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STATUS OF THE EMERALD NETWORK OF AREAS OF SPECIAL CONSERVATION INTEREST (ASCI) IN 2018

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Table of contents

INTRODUCTION.....	- 3 -
EMERALD SUFFICIENCY STATISTICS UPDATE 2018.....	- 3 -
SCIENTIFIC RESERVES	- 7 -
PROGRESS OF THE SUFFICIENCY OF THE EMERALD NETWORK SINCE 2017 ...	- 9 -
CONCLUSIONS AND RECOMMENDATIONS.....	- 11 -

INTRODUCTION

The work on constitution of the Emerald Network follows the bio-geographical process where the key decision-making events about network sufficiency are the bio-geographical seminars ([T-PVS/PA \(2013\) 13](#) page 7; [T-PVS/PA \(2016\) 4](#) page 11). To date, twelve seminars have taken place since November 2011 involving 14 countries. Each bio-geographical seminar produces a document named “**Final Conclusions**” which summarises discussions held at the seminar and provides a coded conclusion ([T-PVS/PA \(2013\) 13](#) page 8, Table 2) for each discussed species and habitat which indicates the actions that Contracting Parties are expected to undertake in order to complete the Emerald Network.

Final Conclusions, together with the “Reference Lists” – another important document which lists for each Contracting Party the species and habitats listed in the Bern Convention Resolutions No. 4 (1996) and No. 6 (1998) which are subjects for Emerald site (ASCI) designation, are publicly available in pdf format from the [Emerald Network Reference Portal](#).

After a certain time - usually at the end of each calendar year - Final Conclusions from new seminars are merged into a special Microsoft Access database named “**Conclusions Database**”. Thus this database not only holds all the updated conclusions from the seminars but also keeps historic records of network development.

The Conclusions Database was largely used to prepare the comprehensive report “[Emerald Network status in the Eastern Partnership region and the Russian Federation](#)” in 2017. Despite the title, many analyses covered all 14 Bern Convention Contracting Parties whose network sufficiency has been evaluated. Following this report two other bio-geographical seminars have taken place. The first seminar was dealing with non-avian species and habitats in the South Caucasus countries (Armenia, Azerbaijan and Georgia) and the second seminar was dealing with bird species in Belarus, the Republic of Moldova and Ukraine.

The aim of this report is to update the key sufficiency statistics for all 14 Emerald countries as for end-2018 (no more seminars are foreseen this year), especially taking into account the progress in the 6 Eastern Partnership countries. The report also aims to provide pointers for the future: i.e. what are the most necessary actions in different countries to complete the Emerald Network. It should also help develop recommendations for the post-2010 Emerald calendar. The analyses are based on Emerald Conclusions Database available at the end of 2018.

EMERALD SUFFICIENCY STATISTICS UPDATE 2018

The report “Emerald Network status in the Eastern Partnership region and the Russian Federation” (2017) explicitly describes two main methods in assessing the Emerald Network sufficiency. One of them, i.e. **quantitative assessment**, compares the area of the Emerald Network with the area of the national territory. Although such quantitative assessment is not a subject of this report, because it does not originate from the data in the Conclusions Database, Table 1 below provides the most updated statistics. The 2017 report provides more detailed analyses on this quantitative assessment, including a discussion on the relationship between the quantitative and qualitative assessment.

Table 1. *Quantitative assessment of the Emerald Network: covered percentage of national territory. Data are updated taking into account databases submitted by the end of 2017 (i.e. not included in the 2017 report). ISO country codes are further used in the various graphics of this report.*

Country	Number of Emerald sites (ASCIs)	Emerald network area (km ²)	Percentage of national territory covered
Albania (AL)	25	4752.7	16.7
Armenia (AM)	23	10337.2	34.7
Azerbaijan (AZ)	17	16795.3	19.3
Bosnia and Herzegovina (BA)	30	3278.9	6.4
Belarus (BY)	162	24288.9	11.7

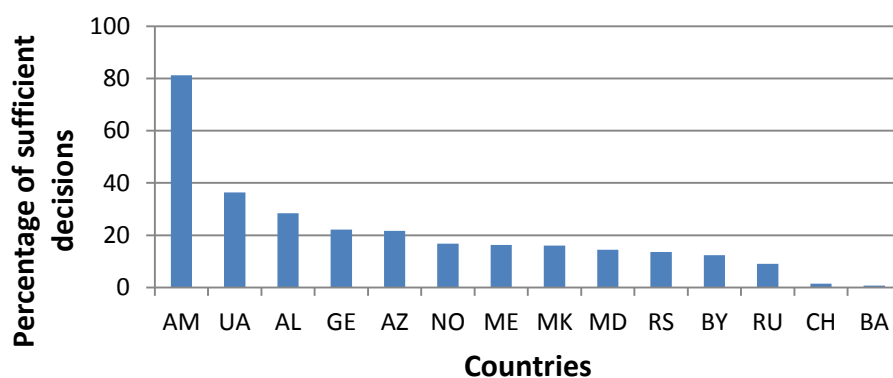
Switzerland (CH)	37	642.4	1.6
Georgia (GE)	55	10749.6	15.4
Republic of Moldova (MD)	61	2779.0	8.21
Montenegro (ME)	32	2553.5	18.5
“the former Yugoslav Republic of Macedonia” (MK)	33	6390.0	25.1
Norway (NO)	709	52304.4	16.1
Serbia (RS)	61	9601.0	10.9
Russian Federation (RU)	1633	496254.8	12.6
Ukraine (UA)	271	62487.3	10.4

Qualitative assessment, on the contrary, is based on the Conclusions Database. In the simplest fashion, qualitative assessment compares the number of sufficient decisions with the total number of species and habitats - listed respectively in the Resolution No. 6 (1998) and No. 4 (1996) - occurring in the country. It should be also remembered that:

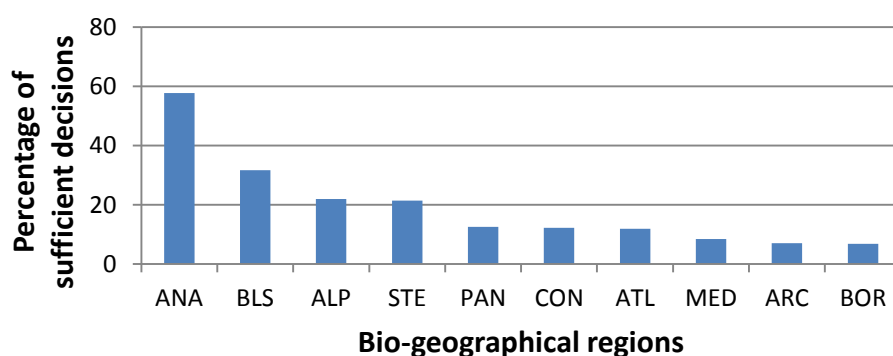
- If there are more than one bio-geographical region in a country, and if a feature (a habitat or a species) occurs in several of these regions, it is assessed separately for each region;
- For bird species, however, no bio-geographical regions are recognised, thus there is always only one assessment for each country where the species occurs.

Qualitative assessment, or “sufficiency rate” can be calculated by country, by bio-geographical region, or, for example, by country and major groups of sufficiency assessment (Figure 1).

A



B



C

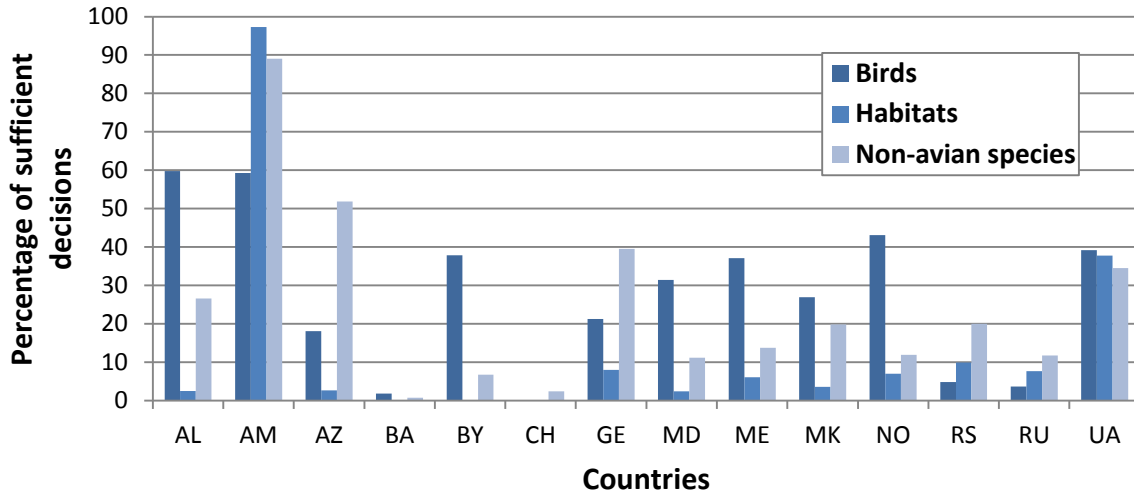
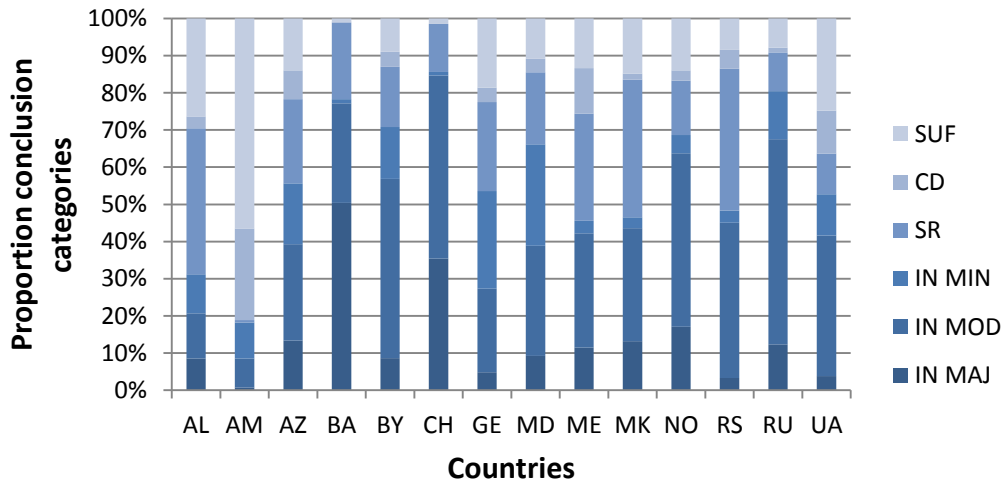


Figure 1. Sufficiency rates calculated from different angles (end 2018 data).

As regards to “non-sufficient” decisions, there are several categories¹: insufficient major, insufficient moderate, insufficient minor, scientific reservation and correction of data. Figure 2A below reports the distribution of these categories for each country. This figure shows also that the more the bar is in light color, the more the country is advanced in Emerald Network site designation.

A



¹ Please see full description at <https://rm.coe.int/1680746a34> , page 8.

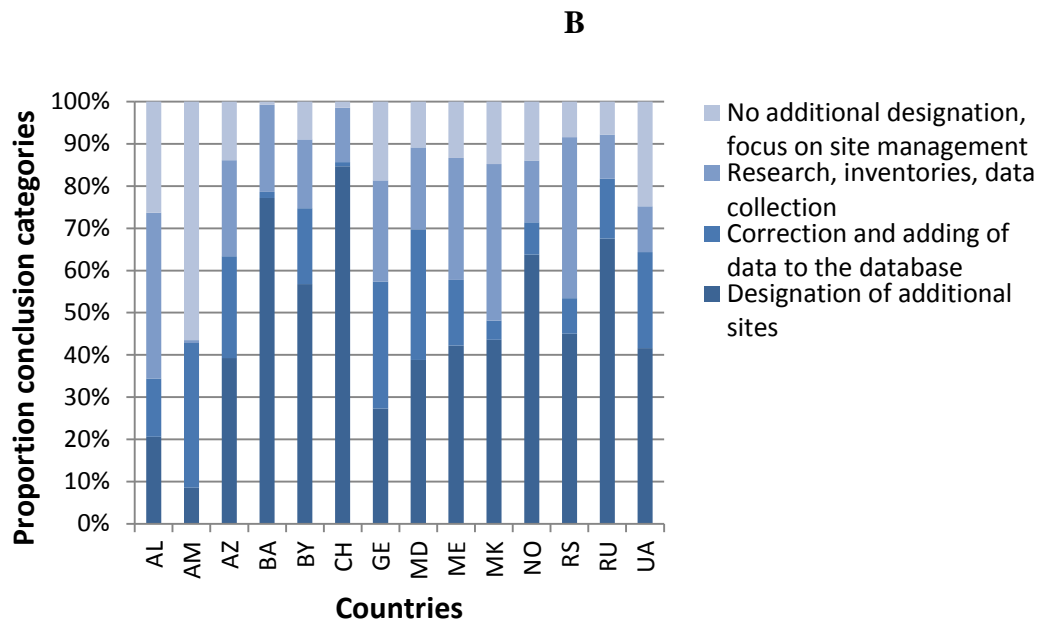


Figure 2. Proportions of different conclusions from the bio-geographical seminars. A. All conclusions; B. Conclusions are combined by different meanings (required actions). Note that only the ‘worst’ conclusion category has been taken into account (i.e., $IN\ MAJ > IN\ MOD > IN\ MIN > SR > CD > SUF$), in case of multiple conclusions for one feature/country/bio-geographical region.

Conclusions can also be combined by different types of required further actions (Figure 2B), i.e. ‘homework’ for the Contracting Parties. In this future dimension following 4 main types of action can be distinguished and their respective proportions are provided for each country:

- The darkest blue part of the bar (Figure 2B) combines the conclusions $IN\ MAJ$ and $IN\ MOD$, which means **designation of additional territory**. This can be solved both by designating new sites and/or extending existing sites. Although greater proportion of the bar is likely to correlate with the area of additional territory to be designated, still in some cases designation of one site may solve insufficiencies for multiple features.
- The next lighter part of the bar (Figure 2B) combines the conclusions $IN\ MIN$ and CD , which in most if not all cases mean **additional “office work”** for experts and Emerald Network database administrators. $IN\ MIN$ means adding of a species or a habitat to the Standard Data Forms of existing Emerald Network sites from literature or other sources of information. Category “ CD ”, or correction of data, means that identified errors, inconsistencies need to be corrected and that the database completeness needs to be improved, e.g. if some obligatory fields are currently blank. Very often, in fact, the categories $IN\ MIN$ and CD can be found together in the Final Conclusions.
- The next lighter part of the bar (Figure 2B) indicates a proportion of scientific reservations (or “Scientific Reserves”) which were concluded in cases where a reasoned assessment of the network sufficiency could not be done without **further scientific work**. Usually this involves additional field research, re-analysing data or re-visiting taxonomy or habitat definitions. This category is discussed more in detail in the next chapter.
- The lightest part of the bar (Figure 2B) provides a proportion of features where the Emerald Network for a particular species or habitat has been assessed as sufficient and no **additional work on site designation** and Emerald database management is required. This, however, only

concludes the second step of the Emerald Network constitution², and further work should be carried out on establishing site conservation objectives, introduction of conservation measures (management plan) and monitoring. This is especially important in the context of the climate change and the need to adapt the Emerald Network to future challenges. Please see specific guidance on these subjects in 2014 paper “[Towards management of Emerald sites: a guidance document](#)”

It is recommended that each country carefully examines the latest Final Conclusions³ and address identified insufficiencies before submitting a subsequent updated Emerald Network database. The conclusions are complemented with a column “Final Conclusion Comments” which provide more details about the insufficiency, such as the reason of the scientific reserve or the names of geographic objects which need to be covered by new site designations. The 2018 sufficiency database holds such remarks for about 38% of all non-sufficient conclusions. When re-visiting sufficiency conclusions at the repeated seminars, **previous conclusions and their additional remarks are taken into account in a systematic way.**

SCIENTIFIC RESERVES

The quality of sufficiency assessments strongly depends on the **quality of available scientific information**. This refers to knowledge about distribution patterns, abundance and ecology of the feature (habitat or species) in the specific context of a country under examination. Time dimension is also important in this context. In the previous work, particularly in the Eastern European countries, it was found that relevant information exists but it is represented only as fragments from a long period of time, often extending back to the middle of 20th century when distribution and abundance of many species were different compared to nowadays. Thus ideally the most comprehensive and most updated available information should be used for sufficiency assessments.

Therefore when such information was obviously lacking, scientific reservations were chosen as most appropriate conclusion in the past bio-geographical seminars. Figure 3 shows that in some countries, particularly in the West Balkan region, scientific reservations constituted even up to 30-40% of all conclusions made. The percentage of scientific reservations varies between systemic groups, but it was highest for habitats, fish and invertebrates. Also the rate of scientific reservations for bio-geographical regions (Figure 3C) is clearly linked to the countries they represent. More scientific reservations were given to the Mediterranean and Pannonean bio-geographical regions. It is possible to continue such analyses by finer increments and factors, if necessary at a country, bio-geographical region or even species or habitat level, and it can provide rather clear vision about the priorities for future work in the field of data collection.

Yet, data collection does not always require new additional field research which is probably the most expensive way to solve scientific reservation. Countries should also check all ongoing activities and projects (e.g. EU Natura 2000 support projects) to verify if the desired information has not already been collected, “in press” or available otherwise.

In the European Union many countries (and also some countries implementing the Emerald Network, such as Norway) have special web-portals where different people (both professionals and amateurs) can record their own species observations online. After years, observations accumulate in large datasets and such portals become an important source of information recognised in the sufficiency evaluation process. It is recommended to develop such web-portals in countries implementing the Emerald Network.

² Please see the report “ [Emerald Network status in the Eastern Partnership region and the Russian Federation](#)”, page 18

³ Web-page: <https://www.coe.int/en/web/bern-convention/emerald-network-reference-portal>

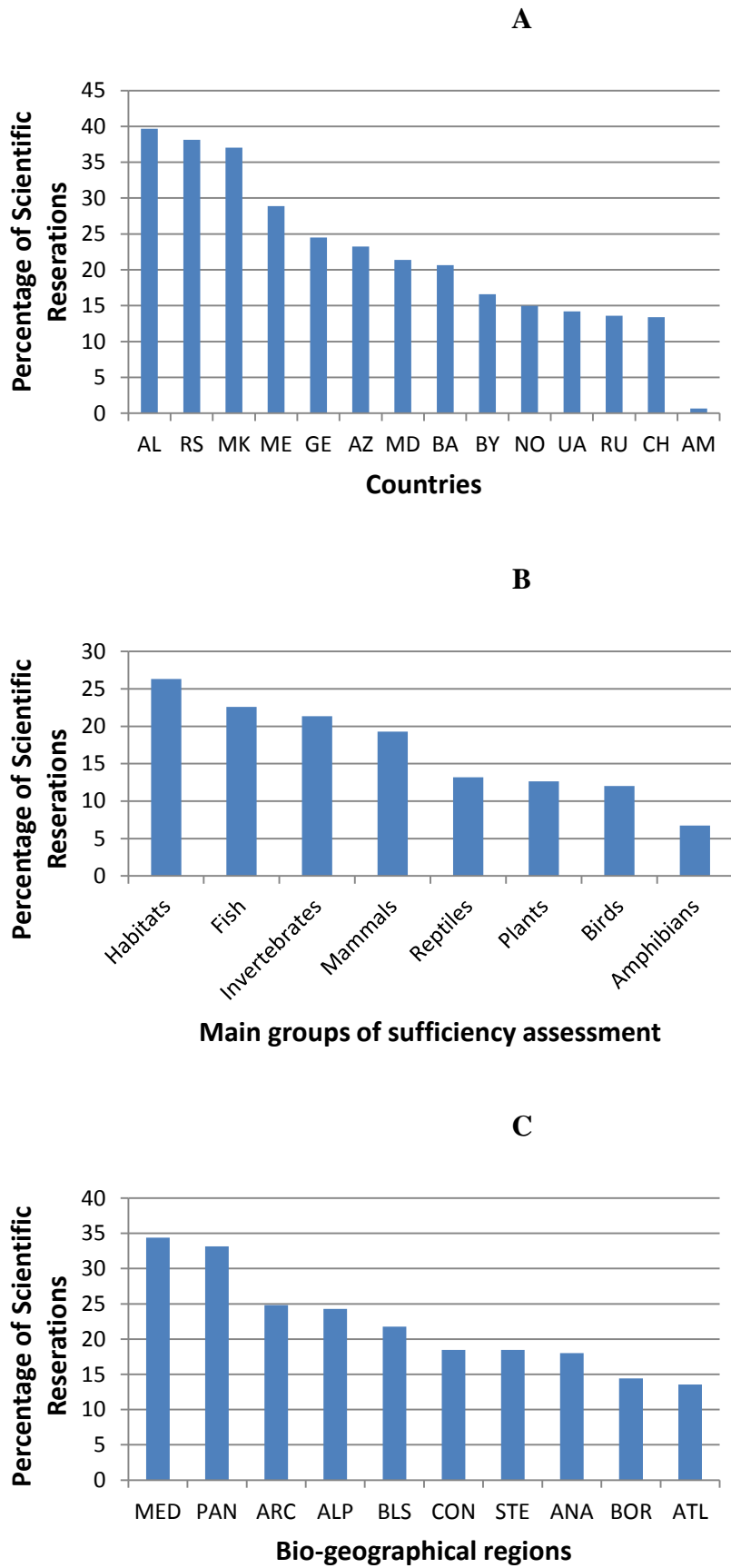


Figure 3. Use of scientific reservations by country (A), taxonomic group (B) and bio-geographical region (C).

Some first examples already exist in ENP countries, although the design and functionality often is not yet optimal:

- <http://www.sevin.ru/vertebrates/> (Russian Federation)
- www.butterfly-conservation-armenia.org (Armenia)
- <http://odonata.weebly.com/105210401058104510561048104010511067.html> (Belarus)
- <http://www.babochki-kavkaza.ru/> (Caucasus operated from the Russian Federation)

Investments in new data collection will surely pay-off also because the improved and updated information about species and habitats will also be useful for the subsequent Phase III of the Emerald Network set-up, i.e. for the management of sites to ensure favourable conservation status of species and habitats.

PROGRESS OF THE SUFFICIENCY OF THE EMERALD NETWORK SINCE 2017

This chapter focuses on the progress of the sufficiency after the publication of the report “Emerald Network status in the Eastern Partnership region and the Russian Federation” in September 2017. During this period, two bio-geographical seminars were held with the support of the European Environment Agency within the framework of the ENI-SEIS EAST II project “Support to Emerald implementation in six ENI Eastern countries” (2017-2018) funded by the EU. The first seminar was dealing with non-avian species and habitats in South Caucasus countries (Armenia, Azerbaijan and Georgia); the second seminar was dealing with bird species in Belarus, the Republic of Moldova and Ukraine.

Sufficiency substantially increased in Armenia, Belarus, and the Republic of Moldova (among these countries, the network for Armenia is nearly complete!), slightly increased in Ukraine and Azerbaijan, but also slightly decreased in Georgia because of significant reductions in site size in the Alpine region and because of recognition of many new habitat types in the country (Figure 4). There are also positive trends in quantitative assessment (Table 2), except for Georgia and the Republic of Moldova; the latter, however, is an artefact due to changed methodology for area calculation.

The graph to the right in Figure 4 shows substantial increase of number of features evaluated in 2018 for Caucasus countries and slight increase in other countries. This should be viewed as a very positive trend because the scientific information improved, particularly as regards to better interpretation and recognition of new habitat types present in each country.

Table 2. *Quantitative progress of the Emerald Network development in 2017-2018.*

Country	2015			2018		
	<i>Number of sites</i>	<i>Emerald area</i>	<i>% national coverage</i>	<i>Number of sites</i>	<i>Emerald area</i>	<i>% national coverage</i>
AM	14	346 950	11.6	23	1 033 720	34.7
AZ	14	852 738	9.8	17	1 679 533	19.3
GE	34	1 421 982	20.4	55	1 074 959	15.4
BY	64	1 824 749	8.80	162	2 428 888	11.71
MD	26	373 679	11.04	61	277 902	8.21
UA	169	4 680 470	7.82	271	6 248 732	10.43

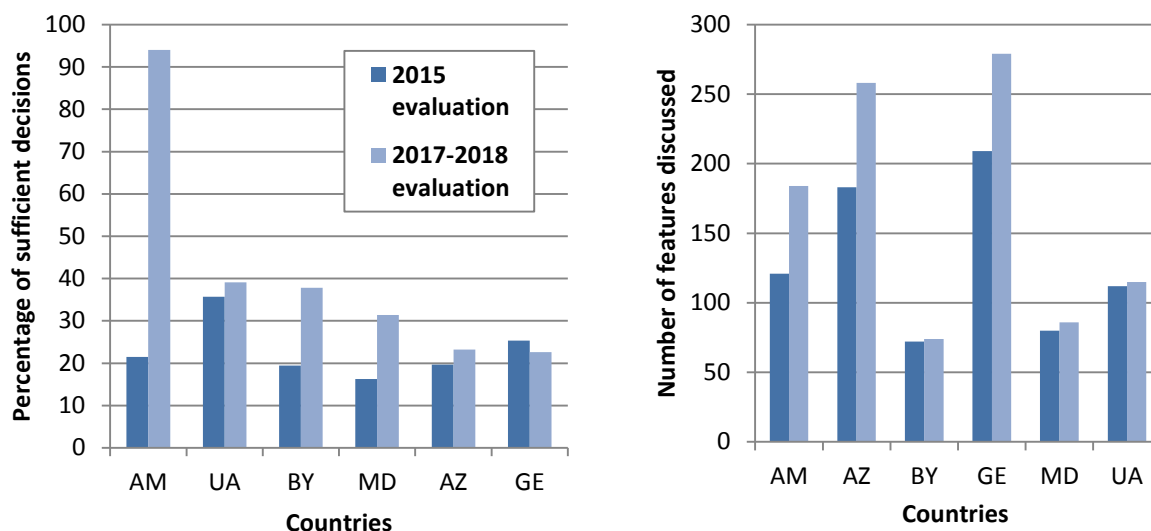


Figure 4. Progress in sufficiency assessments between 2015 and 2017-2018 ENI-SEIS EAST II project. Please note, that this reflects only results of habitats and non-avian species from the Caucasus countries and bird species from Belarus, Republic of Moldova and Ukraine.

Although Figure 4 above is useful to examine changes in sufficiency rate by country, it does not reflect the actual progress of the whole site designation and Emerald database updating process, particularly because there are substantial qualitative differences between different “non-sufficient” conclusion categories (refer to page 4 of this report).

To solve this problem, we propose a new (at least neither used for Natura 2000 nor for the Emerald Network to date) method for assessing progress in different Contracting Parties. For this purpose, at first all conclusion categories were ranked in a gradient from “worst” to “better”: IN MAJ, IN MOD, IN MIN, SR, CD, SUF. Then these categories were scored from 0 (IN MAJ) to 5 (SUF).

As a second step, the points given to conclusions from different years can be compared and actual direction and magnitude of change calculated. For example, if a conclusion has changed from IN MOD to SUF, the change score is +4 (from 1 to 5). If a conclusion was SR in both seminars, the change score is 0. If a conclusion has been downgraded from SUF to IN MIN, the change score is -3. Thus if the change scores from all conclusions increased, a total balance can be obtained for each country between two seminars. Table 3 provides an example from the last 2 Emerald bio-geographical seminars held in 2017 and 2018.

Table 3. Overall Progress of the Emerald Network development 2017-2018 assessed by the new conclusion scoring method.

Armenia, Azerbaijan, Georgia: 2015 vs 2018		Belarus, Republic of Moldova, Ukraine: 2015 vs 2018	
<i>Country</i>	<i>Total progress balance</i>	<i>Country</i>	<i>Total progress balance</i>
AM	+290	BY	+72
AZ	+94	MD	+68
GE	+28	UA	+15

However, Table 3 does not entirely reflect “internal fluctuations” because the total progress balance results from a combination of improvements and deteriorations. For example, in Georgia not only new sites have been added, but some large existing sites have been substantially reduced in size, therefore many previous sufficient conclusions have been re-visited, and in many cases conclusions were downgraded.

Thus we propose to reflect data by showing both negative and positive changes, as well as the overall balance (Figure 5). It can be seen that the overall sufficiency rate of evaluated subjects (South

Caucasus – non-avian species and habitats; East European countries – birds) increased in most countries, even in those where an area reduction in the network has been observed. More than 20-year experience from building the Natura 2000 network in the EU shows that iterative two-way direction of changes (steady general increase but with some decrease) is an inevitable part of this process in most countries, thus it is not surprising that the same pattern is observed also in the Emerald Network.

In particular, it is worth to highlight the case of Ukraine, where many changes with ‘negative’ sign occurred due to broadening the scope of scientific information considered in the site selection (which is clearly a positive trend!), and is not due to site reductions or other genuinely negative operations.

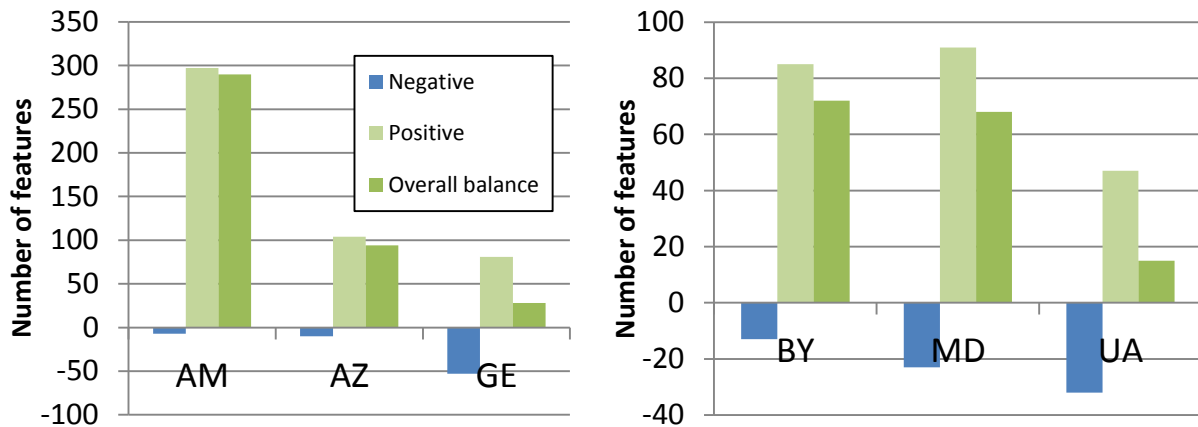


Figure 5. Overall Progress of the Emerald Network development 2017-2018 assessed by the new conclusion scoring method.

CONCLUSIONS AND RECOMMENDATIONS

Two bio-geographical seminars since mid-2017 produced important progress in 6 countries concerned: Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova and Ukraine. The launch of repeated evaluation seminars for the Eastern European countries definitely was a catalyst proving to governments and stakeholders that the Emerald Network process continues and demonstrated its iterative character, and that all previous efforts were not just isolated efforts of one or few projects without future perspective.

For future (pre- and post-2020 Emerald calendar), it is difficult to provide any genuinely new recommendations other than those already suggested in the following documents:

- The report “Emerald Network status in the Eastern Partnership region and the Russian Federation” in 2017 (Page 48; Chapter “Remaining gaps and weaknesses”)
- The “Three dimensional road map for achieving a fully operational Emerald Network in 7 countries of Central and Eastern Europe and South Caucasus” [T-PVS/PA\(2016\)10](#); yet it is clear that many of actions will remain valid in their importance after 2020;

Still in the context of this report, we can still propose a few improvements, mainly to improve communication with Contracting Parties, namely:

- It is strongly recommended that each country carefully examines the latest Final Conclusions and addresses identified insufficiencies before submitting a subsequent Emerald Network database, because these conclusions will be systematically used as a background for the new evaluation in the next seminar;
- The Bern Convention Secretariat needs to maintain a clean and user-friendly web-page where the above conclusions could be found both in .pdf or tabular format for future work. Please note that also in the past several countries have asked to provide Final Conclusions also in tabular format for future work (.pdf format is not very user-friendly). The Conclusions

Database would ideally fill this role if made publicly available, but in such case a detailed instructions about its structure and contents and user's manual should be provided;

- It is recommended to Contracting Parties to consider Scientific Reservations as a priority especially when it comes to grant funds to scientific research of protected species and habitats. They should be reminded that the Bern Convention Secretariat requires not only subsequent changes in the Emerald Network database, but also a short written note about how scientific reservations were resolved and what consequences they have brought to the Standard Data Forms.
- This report has demonstrated that only thorough and many-sided evaluation of change in the sufficiency of the Emerald Network database and SDFs reveals the actual progress/regress; conclusions should not be made only considering one indicator or character.