates: N 55.797868 E 22.417807
Administrative district: Telšiai district municipality
Size of the peatland: 601,00 ha

Natura 2000*: area No. 89 is within Natura 2000 territory LTTELB001, that was established for protection of species of European importance: *Botaurus stellaris, Cyrcus pygargus, Porzana porzana, P. parva, Childonias niger, Luscinia svecica*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 50 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 89**
Land declared for forestry, ha		426,06
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	22,31
	Permanent pastures, ha	14,96
	Pasture or meadows of perennial grasses, ha	98,51
	Management of natural or semi-natural meadows, ha	10,61
	Extensive wetland management, ha	1,84

Paaudris peat

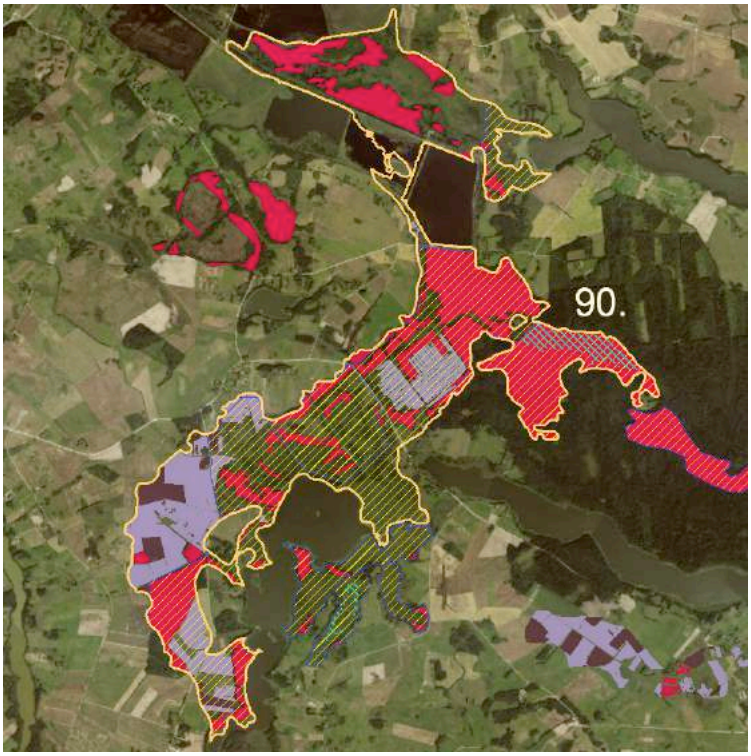


Figure 52 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 90
Name of the peat site: "Paaudris"
Coordinates: N 55.790833 E 25.748357
Administrative district: Rokiškis district municipality
Size of the peatland: 1016,45 ha

Natura 2000*: area No. 90 is within Natura 2000 territories LTZAR0002, LTROK0007, LTROK0019 and LTZARB005, that were established for protection of species of European importance: *Pernis apivorus, Porzana parva, Glaucidium passerinum, picoides tridactylus, Bombina bombina*.
* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 51 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 90**
Land declared for forestry, ha		354,86
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	29,33
	Pasture or meadows of perennial grasses, ha	150,93
Natural habitats of European importance	Transitional peat and quaking bogs (7140), ha	26,19

Švėkšna peat

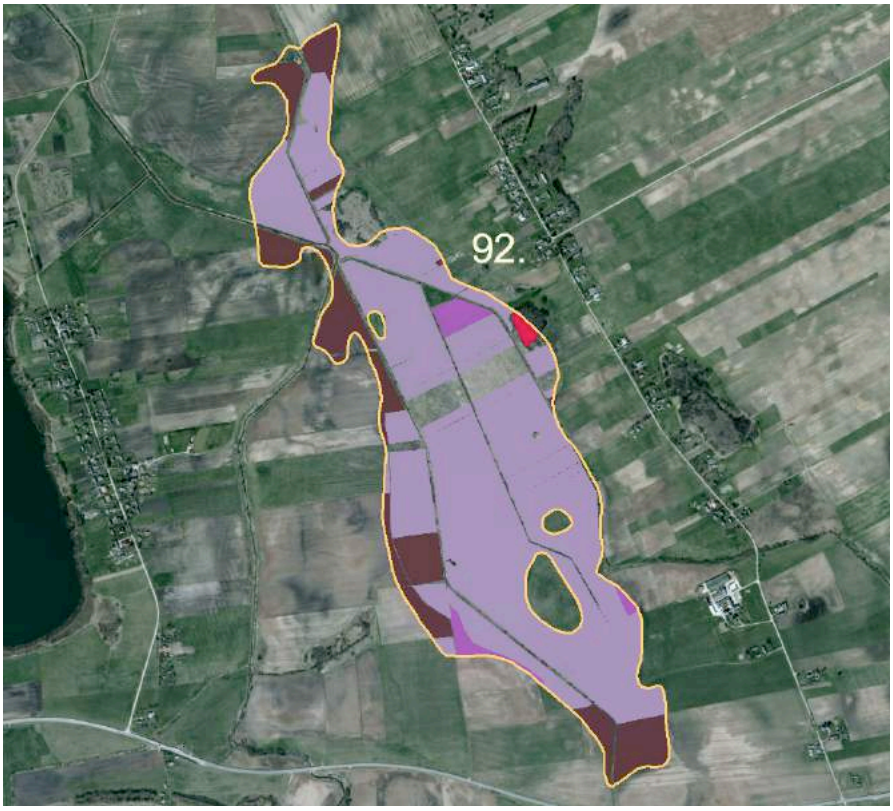
Figure 53 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 91
Name of the peat site: "Švėkšna"
Coordinates: N 55.505576 E 21.613156
Administrative district: Šilutė district municipality
Size of the peatland: 57,20 ha

Table 52 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 91**
Land declared for forestry, ha		25,42
Area under agricultural land-use, plots declared for payment schemes under RDP	Pasture or meadows of perennial grasses, ha	0,71
Natural habitats of European importance	Alluvial m,eadows (6450), ha	7,63

Pankiškiai peat



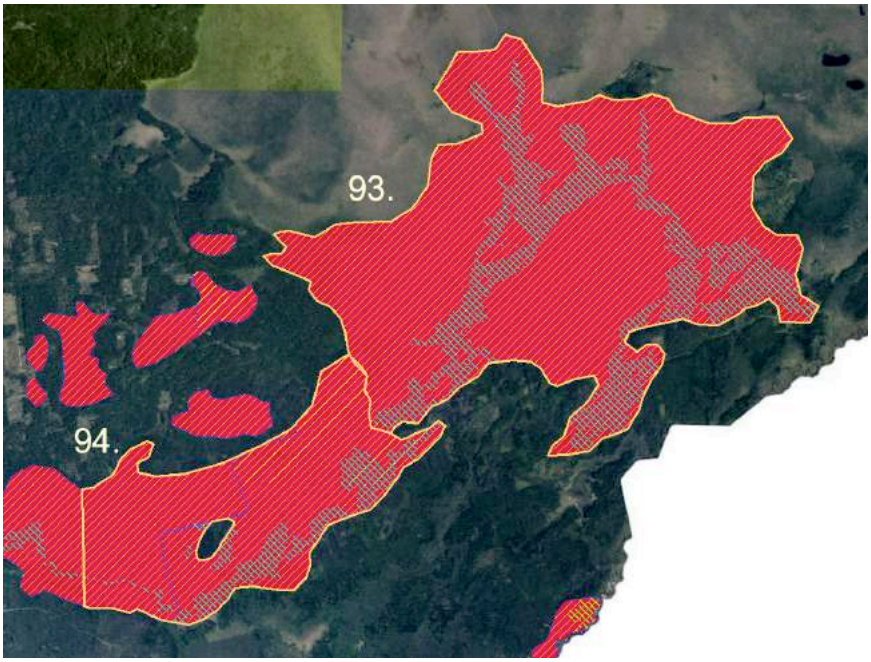
Site No. 92
Name of the peat site: "Pankiškiai"
Coordinates: N 54.347007 E 23.738957
Administrative district: Alytus district municipality
Size of the peatland: 97,78 ha

Figure 54 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 53 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 92**
Land declared for forestry, ha		0,44
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	15,36
	Permanent pastures, ha	2,45
	Pasture or meadows of perennial grasses, ha	66,69

?



Site No. 93
Name of the peat site: "Čepkelių raistas"
Coordinates: N 53.984474 E 24.496056
Administrative district: Varėna district municipality
Size of the peatland: 1627,62 ha

Site No. 94
Name of the peat site: "Pogarenda"
Coordinates: N 53.957429 E 24.4426
Administrative district: Varėna district municipality
Size of the peatland: 622,84 ha

Figure 55 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Natura 2000*: areas No. 93 and 94 is within Natura 2000 territories LTVAR0009 and LTVARB002, that were established for protection of species of European importance: *Tetrao tetrax, T. urogallus, Aegolius funereus, Caprimulgus europaeus, coracias garulus, Lullula arborea, Alcedo atthis,* and habitats of European importance: 2330, 3260, 6120, 6430, 7140, 7220.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 54 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 93**	**Size in area No. 94**
Land declared for forestry, ha		1627,65	622,62
Natural habitats of European importance	Transitional peat and quaking bogs (7140), ha	395,30	103,11

Ertenis peat

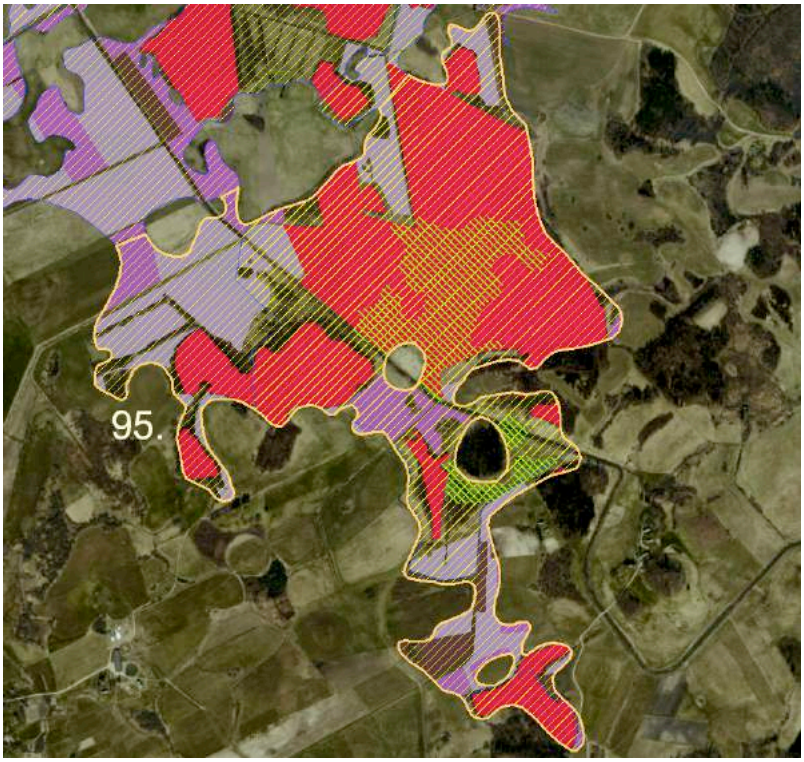


Figure 56 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Site No. 95
Name of the peat site: "Ertenis"
Coordinates: N 56. 109263 E 21.938134
Administrative district: Plungė district municipality
Size of the peatland: 113,80 ha

Natura 2000*: area No. 95 is within Natura 2000 territories LTPLU0009 and LTPLUB001, that were established for protection of habitats of European importance: 3140, 3150, 3160, 6230, 6410, 6450, 6510.

* Disclaimer – peatlands take up only a part of Natura2000 territory so it doesn't mean that all habitats or species of European importance can be found within selected area. Further research is needed to determine presence of those species and habitats.

Table 55 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 95**
Land declared for forestry, ha		58,09
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	2,50
	Permanent pastures, ha	6,74
	Pasture or meadows of perennial grasses, ha	20,54
Natural habitats of European importance	Alluvial meadow (6450), ha	14,97

Bundulinė peat

Site No. 96
Name of the peat site: "Bundulinė"
Coordinates: N 55.452328 E 21.409521
Administrative district: Šilutė district municipality
Size of the peatland: 546,44 ha

Figure 57 Scheme of selected areas outline, their land-use and natural habitats or N2000 territories within them

Table 56 Size (ha) of various features and land use within selected areas

Land use and habitat features		**Size in area No. 95**
Land declared for forestry, ha		37,39
Area under agricultural land-use, plots declared for payment schemes under RDP	Arable land, ha	53,29
	Permanent pastures, ha	43,83
	Pasture or meadows of perennial grasses, ha	199,43
	Specific meadow's management, ha	48,76
	Extensive wetland management, ha	9,38
	Aquatic warbler protection in natural or semi-natural meadows, ha	54,91
	Extensive meadows management by grazing livestock, ha	20,71
Natural habitats of European importance	Alluvial meadow (6450), ha	177,00