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NATURE CENSUS - THE FIRST DETAILED, SCIENTIFICALLY-GROUNDED INFORMATION ABOUT LATVIA'S NATURE VALUES

Dabas skaitīšana – pirmā detalizētā un zinātniski pamatotā informācija par Latvijas dabas vērtībām

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Abstract. The purpose of this article is to analyse the importance of major inventories of nature values – the mapping of habitats of EU importance – in the context of introducing and implementing a nature conservation policy in compliance with the necessity to integrate the requirements of those EU directives concerning specially protected nature areas into the governance system of Latvia. This paper examines the inventory of nature values from different perspectives – the introduction and implementation of policy, cross-sector co-operation and the integrity of national natural resource databases.

Keywords: *nature conservation, implementation of EU directives, sustainable development for natural values, Latvia*

Introduction

Until 2014, only 10% of Latvian territory had been made accessible to the distribution maps of the protected species and habitats of European Union (further in the text – EU) importance. The main part of this data consisted of information about the already mapped special areas of conservation. Moreover, in most cases, this data was more than 5 years old. Such a situation had resulted during the recession (i.e., from 2008 to 2014), when financial resources for the monitoring of data related to nature were reduced significantly (Ministry of Environmental Protection and Regional Development 2013). The lack of voluminous and qualitative data influences the efficiency of nature - and environmental protection; it also has an adverse impact on Latvia's ability to maintain EU commitments and its ability to report on general environmental indicators and their changes in the entire territory of Latvia. Thus far, information about the habitat distribution of EU importance, and its occurrence in Latvia, has been based on an extrapolation of monitoring or other data, which does not reflect the situation at the level of specific areas, but rather provides an insight into the possible situation in the entire country. As a result of such data extrapolation, the occurrence of some habitats of EU importance in the country can possibly be assessed too pessimistically (i.e. without knowing the overall situation in the entire country, or about stricter limitations that are set for some types of habitats, thus unreasonably

restricting economic activities) or too optimistically, thus allowing for the possibility to destroy habitats of EU importance due to economic activities. Considering that Latvia has undertaken commitments to form and to maintain the network Natura 2000, the purpose of which is to preserve the set proportion of the habitats of EU importance, the EU is entitled to bring judicial proceedings against the country and to enforce sanctions for non-implementation of the EU Nature Directive (European Commission 2018). Before the establishment of Natura 2000, most of the EU countries conducted a comprehensive inventory of nature values, including the mapping of habitats and forming a network of protected nature areas according to the EU guidelines, yet not all countries had sufficient resources to conduct it properly. One such project was implemented in Latvia (Ministry of Environmental Protection and Regional Development 2001; Latvian Fund for Nature 2002), yet it did not include mapping of habitats for the entire country, therefore, since that time there have been debates within the sector about the need to organize the mapping of habitats of EU importance (European Commission 2013) throughout the national territory. From 2017 to 2019, for the first time in the history of Latvia, and following common methodology, data on habitat distribution of EU importance was collected throughout the national territory. Such large-scale data collection, done in a relatively short period of time, is possible thanks to the EU Cohesion fund, which financed 85% of the project "Pre-conditions for better bio-diversity preservation and ecosystem protection in Latvia".

The Importance of Nature Census in Introducing the Nature Conservation Policy

Latvia takes part in global environmental protection and climate processes to ensure preservation of the planet for future generations. As a full EU member, Latvia must implement the common EU nature conservation policy, which differs significantly from the nature conservation practice that had been implemented before joining the EU. For Example, Specially Protected Nature Territories (further in the text – SPNT) were established in Latvia for purposes that not always prioritized the protection and conservation of nature values. For instance, the Law on Specially Protected Nature Territories (originally adopted in 1993) lays down the categories of special areas of conservation according to which, e.g., nature reserves are the territories which represent cultural, historical and nature values of a specific region and which are suitable for public recreation and education, whilst economic activities are organized ensuring the conservation of cultural, historical and nature values, i.e., the occurrence of nature values and enhancement of their quality is not a priority. Yet irrespective of the nationally defined SPNT status (i.e. a nature reserve or a protected landscape area), if the territory is a Natura 2000 site, economic activities must be planned so as not to deteriorate the status of the existing nature values and to improve them in future. To ensure a favourable conservation status for species and habitats, the implementation of EU nature conservation requirements is carried out on the basis of two European Council directives:

- Directive 92/43/EEC of 21 May 1992 "On the conservation of natural habitats and of wild fauna and flora" (European Commission 1992);
- Directive 2009/147/EC of 30 November 2009 "On the conservation of wild birds" (European Commission 2009).

In Latvia, requirements of these directives were carried over by the law "On protection of species and habitats" (2001); the law "On specially protected nature territories" (1993); the law "On environmental impact assessment" (1998) and the subordinate regulations of the Cabinet of Ministers and other legislative acts. The underlying idea of the EU nature conservation policy is the concept of "conservation in a favourable status of selected habitat types and species of Community interest" (Veinla 2009), which must ensure the long-term existence and functioning of protected species and habitats not only within the special areas of conservation (SPNT, hereinafter the term is used within the meaning of the law "On specially protected nature territories"), but also outside them. This is a complex task for any country, because SPNT regulations partially ensure the conservation of nature values within the conservation areas by setting the restrictions for economic activities. Outside these areas the status "protected" can be granted to species by limiting or prohibiting their exploitation, and it is much more complex when it comes to habitats. Therefore, it is essential that the most important and valuable areas which offer the greatest bio-diversity are included in the SPNT category. Without having the information about the mapping of habitats of EU importance and species distribution throughout the country, we cannot be certain that the existing Natura 2000 network provides species and habitats of national importance with the required protection status. At national level, it must be ensured that a set proportion of habitats (including special habitats) from the total surface area of the country is included in the Natura 2000 network (also known as the network of special areas of conservation of EU importance) (European Commission 1997).

The Importance of Nature Census in Implementing the Nature Conservation Policy

Mapping the habitats of EU importance is crucial not only for the implementation of EU requirements, but also for Latvia's municipalities, entrepreneurs and other economic operators so as to be able to plan and develop their economic activities. Namely, according to the legislation of Latvia, it is permitted to carry out an envisaged activity if it does not have an adverse effect on ecological functions and the integrity of a protected site of EU importance, which is a part of the Natura 2000 network and as long as it does not contradict with its establishment and conservation purposes (Law 1993). One of the most important Environmental Impact Assessment (further EIA) objectives is to predict the impact of a specific activity on a habitat in a specific location and to compare it with the total habitat area in the country and all Natura 2000 sites. Conservation of a habitat is considered to be favourable if its natural range and surface areas are unchanged or are expanding; they have the characteristic structure and

functions which are necessary for sustainable existence of a habitat; and it is expected that they will keep existing in the near future. It must be ensured that there are favourable conditions for the protection of the typical species in these areas. If there is no available information in the country concerning habitat distribution of EU importance, then in each EIA such an assessment must be conducted within the specific area and the comparative information about the country in general is based on extrapolated data. The EIA initiator must involve the relevant nature experts, both increasing the expenses and prolonging the obtainment of permission. Moreover, one can always question the relevance of the assessment in respect to the total surface area of the national habitats of EU importance. At the same time, it must be pointed out that after carrying out the EIA procedure, economic operators expressed their reproach, when the location of their envisaged economic activities was identified as a habitat of EU importance or a habitat of protected species, and as a result the intended economic activities were restricted or prohibited. The number of such reproaches would very likely be much smaller if the information concerning the nature values in the specific area was made available prior the EIA procedure, and it were possible to take it into account before planning of activities.

The Importance of Nature Census in Promoting Cross-Sectoral Co-operation

Information about habitats of EU importance and habitats of protected species must be considered when planning territorial development at local and regional level. Furthermore, there is a case-law in Latvia which states that when planning territorial development, both nature conservation and environmental protection and economic development interests must be balanced out (Constitutional Court 2008). This means that insufficient information delays the integration of nature conservation requirements into the development plans of other sectors and prevents balanced and sustainable development. These problems are also emphasized in the "Guidelines for Environmental Policy (2014-2020)" (Ministry of Environmental Protection and Regional Development 2014). Lack of data on habitat distribution is also regarded as one of limiting factors for natural resource management in "Guidelines for Forestry and Related Sectors (2015-2020)" (Ministry of Agriculture 2015). In considering the forestry sector, it is important to emphasize that information about habitat distribution and its quality is mandatory to be able to reach inter-institutional agreement on specially protected national forestry areas. Similarly, data collected during the mapping of habitats of EU importance would allow for an update of the coastal dune protection zone of the Baltic Sea and to improve the quality of the territorial planning. Often such nature conservation measures as the establishment of micro-reserves is used to limit or stop the planned construction on site because during the territorial planning stage the intended use of the territory was not discussed thoroughly and the occurrence of nature values on site was not assessed properly.

The Importance of Nature Census in Improving National Natural Resource Databases

Besides the collecting of data on habitats of EU importance, the quality of information in national natural resource databases is also constantly improving. For instance, as the data of different national authorities and organizations is constantly being co-ordinated, mistakes and inaccuracies are identified and eliminated. Such data exchange offers a practically applicable result. For example, there is co-operation between the Nature Conservation Agency and the Rural Support Service (RSS) which implements the rural support policy at national level (MK 2015). Data collected during the mapping of habitats of EU importance and concerning the grasslands of high nature value is transferred to the RSS to administer the payments for management of grasslands of high nature value more effectively.

When starting the inventory of nature values, the criteria for surveyed and non-surveyed areas were set by the Cabinet of Ministers (Ministry of Environmental Protection and Regional Development 2016). There was established the methodology for mapping the habitat distribution of EU importance, according to EU directive 92/43/EEC of 21 May 1992 "*On the conservation of natural habitats and of wild fauna and flora*" (European Commission 1992) and for their quality and organization of work (for a full description of the methodology see the reference: Nature Conservation Agency 2016), which was co-ordinated with the Ministry of Agriculture and confirmed by the Ministry of Environmental Protection and Regional Development. To illustrate the diversity of data used, the authors of this article indicate below the sources of natural resource databases from which to select information about different types of habitats.

- Forestry and Mires. These include areas which must be surveyed by experts *in situ* on a mandatory basis, as well as areas where an *in situ* survey is not required due to a small probability of discovering any nature values (non-surveyed areas). The main data sources were the associations of State Forest Service (SFS), JSC "Latvia's State Forests", Nature Conservation Agency (NCA), Environment State Bureau (ESB), State Environmental Service (SES), and Latvian Peat Association. To distinguish different types of forestry habitats, geo-morphological data on distribution of ash trees and inland dunes was used, tracing the areas that are surveyed on a mandatory basis from the maps of the Latvian Environment, Geology and Meteorology Centre (LEGMC). Furthermore, in co-operation with experts, a watershed between the coastal dunes and inland dunes was set.
- Grasslands. Mandatory surveyed and non-surveyed agricultural areas are selected by using data provided by the Rural Support Service, Nature Conservation Agency, Latvian Fund for Nature and State Land Service (SLS). For example, "mandatory surveyed" status was assigned to agricultural areas, which correspond to the code "type of use of cultivated plants and lands", indicated in the RSS database "710 – perennial grasslands", and grasslands of

high nature value found in the habitat section of the nature database "Ozols", whereas the areas which correspond to other cultivated plants were excluded from the "surveyed" class.

- Freshwaters. No distinction was made between "mandatory surveyed" and "non-surveyed" areas. All water courses of natural origin were selected for mapping purposes. Namely, information provided by the LEGMC, SLS and the land amelioration cadastre was used for these purposes. Topographic maps provided by the Latvian Geo-Spatial Information Agency were also used in the process. Artificial water courses and hydro-electric power stations, as well as other significantly modified water courses (amelioration systems) were excluded from the mapping process.
- Rocks and caves of EU importance. The mapping of these habitats had a solely informative nature. Before mapping the rocky habitats and caves, the experts had to carry out the geological and geo-morphological information analysis of each mapping square, using the terrain maps of the LEGMC, sediment maps, real material (point) maps of rocky habitats and hydro-geological maps with indications of springs.

The status of "non-surveyed area" was assigned to the national and local areas of transportation (including motor roads and railways), communication infrastructures and their protection zones, as well as the protection zones of amelioration systems outside the special areas of conservation and micro-reserves, and the geo-spatial data which was available to the experts. Areas, where EIAs had been conducted or concluded for the past 3 years, and SPNTs, for which a nature conservation plan has been developed for the past 3 years, are also included in the "non-surveyed area" category.

Not all nature databases provide information in the form of geo-spatial data, moreover, such information is not always correct. Often, information in the database is not updated for the entire data set, sometimes there are inconsistencies of information in databases of different national authorities. For example, a specific area can be defined as a forest in the SFS database, whereas according to RSS this area is managed as a canola field, and there is completely different information about this area in the State Unified Computerized Land Register. Sometimes situations occur, where the plant cover of an ameliorated system is inventoried as a forest, forest plots reaching the rivers and lakes, parking lots and courtyards. During the Nature Census, there were many inconsistencies identified between the SLS data (cadastre) and the real situation.

Conclusion

Sustainable management of natural resources is based on decisions which are made, considering comprehensible and qualitative data analysis. As in any other sector, there is a necessity for fundamental data inventory when it comes to the effective management of special areas of conservation and nature values. However, this process is also accompanied by negative trends, e.g., misleading the public and

even fraudulent conduct by dishonest individuals or companies in a specific habitat group. Therefore, the authors of this article emphasize that after the Nature Census, the volume of publicly-available information about the nature values of Latvia will increase significantly. This will contribute to ensuring decision-making transparency and will decrease possible corruption, moreover, it will accelerate the speed of passing legislative acts and decision-making related to economic activities in special areas of conservation.

Although, primarily, the mapping of habitats of EU importance is a contribution to introducing an effective and liable nature conservation policy, the process of Nature Census raises many issues related to the national governance system and reaching the aims to introduce sustainable development principles. A good example of that is the heated debates among representatives of different sectors about the SPNT proportion in Latvia. The nature conservation sector indicates the factors that prevent the assignment of adequate favourable conservation status and even destroy the natural resources of Latvian and of EU importance (Report to European Commission 2012), whereas the sectors of nature development and management draw attention to the "abundance" of SPNT, which hinders economic activities (Public Broadcasting of Latvia 2017). Thus, irrespective of how important the data collected during the Nature Census is, its use for determining the SPNT will depend on political decision-makers, who, hopefully, will make their decisions, based on constructive inter-sectoral debates that are oriented on sustainable development.

Habitats of EU importance are only one of many identified Latvian nature values. There is a lack of data concerning the distribution of protected species in the country. Not always shall conservation and management of habitats of EU importance contribute to the conservation of species. Consequently, after analysing Nature Census data related to the distribution of specially protected species in the country, there shall remain many unidentified factors, and Nature Census will not be a solution to all problems in the nature conservation sector. To make the best use of the Nature Census results, it would be important to enhance the habitat monitoring programs so as to provide up-to-date, scientifically grounded data about the entire country. This could be used later on to ensure a balanced decision-making. Nevertheless, the nature conservation sector must realize that species and habitat conservation cannot be planned long-term, while ignoring the interests of the third parties, and the other sectors must understand that integration of nature conservation principles in the sector policies and their implementation is cheaper and more efficient than trying to save and renew something that has already become almost extinct.

Kopsavilkums

Laikā līdz 2014. gadam tikai 10 procentiem no Latvijas valsts teritorijas bija pieejamas Eiropas Savienības nozīmes aizsargājamo sugu un biotopu izplatības kartes. Apjomīgu un kvalitatīvu datu trūkums ietekmē dabas un vides aizsardzības efektivitāti, kā arī negatīvi iespaido Latvijas spēju pildīt ES saistības un iespējas ziņot par vispārīgiem vides indikatoriem un to pārmaiņām Latvijas valstī kopumā. Tāpēc laikā no 2017. līdz 2019. gadam pirmo reizi Latvijas vēsturē notiek ES nozīmes biotopu izplatības datu ieguve

pēc vienotas metodikas visā valsts teritorijā jeb Dabas skaitīšana. Raksta mērķis ir analizēt ES nozīmes biotopu kartēšanas nozīmi dabas aizsardzības politikas ieviešanā un īstenošanā atbilstoši ES direktīvu prasību integrēšanu Latvijas valsts pārvaldībā pār īpaši aizsargājamām dabas teritorijām. Rakstā apskatīta dabas vērtību inventarizācija politikas ieviešanas, īstenošanas, starpnozaru sadarbības un valsts nozīmes dabas datu bāžu integritātes aspektā. Vienlaikus akcentējot, ka Dabas skaitīšana aktualizē arī daudzus problēmjautājumus valsts pārvaldības sistēmā un valsts mērķu īstenošanā ilgtspējīgas attīstības principu ieviešanā.

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PROJECTED CHANGES IN THE NUMBER OF INHABITANTS OF LATVIA IN THE EVENT OF THE STABILIZATION OF EMIGRATION

Latvijas iedzīvotāju skaita prognozējamās pārmaiņas, stabilizējoties starpvalstu migrācijai

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Abstract. The decline in population is a significant problem for Latvia, the causes and consequences of which have been brought to the attention of many researchers. The aim of this study is to perform a mathematical analysis of the population and the main components of its changes at the national level to evaluate the use of these indicators in the estimation of population changes. The methods of this research are based on data regression analysis. The statistical analysis of this work uses the data of the Central Statistical Bureau of Latvia. The study also utilised Statistical Office of the European Union (Eurostat) population projections at the national level. The results of this research are based on data regression analysis. Although linear regression models evaluate changes in the population of Latvia and show very strong correlation, they must be treated critically.

The population migration balance is not predictable based on historical observations and/or by using mathematical models. In migration balance forecast models that are based on mathematical statistical methods, the uncertainty is so great that the practical value of such models is negligible.

Keywords: *population of Latvia, regression analysis, population forecasts, natural growth, population migration balance*

Introduction

The decline in population is a significant problem for Latvia, the causes and consequences of which have been brought to the attention of many researchers. Most research is devoted to studying the impact of mobility and migration on territorial