The Rufford Foundation

Екологічна група Печеніги /The ecological group "Pechenegy"

Харківський національний університет імені В.Н. Каразіна / Karazin Kharkiv National University

UKRAINIAN RUFFORD SMALL GRANTS CONFERENCE

"FROM MONITORING TO IMPLEMENTATION"

УКРАЇНСЬКА КОНФЕРЕНЦІЇ ОТРИМУВАЧІВ ГРАНТІВ ВІД ФОНДУ RUFFORD

"ВІД МОНІТОРИНГУ ДО ВПРОВАДЖЕНЬ"

23-25 April 2018
Ukraine, Kharkiv, Karazin University

Ukrainian Rufford Small Grants Conference had taken place in Kharkiv, Ukraine, 23-25 April 2018. The conference received a motto “From monitoring to implementation” in order to highlight a strong need to proceed from the stage of data collecting to a practical conservation actions.

Introduction

The Rufford foundation works in Ukraine since 2004 and has supported 59 projects. On the Rufford foundation website 96 projects are listed. Probably this number automatically inculded all projects from the territory of Ukraine, but mainly were done in other countries, or projects which were carried out in more than one place in Ukraine. Most of grantees received funding once (30 projects), ten grantees received funding twice and nine of them received grants three times. We tried to gather all 49 former and current grant holders from Ukraine and also invited via e-mail conservationists from neighboring Russia, Belarus, Lithuania, Poland, Czech Republic, Hungary, Romania and Turkey (about 90 invitations), but received limited number of responses. Apparently some of e-mail addresses, especially of grantees from earlier years, may be not valid, people may move to another occupation and country. Additionally, number of invited participants had responded, but informed that they had field work in the same dates.

Participation of foreign participants may also be complicated due to economic reasons or political tensions between Ukraine and Russian Federation, RF and Great Britain. In our opinion, state employed scientists from Russia may don’t want to come or experience problems in getting approval for their business trips. Still, these are our suggestions, because no one from RF responded our invitations or contacted us. We see this as a reason why there were no Russian participants on the meeting, in spite of traditionally strong ties in the past. This could be compared to Belarus, where similar number of invitations (but much less number of projects comparing to Russia) resulted in two potential participants, who intended to come, but cancelled their visits due to other reasons.

1. Objectives

The main objectives of the meeting were to gather former grantees of the Rufford Foundation, to make an overview of all projects, exchange experience, ideas, best practice of conservation, promote conservation-aimed projects in Ukraine, get attention to the Rufford foundation projects from conservation and scientific community, look for ways how to transfer results of different projects into bigger initiatives throughout Ukraine.

We organized several talks from invited representatives of academic science, state institutions close to the Ministry of Ecology and Natural Resources of Ukraine and NGOs to initiate discussion how monitoring-oriented projects, which constitute the majority of the projects in Ukraine so far, may give outcome in the form of creating new protected territories, implementing measures etc. Three invited speakers participated the meeting. Oleksiy Vasylijuk holds a position in Institute of Zoology, National Academy of Science, in an organization, which is often is source of expert information for the ministry of Ecology and Natural Resources of Ukraine. Nina Polchaninova from Kharkiv University reported results of her long lasting work about influence of management type and steppe fires on indicated groups of ground invertebrates. Katerina Borisenko from Kyiv NGO advocates EU Emerald network in

Ukraine.

2. Impact of Rufford Funding

This conference was the first meeting of Rufford small grants recipients in the region, which gathered people from different specializations and other nature conservationists from Ukraine.

Many of projects earlier supported by the Rufford foundation are from the Carpathians region (15 projects), where majority of Ukrainian protected areas and natural habitats exist. By affiliation, significant number of grantees are from large university cities (Kyiv, Kharkiv, Lviv) and National Nature Parks.

In terms of effectiveness of the projects and costs-results ratio, many of the projects have triggered application of highly qualified grantees' expertize in the field of conservation and indirectly involved prior funding, needed to achieve the level of knowledge about specific taxonomic group or collect preliminary information about countrywide distribution data. Adding of momentum had happened in many projects. Good example could be presentation "4-year experience of implementing conservation measures in the national nature park "Pyriatynskyi" (Poltava region)" summing up results of two Rufford projects lead by Oksana Abduloieva, where using capacities and human resources of the national park and Kyiv National University, ten years management plan was developed and numerous practical activities from this plan were supported.

Alona Prylutska presentation "Shared house: Bat-Human interactions in Kharkiv city and bat conservation" highlighted results of the work of The Bat rehabilitation center of Feldman Ecopark and Ukrainian Independent Ecology Institute. She and other members and volunteers from these organizations Anton Vlaschenko and Vitalii Hukov received several grants from the Rufford foundation and established center which both studies bats and involved in various scientific, conservation and educational activities. Only this year the Center rescued over 2000 bats that otherwise would die. These bats were returned after rehabilitation to nature with great attention from national and local media.

In Ukraine, where both basic science and nature protection are heavily underfunded, small nature protection grants play very significant role in supporting early-career young scientists (students, master students, PhD students) who are too young to establish own organizations, get positions in scientific institutions etc. Due to easiness of application process for many young early career conservationists in Ukraine, RSGF grants were first experience of fundraising, further continued with other funding sources, but often with the same territory or object.

About a half of all participants were under 30 at the time of running their projects, many of them are on early career stages. Grants from the Rufford foundation provided them opportunities to make field research, promoted conservation outcomes of their work and warranted that they will not leave science and nature protection. Vasylyna Stakh (PhD student in Lviv National University) project is pioneering work on mitigation of road mortality of amphibians in Ukraine. "*Animal road motality is a new type of research in Ukraine. Naturally, it isn't known well here and hasn't become traditional yet. In spite of the numerous attempts of our research team to get support for animal-road conflict investigtions last years we didn't get it.*

Thanks to the Rufford foundation support in 2017 we felt free to plan the survey, to organize the work, to buy instruments and materials, to check road mortality, to install frog fences, to monitor model road sections, to spread the knowledge among the target groups of people and so on."

About 30 percent of projects in Ukraine were targeting steppe or floodplain ecosystems in Ukraine. The situation with steppes is crucial: only 3% of original steppe territories remained. They are highly fragmented, associated with lands, which are difficult to use (steep slopes, stone outcrops etc.) and therefore are not valuable in the public opinion, could be easy transformed to any purpose ("if this land is not used, why don't we do at least something useful there, no matter what"). In addition, public attitude refer forest as a nature, but not grasslands. In the first place projects by Mykhailo Banik *"Daphne sophia* Kalen., a candidate flagship species for the protection of chalk landscapes in Ukraine", Anna Kuzemko "Present State of mesic grasslands conservation in the Forest and Forest-Steppe zones of Ukraine", Iuliia Vasheniak "Rare limestone outcrops habitats listed in Bern Convention in Dniester Canyon", Olesya Bezsmertna "Rare aquatic ferns in Ukraine", Andrii Zamoroka "The perspective plan for the steppe remnants conservation on Burshtyn Opillya" would difficult to imagine receive and state support in Ukraine and in general deal with less popular habitats and objects, which nevertheless need urgent conservation actions.

Additionally, there are species and other taxa which are worldwide considered as difficult to fundraise for - small or not well-known organisms, such as fungi, small insects or inconspicuous plants. Support of the Rufford foundation provides an opportunity to do research and draw public attention to conservation of inconspicuous and not very popular, but not less important groups of organisms. Among the Ukrainian grantees of Rufford foundation there are several projects targeted to such groups. *Icneumonidae* insect's project by Oleksandr Varga, *Pleurotus calyptratus* fungi project by Iryna Yatsuk, viper's project by Andrii Tupikov, nine bats projects by different authors are among them. In projects by Oksana Abduloieva whole complex of otherwise neglected species were covered by monitoring and protection: "*In the national nature park "Pyriatynskyi" the funds obtained had helped to execute a complete inventory of vulnerable objects in wetlands and floodplain landscapes that belong to the next categories: small-in-sizes, little noticeable organisms (insects, herbal plants), vulnerable, but not included in the national red list species (pond turtle, beaver), bird species which numbers in wetlands are almost unchecked, and vulnerable natural habitats that had not been objects for nature conservation in our state before. It had been impossible under the current conditions of state support in nature conservation."*

In addition to the second and third grant from Rufford foundation, which is not rare in Ukrainian grantees, many of projects have led to the establishment of working group, education of volunteers and students, purchasing of equipment for a long-term research, setting up areas for monitoring, development of sequence of projects etc.

Sometimes real fruits of projects are seen only on a long run. Project "Daphne'04 from 2004" by Mykhailo Banik on top of results described in the report was the ground of further projects which implied creation of National Nature Park "Dvorichanksy" in 2012, the Internet site and initiative Chalk steppe

http://chalksteppe.org/en/ in 2013, project "Important Plant Areas of Ukraine" in 2017.

Good example of capacity building is again Oksana Abduloieva projects in National Nature Park "Pyriatinsky": "*… due to 2 projects implemented, there is a few-year experience of applying the up-to-date approach in nature conservation – the geoinformative systems and digital mapping. Now the team has a powerful tool for building and analyzing the spatial data on species and natural habitats, evaluating situation on each species/habitat, defining best solutions, sharing the data in nature conservationist's community. In particular, the digital map for the Park was a base for zoning and 10-year management plan for the protected area. Landscape planning made it possible to define land plots appropriate for a few active conservation measures like restoration of native oak stands*".

Rufford funding also had helped to train a future generation of conservationists in Ukraine. Many of projects involved volunteers, often - children and make them familiar with nature conservation. "*Due to the Rufford Foundation support, in the national nature park "Pyriatynskyi" the working team is able to keep an annual summer research and educational expedition that involves schoolchildren from local communities and students studying Biology/ Ecology. The same expedition attracts PhD students. The bird-watching tower that has been constructed in the national nature park "Pyriatynskyi" will be used for training young bird-watchers and nature conservation volunteers in conservation objectives, fundamentals and research*." - Oksana Abduloieva. Many projects print brochures, books, flyers, posters even games with the target objects of their projects, actively communicate with kids on different events.

"*The BRC plays a significant eco-educational role. All year round BRC conducts lectures, volunteer actions, bat release fest, exhibitions for citizens to promote bat-friendly attitude to bats because the survival of bats depends on people.*" - Alona Gukasova.

Upon completion of projects many grantees had published their findings as articles, presented on meetings etc. The list below is highly incomplete due to large number of grantees and usual lag between project completion, reporting and data publication and more illustrative, then comprehensive. When summarizing typical published outcome, it's easy to see, that most of publications are submitted to scientific journals and without further promotion from authors and narrow experts, they can easily be forgotten, lost and neglected. In the same time, still it is the essential to publish results, even when they will not be immediately used; the deposition of valuable data is very important.

Higher values then small papers in journals play monographs devoted to the particular group (Balashov, 2016; Balashov, 2016) ecosystems or regions where data on one systematic group is collected. Quite often projects' results were send directly to the authorities (Olena Slobodian "Species action plan" was sighned by Ministry and send to National Natural Park), IUCN (Igor Balashov's projects). Serhii Domashevsy, the project "Conservation of the Population of the Spotted Eagle (*Aquila clanga*) of the forest zone of Ukraine", had delivered his results to national authorities with perspective to be send further to IUCN: "*The database was developed and submitted to the Ministry of Ecology and Natural Resources and*

Shmalhausen Institute of Zoology in Ukraine. These institutions are responsible for sharing information with IUCN Red List."

In recent years electronic databases are gaining popularity as fast, easy accessible tool of biodiversity assessment and monitoring. Some data from the project by Iryna Yatsuk (voucher herbariium specimens) are already published in PlutoF database and transferred to GBIF. Yehor Yatsuk "Old-growth forests in Eastern Ukraine: searching for indicator species and perspectives of conservation" - "*Information about all locations of protected animal species earlier was transferred to forest taxation organisation with recommendations to restrict forestry activities there*"

Results of monitoring and population assessment of steppe vipers by Andrii Tupikov ("Prevention of Direct Extermination and Protection of the Steppe Viper in the North-Eastern Ukraine.") were included in two open databases - UkrBIN and Na2re Atlas of amphibians and reptiles of Europe. Anna Kuzemko participated in international database GrassPlot with many entries from the territory of Ukraine. This approach shorters the distance between field data and decisions about the conservation status of area, provides evidence-based estimation of species and communities status etc.

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3. Recommendations

The meeting has two round table discussions on first and third day. In the presentations of invited speakers Nina Polchaninova and Oleksii Vasyliuk on the first day the perspective was given on what to be done in Ukraine in the field of nature conservation and biodiversity monitoring. Oleksii on the meeting represented initiative group of conservationists. He works both in Academy of Science, in close collaboration with authorities (Ministry of Enviroment) and is the member of NGO and active group of conservation activists.

Following discussion was inspired by the presentations and highlighted need of more extensive in terms of geographic and habitat coverage assessment of territories, which could be protected in a future. Ukraine is on the way to adopt European level of percent of protected nature landscapes and according to the international

treaties to increase the area of protected territories. In the same time there is no or few information about valuable territories and RSGF projects plays significant role in search for them. Given the view of what is important for nature conservation in Ukraine, Oleksii also suggested that more useful would be to have "separate calls for funding of specific topics" to inspire some particular projects, like evaluation of future protected areas, surveys of different type of management etc.

From a point of view of authors of this report, we should say, that however we absolutely agree with this statements, this is not usual for international conservation fund to support such activities. Some of meeting participants also support this view "*It must be state program supporting rare species research in Ukraine*" - Mykhailo Banik. "*It would be logical, that state should supported biodiversity research in Ukraine.... One of the negative factors is on a top to the lack of complex state-funded projects is the absence of long-lasting monitoring programs or other types of long lasting research*" - Andrii Tariev. In the same time, common aim which would unify and potentiate individual projects in Ukraine could be development of Emerald network. "*Such topics will cover many of issues highlighted here - this are creation of management plan, inventorization of fauna, legislation... The territory of Ukraine is highly understudied. Let's choos for our projects species, which are in habitat directive of EU, Bern convention lists*." - Anna Kuzemko.

Downside of this strategy is low effectiveness of state nature protection areas, absence of fulfilment of directions and regulations. "*Everything depends on local authorities, National Park or Nature Reserve head*" - Gennady Goncharov.

Participants also agreed about the strong need of networking and collaboration. Some of the grantees already knew and work with each other, however this collaboration is often happen within one field of biology (botany, ornithology, entomology). Interdisciplinary collaboration is rare and one of the most important outcomes of this meeting was establishing connection between specialists from different branches of biology, but all involved in conservation activities.

Final discussion continued at the third day of meeting. Participants generally agreed about need to coordinate efforts in searching and evaluating habitats for future protection. Both international databases (PlutoF, GBIF, GrassPlot) with high requirements to input data and citizen science projects (UkrBIN, BirdID) are of a great importance to evidence based conservation strategies in condition of low state funding in Ukraine. Open access to distribution data possess possible danger to rare and valuable species, however seems not having any alternative.

All participants highlighted strong need in education of future generations to fill the gaps between scientists and local communities and authorities and to form new generations of conservation leaders. "*Not sufficient funding is the issue after the comma, there is issue of lack of people who would be interested in carrying out such studies*" - Oleskii Vasyliuk. That's why educational activities and publicity should stay essential part of every conservation project. "*Many of the Rufford foundation activities are working on a long run perspective, on future generation perception of nature*" - Mykhailo Banik.

4. List of Participants in alphabet order, with affiliations and names of RSGF projects

Abduloieva Oksana
Taras Shevchenko National University of Kyiv, Department of Ecology and Zoology; part-time - national nature park "Pyriatynskyi"

1. Preservation Of Floodplain Landscapes Within The National Nature Park 'Pyryatynsky', Dnipro River Basin, Ukraine

2. Implementation of the measures to restore and manage natural habitats in the national nature park "Pyriatynskyi" (Central Ukraine)

Atemasova Tetyana
V. N. Karazin Kharkiv National University (Kharkiv, Ukraine)
Ark for White Stork 2007 (reconstruction of White Stork nests in Kharkov region, Ukraine).

Balashov Igor
I.I. Schmalhausen Institute of Zoology NAS Ukraine
Conservation of Terrestrial Molluscs in Ukraine
Conservation of Terrestrial Molluscs in Ukrainian Dry Grasslands

Banik Mykhailo
Dvorichanskyi' national nature park
DAPHNE'04, an initiation of conservation action for two endangered plant species of Ukrainian chalk outcrops

Bengil Elizabeth Grace Tunka
Girne American University, Marine School, TRNC via Turkey
Is opportunistic sampling enough? Shark and ray population genetics and bioecology in Eastern Mediterranean, Turkey

Bengil Fethi
Girne American University
The Forgotten Species: Marine Mammals in the Turkish Aegean Sea

Bezsmertna Olesia
Taras Shevchenko Kyiv National University, Kivertsy National Nature Park "Tsumanska Puscha"
Conservation of rare aquatic ferns' natural habitats in Ukraine

Cherepanyn Roman Myronovych
Vasyl Stefanyk Precarpathian National University, Department of biology and ecology.
Status and Structure of Populations of Rare Arctic-Alpine Plant Species in Highland Ecosystems of Ukrainian Carpathians

Honcharov Hennadii
Department of Zoology and Animal Ecology, V.N. Karazin Kharkiv National University
Proposition and promotion of wildlife-conservation techniques of census and observation for the research on water inhabitants of National Park

Ivanets Viktoria
National Antarctic Scientific Centre of Ukraine, blv. Taras Shevchenko 16, 01601 Kiev
Study of the rare plants and habitats distribution in the Desnyansky Biosphere Reserve and conducting environmental education measures on its territory.

Kuzemko Anna
M.G. Kholodny Institute of Botany NAS of Ukraine
Conservation of Meadow Ecosystems of the Central Part of Ukraine as Habitats of the Rare and Endangered Plant Species

Novikov Andriy
State Natural History Museum NAS of Ukraine, Lviv

1. Monkshoods in Chornogora Mts. (Ukrainian Carpathians): what, why and how we should protect?
2. Monkshoods in Gorgany Mts. (Ukrainian Carpathians): Biogeographical and conservation approach

Prylutska Alona
Bat Rehabilitation Center of Feldman Ecopark
Shared House: development of long-lasting conservation strategy of urban bat habitats in developing countries of the Eastern Europe

Slobodian Olena
Gorgany Nature Reserve, Carpathian National Nature Park
Diversity and conservation of ground insects in the Gorgany range (Ukrainian Carpathian Mountains).
Distribution and habitat assessment of ground beetles in the Ukrainian Carpathian Mountains.

Tarieiev Andrii
Ukrainian Botanical Society, Georg-August-Universität Göttingen (until the end of March 2018)
Conservation of Endemic and Relict Species Betula klokovii Zaverucha on the Territory of Ukraine

Tupikov Andrii
Dvorichanskyi' national nature park
Current situation with locally endangered steppe viper in N-E Ukraine

Varga Oleksandr
Shmalhausen Insitute of Zoology, NAS of Ukraine, Kyiv
Diversity and Conservation of Ichneumon-Wasps Communities as Indicators of the Condition of the Natural Carpathian Forest Ecosystems, Ukraine
The Transcarpathian Natural Forest Ecosystems: Ichneumonid Parasitoids Diversity and Conservation Status

Vasheniak Iuliia
Ukrainian National Conservation Group
Rare Species and Habitats Conservation Occurred in the Limestone Outcrops of Dnister Canyon

Vergeles Yuriy
Department of Urban Environmental Engineering & Management, O.M. Beketov National University of Urban Economy in Kharkiv, vul. Marshala Bazhanova 17, Kharkiv, Ukraine 61002
Endangered White-headed Duck (*Oxyura leucocephala*) in the Crimea, Ukraine: protection for neglected part of migration route (RSG 12278-1)

Yatsiuk Iryna Ihorivna
VN Karazin Kharkiv National University, Department of Mycology and Plant Resistance
Conservation of Rare Fungus *Pleurotus calyptratus* in Aspen Stands of Ukrainian Forest-Steppe

Zamoroka Andrii
Halych National Nature Park
Estimation of Soil Coleoptera Extinction Rate in Steppe Remnants of Burshtyn Opillya and Implications for Their Restoration and Conservation

Zinenko Oleksandr
VN Karazin Kharkiv National University
Current situation with locally endangered steppe viper in N-E Ukraine

Invited talks:

Vasyliuk Oleksii
I. Shmalgauzen Institute of Zoology, Kyiv
Blank spots in nature conservation of Ukraine: the way future scientific achievments will help to save biodiversity

Borysenko Kateryna
«Emerald–Natura 2000 in Ukraine»
Why you need to join the development of the Emerald network in Ukraine

Kuzyo Hanna (also translator at the meeting)
West-Ukrainian Ornithological Society, Lviv
BirdID project in Ukraine – possibility to involve amateurs in ornithology and nature conservation

Polchaninova N. Yu.
V. N. Karazin Kharkiv National University (Kharkiv, Ukraine)
Spiders as indicators of conservation management in protected steppe areas

Zinenko Oleksandr (member of organizing team, second presentation in addition to RSGF project with Andrii Tupikov)
V. N. Karazin Kharkiv National University (Kharkiv, Ukraine)
National Network on Biodiversity UkrBIN

Registered participants not former grantees
The conference was open to participate to everybody and registration was not obligatory. There was no attendance fee or any funencial support for such participants. Students, professors and members of NGO and representatives of state

departments of ecology and national nature parks also attended the meeting, few of them had passed registration (see below)

Brusentsova Natalia
Slobozhansky National Nature Park

Sira Olha
PhD student, Botany department
V. N. Karazin Kharkiv National University

Kletionkin Volodymyr
Dvorichanskyi' national nature park

Bronskova Olena
"Meotida" National Nature Park

Timoshenkov Volodymyr
"Gomilshansky Lisy" National Nature Park

Fedorova Anna
PhD student, Zoology and animal ecology department
V. N. Karazin Kharkiv National University (Kharkiv, Ukraine)

Prylutsky Oleg
V. N. Karazin Kharkiv National University (Kharkiv, Ukraine)

Eleven former grantees of RSGF had registered and sent abstracts, but were not able to come due to different reasons. Their abstracts remained in the abstracts book.

Programme of Ukrainian Rufford Small Grants conference
"From monitoring to implementation"

Програма конференції отримувачів грантів від фонду Rufford
"Від моніторингу до впроваджень"

23th of April (Monday) / 23 квітня (понеділок)

10.00	Settling in to the Kharkiv hotel, 7, Svobody sq. Поселення у готелі Харків, майд. Свободи, 7 _____ Registration at Kharkiv National University, 4, Svobody sq. Реєстрація у Харківському національному університеті, майдан Свободи, 4
11.00	Greetings from hosts and orginizers Вітання від організаторів конференції
11.30-12.30	Invited talk Запрошена доповідь _____ *Polchaninova N. Yu.* Spiders as indicators of conservation management in protected steppe areas
	Presentations *Доповіді*
12.30	*Mykhailo Banik* Daphne sophia Kalen., a candidate flagship species for the protection of chalk landscapes in Ukraine
12.45	*Igor Balashov* Conservation of terrestrial molluscs in Ukraine
13.00-14.00	*Lunch* *Обід*
14.00	*Anna Kuzemko* Present State of mesic grasslands conservation in the Forest and Forest-Steppe zones of Ukraine
14.15	*Iuliia Vasheniak* Rare limestone outcrops habitats listed in Bern Convention in Dniester Canyon

14.30	*Olesya Bezsmertna* Rare aquatic ferns in Ukraine
14.45	*Andriy Novikov* Genus Aconitum in Ukrainian Carpathians: what is done and what is not
15.00-15-30	*Coffee break* *Кава-брейк*
15.30	*Andrii Zamoroka* The perspective plan for the steppe remnants conservation on Burshtyn Opillya
15.45	*Alona Prylutska* Shared house: Bat-Human interactions in Kharkiv city and bat conservation
16.00	*Roman Cherepanyn* Rare arctic-alpine plant species in the highland ecosystems of the Ukrainian Carpathians: population diversity, chorology and conservation
16.15	*Tetyana Atemasova* Establishing and reconstruction of White Stork artificial nests in Kharkov region, Ukraine
16.30	*Olena Slobodian* Diversity and conservation of ground insects in the Gorgany range (Ukrainian Carpathian Mountains)
16.45	*Oleksij Vasyliuk* Blank spots in nature conservation of Ukraine: the way future scientific achievments will help to save biodiversity
17-00-17.30	*Coffee break* *Кава-брейк*
17-30	Round table discussion, conclusions Круглий стіл, підведення підсумків
19.00	*Dinner* *Вечеря*

24th of April (Tuesday) / 24 квітня (вівторок)

8^{00} – 19^{00}

Field trip to "Dvorichanskyi" national park

Екскурсія до НПП "Дворічанський"

Retreat
Виїзна сесія

	Presentations Доповіді
15.30	*Hanna Kuzyo* BirdID project in Ukraine - possibility to involve amateurs in ornithology and nature conservation
16.00	*Kateryna Borysenko* Why you need to join the development of the Emerald network in Ukraine
16.15	*Oleksandr Zinenko* National Network on Biodiversity UkrBIN

25th of April (Wednesday) / 25 квітня (середа)

	Presentations Доповіді
10.00	*Oleksandr Varga* Ichneumonids (Hymenoptera, Ichneumonidae) in the Red Data Book of Ukraine: re-inventory as a first step on the way to parasitoids conservation.
10.15	*Andrii Tarieiev* Investigation and conservation of endemic species Betula klokovii Zaverucha
10.30	*Oksana Abduloieva* The results of 4-year work on the implementation of nature conservation measures in the national nature park “Pyriatynskyi”
10.45	*Oleksandr Kyseliuk* Distribution of ground beetles in the Ukrainian Carpathian Mountains
11.00-11.30	*Coffee break* *Кава-брейк*
	Presentations Доповіді
11.30	*Hennadii Honcharov* Do protected areas influence diversity and abundance of threatened fish in the Siverskyi Donets River?

11.45	*Elizabeth Grace Tunka Bengil* Is opportunistic sampling methodology effective enough to collect biological information on elasmobranch species: A case study from eastern Mediterranean
12.00	*Yuriy Vergeles* The problem of conservation of the endangered White-headed Duck (Oxyura leucocephala) in Ukraine: what is already known and where to go further?
12.15	*Fethi Bengil* Importance of Izmir Bay for Conservation of Cetacean Species
13.00-14.00	*Lunch* *Обід*
	Presentations Доповіді
14.00	*Andrii Tupikov* Conservation of steppe viper in Eastern Ukraine
14.15	*Viktoria Ivanets* Study of the rare plants and habitats distribution in the Desnyansky Biosphere Reserve and conducting environmental education measures on its territory.
14.30	*Iryna Yatsiuk* Why aspen stands are important for conservation of fungi?
14.45	*Mikhail Rusin* Status of rare small mammals of steppes in Ukraine
15.00	*Lena Godlevska* Bats of natural protected territories of Northern and Central Ukraine
15.15-15.45	*Coffee break* *Кава-брейк*
15-45	Round table discussion, conclusions Круглий стіл, підведення підсумків

ABSTRACTS

Daphne sophia Kalen., a candidate flagship species for the protection of chalk landscapes in Ukraine

Mykhailo Banik
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Daphne sophia is a deciduous shrub listed as endangered in IUCN Red list (Melnyk 2011), the only representative of the genus with such an unfavourable status. It is a narrow-range endemic of the Middle Russian Plain in chalk landscape area of Don river basin in Ukraine and Russia. *Daphne sophia* suffered greatly from forest cuttings and to the mid XX century disappeared at 8 of 14 sites where it was found in early 1900s (Smolko 1967). Our team had initiated a first wide-range survey of *Daphne sophia* in Ukraine after one done by S.S. Smolko in 1965-66 years (Smolko 1967). This was accomplished in 2004 year with the support of Rufford Small Grants Foundation (Daphne'04 project report 2006). What we had intended to do was to inspect all known localities and to search for new sites. The task wasn't easy as exemplified by our failure to find *Daphne sophia* within the scope of Chagra'2000 project (Chagra'2000 project report 2001). We succeeded in 2004 year due to the appreciation for the knowledge of the species habitat requirements when planning the searches. Here the key appeared to be a paper on *Daphne sophia* by Valeriy Taliev, a pioneer of the studies of chalk plants (Taliev 1911). It not only contains the full listing of all the sites where the species was present by the end of XIX century but is very instructive for mentioning the key landscape features of these localities.

Daphne sophia grows on rather steep slopes and occurs mainly at the edges of natural forest fragments in upper and mid parts of the slopes. Another clue was to narrow the search window to the period of *Daphne sophia* blossoming. 2 populations were rediscovered and 2 more were discovered for the first time, all in Kharkiv region, North-eastern Ukraine (Daphne'04 project report 2006; Banik et al. 2007). The survey showed that the size of each population and the area occupied is very small thus all are highly vulnerable to any disturbance and that the species disappeared at 2 previously known localities due to pine planting and accompanying slope terracing in 1960-1980s. The results of Daphne'04 project were highly influential for launching a thorough population assessment in 2006-2007 years (Rasevich 2008) and compiling the accounts on the species for the Red Data Book of Ukraine (Melnyk, Rasevich, 2009) and IUCN Red list (Melnyk 2011). *Daphne sophia* is unique because of rarity and strong relation to chalk landscape. The latter hosts a bunch of other endemic plant species and comprises the core of the only virgin landscape domain in river valleys of North-eastern Ukraine. *Daphne sophia* is a charismatic species whose irresistible appeal, enigmatic natural history and intriguing story of discovery makes it a great flagship candidate for symbolising the efforts to protect chalk landscape per se.

***Key words*: *Daphne sophia*, flagship species, protection of chalk landscape, North-eastern Ukraine.**

Conservation of terrestrial molluscs in Ukraine

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Terrestrial molluscs are known to be one of the most threatened groups of organisms following vertebrates. More than third part of all known species extinctions are of this animals. Number of the extinct and possibly extinct terrestrial molluscs species is recently estimated to be 803 (Cowie et al., 2017). But in Ukraine no proper attention was given to conservation of these organisms. The first detailed review on this theme is my recently published book "Conservation of terrestrial molluscs in Ukraine" (Balashov, 2016).

During execution of the two projects funded by the Rufford Foundation I have collected valuable field data on the state of populations of numerous species of terrestrial molluscs in Ukraine, most importantly on the globally VU *Vertigo moulinsiana* (Balashov, 2016; Balashov et al., 2017) and on the several relic steppe inhabitants (Balashov et al., 2018a, b, data in print).

In the mentioned book (Balashov, 2016) all data on the conservation of terrestrial molluscs in Ukraine was generalized and much renewed. Threats to these animals in Ukraine were reviewed and analyzed. For all 204 species known from Ukraine the conservation statuses were estimated according to criterions both of IUCN and Red Book of Ukraine, not only on the national level, but also for each of its 27 administrative parts. For the 3 species conservation status in Ukraine considered to be CR, for the 7 species – EN, for the 16 species – VU, for the 19 species – NT. Most numerous groups among listed molluscs are (1) species of the open dry habitats, (2) inhabitants of the dead wood and old trees and (3) species living along the mountain streams. It reflects main threats to the terrestrial molluscs of Ukraine. From these 45 species only 13 are protected by the Red Book of Ukraine. It is proposed to include also 32 into its next edition. For the 26 species category DD was adjusted.

Several Crimean endemic snail species were estimated to be threatened or NT on the global level. Changes to their conservation statuses were implemented into the IUCN Red List (not in online version yet, but was accepted).

As a result of my work on the two discussed projects I was invited into the Molluscs Specialist Group of IUCN Species Survival Commission and since 2017 officially involved in the work both on the IUCN Red List and on the Red Book of Ukraine.

***Key words*:** Gastropoda, land snails, red lists, IUCN.

Present State of mesic grasslands conservation in the Forest and Forest-Steppe zones of Ukraine

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Unlike zonal forest and steppe vegetation, mesic grasslands protection has not received adequate attention for a long time. The reason for this is their secondary nature, the almost complete absence of endemic and relic species, as well as

intensive economic use. Such a condition was reflected also in the low representation of mesic grassland syntaxa in the Green Book of Ukraine, which is the main document regulating protection of biodiversity on supraorganismal level in Ukraine. Thus, the current edition of the Green Book of Ukraine (2009) includes only 6 syntaxa, all of them representing hight-altitude vegetation of the Carpathians. At the same time, mesic grasslands of the forest and forest-steppe zones of Ukraine are habitats for more than 50 plant species protected at national and international levels.

At the beginning of 2018, more than 60 protected areas of the highest-rank (1 biosphere reserve, 8 nature reserves, 25 national nature parks and 28 regional landscape parks) are created in forest and forest-steppe zones of Ukraine. Mesic grasslands are presented in most of them. However, without appropriate management, they undergo transformation due to reservo-genic succession and quickly lose their value. Scientifically grounded regulatory measures, first of all, grazing and hay making, allow to avoid these processes. Unfortunately, the lack of necessary resources (financial, technical and staffing), as well as some unjustified prohibitions in the Law of Ukraine "On the Nature Reserve Fund", significantly complicate the application of proper management. At the same time, European nature conservation legislation pays great attention to this type of habitat, which is a known hotspot of biodiversity in Europe. Mesic grasslands are protected by the Council Directive 92/43/EEC (Habitat Directive) since they are listed in the Annex I of this directive as habitat type 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis), as well as they are protected by Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) since they are listed in the Resolution 4 of this convention as habitat type E2.2 Low and medium altitude hay meadows. Both of these international instruments form the basis of European nature conservation networks Natura 2000 and Emerald.

In Ukraine, the process of the Emerald network development began about 10 years ago, but it became much more active after the signing of the Association Agreement between Ukraine and the EU, which provides the implementation of the EU environmental directives in Ukraine. At the end of 2016, 271 Emerald sites were approved in Ukraine. Proposals for the inclusion of 95 new sites to the Emerald network were additionally submitted to the Committee of the Berne Convention in 2018 on the initiative of environmental community. The next steps will be the preparation and approval of management plans for these sites, which should include hay mowing in a timely manner and with appropriate frequency, as well as moderate fertilization and grazing. This approach under current conditions is the most effective measure that can provide mesic grasslands with proper protection and prevent their further degradation.

***Key words*:** Bern Convention, Emerald Network, Habitat Directive, management, meadows, Natura 2000.

Rare limestone outcrops habitats of the dniester canyon listed in bern convention

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We have focused our attention on dry grasslands of limestone outcrops in the

Dniester Canyon as the habitats of endemic and rare plants. This interest is intensified by the fact that the Dniester River flows through the territory with its numerous tributaries along the rapid canyon-like high banks. These are composed of carbonates of different structures from dense Silurian and Devonian, loose Cenomanian chalk to crystalline Miocene gypsum and porous neogene limestones. A number of southern species and accordingly, communities are moved to the north (*Caragana frutex*, *Prunus tenella*, *Ephedra distachya*, *Thymus moldavicus*, *Centaurea orientalis*, *Xeranthemum annuum*), and the western (*Carex humilis*, *Sesleria heuflerana*) to the south-east. Here a number of species are found, which populations are isolated from the main range: *Allium obliquum*, *A. strictum*, *Astragalus monspessulanus*. Endemic species growing in these conditions, are *Poa versicolor*, *Allium podolicum*, *Thymus moldavicus, Draba podolica*.

The rare limestone outcrops habitats listed in Bern Convention present in the Dniester Canyon are following:

- C2.12 Hard water springs.
- E1.11 Euro-Siberian rock debris swards;
- E1.2 Perennial calcareous grassland and basic steppes;
- H3.511 Limestone pavements.

We have classified limestone outcrops vegetation and came to a conclusion that E1.11 habitat is represented by the *Alysso-Sedetalia* order (*Asplenio ruta-murariae-Allietum flavescentis*, *Alysso-Sedetum, Bryo argentei-Ajugetum chiae* associations); E1.2 is represented by the *Stipo pulcherrimae-Festucetalia pallentis* order (*Schivereckio podolicae-Seslerietum heufleranae*, *Sempervivo ruthenici-Poetum versicoloris*, *Aurinio saxatilis-Allietum podolici*, *Thymo moldavici-Seselietum hippomarathri*, *Teucrio pannonici-Caricetum humilis*, *Cephalario uralensis-Agropyretum cristati* associations), and by the *Brachypodietalia pinnati* order (*Orchido militaris-Seslerietum heuflerianae* association). C2.12 is characterized by the *Montio-Cardaminetalia* order (*Cratoneuretum filicino-commutatae* association), the *Stigeochloetalia tenuis* order *(Cladophoretum glomeratae* association), the *Gloeocapsetalia sanguineae (Gloeocapsion sanguineae* alliance). H3.511 is not represented by any syntaxon of vegetation but we indicated it in our scheme as rare habitat of the Dniester Canyon.

On the basis of our investigations we proposed to create Emerald sites in the Dniester Canyon. They are “Horodotska Stinka”, “Dnistrovskyi”, “Ushytskyi”, “Seret River valley” listed in the shadow list of the alternative Emerald sites in Ukraine. The proposals to include them into the Emerald net of Ukraine as a part of NATURA 2000 in the future, have been sent to the Bern Convention Committee and the Ministry of Ecology and Natural Resources.

Rare aquatic ferns in Ukraine

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There are five species of aquatic ferns in Ukraine and three of them are rare:

Marsilea quadrifolia L., *Calamistrum globuliferum* (L.) Kuntze (syn. *Pilularia globulifera* L.) and *Salvinia natans* (L.) All. These plants are protected not only on the territory of our country, but on the European and the world level too.

On the basis of field investigation, conducted in the framework of the project "Conservation of rare aquatic ferns' natural habitats in Ukraine", supported by The Rufford Small Grants Foundation, literature data and herbarium specimen's analysis, we have investigated the rare aquatic ferns' distribution on the territory of Ukraine and condition of their populations.

The first report of *C. globuliferum* in Ukraine was in 1835 (Zawadzki, 1835). This species was reliably known only from the Odessa region (Dubyna, Protopopova, 1981). We have inspected this habitat and haven't found *C. globuliferum* there. Also this species hasn't been found in other investigated localities, therefore it can be considered as extinct in Ukraine.

Salvinia natans is widespread species in Ukraine. The large number of its localities are in the basins of Dnipro, Pivdennyi Bug and Siverskiy Donets and other large rivers. We have discovered the series of new localities in some regions of Ukraine, where earlier *S. natans* has been unknown. Consequently, we can prove that this species occurs in all administrative regions of Ukraine. Almost all of the inspected populations of *S. natans* are stable. Also we have noticed the tendency to increasing of *S. natans'* populations numbers because of its migration from riversides to artificial ponds. There is no critical threat to this species now, but monitoring of its populations is necessary.

During our investigation we have collected information about 35 localities of *M quadrifolia* from 9 regions of Ukraine. After our revision of these localities we found out that there are only 8 confirmed localities, two of which are new and have been found by us in Transcarpathia and Kyiv regions. In 27 other localities this species appeared to be absent. *Marsilea quadrifolia* is stenotopic species and the greatest threats to its populations are poor management and violations of the hydrological regime due to land reclamation works. This species is preserved only in the bayous of Latorytsia river and meliorative canals in Transcarpathia region, also in Kozynka river (Kyiv region) (Bezsmertna et al., 2015). Now 4 populations are threatened because the reservoirs get dry and only in 2 localities *M. quadrifolia* forms thickets and its populations are in good condition. In order to prevent further extinction of *M. quadrifolia* localities in Ukraine the development of protected, areas where the species habitats exist, is required.

***Key words*:** distribution, populations, *Marsilea quadrifolia*, *Calamistrum globuliferum*, *Salvinia natans*.

Genus *Aconitum* in Ukrainian Carpathians: what is done and what is not

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The genus *Aconitum* (Ranunculaceae) is a problematic taxonomical group characterized by high level of morphological diversity, and a number of interspecific and infraspecific natural hybrids. Therefore, the genus *Aconitum* was not critically

investigated in Ukrainian Carpathians for a long time, and as a result only two aggregated taxa (*A. anthora* and *A. lasiocarpum*) from this region were included in the Red Data Book of Ukraine in 2009. *A. lasiocarpum* was included in the IUCN Red List of Threatened Plants dated 1997 as a vulnerable taxon, however due to lack of knowledge and taxonomical difficulties it was excluded from the recent edition of the List.

Nevertheless, one of the main centers of evolution and endemism of this genus in Europe, important not only for conservation of these plants, but also for understanding of biogeoraphic limits and their evolution, is located in the Carpathian Mountains. As my previous investigations showed, the most important center of diversity of monkshoods in Ukrainian Carpathians, which includes 18 from total 20 Aconitum taxa of Ukrainian Carpathians, is located in Chornogora Mts. There are 11 endemic taxa and 7 taxa are threatened. Still, the main problem is that there are 5 other taxa which were categorized as DD because of lack of information about their distribution, abundance, and condition of populations. Consequently, the main aim of my work was to clarify data about these 5 DD taxa and to verify such information on other *Aconitum* threatened taxa in Ukrainian Carpathians. The other challenging purpose was to find in the wild a controversial species *A. variegatum*, which is often but, perhaps, mistakenly, cited for this region.

During the last decade I have organized field expeditions to different regions of Ukrainian Carpathians and collected raw data about distribution, condition of populations, and ecological preferences of aconites. These studies allowed me to clarify the threat status for the most of taxa, to establish monitoring on their localities and to develop recommendations on their protection. However, there is still a lot of work targeted on long-term conservation of the genus, involving local communities and sharing the information among the people. Other difficulty is related with reaching of some far regions of Carpathians near the border of Ukraine, where natural or artificial refugia could exist.

Key words**:** *Aconitum*, *Ranunculaceae*, Ukrainian Carpathians, distribution, conservation.

Steppe conservation on Burshtyn Opillya

Andrew M. Zamoroka
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Burshtyn Opillya is a part of the westernmost boundary of the Eastern European Forest Steppe sub-biome. It occupies territory of low basin of Hnyla Lypa River with total area around 780 km2. This area is spatially heterogeneous including the patches of the closed forests and the opened grass habitats. The most peculiar feature of Burshtyn Opillya is distribution of the relict xerothermophilic steppe remnants, which have preserved after global climate changes and forests expansion in subboreal time (5.6-2.5 ka). In historical retrospective, natural mosaics of the landscape have been maintained by annually migrating of large herds of ungulates. However, after human had colonized the territory and introduced the animal husbandry practices and the agricultural practices here the natural ecosystem of Burshtyn Opillya was dramatically transformed what caused local megafauna extinction. Thus, human took over the further maintaining of the forest and steppe spatial composition exploiting steppes as pastures, haymaking and

arable areas. At the present, the area of Burshtyn Opillya is completely transformed by human activities. Around 75% of the region area are farmlands and settlements, the rest 25% of the territory consists of seminatural habitats, for instance, forests occupy 16% of the area, water surface – 7%, 1.4% – floodplain meadows and bogs, and finally, steppes cover only 0.6% of the area.

The steppes remnants are isolated and dispersed within Burshtyn Opillya. The maximum distance between the most remote patches is 50 km. Thus, integrating them into one functional network is not possible at the present. However, except several the most isolated steppe remnants, I found that the other steppe remnants grouped into 7 clusters. The distance between steppe remnants within clusters is significantly smaller than distance to neighbor cluster. And there is possible to construct the intracluster migration corridors for connecting the separated steppe remnants each other.

The main problems for construction of the migration corridors are the quality of corridors ecosystems, artificial forests with nonindigenous species and acceptable types of the ecosystems management within the corridors. Firstly, the ecosystems proposed for corridors were transformed by the overgrazing in the past. And currently they are under different stages of the vegetation succession, including shrub expansion. Secondly, during 1970s steppes were afforested by nonindigenous trees species. Thirdly, it should be established the moderate regime of exploiting of ecosystems in the corridors including many of the traditional practices. These include hay harvesting, facultative weak grazing practice, removing of the shrubs and forest plantations with nonindigenous trees, prescribed burning of dry vegetation.

The critically important feature of the migration corridors is their functionality, i.e. maintance of the gene flow for species with different abilities to migrations, diaspores dispersing, colonizing and recolonizing of the steppe remnants. In practice, the gene flow could be revealed by using the methods of the landscape genomics. Certain genetic markers allow to reveal not only gene flow but also the time of isolation of certain population in the steppe remnant. The steppe remnants connected by the most functional corridors will have the highest conservation priority. This will improve the effectiveness of conservation of the steppes on Burshtyn Opillya.

***Key words*:** steppes, management, connectivity, ecocoridors.

Shared house: Bat – Human interactions in Kharkiv city and bat conservation

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City and its buildings are shared houses both for humans and bats. Up to 20 years, bat population monitoring in Kharkiv city shows that the most bat roosts in buildings appeared because of deviations from building codes. Obviously, proper construction methods negate appearance of cracks, cavities and holes. But these mistakes of builders create over time the roosts for the hundreds of thousands of bats. Our long-termed observations suggest that eventually, for some reasons, such defects of construction will be corrected and bats will lose their roosts.

The Bat Rehabilitation Center (BRC) is the special project of private Zoo - Feldman Ecopark, founded in 2013. Annually, BRC rescues from 900 up to 3000 bats from Kharkiv and other settlements in Ukraine. Main objectives of BRC are bat rescue and rehabilitation, education of people about bats and their ecosystem role and scientific research. Most of the bats were found in anthropogenic traps or on the ground found by citizens. From 1 to 7 times per year numerous bat colonies were found during repair works (windows, balconies) in building in the winter time.

All found bats were identified to species level. Sex, age, and reproductive status were evaluated. Exact information about the type of location, in which a bat was found, was recorded in databases. In cold season of a year, bats were kept in hibernation in refrigerators. All bats were banded with special bat ring with an individual number. Bats were kept in BRC in winter time until spring and released at annual Bat Release Fest in Feldman Ecopark.

The BRC plays a significant eco-educational role. All year round BRC conducts lectures, volunteer actions, bat release fest, exhibitions for citizens to promote bat-friendly attitude to bats because the survival of bats depends on people.

From 2012 to 2018 more than 10 000 individuals (alive, injuries and carcasses) of 9 bat species were rescued and received from 60 cities and villages of Ukraine. Fifteen percent of bats were dead (anthropogenic traps, captured by cats and birds, etc.). One percent of bats had fractures, 4% had other injuries or diseases. Most bats (90%) were found in buildings, and (88%) were collected during the hibernation period (January–March and November–December) and the autumn invasion (August–mid-September). We identified and monitored several places (buildings), where bats hibernate each year and bat-human interactions took place continuously (Derzprom building, Kharkiv city centre).

Simultaneously with the collection of bats in the city, we consult people about findings of bats in other cities via the website of our Center http://www.bat-kharkov.in.ua/en/ or by phone or email.

Bat conservation in cities depends on several directions: work with Ukrainian authorities in order to reach well-managed formality of legal protection of bat-roosts in buildings in Ukraine; increasing scale of BRC work in Kharkiv; creation and support of network of bat rehabilitation centers in other cities of Ukraine; implementation of bat-artificial-roosts (constructed by BRC) as alternative for bats living in buildings.

***Key words*:** bats, rehabilitation, education, conservation.

Rare arctic-alpine plant species in the highland ecosystems of the Ukrainian Carpathians: population diversity, chorology and conservation

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Transformation of natural conditions due to climate change and anthropogenic impact in the Ukrainian Carpathians leads to habitat area reduction and changes in functional organization of many plant species. Most of them are rare, endemics or

geographically peripheral. These species are represented mainly by isolated populations that differ in their genetic and ecological structure, and are confined to certain types of habitats, which are separated by geographic and biological barriers. Arctic-alpine plants that can serve as model organisms and play an important indicative role in determining the state of alpine and subalpine ecosystems are of particular value for understanding the effects of rapid human-induced and climate changes on habitats of rare species populations, since they are the first to react to critical external and internal factors.

These species play an important role in the ecosystems of Arctic and sub-Arctic regions and in the mountains of the Northern Hemisphere. Most of the rare arctic-alpine plant species are confined to the high-mountain part of the Ukrainian Carpathians, which is represented by the upper limit of the forest, subalpine and alpine belts, and begins on average from an altitude of 1800 m above the sea level. There are 67 arctic-alpine species in the Ukrainian Carpathians or 7.4% of the highlands flora. High-altitude forms of relief are characterized by sharp mountain ridges, glacial cirques and rocky ranges. Chornohora, Svydovets, Marmarosh and Chyvchyny massives are the main high-altitude areas in the Ukrainian Carpathians. Such habitats are most favorable for the existence of populations of arctic-alpine species, a large part of which are rare. So it is important to analyze and monitor the structure and condition of their populations under the influence of natural and anthropogenic impact to conserve them.

We defined and classified types of habitats, where populations of these species exist, determined geographic coordinates using GPS navigators. We also studied the characteristic of abiotic conditions of the habitats and defined the conservation status of populations of rare arctic-alpine species. To achieve such goals we investigated the following population parameters: the age phases in individual's ontogenesis; the age structure and spatial distribution of populations; factors that stimulate or suppress reproduction in populations and their viability; inter- and intrapopulation variability. We researched threats for populations, how the amount and distribution of populations vary under the influences of nature conditions, climate change, trampling and recreation in the highlands.

The results of the project can lay the basis for developing protection measures and monitoring populations of rare species in National Parks and Biosphere Reserves. The information about population status can be used during the development of regional Red Lists. Project results are used for teaching the courses of ecology, biodiversity conservation, and population ecology in Vasyl Stefanyk Precarpathian National University. Popular scientific book about the rare arctic-alpine species and alpine ecosystems transformation in response to changeable environmental conditions was distributed to universities, research institutions, libraries, non-governmental organizations, media and ecological centres.

***Key words*:** habitats, environmental changes, populations, highland ecosystems, Ukrainian Carpathians, arctic-alpine plants, rare species.

Diversity and conservation of ground insects in the Gorgany range (Ukrainian Carpathian Mountains)

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The entomofauna of Gorgany range is of great interest and includes different ecological groups of species. Insects are one of the main groups among animals of forest ecosystems because of their diversity and dominant role in keeping ecosystem balance. Carpathian forests are exposed to anthropogenic pressure (tourism, logging). Many species of ground insects are vulnerable because of their endangered habitats. Ground insects is a poorly studied group, especially in the Gorgany range and it is highly dependent on dead wood, old-growth forests. The project is aimed at developing a species conservation action plan via assessment of diversity, ecology and threats of the ground insects.

The study extended the knowledge about local fauna, attracted attention to problem of conservation biodiversity in the Carpathian Mountains and revealed actions for governmental and regional administration via implementation of the Species Conservation Action Plan. The project covered a part of Ukrainian Carpathians and served as a base for continuing and developing activities and measures for conserving rare ground insects, which will secure long-term survival of those species.

The species-specific project objectives included:

1) Assessment of habitats, diversity, distribution range and threats of ground insects in the project area. In the project area the scientific investigation of ground insects was performed, and habitats of ground insects were monitored and assessed. The ground traps in the critical habitats were installed. Most activities have been conducted in the field to get precise picture of the distribution of rare ground insects. In the field the specimens have been collected using ground traps, which is the most efficient and unbiased method for collecting ground invertebrates. The workshop with key stakeholders was carried out to identify main threats to the rare ground insects. In the frame of this activity the discussion aimed to identifiy current and potential threats for the species was organized.

2) Development of measures intended to prepare species-specific conservation action plan for implementation by the Ministry of Ecology of Ukraine and sharing with all groups of key stakeholders. The conservation action plan was developed on the basis of threat analysis and scientific data to protect ground insects.

3) Increasing of public awareness for the conservation of rare insects through the creating awareness campaign in the Gorgany region. During these activities a lot of efforts were made to involve and train students and protected areas staff and to establish network of people involved in protection of insects. Printed educational materials included information of rare ground insects and keys for their identification in the field. All materials were given to the administration and stuff of the Gorgany Nature Reserve as well as distributed among all interested stakeholders.

Additional, but important outcome was the record of very rare ground beetle species *Carabus fabricii ucrainicus* Lazorko*, 1951* which occurs only in the Gorgany range.

I would like to thank the Rufford Foundation for the support of efforts in conserving ground insects in the Carpathian Mountains. I am grateful that the Rufford Foundation has helped to do the fieldwork on the project area.

***Key words*:** diversity, ground insects, conservation, Ukrainian Carpathians.

BirdID project in Ukraine – possibility to involve amateurs in ornithology and nature conservation

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Decisions on nature conservation needs information on species population trends. Their determining can become a big problem especially for developing countries with lack of specialists and resources. Engagement of interested amateurs can be a solution for gathering big data.

The BirdID project is an approach for involving people in a bird monitoring (Common bird monitoring scheme or CBM), conservation activities, and increasing their knowledge on bird identification by providing field trainings and online tools. The study was initiated by Nord University and was started for the first time in Norway in 2006.

The BirdID project in Ukraine is conducted by West-Ukrainian Ornithological Society (WUOS). One of the priorities of WUOS from the beginning of its creation (1984 year) was uniting professional ornithologists and amateurs.

Ukrainian BirdID project was started in 2017 in two locations - Lviv and Kamjanets-Podilskyj. In 2018 a group of students in Kyiv was added. This is very in time for Ukraine. For example CBM scheme has not been started yet and one of the reason of it is the lack of birdwatchers through the country with so big territory. In the future graduates of BirdID course can be involved in nature conservation, citizen science, monitoring or other projects.

Qualified teachers organise field trips and lectures to observe bird species in different habitats. At the same time participants of the course are taught of methods of bird census. At the end students take formal online exam of Nord University for evaluation of their skills in identifying of bird species by appearance and sounds. In 2017 48 students were trained and 36 of them passed the exams for appropriate level. At least 22 students already participate in regional monitoring schemes and 8 of them are European Breeding Bird Atlas participants. In 2018 we have 71 participants and we hope that this project will develop in Ukraine and should facilitate preparation of many new amateur ornithologists who will be able to collect high quality data for monitoring and environmental projects in the future.

***Key words*:** BirdID study, amateurs, birdwatching, ornithology, nature conservation

Ichneumonids (Hymenoptera, Ichneumonidae) in the Red Data Book of Ukraine: re-inventory as a first step on the way to parasitoids conservation

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Ichneumonidae, the largest family of the Hymenoptera having the parasitoid life style (very specialised and occupying a high trophic level) is of wide significance in forest ecosystems and is likely to be subjected to local or even global extinction. The subfamily Rhyssinae with three genera, *Rhyssa*, *Rhyssella* and *Megarhyssa*, contains the largest parasitoids of Ukraine. These wasps develop into dead trees (Varga, 2014) and thus also fall under the threat of extinction after clear-cutting. Up to date, two *Megarhyssa* species are included in the Red Data Book of Ukraine (Ermolenko, 2009; Tolkanitz, 2009a). Three species of this genus were known in Ukraine at the moment of preparation the first edition of the Red Data Book (Kasparyan, 1989): *M. perlata* (Christ, 1791), *M. vagatoria* (Fabricius, 1793) and *M. rixator* (Schellenberg, 1802), species recorded from South of the European part of the former Soviet Union (South East Ukraine). Nevertheless, V. Ermolenko placed unrecorded species, *M. superba* (Schrank, 1781), into the Red Data Book. I suppose, that the data of D. Kasparyan (1981) were misinterpreted by V. Tolkanitz and V. Ermolenko or they proposed the *Megarhyssa* species to the Red Data Book only in reliance on their own identified specimens deposited in the collection of Schmalhausen Insitute of Zoology.

This collection was revised by the author in 2017. The only one box with four specimens, marked as "Ichneumonids from the Red Data Book of Ukraine" (? main collection) was found. It contained two species, *M. superba* and *M. perlata*, identified by V. Tolkanitz, and unidentified *M. vagatoria* specimens (probably expected to be included in the next edition of the Red Data Book). Additionally, several *Megarhyssa* specimens were found in boxes containing unsorted ichneumonids. Most of specimens were misidentified. The only available *M. rixator* female specimen were misidentified as *Rhyssa persuasoria* (Linnaeus, 1758). Probably, this species was believed to be unrecorded from Ukraine by the authors of the Red Data Book. Therefore, more than the half of distributional data of the Red Data Book *Megarhyssa* species are incorrect due to misidentification.

Another ichneumonid parasitoid species, *Dolichomitus cephalotes* (Holmgren, 1860), has been included in the Red Data Book based only on one female specimen collected in Kyiv (Tolkanitz, 2009b). Nevertheless, the distribution of this species in the Red Data Book additionally includes "Western Ukraine", probably based just only on outdated Polish and Romanian articles.

All specimens in collection of Schmalhausen Institute of Zoology were identified or re-identified based on comparison with the type material (examined by the author). Additionally, the collection was replenished by numerous specimens collected during several years of field work in Carpathians, funded by the Rufford Foundation. As a result, four additional ichneumonid species, *Coleocentrus heteropus* Thomson, 1894, *Megarhyssa vagatoria*, *M. rixator*, and *Rhyssa kriechbaumeri* Ozols, 1973, were proposed to be included in the next edition of the Red Data Book of Ukraine.

***Key words*:** parasitoids, Ichneumonidae, Red Data Book of Ukraine, conservation.

4-year experience of implementing conservation measures in the national nature park "Pyriatynskyi" (Poltava region)

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Our activity in the framework of RSG continues from 2013. We constructed a digital map of river floodplain and adjacent lands in the river basin. Floodplain areas contain: 30% of non-forest wetlands, 27% of grasslands, 18% of waterlogged and alluvial forests. Data on plant communities, soils and relief are combined there. Based on this, territory was splitted into natural districts and lower units.

The map is a base for zoning and 10-year management plan for the protected area. Landscape planning made it possible to define land plots appropriate for [Quercus]-forests and to implement a plan of actions for restoration of native oak stands. Now we have the sample plot on 3 ha (type of habitat G1.A1).

We found out land units with habitats of vulnerable species associated with floodplain (13 animal species and 13 – plants), determined occurrence of *Emys orbicularis*, *Circus aeruginosus*, *Grus grus,* C*astor fiber*, *Lutra lutra*, *Mustela erminea*, *Anax imperator*, occurrence and density of *Dactylorhiza incarnata*, *D. majalis*, *Anacamptis palustris*, *Epipactis palustris*, *Gladiolus tenuis.* Collected data gave us ideas about requirements and habitats of vulnerable species, on potential plant cover, and were useful in defining the types of habitats and developing plan for mapping of habitats. Most species require "mosaic" environment, prevention of overgrowth, stable groundwater table and nutrients' content. Such conditions rely on practices of moderate grazing/ haymaking and limited mowing of reedbeds.
Our proposals contain:

1. Guidelines for winter mowing of common reed. We apply mowing on small sample plots. This made it possible to properly estimate yield and specifications (water, ash, nutrients), revealed an impact of intentional burning in wetlands on returning of nutrients into the environment of floodplains and on water quality in river. Observations on occupation of wetlands by reedbeds are supported by data on diversity of birds.

   Short version of guidelines is available for local people and provides background information for recycling of reed biomass.

2. Specific actions for biodiversity.
   We installed 170 artificial nests for bumblebees, wild wasps and bees, 3 "hotels for insects", 10 – for owls. Low diversity and very low density of populations in wild conditions and indirect human-made impact make occupation of artificial nests to be low-efficient for insects and – inefficient for owls.

   In 2 appropriate habitats we apply dissemination of seeds for vulnerable plants:
   Pulsatilla patens, Galanthus nivalis and accompanying in-early-spring-flowering species.

3. Measures to control undesirable impacts, in particular, plant invasions in natural habitats and a common practice in local communities to burn old reed and grass.

Interesting results annually achieved with participation of local schoolchildren, concern: habitats of rare insects; occurrence of fish species in the river. Local people are involved in studies on grazing/ haymaking on grasslands, they were explained advantages of given practices in environmental management.

***Key words*:** map of natural landscapes, floodplain, mapping of habitats, mowing of reedbeds, grazing, and haymaking.

Do protected areas influence diversity and abundance of threatened fish in the Siverskyi Donets River?

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There are 2 Nature Reserves (several sections), 3 National Parks and about 400 sanctuaries and other protected areas in the Ukrainian part of the Siverskyi Donets River. Despite the general terrestrial direction of conservation activities in the region, many of them have water bodies on their territory.

According to available data, 58 species of fish inhabit water bodies of the region now. Among them, one species of modern native fish fauna has an international conservation status of the "international red list" level, 23 species (40% of the total modern fish fauna number) are listed in Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats, 11 species (19 %) are included in the last edition of the Red Data Book of Ukraine, another 12 species (21%) have a regional conservation status.

But it is impossible now to conclude whether protected areas contribute to fish conservation. Web-sites of national parks and nature reserves only provide information on several fish species included in the list of fauna, at best. It is hardly possible to get their "Nature Chronicles", especially the elder ones, via Internet. Even if it is possible, chronicles may have no data on fish fauna. The reason is that studying of all groups of animals inhabiting the protected territory is not an obligation, but recommendation only.

Monitoring of fish fauna does not exist, as a phenomenon, in the fishery restricted areas, sanctuaries and local landscape parks. Census methods, counts or estimating of fish number and abundance, still are "exotic" activities in the water bodies of region.

In our opinion, the main reason of the situation, is difficulty associated with traditional, capture-based method of census. Moreover, problems arise not only from capture methodology or technology, but from legislation and governance.

We consider non-capturing, fishery independent census techniques are considered to be a possible solution. But such equipment is very expensive and inaccessible for both staff of nature protected organizations and university researchers. Nevertheless, it is important to provide status of protected areas for water bodies, where rare fish species get habitats or spawning. For instance, it is proposed to create the first Ichthyological Reserve in the Kharkiv region at the confluence of the Chepil River

and the Siverskyi Donets River.

All protected areas, sanctuaries and fishery restricted areas especially, should be examined periodically. Data on presence and abundance of key fish species should be obtained as obligatory. It is necessary to apply similar adequate methods and equipment on data obtaining at every water body. Experts or expert organizations have to verify this information. Action plan on conservation of each threatened species should be adopted, specific actions should be undertaken and results should be assessed.

Finally, we must consider the negative impact of recreational fishing on the number of fish because it is the main way of human influence.

***Key words*:** riverine fish conservation, non-capture methods, recreational fishery.

Is opportunistic sampling methodology effective enough to collect biological information on elasmobranch species: A case study from eastern Mediterranean

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There are questions going around, whether scientific sampling should be questioned, or all stopped due to status of a shark and ray species populations, and a hands-off approach should be used, on the other hand some vote lethal sampling is important for obtaining information on life history for more effective management or conservation strategies. Producing science-based biological information on endangered species is crucial for species conservation. In case of sharks and rays, this need increases since these species are the species that have are unpopular and marked as monsters by public, feared during the most part of the history. Though it is important to obtain biological information, it is also equally important to do as little damage as possible to the populations since most of elasmobranch species are in a declining trend in the world seas as well as the Mediterranean Sea. Growing concern for shark and ray populations increases the pressure not to kill these animals. This raises concerns about how research on sharks should be conducted. Regarding this, the aim of this study is to determine if opportunistic sampling methodology is enough to obtain or produce biological information on eight endangered elasmobranch species (3 sharks and 5 rays) without adding more pressure on their populations.

As part of two "The Rufford Foundation Small Grant Program" projects, individuals of *Mustelus asterias, Scyliorhinus canicula, Torpedo marmorata, Gymnura altavela, Dasyatis pastinaca, Myliobatis aquilla,* and *Raja radula* were collected from coasts of Izmir Bay to Fethiye Bay, eastern Mediterranean, between May 2015-June 2017. Individuals either were obtained frozen or fresh from fishermen, and only bycatch individuals which died due to fishing activities were collected or bought from local fish mongers. Each individual was examined and morphological measurements, stomach contents and maturity stages were recorded. Among these individuals *M. asterias* was a near-term pregnant individual carrying 4 embryos and rest were either neonates or fully mature. In conclusion, present study demonstrates that though opportunistic sampling methodology for population dynamic studies on

elasmobranch species is not enough in certain cases (such as for length and weigh relationship), it is still a useful tool to obtain biological data on species.

***Key words*:** Elasmobranch, opportunistic sampling, reproduction biology, Eastern Mediterranean

The problem of conservation of the endangered White-headed Duck (*Oxyura leucocephala*) in Ukraine: what is already known and where to go further?

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The White-headed Duck (*Oxyura leucocephala*) is a small duck highly adapted to diving and to living on lakes in arid zone. The range of the species is confined mainly to western parts of the Palearctic region. The numbers of White-headed Duck fell drastically in the XXth century probably due to the drainage of breeding habitats. Since 2000 the species has been listed as endangered by the IUCN (Symes 2017). White-headed Duck is legally protected in Ukraine under essentially the same status ('endangered'; Lysenko 2009). We have consistently collected all available information on observations of the species in Ukraine and in 2000 evidenced the first record of successful breeding of White-headed Duck in the country since late XIX century (Sasyk Lake, Crimea; Vergeles et al., 2012). In 2011 our team inspected Crimean lakes to check if some White-headed Ducks can indeed breed here (with the support from the Ukrainian Society for the Protection of Birds). The results of the survey demonstrate the possibility of non-regular reproduction of the species in Crimea and also the accidental nature of breeding of White-headed Duck in Ukraine in the past (Vergeles et al., 2012).

In 2013 we have accomplished a first comprehensive survey of the species in the Crimea supported by the Rufford Small Grants Foundation. The results were highly conclusive. We managed to demonstrate that Crimean peninsula is a neglected part of migration route of the White-headed Duck probably holding up to 5% of the global population (Banik et al. 2015; Vergeles et al. 2015). The birds consistently use Eastern Crimean lakes in autumn and spring while the numbers at Western Crimean lakes are highest in winter. The key staging sites and the terms of migration were identified. One major conclusion was that every important site in Crimea has distinct milieu and therefore should be managed in its own way. Now harsh political situation hampers normal work in the peninsula but our Crimean colleagues managed to undertake monitoring at several key sites that gives additional important information.

In 2017 we prepared a conservation action plan for the species in Ukraine that completely renews the old one (Koshelev 2000). The plan stresses the necessity to undertake a survey of coastal wetlands in Southern Ukraine with an aim to assess its importance for White-headed Duck migration, to put some efforts in clarifying the status of the species in winter, to build-up a network of observers for launching monitoring at most important sites, to prepare management plans for certain key

sites etc. We are going to publish the plan and to launch a survey of White-headed Duck in lower reaches of Danube, Dniester and Dnieper rivers in the nearest future.

***Key words*:** White-headed Duck (*Oxyura leucocephala*), Ukraine, migration, wintering, species conservation action plan.

Importance of Izmir Bay for Conservation of Cetacean Species

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A conservation oriented project started in Turkish coasts of the Aegean Sea between October 2012 and 2013 to evaluate populations of several marine mammal species. İzmir Bay and Adjacent water were chosen as a pilot study area. Although critically endangered monk seals use this area for breeding, knowledge on cetacean was scarce and limited to report their existence. In the first step, our study aimed to report resident cetacean species in the area and evaluate their population size for the area. Further, it was aimed to identify key habitats/sub-regions and potential threats. As results of the first project period, we estimated the population size of bottlenose dolphin in the region by merging photo-identification method and distance sampling method using opportunistic platforms such public ferry as well as possible key sub-regions regarding to density of sights.

Then, second project period started a period between August 2016 and 2017 to evaluate connection between protected and unprotected areas and constitute scientific baseline for possible new marine protected area in the Izmir. First of most important outcomes of the project is realization of intense interaction between marine mammals and fisherman in Izmir Bay. Results indicated that the interaction is significantly higher in the bay. Second outcome is better understanding the distribution of dolphins in Izmir Bay. After results, we can clearly say that individuals of dolphins inhabiting the area have seasonal distribution pattern and unprotected regions of the Bay take also important role as well as protected part in distribution of the population. Third outcome is reflection of first outcome in sociological aspects. Knowledge obtained from this project showed that the interaction on prey sharing between fishermen and cetaceans is one of main problem in the area. Essential step for further project should be understand the current status for this issue and increasing awareness of fisherman on marine organisms, especially marine mammals as well as implementation of suitable management plans for marine sources throughout the Aegean coasts. It should be also pointed out that communication with local community, stakeholders, authorities contribute to reach conservation aims of marine organisms as well providing important advantage to expand capability of the projects.

***Key words*:** Cetaceans, The Aegean Sea, population, interaction, conservation.

Current situation with locally endangered steppe viper in N-E Ukraine

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Steppe viper Vipera renardi Christoph 1861 — small venomous snake, which lives in steppe habitats across southern Eastern Europe and Asia. It is listed as vulnerable in the Red Data Book of Ukraine and is declining because of shrinkage of steppes themselves. North-Eastern Ukraine is well within its natural range, but natural conditions near the edge of distribution range predict higher vulnerability and sooner extinction in less optimal conditions and under the stress of human activity. Our project «Prevention of Direct Extermination and Protection of the Steppe Viper in the North-Eastern Ukraine» in 2014 had three main goals:

1 Conduct a survey within Kharkiv region, compare current and historical distribution, describe habitats, construct general model of potential distribution of the species on this territory and find out what could lead historical populations to extinction.

2 Based on this knowledge make recommendations and propose most efficient measures of steppe viper protection.

3 Since public perception of snakes in local communities is negative, we aimed to improve it by educational activities.

We have checked 13 historical localities and found that V. renardi survived only in 6 of them. Most of habitats remained intact (are not ploughed, built etc.), are under different level of pressure. Overgrazing in 1990-th, terrases construction and afforestation on steppic slopes of ravines, fragmentation are possible drivers of local extinction.

In different groups of vertebrate animals the usage of pesticides may have an indirect influence on natural population due to chronical intoxication after accumulation in food chains. Pesticides also may lead to decrease of invertebrate abundance and could be crucial for insectivorous animals. We've compared the amount of pesticides, applied in Kharkiv region and in the neighbouring Poltava region, where the number and density of natural populations of steppe viper is currently higher. According to the data of the Phytosanitary Service of Ukraine between 1990 to 2000 in Kharkiv region (1,934 thousands hectares of arable land) 24,429.4 thousand tons of pesticides was used. As for the Poltava region (1,760 thousands hectares), the amount was only 7,437.6 thousand tons.

We assessed the level of fragmentation of natural habitats in Kharkiv region by the number and the area of different habitats. We distinguished the categories of habitats by the prevailing plant communities with the help of vector digitizing of ERS satellite data. Also with the aim to determine the preferred landscapes for steppe vipers we made mathematical model in MaxENT, based on the data of existing populations.

In conclusion, situation with steppe vipers in Kharkiv region is bad but stable. Preservation of habitats is crucial, but not sufficient measure of conservation. Human attitude is changing gradually, currently there is no strong human-nature conflict due to species rarity, however if situation will improve, educational efforts would be of great value.

Key words**:** extinction drivers, steppe viper, monitoring, ecoeducation, Kharkiv region.

Study of the rare plants and habitats distribution in Desnyansky Biosphere Reserve and conducting environmental education measures on its territory

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Biosphere Reserve is a valuable natural area that has received UNESCO certificate. The Desnyansky Biosphere Reserve is located in the northeast part of Ukraine in the Sumy and Chernihiv regions along the Desna River. The Ukrainian legislation does not foresee the creation of biosphere reserve`s administrations, therefore coordination of nature conservation work on the territory of the biosphere reserve provides by the administration of the National Nature Park "Desniansko-Starogutsky". In order to protect the nature on this territory effectively, it is necessary to carry out constant monitoring of the key components of biodiversity and to conduct educational activities with locals on the regular base.

A key part of our project is a field research. With Rufford support, we want to conduct a study of distribution of rare plant species from Resolution №6 of Bern Convention, Red book of Ukraine and Red book of Sumy region and also habitats from Resolution 4 of Bern Convention on the Desnyansky Biosphere Reserve territory.

The most of the area of the territory of the Desnyansky Biosphere Reserve is distributed among small land users with purpose for agriculture, mostly hay mowing and grazing, but many plots are currently not used in any way and remain in their natural state. The main threat for this nature territory is intensification of agriculture, especially plowing of new lands for the cultivation of agricultural crops. The second threat, which is common also all over Ukraine, is practice of making the changes in the intended purpose of cadastral units from agricultural to private housing and industy. Another threat is cuttings in the forests, which are planned without taking into account the potential for finding plots of rare species. Having information about distribution of rare plant species, we will try to effect on the practise of planning the cuttings.

We see the possibility for a long-term nature conservation of this territory through the raising of awareness of the local people and understanding by them the natural value of their home region, and we think that the best way to raise this awareness through conducting educational activities with local schoolchildren.

***Key words*:** the Desnyansky Biosphere Reserve, plant, habitats, environmental education, conservation.

Why aspen stands are important for conservation of fungi?

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Although aspen stands are widely distributed in Ukraine and are considered to be "biodiversity hotspots" (Tikkanen, 2006; Kouki, 2009; Myking T, Bohler F, Austrheim G, Solberg EJ. 2011), in Ukraine their conservational value has never received special

attention. In Ukraine main areas of aspen stands are situated in the Forest-Steppe and Polissya zones. In the Forest-Steppe zone aspen (*Populus tremula* L.) grows mainly in small patches in oak forests on the slopes of river banks, in moist depressions on river terraces as well as in the center of floodplains. Besides this, large areas of even-aged aspen stands have been formed after clear cuts in oak forests, where *P.tremula* grows as a pioneer tree species, and after natural falling it is replaced by other species, such as ash (*Fraxinus escelsior* L.) and maples (Acer spp).

Our project, supported by the Rufford Foundation, was focused on *Pleurotus calyptratus* (Lindblad ex Fr.) Sacc, a fungus, which is rare and red-listed in Western Europe, but unexpectedly common in the Forest-Steppe zone of Eastern Ukraine. This species is strictly associated with aspen, fruiting on wood of semiliving or recently died trees, still covered with bark. In the frame of the project we surveyed aspen stands in 2 woodlands: the National Park "Homilshansky lisy" and Kharkiv Forest-Park, where we mapped *P. calyptratus* fruitifications to reveal its fruitification dynamics. We discovered that the fungus fruitifies on certain aspen tree only for 1-2, rarely 3 years. Each year about 80% of trees with fruitbodies appeared to be new ones, i.e. those, where no fruitbodies have been registered before. In other words, aspen log decays and becomes inappropriate for fruitification of *P.calyptratus* very quickly. Given that surveyed post-cutting aspen stands are old-aged (near 70 years), it explains the commonness of *P.calyptratus* in the Forest-Steppe zone of Ukraine. Furthermore, as far as in these stands aspen is replaced by other tree species, we expect the significant decline of *P.calyptratus* populations here in the near future.

Additionally, during the project implementation, we conducted general mycological survey in several aspen stands. As a result, we reported rare fungi and fungi-like protists species or species, unknown in Ukraine before. Among them are apothecial ascomycetes *Scutellinia decipiens* Le Gal and *Arachnopeziza araneosa* (Sacc.) Korf, reported from NNP "Homilshansky lisy", and a myxomycete *Physarum straminipes* from Kharkiv Forest Park. *S.decipiens* is a new species in the mycobiota of Ukraine, while *A. araneosa* and *P.straminipes* are second records. All of them are wood inhabitants, and were found on aspen wood.

Therefore, the primary reason why aspen forests are important for fungi conservation is the aspen dead wood, which is known to be soft, rich with nutrients and highly capable of water retention. In that respect aspen stands are quite controversial: while young post-cutting aspen groves obviously possess less fungal biodiversity than old-growth oak forests, the situation changes drastically when aspen stands become mature and senescent. Presence of rare species of fungi substantiates the need of old-growth aspen stands conservation and supports the crucial role of dead wood in forest ecosystems.

***Key words*:** aspen, dead wood, fungi, forest-steppe.

Status of rare small mammals of steppes in Ukraine

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Originally steppe vegetation covered more than 50% of landscapes of Ukraine. Unfortunately, most of these areas were transformed by humans. Natural steppe

landscapes survived in small refugia distributed unevenly. Small mammals, being always a core of steppe ecosystem, had to choose to either adopt to agricultural landscapes or face severe range fragmentation. Some species of small rodents (ground squirrels, hamsters, mole rats) seemed to do rather well in transforming environment. But starting from 1970th rapid distribution loss occurred. Among the possible causes of the decline in distribution number of small mammals could be intensification farming, enormous use of pesticides and direct persecution. Nowadays populations of these species account for less than 0,1% of their original numbers. For effective conservation of these species we have to: (1) know where they still occur; (2) what are their current habitat preferences; (3) what are the interactions of wild small mammals with humans. After getting enough knowledge on these three questions we may start planning conservation management.

Some species (primarily birch mice of the genus *Sicista*) may be protected by strict conservation of natural steppe vegetation. Nevertheless, many other species (*Spermophilus, Spalax, Cricetus*) are often found on agriculture lands and may even cause some harm to human crops. Coexistence of humans and protected small mammals is still a challenging task.

During the implementation of Rufford projects we were able to record many populations of *Cricetus cricetus, Spermophilus suslicus, Sicista lorigera, Stylodipus telum, Spalax arenarius, Spalax zemni, Nannospalax leucodon, Ellobius talpinus.* All of these species are protected in a Red Data Book of Ukraine (2009), some of these have high conservation status (Vulnerable and Endangered) in the IUCN Red List. Most of these populations were highly fragmented and not large. We continue efforts on gathering data on the presence of protected small mammals in Ukraine and designing conservation measurements that could benefit to our target species.

***Key words*:** small mammals, steppe, protected species, fragmentation, habitat loss.

Strongholds for Groupers in Iskenderun Bay (Northeastern Mediterranean): Biodiversity, Fishery, Conservation and Management

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Groupers have key role for maintaining the ecosystem dynamics in marine environment, particularly coastal areas. Their populations have been decreasing throughout the world and most species are threatened generally due to overfishing and habitat degradation. We are gathering data on the biodiversity and fishery of groupers and using this information to comprehend the general status of grouper populations as well as to improve effective management and conservation strategies in the northeastern Mediterranean.

For this purpose, non-invasive data collection strategies such as citizen science and ichthyoplankton surveys were applied. Six grouper species (*Epinephelus marginatus*, *E. aeneus*, *E. costae*, *Hyporthodus haifensis* and *Mycteroperca rubra*) that local fishermen encounter regularly were determined. In addition, two non-native

groupers (*E. fasciatus* and *E. coioides*) previously unknown from the region were also described by local fishermen. Near threatened (NT) *E. aeneus* and Endangered (En) *E. marginatus* were more frequently reported than others. Among groupers, the FO% values of *M. rubra* significantly increased towards inside Iskenderun Bay. The frequency of *H. haifensis* and *E. caninus* were reported lower in the same area. This is because of the habitat structure of Iskenderun Bay. Both species inhabit in deep and mostly rocky habitats whereas the dominant habitat structure of Iskenderun Bay is shallow and sandy bottoms. Regarding to abundance, BDC of *E. aeneus* was reported significantly higher around the northern coasts of Iskenderun Bay. We also find out that this area is an important spawning ground for *M. rubra*. Longliners were determined to have the most remarkable impact on grouper populations among fisheries including spearguns, anglers, nets, bottom trawls and traps. Moreover, immature groupers are subjected to significant fishery pressure in the area. The obtained information would be useful for developing effective conservation and management implications on grouper populations in the northeastern Mediterranean.

***Key words*:** Serranidae, Epinephelus, Participatory Management, Ichthyoplankton, Turkey.

"Road Map" of Conservation of the Oldest Bog in Belarus

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The wetland Morochno is one of the few bogs, which survived after extensive melioration in the Belarusian Polessye. This bog is important for the conservation of biodiversity at the national and international levels. In addition, the wetland is a seasonal source of income for more than 5,000 families residing in adjacent settlements. The estimated annual harvest of cranberries here is 150 000–400 000 $USD.

This object is located near Stolin (Brest region); geographical centre is WGS 84 (DMX): N51051'636" E26037'253". The total area is 6415.9 hectares. It is a complex water-marsh system; the core is the raised sphagnum bog with domination of *Sphagnum magellanicum*. This bog ecosystem retains specific features: some species are located near the southern border of their distribution area (*Carex pauciflora*, *C. limosa*, *and Scheuchzeria palustris*); the dominant and indicator of taiga northwestern European bogs *Sphagnum fuscum* is still there.

The wetland is located on the watershed of Goryn and Styr rivers (tributaries of Pripyat River), no any river flows into it. Water supply results from atmospheric precipitation and partly from local groundwater coming from the catchment area.

The peat deposit is predominantly composed of Magellanicum-peats, with cotton grass and sphagnum strongly decomposed interlayers; the top is formed by complex peat. The peat deposit average thickness is 2.5 m (up to 5.7 m in maximum). Sapropel often lies under the peat, its thickness is 0.1-1.0 m. This indicates the bog was formed on overgrown separate water bodies with swamping adjoining dry lands.

There are 584 species of higher plants; it is 35% of the regional flora of Belarus. Among them, 12 plant species are included in the national Red Data Book (2015), 3 - to the Bern Convention annex (1979), 5 - to the CITES Convention annex (1973), 95 - in the European Red List (1991); 9 species need preventive protection.

It is a habitat of 160 species of terrestrial vertebrates, including 30 species of mammals (excluding small rodents and bats), 113 - birds, 7 – reptiles, 10 - amphibians. Among them there are 11 species of birds, 3 - mammals, 2 - reptiles, 1 - amphibians, 3 - insects listed in the Red Data Book of Belarus (2015), 6 - requiring preventive protection. There are 19 species included in the European Red List of Endangered Species; 2 - to the Berne Convention annex (1979); 9 - to the CITES Convention annex (1973); 6 - a pan-European environmental significance (SPEC).

Four types of rare biotopes NATURA 2000 with the total area of 4419.7 hectares or 68.9% have been identified there. There are 7110 Active raised bogs - 2567.4 hectares (40.0%); 7140 Transition mires and quaking bogs - 720.8 hectares (11.2%); 9080 Fennoscandian deciduous swamp woods - 103.9 hectares (1.6%); 91D0 Bog Woodland - 1027.6 hectares (16.0%).

In 2012-2013 the action plan implemented within the framework of the The Rufford Small Grants Foundation project 11883-1 "Development and Implementation of Conservation Plan for the Oldest Bog in Belarus". As a result:

- The Republican Wetland Reserve "Morochno" is created (Resolution of the Council of Ministers of the Republic of Belarus No. 542 at 30.06.2015);
- The Ramsar territory is declared (WI Site No. 3BY011; Ramsar No. 2139) and its management plan is developed.

***Key words*:** Belarusian Polessye, raised bog Morochno, Ramsar territory, protection.

Old-growth forests in Eastern Ukraine: searching for indicator species and perspectives of conservation

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North-Eastern part of Ukraine is located near the border of the Steppe zone; forests are fragmented and unevenly distributed here. Our analysis showed that up to 1970th oak forests here were subjected to intensive clear felling. This period was followed by 20 years of decrease in logging intensity, but in the end of 1990th the intensity of clear felling increased again. Thus relatively more old-growth broadleaved stands has been preserved here than in the northern part of Ukraine. Since the total area of mature planted stands here six times smaller than the area of mature natural stands clear cuttings are mostly confined to old-growth stands of natural seed or vegetative origin. However, presence of low-level protected territories like Zakazniks (IUCN category IV) or Landscape parks (IUCN category V) does not guarantee restriction of cuttings. It appears that even creation of National

Parks (IUCN category II) does not inevitably mean protection of forest.

In 2000th we observed intensification of clear cuttings on territories reserved for National Parks "Gomilshansky lisy" (established in 2004) and "Slobozhansky" (established in 2009). It pushed us to look for means of quick protection of valuable patches. After finding protected animal species for which negative impact of logging was stated in the Red Data Book of Ukraine or other publications, we used statutory provision to protect their habitats. By passing information about localities of protected species to the State Cadaster of Animal World, we obtained official confirmation of their presence on forest plots. Then notifications about the presence of protected species together with requirements to cease logging were sent to forest districts. It allowed us to protect 111 ha of the most valuable old-growth pine stands in the territory of future "Slobozhansky" National Park. Since that time we have surveyed and proved presence of protected species on more than 6000 ha of mostly old-growth forests in the region. Up to 2010 we were working with the State Cadaster of Animal World; in 2012 we passed data directly to forest taxation organizations. Since 2016 there is a possibility to create protection zones around nests of raptors (Ministry of Ecology and Natural Resources of Ukraine order no 557, dated 29.12.2016) hence conserving valuable forest plots.

Currently about 9% of plots surveyed by us has been cut, but this figure is higher if only old-growth mature stands are taken into account. Only sites where high-level protected areas were subsequently established, or territories receiving constant public attention remained protected. In other cases our measures led only to temporary ceasing of cuttings. Therefore this mechanism can be a good emergency measure to protect important forest plots but it should be succeeded by long-term approaches like creation of high-level protected territories.

Nowadays Zakazniks are very unreliable for long-term forest conservation. We believe that establishing of National Parks is the only way to protect relatively big woodlands, for example in the case of "Izumska Luka" NP. The other important way is including valuable old-growth forest patches in the Emerald network. It can assure protection of a network of small patches valuable for forest invertebrates and plants.

***Key words*:** forestry, forest conservation, protected species, National Parks, Eastern Ukraine.

The Conservation of the Anatolian Sweetgum Forests with The Help of Forest Bats / Turkey

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The Anatolian (Oriental) Sweetgum Forests, Liquidambar orientalis is a rare, vulnerable and tertiary relict endemic species for Levant Region where spreads in the south-western part of Turkey, partly on Rhodes Island and is found nowhere else

in the world.

Despite their value, the sweetgums are in great trouble. The rich, moist, alluvial soils they grow on now have another value for people: as farmlands. Piece by piece, the sweetgum groves are being given up for agriculture.

Since the 1950s, state-sponsored farming initiatives in Turkey led to a massive shrinkage of sweetgum forests. From 6.312 hectares in 1949, the groves shrank to 1.337 hectares in 1987, and currently stand at no more than 800 hectares. The result is a scattered, fragmented family of threatened sweetgum groves. Fragmented forests are harder to rescue and rehabilitate in the long run. As a result, re-establishment of forest corridors and re-unification of the fragmented groves are of paramount importance.

Due to the immediate conservation action efforts needed that it can be understood from above, we found NATURA in 2015 after we finalised the first and second Rufford Small Grant related with the conservation of Sweetgum Forests. NATURA's main aim to creating proprietary in sweetgum forest conservation and sustain our conservation efforts. During 3 years NATURA is managing some Wildlife Research & Conservation Projects related with the sweetgum forests.

Related with the conservation aims of NATURA, this newly study's main goal is to support the conservation efforts of the Anatolian Sweetgum Forests by researching the Forest Bats. We will research the Forest Bats of Anatolian Sweetgum Forests (situation of the species, threat status, activity patterns, and usages of the forest) and the ecological parameters of the Forest Bats (a- population density, richness, frequency, similarity, dominancy, competition etc. b- comparisons between the fragmented-unfragmented, natural-semi natural-plantation forests).

We have started to pre-field trips by using with direct and in-direct methods in July and September 2017, February 2018 to understand and design the working methodology. The pre-results show us that at least 10 bat species use the sweetgum forests. The important species are Pipistrellus nathusii, Pipistrellus pygmeus, Nyctalus noctule, Hypsugo savii, Myotis nattereri, Rhinolophus ferrumequinum which use the sweetgum forests for now. On the other hand, we have also recorded Myotis sp. species during winter period. This record tells us that the sweetgum forests may be so important for the hibernation activities of the bats. The current activity pattern also tells us that due to the ecological properties of the sweetgum forests (such as dense humidity, flooded ground water level, high temperature rises the insect community which is the crucial food resource of the bats), the bats population can be seen longer and in a healthy way. Moreover, due to the tree characteristics (bark's shape, body structure etc.), the bats species can be accommodated inside the forest.

We will select 2 unfragmented forests, 2 fragmented forests and 2 plantation forests as the study sites. We will spend 5 days for direct researches in each four seasons. During the field trips we will look at the environs (citrus orchards, agricultural lands, settlements, ruins, lakeside, maquis, forests, caves etc.) of the project area to match the results.

One Batcorder will be set up in each study stations for 10 days. Those 10 days

observation will be done again in the same station every 50 days. It means that each station will be observed every season regularly. During the field study, direct research of the bats will be done by mist nets and sweep nets. Indirect research will be done by Batcorder automatically and Ultrasound Detector manually. We also will set up 20 bat houses inside the fragmented and unfragmented forests to understand the activity patterns of the bats.

Study results will be used in the Sweetgum Forests Action Plan (2018-2022). Within the fragmented parts, the most important bat corridors which the attempts will be made to purchase will be detected.

***Key words*:** Anatolian (Oriental) Sweetgum Forests, Liquidambar orientalis, forest bats, conservation.

Suggestions on arrangement of species outline in the Red Book of Ukraine

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Keeping of the Red Book of Ukraine (hereinafter – RB of Ukraine) is regulated by the Law of Ukraine "On the Red Book of Ukraine". As for a printed edition of RB the Law establishes that "The Red Book of Ukraine is an official state document containing list of rare and threatened species of animal and plant life within the territory of Ukraine, its coastal shelf and exclusive (sea) economic zone, as well as general data about the current state of these species and their preservation and reproduction measures. In reality, the RB of Ukraine consists separately of species list that is established by the Decree of the Cabinet of the Ministers of Ukraine and printed edition publication of which is provided by the Cabinet of the Ministers of Ukraine (once in 10 years).

The Law also defines that in the printed edition of the RB of Ukraine the following data "concerning each rare and threatened species of animal and plant life registered in the Red Book of Ukraine" is specified:

- *name* (in the Ukrainian and Latin languages),
- *position in the classification system of animal and plant life*,
- *category,*
- *scientific value,*
- *spread and numerosity* (including territory beyond Ukraine) and causes of their change,
- *places of habitat,*
- *general characteristics,*
- *protection measures,*
- *requirements concerning population preservation actions,*
- *data about pullulation and breeding under special conditions,*
- *sources of the relevant information etc*.

To each species of animal and plant life registered in the Red Book of Ukraine there should be a map chart of spread and photographs (pictures) as well". Thus, the law leaves a room for manoeuvre in the part of possible setting of additional divisions to the species outlines of the RB of Ukraine and also to the approaches of both outline and map chart arrangement. The opportunity of such "manoeuvre" was taken during the pre-publishing of the third edition of RB of Ukraine in which the section "place of habitat" wasn't included into the outlines (while in our opinion it's crucially

important because it gives an insight into biotypes that need protection within the context of preservation of the mentioned species. At the same time they included into the outlines the section "economic and commercial value" that for most species sounds like "no economic and commercial value". For those species that can fall under possible illegal business data from this section could be quite successfully placed in the section "requirements concerning population preservation actions", having its name changed to "Completed and recommended protection measures".

From the point of view of visual composition the outlines of the third edition of the RB of Ukraine include base map of Ukraine with marked points that indicate places of species' encounters. For some species there are 2 or 3 different marks that correspond to different statuses of species location or indicate the doubtful state of previously known population's preservation. For example, for golden eagle there are two types of points – for encounters during winter and during nesting period. The outlines include as well a photo, or else a picture, of the species (for some species photos depict museum exhibits or herbarium exponents).

Today the discussion of the rational perspective concerning the arrangement of the RBU new edition that is going to be published in 2019 is a vital question. The opportunity not only to look through the list of species of the RB of Ukraine, but also to adopt new technologies and better practices into the prepublishing of the Fourth RB of Ukraine needs studying of approaches that were used during the preparation of other "red books".

This article rests on the experience of authors in regards to the prepublishing of the Third RB of Ukraine and the analysis of "red books" editions by different administrative units that we're aware of. The main vector of our consideration is the fact that due to the rational approach to the arrangement of the RB species outlines maps and data about species numerosity and its dynamics, "red books" become essential, they reflect the exploration degree and state of each species protection.

Maps arrangement.
Among variety of approaches (depicting of dots, polygons or modelling results) the most rational appears to be a division of administrative unit territory into a grid of squares and marking the squares with different marks according to chosen criteria. In our opinion, optimal is to depict on such maps those squares in which the presence of the species was confirmed by the last revision period and the squares in which the species was known during the last revision period but there were no new sources of data concerning its spread during last 10 years. For those species locating on the territory of Ukraine in different seasons with different statuses (e.g. nesting in one region but wintering in another) it makes sense to divide marks into separate classes.

Depicting of a model (differently coloured squares) on maps in actual fact but not specific points of species detection allows to avoid lots of complications connected with incompleteness of data and other factors.
Thus, outlining a square with side 20-50 km allows:

- To void a bunching of detection points in places where the presence of species was thoroughly mapped out by authors, but at the same time not to delete by artificial means the points located side by side which would be

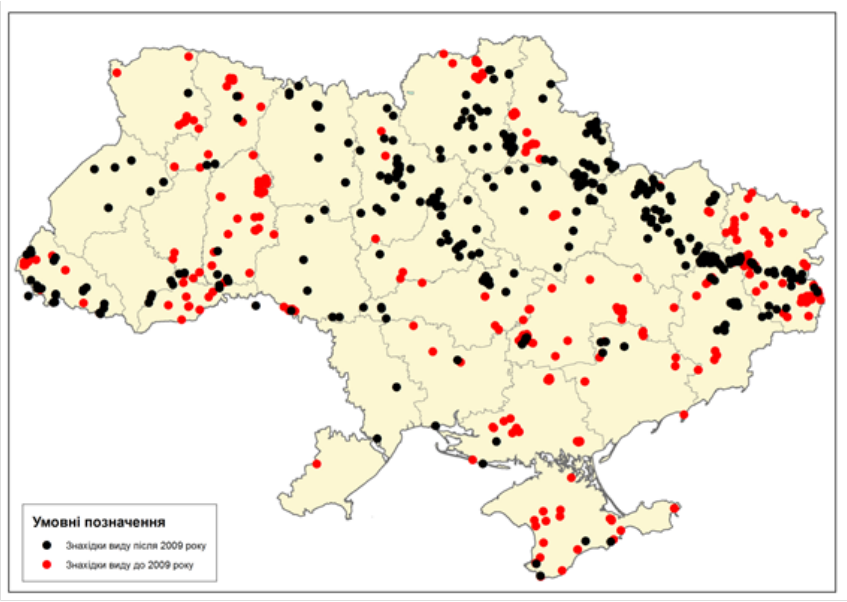
overlaying each other during displaying of the map. For instance, in the Third edition of the RB of Ukraine diameter of points allows to depict only those detections located not nearer than 17.5 km to each other.

- To lessen the differences in completeness of territory exploration. There is no species that has undergone a proportional exploration throughout country (except narrow-localized endemic forms). That's why a big number of points in one place and small in another can not so much indicate the density of species spread as detailed recording of meeting them by explorers.
- To avoid the repetition of data from different sources. In a number of cases different literature sources and personal reports of authors can deal with one population, habitation, nest. But every time while searching for coordinates after the verbal description of author, RB compilers inevitably set close but different coordinates falsely increasing number of points. Thus, the same population known through the different publications can be indicated on map multiply. But creation of model map will illustrate only one unit for which the species is known casting away falsely created doubles.
- To create maps with the only approach letting a reader of the RB compare the state of species spread visually.

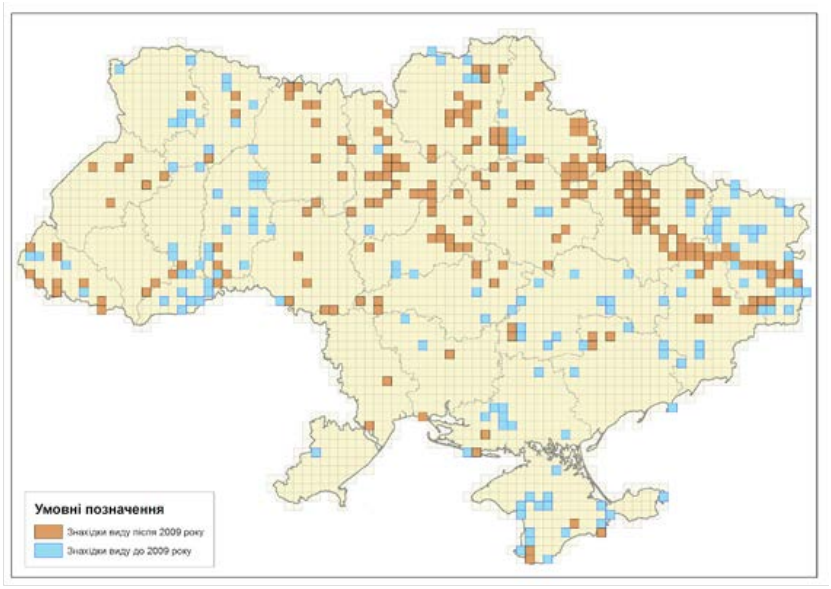
In such a way, we suggest to unify all maps of all species in the species outlines of the RB. Then to divide the territory of Ukraine on them into squares of 15 (20-50) km. And in the specified grid of squares to subdivide the units into 3 classes:

1. - void (species for the territory wasn't documented; no points of detection are known);
2. - the first colour (species was documented during the last 10 years; the square then comprises more points of detection during the revision period);
3. - the second colour (species was documented during the previous revision period, the square then comprises more points of detection during the previous revision period but no point during the last revision period).

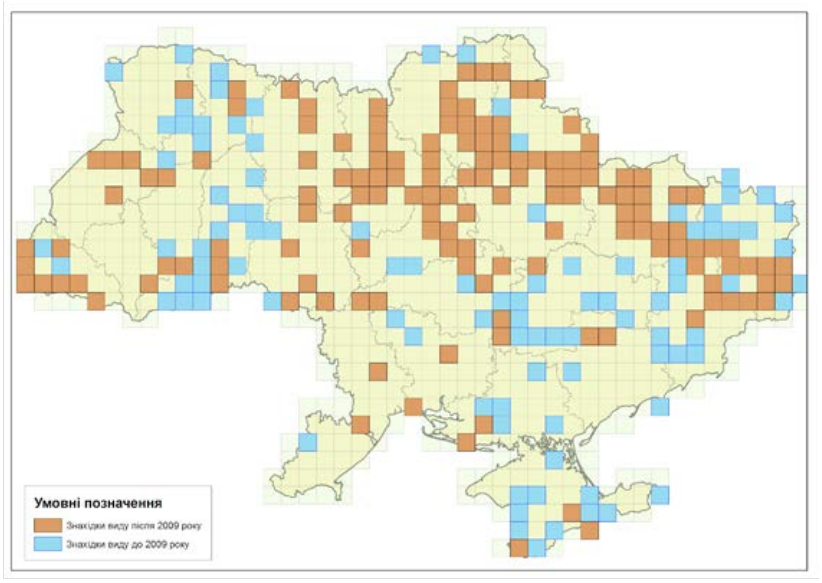
Pic 1. Map chart of finding the stag-beetle before 2009 and in the period of 2009-2018 (species spread in all regions of Ukraine).



A. Illustration by points (1200 points alltogether).



B. Illustration by model (grid 15x15 km)



B. Illustration by model (grid 30x30 km)

Pic 2. Map chart of finding an endemic species (Achilléa glabérrima).

A. Illustration by points (1 point only).

B. Illustration by model (grid 15x15 km)

B. Illustration by model (grid 30x30 km)

You should provide a full list of those who attended the conference, including details of the support they received from The Rufford Foundation. You should also add a copy of the conference agenda and timetable and abstracts from all the presentations.

5. Photographs


Рідкісні водні папороті флори України


THE RUFFORD
FOUNDATION
GRANT
RECIPIENTS
CONFERENCY
UKRAINE
Rufford


RESTRICTED AREA
AUTHORIZED PERSONNEL ONLY
Заповідник
Корупція
RED LIST
МСОП
Екологічні волонтери
Наукова експедиція
Скорочення фінан
Dianthus speciosus
Гвоздика ясна
Viola jooi
Фіалка Джоя
Ботобатл
Засади Карпати!
Rufford
Музей


ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ
УНІВЕРСИТЕТ імені В. Н. Каразіна
МАЙДАН СВОБОДИ 4, АУД. 2-49
23-25 КВІТНЯ 2018
From monitoring
implementation
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RESEARCH ARTICLE
North Cyprus and one in Turkey) and 2
nearterm for publication


Rufford
Current situation with locally endangered steppe viper in N-E Ukraine
Andrii Tupikov, Oleksandr Zinenko


Rufford
4-year experience of implementing conservation measures in the national nature park "Pyriatynskyi" (Poltava region, Ukraine)
Speaker: Oksana Abduloieva
Project team: Anatolyi Podobailo, Oleksandr Golubtcov, Yuryi Protcenko, Vitalyi Kazannyk, Oksana Abduloieva


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Green Book of Ukraine
ЗЕЛЕНАЯ КНИГА УКРАИНСКОЙ ССР
1987
2009


UNCS
Blank spots in nature
conservation of Ukraine:
ow the future scientific achievements
may help to save biodiversity