

# Legal regulatory framework of peatland exploitation, draining and restoration in Latvia

## LIFE Peat Restore

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Reduction of CO2 emissions by restoring degraded peatlands in Northern  
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## An Analysis of the legal regulatory framework of peatland use in Latvia

### Mire terms used in the Latvian legislation

To respect and implement the legal restrictions and procedures in the protection, use and restoration of mires, first of all it is important to take into account the land use category defined in each particular land unit. This is directly linked to the terms and mire definitions employed in the Latvian legislation. **Currently the definitions of mires are poorly harmonised, which, in turn, leads to different understandings of what a mire is (peatland), as well as variations in the statistics of mire cover (peatlands) in Latvia.** As a result of such disparate definitions, the data on mire cover varies from 3.5% (State Land Service, data from 2016) to 4.9% (areas covered by mire vegetation) and ca. 10% (organic (peat) soils, regardless of the vegetation type)<sup>1</sup>.

Moreover, the Latvian legislation does not distinguish between mires and peatlands. The land use categories and types are classified according to the Cabinet Regulation No. 562 (21/08/2007) which was issued pursuant to the Land Use Planning Law. In accordance to said regulation, mire is one of the land use categories and land use types, defined as “a land with waterlogged, poorly aerated soils where the height of the trees does not exceed seven metres and the ground vegetation is dominated by plant species of sedge family and sphagnum mosses”.

The land use categories, their cover and changes in their cover are registered in the State Register of the Immovable Property Cadastre. In reference to the **Forest Law**, mires can be also included in forest lands. Forest land is defined as “covered by forest, land under forest infrastructure facilities, as well as adjacent overflowing clearings, marshes and glades”. Mires which are included in forest lands are drawn as forest parcels in the forest inventory plans. To further complicate the matter, another mire definition is given in the **Protection Zone Law**, according to which, mire is “an ecosystem on peat soils where the height of the trees does not exceed five metres”.

### Regulation of mire (peatland) protection in Latvia

The protection of mires can be ensured only through the status of protected habitat types, protected species and/or protected nature area or micro-reserve. However, not all mire types, in the wider sense (e.g. peatlands), are treated as protected habitat types – see Section on *Protected mire and other wetland habitat types on peat soils*.

It is important to highlight that peatlands as ecosystems, regardless of the habitat types or the characteristic specie, are not under protection. Thus, they can be used for economic or other purposes, including drainage, agriculture and peat extraction.

#### *Protected mire and other wetland habitat types on peat soils*

According to the **Law on Protection of Species and Habitats**, the Cabinet of Ministers approved regulations where the nationally protected habitat types<sup>2</sup> and species<sup>3</sup> are listed. In Latvia, the protected habitat list approved by the Cabinet of Ministers is not identical to the protected habitat list in the Annex I of the EU Habitats Directive<sup>4</sup>. The Latvian protected habitat list includes the following habitat types: *Petrifying springs with tufa formation, Alkaline fens, Fens with Cladium mariscus, Mineral-rich springs and spring fens, Transition mires and quaking bogs, and Stands of*

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<sup>1</sup> www.latvijaskudra.lv (the least two numbers are provided by the Peat Producers' Association)

<sup>2</sup> Cabinet Regulation No. 350 (20/06/2017) “Regulation on the list of especially protected habitat types”.

<sup>3</sup> Cabinet Regulation No. 396 (14/11/2000) “Regulation on the list of protected species and species with limited use”.

<sup>4</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

*Myrica gale*<sup>1</sup>. **The list of protected habitats in Latvia does not include raised bogs** (neither the habitat type 7110\* *Active raised bogs*, nor 7120 *Degraded raised bogs still capable of natural regeneration* – both listed in the Annex I of the EU Habitats Directive).

A specific Cabinet Regulation lists the priority habitat types of EU importance that are present in Latvia<sup>2</sup>. In Latvia, the priority habitat list of EU importance includes 7110\* *Active raised bogs*, 7210\* *Calcareous fens with *Cladium mariscus* and species of *Caricion davallianae**, and 7220\* *Petrifying springs with tufa formation (Cratoneurion)*. However, this list per se does not ensure their protection. Only those priority habitats which are listed in the Cabinet Regulation of protected habitat types in Latvia have a legally binding status.

Raised bogs outside of legally designated protected areas lack any formal. In essence, this means landowners can drain without the obligation of following any pre-established safeguards. The current protection status of raised bogs does not allow to establish micro-reserves for their protection (for the habitat), it can be ensured only through establishing a micro-reserve for a raised bog species (most probably, bird species, if such are present in the particular area).

Further protected habitat types occurring on peat soils and included in the Latvian protected habitat list are *Swamp forests*, *Wet heaths*, *Old or natural coniferous boreal forests* (if occurring on drained peat soils), *Old, natural bog woodlands*, *Wet dune slacks*, *Molinia meadows in calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)*, and *Floodplain grasslands*<sup>7</sup>. Fens which are not alkaline do not have any protection status in Latvia; their distribution and cover have not been estimated yet.

#### *Protected nature areas and micro-reserves*

The status of a nationally protected habitat included in Annex I of the EU Habitats Directive does not ensure appropriate protection in Latvia. Actual protection can be ensured only by establishing a protected nature area, whereby a strong regime is provided by the regulation, e.g. non-interference or specific management (restoration) or a micro-reserve.

The **Law on Specially Protected Nature Areas** defines the principles of protected nature areas. In order to protect and conserve the biodiversity in Latvia, several types of protected nature areas can be established: strict nature reserves, national parks, nature reserves, nature parks, protected landscape areas, biosphere reserves. These areas can be divided into functional zones, according to which, specific restrictions or measures in terms of protection and management/restoration can be defined. For example, there can be areas with functional zones, like a national park with strict reserve zone, landscape protection and neutral zone – in each there are different restrictions.

**Micro-reserves** are small areas intended to protect specific habitat types and/or species.<sup>8</sup> However, micro-reserves can be established only for those habitat types included in the protected habitat list, which excludes Raised bogs. The maximum area of micro-reserves is rather small: for habitats and plant species – up to 30 hectares, for bird species which can be found also in mires: Capercaillie *Tetrao urogallus* – up to 500 hectares, Greater Spotted Eagle *Clanga clanga*, White-tailed Eagle *Haliaeetus albicilla*, Golden Eagle *Aquila chrysaetos* – up to 300 hectares, other bird species (most of them do not occur in mires) – up to 100 hectares.

Protected nature areas and micro-reserves which host protected habitats and/or species that are important to the EU region can be included in the **Natura 2000 network**. In these areas, measures to preserve and restore the target habitats and species must be taken to ensure their favourable conservation status. In practice, the protection and management in Natura 2000 sites and other

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<sup>1</sup> Unofficial translation.

<sup>2</sup> Cabinet Regulation No. 153 (21/02/2006) "Regulation on the list of priority habitats and species of European Union importance in Latvia" (the priority habitat types are marked with an asterix \*).

<sup>7</sup> Unofficial translation.

<sup>8</sup> Cabinet Regulation No. 940 (18/12/2012) "Regulation on establishment, management and protection of microreserves and establishment of their buffer zones".

protected nature areas of national importance is not significantly different<sup>9</sup>. Specific requirements referring only to Natura 2000 network is defined by the **Law on Environmental Impact Assessment**. Compensatory measures are applied only to Natura 2000 sites. Also, to attract public funding for restoration is easier in Natura 2000 sites (e.g. from EU LIFE programme) than in other protected nature areas and micro-reserves.

The protection and management of protected nature areas are regulated by the **General Regulations on Protection and Use of Specially Protected Nature Territories** (Cabinet Regulation No. 26, issued in 16/03/2010) and **individual regulations**, which are adjusted to the specific situation of a particular nature areas. A protection regime means that there are specific restrictions (individual regulation for the particular area). For example, there can be peatlands – which are not considered valuable from a biodiversity perspective – in the neutral zone of a national park. If there is no individual regulation prohibiting draining of these fens, then it is not automatically prohibited. Therefore, functional zoning with relevant restrictions in each zone (individual regulation) provides more effective protection.

Though, individual regulations are not developed and approved for all nature areas. These regulations can ensure the necessary protection for mires, if appropriate protection regime or functional zone is established (nature reserve or stricter category or zone). All national parks and strict nature reserves have special laws and individual regulations.

Additionally, the individual regulation can define specific restrictions that may help to ensure appropriate protection in mires, e.g. prohibition of drainage in all protected nature area or prohibition of drainage except for very few cases with special permission. This option is used in regulations of many protected nature areas. In micro-reserves, the requirements are defined in the Cabinet Regulation on micro-reserves<sup>10</sup>, whereby specific requirements can be defined by a certified expert who proposes the establishment of the micro-reserve (by filling in specific form).

According to the **Law on Specially Protected Nature Areas**, nature reserves, nature parks and nature monuments of local importance can be established also by municipalities. Currently, there is no national-scale register of such protected nature areas, therefore their number and character remains unknown. It is not known whether protected nature areas of local importance have been established for conservation of mire or other peatland types.

Also, local municipalities can issue binding regulations to define certain restrictions of use. These regulations have been issued by several municipalities, restricting the collection of wild cranberries in mires, by setting dates of when it is permitted.

A nature management plan (site management plan) may be developed<sup>11</sup> in order to harmonise nature protection and restoration, use of natural resources and sustainable development; though it is not obligatory (until 2017, 188 plans were developed – out of 326 Natura 2000 sites). These plans include recommendations for conservation and management/restoration of habitats and species; however, it is not legally binding. Nevertheless, nature management plans have crucial a role in restoration of degraded mires, as it helps to attract funding and eases the coordination of all documents (permits, environmental impact assessment, etc.).

## Regulation of drainage and other impacts threatening mires and other peatland types

Drainage of peatlands is prohibited or restricted only in protected nature areas; moreover, only if it is specified in an individual or general regulation, depending on the location within the functional zones or the category of the protected area and micro-reserve. Therefore, the default is to allow drainage, unless explicitly stated otherwise.

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<sup>9</sup>Cabinet Regulation No. 300 (19/04/2011) “Order to assess the impacts on specially protected nature areas of European importance (Natura 2000)”.

<sup>10</sup>Cabinet Regulation No. 940 (18/12/2012) “Regulation on establishment, management and protection of microreserves and establishment of their buffer zones”.

<sup>11</sup>Cabinet Regulation No. 686 (09/10/2007) “Regulation on the order to develop a nature protection plan and its contents”.

Micro-reserves established for the protection of mire habitats or species prohibit certain activities (including drainage) which can cause changes in groundwater, artesian water and/or surface water flows; except when the changes in the hydrological regime are necessary for the conservation of the protected habitat and/or species. In territories outside of protected nature areas and micro-reserves, drainage of peatlands is not limited.

There are only some restrictions in the protection zones around mires, which are defined in the **Protection Zone Law**. The protection zone is defined only for mires which border with forest (typical situation for Latvia). According to the Cabinet Regulation No. 935 (18/12/2012) "Regulations on tree felling in forest", issued pursuant to the Protection Zone Law, clear-cuts in mire protection zones are prohibited, but renovation of ditches and excavation of new ditches is not prohibited, except for cases when the mire is located in a protected nature area or micro-reserve and thus protected by other regulations. In such zones as well as in buffer zones around micro-reserves, selective cutting (or 'landscape clearing') is also prohibited.

According to current regulations, drainage systems in forests can be established or existing ditches can be cleaned or maintained, if not limited by any specific restriction (e.g. protected nature area, micro-reserve, or other). This is a national standard that must be applied in the construction of all kinds of drainage systems, their reconstruction in agricultural lands, forest lands, prospective peat extraction sites, floodplains, polders, etc. To build drainage systems, another specific regulation (Cabinet Regulation No. 550 (16/09/2014)) must be applied, which also includes specific requirements on nature conservation. In all cases, prior to taking action, the State Environmental Service performs the initial environmental impact assessment. If risks are identified, the Service requires detailed surveys and opinions by certified species and habitats experts and experts of other fields.

**In non-forest lands outside protected nature areas or micro-reserves**, the drainage of peat soils by building new ditches or renovating the existing ditches is not restricted or prohibited. In most cases, these are the former fens and floodplains which were irreversibly altered by drainage. In reference to drainage, Latvian legislation does not differentiate between soil types (mineral or organic).

**To change the land use category in a protected nature area**, a written permit from the Nature Conservation Agency, the responsible national body, is necessary. In such cases, change of land use category can be accepted if the action is aimed at restoring protected habitats or habitats of protected species, for example, clearing of secondary forest in an overgrown, formerly open fen. Outside protected nature areas the change of land use category must be coordinated with the local municipality.

According to the **Law on Environmental Impact Assessment**, when planning to change the land use category in an agricultural land unit which is larger than 50 hectares, an initial environmental impact assessment must be conducted (performed by State Environmental Service). Accordingly, the procedure of land use type transformation in small peatlands is quite easy. This regulation affects peatlands also; for example, when peat extraction is proposed in an area which is currently used in agriculture or in a drained fen, or afforestation of a drained peatland currently used in agriculture. The initial environmental impact assessment must be applied also for building of new drainage systems if the land unit is larger than 100 hectares.

In peatlands covered by grasslands (usually drained fens), ploughing up or transforming into other land use types is not prohibited. However, it is partly restricted by the regulation on subsidiary payments<sup>12</sup> that define that in land units which receive support for maintenance of biologically valuable semi-natural grasslands, cannot be ploughed up within a five-year period (if applied for the support). This refers only to semi-natural grasslands (can be also on peat soils) which are declared as eligible for such payments and the land owner or user is willing to receive such payments.

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<sup>12</sup>Cabinet Regulation No. 171 (07/04/2015) "Regulation on the subsidiary payments from the state and European Union, its administration and control in improving the environment, climate and rural landscape in the period from 2014 to 2020".

## Peat extraction

Extraction of mineral resources and peat is regulated by the **Law on Subterranean Depths**. The aim of this law is to ensure efficient, environmentally-friendly and sustainable use of subterranean depths, as well as specify the requirements for the protection of subterranean depths.

Peat extraction license can be obtained for 75 years (before 2018 – for 25 years). Prior to commencing peat extraction, several legal requirements must be fulfilled. According to the **Law on Environmental Impact Assessment**, an assessment must be carried out, if peat extraction is planned in an area of 25 hectares or larger. Following a pre-defined set of criteria, the responsible governmental institution decides whether full procedure of environmental impact assessment should be applied. In cases when the proposed peat extraction area is 150 hectares or larger, application of the full procedure of environmental impact assessment is obligatory (Cabinet Regulation No. 18 13/01/2015). If peat extraction is proposed in a Natura 2000 site, a specific order must be applied (Cabinet Regulation No. 300 (19/04/2011)).

Peat extraction and/or extension of the existing peat extraction areas in Natura 2000 areas are possible only in very few exceptional cases (Gauja National Park, Pape Nature Park with ongoing peat extraction). Peat extraction can be permitted only with special permission of Nature Conservation Agency and/or by receiving positive conclusion (no significant impacts found) after carrying out the full procedure. Nonetheless, such cases are very few; in majority of cases, peat extraction and drainage of peatlands is prohibited in nature reserve and stricter functional zones.

When a peat extraction procedure is applicable, the initiator must also develop a re-cultivation (after-use) plan, a timetable for all actions and monitoring programme. This must be coordinated with the responsible institution the State Environmental Bureau of Latvia which can require additional assessment of other aspects to be included in the report. The assessment must be available for public opinions. After obtaining the permit, a project must be developed prior to the start of extraction (according to the Cabinet Regulation No. 570 (25/08/2012), which includes all aspects of peat extraction, also re-cultivation plan and means of re-cultivation (after-use).

### *Regulation of after-use of peat extraction areas*

According to the Cabinet Regulation No. 570 (21/08/2012), the re-cultivation (after-use)<sup>14</sup> of post-harvested peatlands can be as follows: re-naturalisation (restoration of mire or other type of wetland), creation of agricultural lands, afforestation, creation of water bodies for use in recreation or otherwise. After peat extraction, the peat company must implement one of the aforementioned re-cultivation measures, which must be already foreseen in the peat extraction project (*see Chapter on Peat Extraction*).

A re-cultivation project must be developed in coordination with the building authority at the local municipality. Changes to the re-cultivation type determined in the plan must be submitted and approved in the local building authority. After the re-cultivation is complete, the area is inspected by a commission.

The landowner can add specific requirements in the land lease contract, including specific requirements for re-cultivation (e.g. the after-use type). It can be afforestation which means that after peat extraction the drainage system cannot be blocked and should continue functioning, or other requirements. Such contracts are not available for the public; therefore, it is not known whether this option is used.

## Regulation of mire and wet forest restoration

Until now, restoration of mires and other wetland types have been carried out through the prism of habitat and species conservation, as opposed to, for example, restoration of ecosystem functions.

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<sup>14</sup>In the Latvian legislation the term “recultivation” is used. In English, most commonly it is called “after-use”.

### *Hydro-technical constructions*

According to the Cabinet Regulation No. 623 (13/07/2010), to carry out large-scale restoration works (e.g. filling in drainage ditches and blocking ditches by dams) a specific procedure must be implemented. All drainage systems must be registered in the Information System of Melioration Cadastre, maintained by the State, and any changes must be registered.

To build any hydro-technical constructions (dams or other) or to fill in the ditches, a building permit must be requested at the local municipality, which will set the requirements prior to rewetting. If the changes are (relatively) small, e.g. few dams, the drainage system is located within one land unit (owned by one person/institution), the procedure is simple. An initial environmental impact assessment must be carried out by State Environmental Service. Only if significant risks are identified, is the full environmental impact assessment procedure required; however, in practise this is very rare. The technical design must be elaborated and coordinated with the State Environmental Service.

### *Removal of trees in mire restoration areas*

In mire restoration, removal of trees is often necessary to improve the habitat condition, especially in drained, heavily overgrown areas. If this activity takes place on forest lands, it is interpreted as forestry operation. In protected nature areas, forestry operations can be carried out from 1 August to 15 March, to avoid disturbances during the animal breeding and bird nesting period. There are no limitations outside of protected nature areas and micro-reserves.

If the works are carried out in a protected nature area, general or individual regulations of the particular area must be taken into account and they depend on the protection category or functional zone. For example, conversion of forest land into other land use type (open mire) in nature reserves and nature parks requires written permission by Nature Conservation Agency (which may set specific requirements).

For felling trees with diameter larger than 20 cm in forest lands, a permit by State Forest Service is required (for example, in mires which are overgrown with trees due to drainage and thus classified as forest in the forest inventory documents). Relatively minor restoration actions, e.g. mowing, grazing, cutting of shrubs and young trees (diameters <20 cm), do not need any permits and must be coordinated only with the landowner.

Forest management regulations must be applied in areas classified as forest stands. For example, when a drained peatland has overgrown with forest, the removal of tree cover to restore open habitats must follow the procedures established in Cabinet Regulation No. 325 (18/06/2013); according to which, the following open mire habitats can be restored: *Petrifying springs with tufa formation*, *Alkaline fens*, *Fens with *Cladium mariscus**, and *Transition mires and quaking bogs*. The list does not include the habitat types listed in the Annex I of the EU Habitats Directive – 7110\* *Active raised bogs* and 7160 *Fennoscandian mineral-rich springs and springfens*, where the tree removal may be also necessary.

### **Environmental Impact Assessment**

An environmental impact assessment may be required before restoring mires, along with a technical design and permits. According to the **Law on Environmental Impact Assessment**, a full environmental impact assessment procedure may be applicable, especially if the action is planned in protected nature areas, micro-reserves, wetlands of international importance (Ramsar sites), in protection zones along the Baltic Sea and the Gulf of Riga as well as around surface water-bodies. The full procedure is further applicable in cases when the action can significantly affect Natura 2000 site(s).

The initial impact assessment is carried out by the State Environmental Service in cases defined in the law: change of land use category (areas >50 hectares), building of new drainage systems (in areas >100 hectares), reconstruction of existing drainage systems (in areas >500 hectares), afforestation



and reforestation (in areas >50 hectares). Also hydrological restoration in forest or open mire requires initial environmental impact assessment.

If the initial impact assessment identifies potential significant impacts on a Natura 2000 site, a specific regulation is applied (Cabinet Regulation No. 300 (19/04/2011)). The regulation provides detailed requirements for preparing the assessment (report), also criteria and indicators how to measure the potential impact, the obligatory information that must be included in the report, and the official procedure.

If a need for full environmental impact assessment procedure is identified (for example, the hydrological restoration of the mire can significantly alter the groundwater table in large areas outside the project area), the full procedure must be applied. On the other hand, if the full environmental assessment procedure is not necessary, the State Environmental Service issues the technical requirements for the intended action<sup>21</sup>. This includes also building or renovation of hydro-technical constructions (e.g. dams on ditches).

## Country's Action Plan

In 2017, the **Strategy for Sustainable Use of Peat Resources 2018–2050** was developed (to be approved in the beginning of 2018, not approved yet). It was developed to promote a sustainable use of peat resources (use vs. protection), to identify peatlands that should be protected and peatlands which should be preserved as essential resources, to identify the most efficient, economically well-grounded and nature-friendly types of re-cultivation (after-use).

**The main objectives of the peat use policies** are as follows: (1) to evaluate the sustainable peat use potential taking into account the interests of different stakeholders including nature conservation, climate change and recreation; (2) to create prerequisites of sustainable management of peat resources to ensure stability in the availability of peat resources; (3) to acquire data in a systematic way by updating the information on peatland distribution and peat resources.

**The main problems** in the peat industry accounted in the Strategy are as follows: (1) peatlands which should be protected and peatlands which could be used for peat extraction have to be identified; (2) the role of peat industry in economic terms must be re-evaluated; (3) the responsibilities and competences are highly fragmented; (4) there are large differences in data in different sources; (5) many extracted peatlands are abandoned without re-cultivation; (6) there is lack of specialists able to work in this field. All the problems identified must be solved at national level.

According to the Strategy, re-cultivation measures most suitable for the conditions in Latvia must be identified; including assessing several aspects, such as the role in climate change mitigation, biodiversity conservation, cost-efficiency). Moreover, the Strategy includes **an action plan for the period until 2020**, which encompasses an assessment of the effectiveness of mire protection zones and development of methodology to identify the optimal width of the protection zones. The action plan highlights also the need to identify the priority extracted, abandoned peatland areas to be re-cultivated.

**Policy Guideline for Latvian Energy Production Development 2016–2020** is partly related to use of peat resources. It states that in 2013 the local energy sources comprised 34.9% of total primary energy consumption in Latvia. Peat is one of locally available resources, and it is included in the list of renewable resources in this Strategy. The Strategy states that the use of peat in energy production could decrease the country's dependence on imported energy. The extraction of energy peat for combustion could be commenced in ca. 4000 hectares (currently valid licenses), thus obtaining at least 700 thousand tons of energy peat annually. Currently the energy peat (so called "black peat") is almost not extracted and used in Latvia, though there are large deposits in the deeper layers of the currently extracted bogs (under layers of so called "white peat" which is used mainly in horticulture).

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<sup>21</sup>Cabinet Regulation No. 30 (27/01/2015) "Order how the State Environmental Services issues technical requirements for the intended action".



However, the Policy Guideline emphasizes that peat combustion shall not deteriorate the quality of environment, especially in densely populated areas, and does not increase the greenhouse gas emissions. Combustion of peat at the current capacity would create 20 MW extra emissions.

The Energy Strategy includes directions of priority actions, including evaluation of use of alternative sources (i.e. peat) in energy production in Latvia, promotion of use of biomass and peat in energy production by ensuring the funding from the EU – must include effective technologies to ensure as low emissions as possible.

**Latvian Energy Long-term Strategy 2030**, followed the above-mentioned “energy document” emphasizes the need to promote use of local energy resources including peat, thus decreasing the dependency on imported energy. It refers to the currently unused fen as peat (so called “black peat”) deposits.

### Problematic aspects and bottlenecks

The analysis shows that in Latvia, the institutional responsibilities and management of peat resources and peatlands are highly fragmented. The legislation system concerning peatland protection and management is fragmented and complex. The same conclusions are provided also in the recently developed Strategy of Sustainable Use of Peat Resources 2018–2050.

We found that the mire definitions are different in various laws, thus there is lack of unified interpretation. The analysis did not reveal significant obstacles that would hinder restoration or re-cultivation of degraded peatlands. However, we have found several problematic aspects that could be improved.

The problematic aspects are as follows:

(1) In Latvia, the list of protected habitat types does not include raised bogs, bog woodlands (only old, natural bog woodlands which exclude large areas of younger forests on peatlands, also undrained). Most of fens (those which are not calcareous) do not have any protection status, even though they play a significant role in biodiversity conservation, serve as carbon sinks and are significant peat resources.

(2) Outside protected nature areas, many peatlands, also many untouched or only slightly affected raised bogs and fens, do not have any actual protection status (no status for protected habitats and/or peatlands), thus they are threatened by peat extraction and drainage (building of new drainage systems or renovation of existing ditches), especially in forests at the margins of mires, both on private and state-owned lands.

(3) In practice, the protection zones around mires are insufficiently protected as there are no restrictions that might help to preserve the mire hydrology, i.e., by not renovating the ditches or building new ditches in the forests bordering to bogs and fens, including such ones which border with protected nature areas.

(4) Currently, the regulation on use of subterranean depths<sup>22</sup> requires re-cultivation after cessation of peat extraction. The re-cultivation (after-use) types defined in the regulation are re-naturalisation (restoration of wetland), afforestation, berry plantations, water-bodies, re-creation areas, etc. However, considering that peat extraction inevitably decreases the areas of peatlands and create deteriorating effects on neighbouring peatlands, re-naturalisation should be defined as the priority re-cultivation type at national level. It should be applied as the optimal re-cultivation type whenever technically possible. This is the only way to “compensate” the loss of peatlands and allow them to recover, though in long term. In most cases, the proposed re-cultivation type is afforestation. Afforestation creates unfavourable side-effect, e.g. increased greenhouse gas emissions and the necessary use of fertilizer, which may cause nutrient leaching into surface waters. These side-effects lead to irreversible degradation of wetland.

(5) The type of re-cultivation is determined by the peat extraction company, in co-ordination with the building board of the local municipality. However, there is no obligation to evaluate the long-term impact of the selected re-cultivation type and its consequences in various aspects (e.g.

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<sup>22</sup>Cabinet Regulation No. 570 (21/08/2012) “Order of extraction of mineral resources and peat”.

greenhouse gas emissions, biodiversity) and/or to harmonize it with the nature conservation or environmental authorities. The requirement to re-naturalise the extracted peatland can be determined by the landowner, but they are usually interested in afforestation or agricultural use (berry plantations), only considering the economic aspects. Therefore, there is a lack of a mechanisms to stimulate restoration of wetlands in extracted peatlands, although this is usually the cheapest and easiest type of re-cultivation, which in the long run is also the most sustainable way to reduce greenhouse gas emissions (by restoring a functioning wetland).

(6) In accordance with the regulatory framework, it is possible to change the originally intended type of re-cultivation if the initially intended after-use type is not possible. This is generally positive. However, an essential disadvantage is that the decision on the re-cultivation type can be taken without relying on an adequate assessment by competent experts and without assessing environmental and social aspects. Also, the short timing for the decision (in the building authority of the local municipality, the change of re-cultivation type must be confirmed within 10 days) suggests that the decision is formal and that it does not have a comprehensive assessment of the specific situation.

(7) The regulation on use of subterranean depths<sup>22</sup> states that "the completion of the re-cultivation work shall be taken by a commission established by the construction board, representatives of the State Environmental Service, the relevant local municipality, the landowner and the peat extraction company [...] The construction works shall be adopted in accordance with the conditions specified in the regulatory enactments regulating construction." This means that the re-naturalization process cannot be evaluated by its nature. It would be desirable to assess the success of re-naturalization after several years, as the duty of the developer to make adjustments, if technical corrections are necessary, for example, there is no indication of bog vegetation recovery. Otherwise, if the result is assumed to be unsuccessful, there is no longer anyone responsible who could improve the re-cultivation outcome. Another way to evaluate the results would be developing common national criteria.

(8) Currently, the after-use of extracted peatlands is not harmonised with the spatial development plans of the local municipalities. Only in few cases, the extracted peatlands are marked as re-cultivation areas. In most cases, they are marked as industrial areas or areas of mineral resource/peat extraction areas, but their future in long term is rarely foreseen.

(9) There is discrepancy between the national peat use and energy policies and climate and biodiversity conservation policies, they are poorly balanced. The use and energy policies state that peat should be used for energy production, thus decreasing the dependence on imported energy. Though, such use would increase the greenhouse gas emissions and have potentially unfavourable effects on biodiversity, even if using the best available technologies.

## Recommendations

1. To harmonize the mire and peatland definitions in laws.
2. To include raised bogs and bog woodlands (all bog woodlands) in the national list of protected habitat types.
3. To evaluate the types of non-calcareous fens, their distribution, cover and conservation status in Latvia and to consider the need to include them in the national list of protected habitat types.
4. To evaluate the sufficiency of the existing mire protection zones and their actual functionality and their role in peatland protection. Certain restrictions and bans should be defined in the legislation, especially concerning building of new drainage ditches and renovation of existing ditches.
5. More effective protection of mires in Latvia requires assessment of the network of protected nature territories to include good quality mires; as a minimum, untouched or slightly drained bogs and fens and hydrologically related areas which are outside Natura 2000 network. The selection of

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<sup>22</sup>Cabinet Regulation No. 570 (21/08/2012) "Order of extraction of mineral resources and peat".

these territories can be carried out after 2020, when the inventory of protected habitats will be completed in Latvia<sup>23</sup>.

6. Re-naturalisation (restoration of wetlands) must be defined as the priority re-cultivation type (whenever technically possible).

7. To establish an incentivising mechanism to promote re-naturalisation as the most appropriate re-cultivation type, at least partially compensate the loss of peatlands due to peat extraction.

8. To change the relevant regulation so that the re-cultivation types selected does not only consider the economic aspects, but also environmental and social aspects. Selection of re-cultivation type should be well-grounded, adjusted for the particular site and selected by competent experts, also by taking into account the need to conserve ecosystems, their functions and biodiversity.

9. A definite procedure should be introduced in the legislation which would oblige the evaluation of the success of re-cultivation not only using formal criteria, but also with nature criteria – by involving competent experts. In cases when the re-cultivation outcome is not successful or insufficient, the peat extraction company should be obliged to apply appropriate corrective measures.

10. In the spatial development plans of local municipalities, the types of after-use in peat extraction areas should be foreseen by coordinating with the landowner.

11. The peat use, energy production, environmental and nature conservation policies must be harmonised and their mutual relation better evaluated prior to approving the policies.

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<sup>23</sup>Currently being carried out by the Nature Conservation Agency, with the project KF Nr. 5.4.2.1/16/l/00 (2016–2020).

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