

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Olga Nadyeina
Project title	Arid lichens from the Red Data Book of Ukraine: studying, conservation and perspectives
RSG reference	68.06.09
Reporting period	March 2010 – August 2011
Amount of grant	£5345
Your email address	nadyeina@gmail.com
Date of this report	22 August 2011

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
The revising of herbarium specimens and key references.			+	We design and build up MsAccess Database for terricolous arid lichens growing in steppe ecotopes of Ukraine. This database include data about studied taxa from the following Ukrainian Herbaria: KW (Kyiv), KHER (Kherson), MSUD (Odessa) and CWU (Kharkiv), as well as literature records and result of our field trips during 2010-2011 years.
Field trips to the south part of Ukraine including Crimea peninsula.		+		We had carried out six expeditions to the protected territories (reserves, nature parks etc.) as well as areas without special status (to access a reasonability of ones to be protected). We checked known localities of all terricolous lichens in steppe ecotopes (including arid lichens from Red Data Book of Ukraine) and discovered new ones; putting notes for achieving evaluating them according IUCN principles, including describing of lichen associations and data about lichen population state and GPS mapping. When we started project it becomes clear, the reasonability of scientific assessments of all lichens in terricolous association – because there could be vulnerable taxa among them, which are not yet included in the Red Data Book. That is why resulting we have not enough time to visit localities in Zapozizhza, Kyrovograd and Dnipropetrovsk regions. That is very pity, but from other side we are getting new colleagues from those regions, with whom we are planning to collaborate in nearest future.
Laboratory identification of collected specimens with taxonomic consideration of problematic ones;			+	Should be commented just fact that some of our papers concerning these results now in editorial board of journals (reviewing or printing stage). Also maps of local and total areal, geobotanic descriptions of lichen association,

construction of maps with localities for each investigated lichens and detailed description of their modern area, state of population etc.				information about population state – data needed for qualifying species assessment according to IUNC criteria – not published yet, now we treat those data and prepare to be included in our final monograph about project’s results.
Designing of informational poster concerning arid lichens conservations and its distribution among schools, administrations of protected territories, councils of the settlements and local populations.			+	We change our primary intention to publish poster information and print out small brochure “What do you know about steppe lichens? Minute world under your foot” (20 pages, 700 issues). I would assess this point as 150% done, and prouder of this, because this step give us many new colleagues from other scientific fields, contacts with amateurs, school youth and peoples without special education.
Additions to the species lists of protected territories with special recommendation of arid lichen protection.			+	Now in progress, will be finished at the end of 2012 – to be included in “Nature Annals” of respectively protected areas.
Objectives for new protected areas creating			+	Was not planned by us at the beginning (we expect to realise this step after this project, or even in frame of other project), but this necessity appear unexpected during exploring of our current project (our colleagues from other field convinced us to prepare Objectives right now – because period from Objectives to real creation of protected area can long for a years).
The final report for Rufford Small Grants Foundation and editing of the monograph “Rare arid lichens of Ukraine”.		+		We publish already some points about project in our Brochure, also in kid’s and historic-cultural journals (“Parostok”, “Biology for inquisitives”, “Saint business”), in specific scientific journals (Chornomorskyi Botanical Journal, Steppe Bulletin) and on specialized local and international conferences (Plant Kingdom in the Red data Book of

				<p>Ukraine: Implementing the Global Strategy for Plant Conservation, Kyiv, 2010; Lichens: from genome to ecosystem in changing world, Tailand, 2012). Our monograph now in progress (please, see pdf of detailed plan of the monograph with involvement of participants of the current project and other colleagues). As we make wider our objects (all terricolous steppe lichens including arid red-listed vs. just red-listed as was planned), we change name of monograph therefore “Terricolous lichens in the Ukrainian Steppes: assessment, conversation, perspectives”. Also, it took more time to prepare monograph. We suppose to publish (print) it in Jan or Feb 2012, when all authors will generalise their issues entirely.</p>
--	--	--	--	--

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

- 1) Difference between real price of Microscope (see details in budget under “Professional Microscope with inner monitor”) and suggested in preliminary budget planning. When we were preparing project, we found very promising offer concerning these goods in the internet, but when the project was supported – the information on the web-site was updated and price was already c. 4000 EUR (instead of expected 2420 EUR). More simple models of microscope were more-less equal with those available at the Institute of Botany. So, we decided to spend money more reasonably – to improve application of chemical analysis in Ukrainian lichenology for species identification – thin layer chromatography (TLC). This relatively cheap method is worldwide used but was unavailable for Ukrainian lichenologists. Method allows clarifying species identification and also some aspect of lichen phylogeography. Now we are able to prepare competitive papers in good international journals. And it appears even cheaper then supposed microscope: 1004,7 GBP instead of 2089,5 GBP. This safety allows us to fill in our inadvertences in primary budget planning.
- 2) During project exploration we realised the reasonability of scientific assessments according IUNC criteria for all lichens in terricolous associations – because there could be vulnerable taxa among them, which are not yet included in the Red Data Book. As result, we spent more time during each fieldtrip and not enough time to visit localities in Zapozizhza, Kyrovograd and Dnipropetrovsk regions. That is very pity, but from other side we are getting new colleagues from those regions, with whom we are planning to collaborate in nearest future.
- 3) One of the subsequences from reason #2. Our monograph now in progress (please, see pdf of detailed plan of the monograph with involvement of participants of the current project and other colleagues). As we make wider our objectives, namely we included all terricolous steppe lichens instead of just red-listed as was planned before, therefore it took more time

to prepare monograph. This step was needed for more precisely assessment of terricolous lichens according to IUCN criteria and evaluation of the species to be included in the Red Data Book. We realise the necessarily to study lichen associations, because occurrence of one species is usually depending on presence of other lichen and alga species, which belong to lower succession stage. We suppose to publish (print) the monograph in Jan or Feb 2012, when all authors will generalise their issues entirely.

3. Briefly describe the three most important outcomes of your project.

- 1) Checking of several historical collecting sites for rare arid terricolous lichens: in some of them they are still exist (e.g. like in vicinities of Eupathoria, Vojkovo in Crimea and Karakuba in Donetsk region and others) while other didn't confirm previous records. Surprisingly, such a place was registered in Askania-Nova Biosphere Reserve. With our objects – lichens – we provided one more justification against of “totally reserved” regime in the protected area, which lead to degrade succession and do not dealing with nature biota conservation.
- 2) We clarified taxonomic boundaries and propose new more useful corrections to the diagnosis of several phenotypically plastic species: *Cetraria steppae/aculeata*, *Xanthoparmelia ryssoana/pokorny*, *Xanthoparmelia camtschadalis/deserthorum/subdiffuens*, *Cladonia furcata ssp. furcata / ssp. subrangiformis /Cladonia rangiformis*, *Cladonia foliaceae/convoluta* and some else.
- 3) We informed and enlightened locals on different levels (school organisations, universities, staff of protected areas, administration and so on) about our object – lichens – and its role in nature steppe conservation. To our pleasure, we met with great interest from some local societies who are still providing us by specimens, photos and questions.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

After we distributed our brochure “What do you know about steppe lichens? Minute world under your feet” to more then 150 organisations in the Ukrainian Steppes districts (protected areas, schools specialised on ecology and biology studying, universities, administrations and people with active life position), we received many comments, additional questions to be clarified, additional requests for brochure issues, photos and specimens to complete our current project. Also local kid's and historic-cultural journals (“Parostok”, “Biology for inquisitives”, “Saint business”) express their interest to enlighten in their journals some issues about lichens and steppe conservation. Our brochure was useful during university and school course of biology teaching, because of very illustrative and provides available information about conservational problems and lichens itself.

5. Are there any plans to continue this work?

We will definitely continue to take care about our web groups, and I am also always online by e-mail – replying on some local questions about lichen name (also some mosses and fungi occurs between asked specimens). I am planning to continue collaboration with protected areas, now thinking about managing of informative posters or postcards with rare lichens, which will be distributed by staff from protected areas between tourists. Also, next couple of months will be totally devoted to preparing of monograph with main results of the current project. For the more obscure future we were discussing with members of team about more ecological direction of our work. For instance, re-introduction of very rare arid lichens in the sites where they are disappeared meantime and

carrying about special regime maximally close to nature condition (especially perspective such activities seems in very close collaboration with locals or staff from protected areas). To realize re-introduction terricolous lichens we will be looking for some new project during next few years.

6. How do you plan to share the results of your work with others?

We have already shared our activities (brochure, publication in local and scientific Journals, internet resources), but final results planned to be publish in the monograph "Terricolous lichens in the Ukrainian Steppes: assessment, conversation, perspectives" (see pdf of detailed contains in attachments).

List of published or accepted for publication issues:

Надеїна О.В., Димитрова Л.В., Ходосовцев О.Є., Бойко Т.О., Ходосовцева Ю.А. Перші кроки до застосування категорій Червоного списку Міжнародного союзу охорони природи (IUNC): досвід з епігейними лишайниками України // Матеріали міжнародної конференції «Рослинний світ у Червоній книзі України: впровадження Глобальної стратегії збереження рослин» (11-15 жовтня 2010 р., м. Київ). – Київ: Альтерпрес, 2010. – С. 32-37. Published.

Надеїна О.В., Димитрова Л.В., Ходосовцев О.Є., Назарчук Ю.С. Що вам відомо про степові лишайники: маленький всесвіт під ногами. // Науково-популярне видання-посібник. – Одеса, 2010. – 20 с. Published.

Надеїна О. Лишайники – найхитріші та наймудріші // Паросток, № 1(69). 2011. С. 28-31. Published.

Надеина О.В., Ходосовцев А.Е., Назарчук Ю.С. Научно-популярный проект «Аридные лишайники Красной книги Украины: изучение, сохранение, перспективы» // Степной Бюллетень. Осень 2011. 7 стр. Accepted.

Ходосовцев О.Є., Бойко М.Ф., Надеїна О.В., Ходосовцева Ю.А., 2011: Лишайникові та мохові угруповання нижньодніпровських арен: синтаксономія та індикація дефляційних процесів. *Чорноморськ. ботан. ж.*, v.7:00-00. Edited.

Надеїна О.В., Луцак Т.В., Блюм О.Б. 2011: Види групи *Cetraria aculeata* (Parmeliaceae) в Україні: проблеми та перспективи ідентифікації і охорони // *Чорноморськ. ботан. ж.*, v.7:00-00. Edited.
Надеїна О. Лишайники – піонери рослинності чи примітивні рослини? // Біологія для допитливих. Edited.

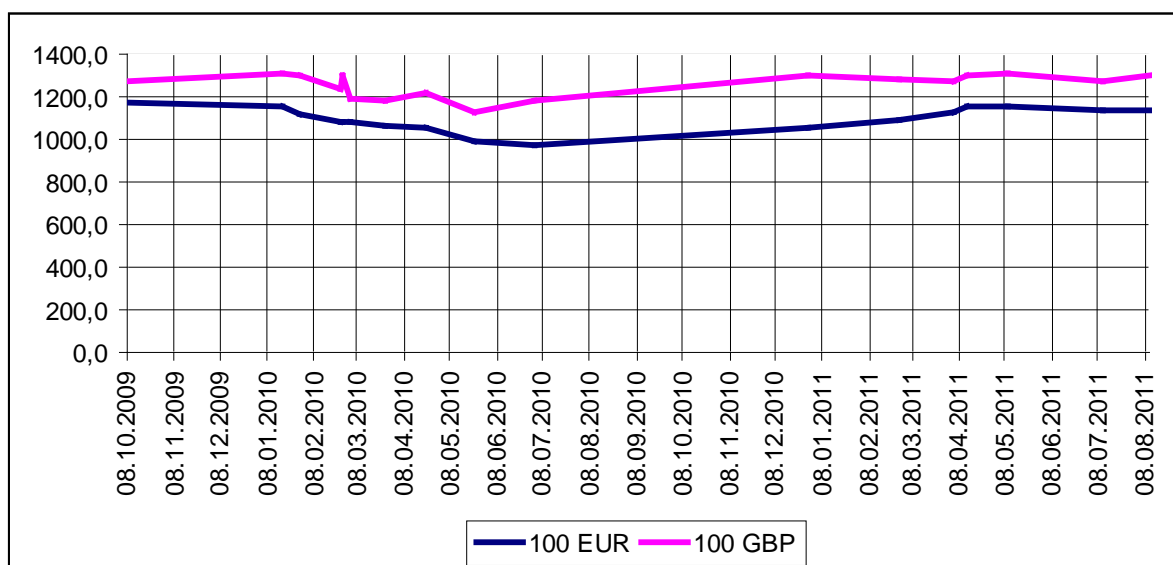
Nadyeina O.V., Khodosovtsev O.Ye., Nazarchuk Yu. S., Dymytriva L.V. Arid lichens from Red Data Book of Ukraine – Assesment, Conservation and Perspectives // Abstract for International Association of Lichenology Symposium "Lichens: from genome to ecosystem in changing world". Bangkok, Thailand, Jan 2012. Accepted.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

In our proposal we mentioned start of the project from March 2010 to Sept 2011, and now we are following all key dates, except of the publishing of final monograph – really we will be printing this in the beginning of 2012 (now preparation of the monograph is in the progress, see attached pdf of contains).

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

It was made several changes in general budget and its details because of 1) our inexperience in the project management and therefore underestimations of our possibilities and unpredictability of some issues (not up-of-day information about some of the prices we used for primary budget assessment, we did not include any taxes paying); 2) instability in currency exchange rates in Ukraine (please, see table below, including dates when I exchange money in EUR to UAN, and corresponding changes in GBP rates: briefly, price of 100 EUR could be from 990 to 1200 UAN); 3) instability and general inflation in prices in Ukraine: in concern food cost and in fuel prices mainly: for instance, 1 liter of A-95 petrol was cost about 8 UAN in 2010 and more then 10 UAN in 2011 (please, see http://autovisio.com.ua/gas_country/220.html?gclid=CKqXmf6fx6oCFcki3wodlyWkTA).



Instability of EUR and GBP currency exchange rates according to UAN within reported dates of current project (price in UAN of 100 EUR or 100 GBP).

Item	Budgeted Amount	Actual Amount	Difference	Comments
Garmin GPS Map 60CSx + Topographic GPS map of Ukraine + Re-charging system for gps:Ansmann PhotoCamIII+4AA 2700mAh (2 pieces	482,2	622,9	-140,7	We spend more money than were planned, but the thing to be emphasised here is that we have bought two pieces of GPS (including soft, map, re-charging system and so on). One piece of GPS will be used in Kiev-working group (Olga Nadyeina,

of everything)				Ludmyla Dymytrava and our students) and other will be used by Kherson working group (Olexander Khodosovtsev and his students)
Photocamera Canon 550D Body+Canon 50/2.5Macro+SD card 32 Gb+Filter+Metzmeca blitz 15 MS-1 digital	723,3	949,8	-226,5	Primary undervaluing of price by us new technique appearing in Canon corporation, specialised for macro-photographing, which is more applicable for our objects – lichens
Professional Microscope with inner monitor	2089,5	0,0	2089,5	When we were preparing project, we found very promising offer concerning this goods in the internet, but when the project was supported – the information on the website was up-dated and price was already c. 4000 EUR (instead of expected 2 420 EUR). More simple models of microscope were more-less equal with those available at the Institute of Botany. So, we decided to spend money more reasonably – to improve application of chemical analysis in Ukrainian lichenology for species identification – thin layer chromatography (TLC, see below).
Total cost for TLC equipment	0,0	1004,7	-1004,7	TLC is relatively cheap method and worldwide used, however was unavailable for Ukrainian lichenologists. Method allows clarifying species identification and also some aspect of lichen phylogeography. Now we are able to prepare competitive papers in good international journals.
Total transport expences (fuel, trains, buses)	482,2	786,2	-304,0	Underestimation connected with mentioned above instability in currency exchange rate and fuel costs
Total food expences	321,5	654,9	-333,4	Underestimation of food expenses is connected with mentioned above instability in currency exchange rate, general inflation and main reason – amount of team participants which are subsequences of our collaboration. Notably, we had planned general budget for four participants, but really it was from three to seven participants

				depending of field.
Total residing in hotels	482,2	0,0	482,2	We do not spend money for residing in hotels at al, because we stayed overnight mainly in the houses of our friends and colleagues, living in steppe zone of Ukraine, either in the tents.
Publishing of informative brochure (coloured, with many illustrations and photographs, 20 pages, 700 issues)	120,6	411,8	-291,2	Firstly, we supposed to print just simple informative poster about lichens (colored, A3 or A4 format) and distribute it into the publicity. However, we met with great interest of locals in our project, also first conclusions convinced us to clarify some issues about lichens for the peoples without special education – therefore we printed and distributed brochure (total 20 pages of colored pictures and photographs with clarifying text, 700 issues).
Office supplies, post-office service, consultation of the specialist for design	160,7	74,6	86,1	We did not spend expected money for office supplies and print paper, because of support from our Institute and kind help of the sister of our team-participant Julia Nazarchuk, who helped us with preparing of final version of brochure and its publishing.
Monograph (300 issues) and post-office service	482,2	700,0	-217,8	Our monograph now in progress (please, see pdf of detailed plan of the monograph with involvement of participants of the current project and other colleagues). As we make wider our objects (all terricolous steppe lichens including arid red-listed vs. just red-listed as was planned), therefore it took more time to prepare monograph. We suppose to publish (print) it in Jan or Feb 2012, when all authors will generalise their issues entirely.
Total Taxes (for money transferring and other banking activities)	0,0	67,9	-67,9	Taxes were unpredicted by us in primary budget planning, unfortunately
Total	5344,4	5272,7	71,7	

9. Looking ahead, what do you feel are the important next steps?

I think that important to keep interest from youth and continue collaboration with protected areas stuff. Other aspects of nature conservation idea have to be shared with publicity. Also, other endangered group of lichens – epiphytic lichens (growing on the trees) – need to be monitored in collaboration with locals, because they are normally very elegantly included in forest-cut actions...

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

We used RSGF logo during our presentation at the conference “Plant Kingdom in the Red data Book of Ukraine: Implementing the Global Strategy for Plant Conservation” (Kiev, 2010), in the Brochure “What do you know about steppe lichens? Minute world under your feet” (Odessa, 2010), logo will be used in presentation at the International Association of Lichenology Symposium “Lichens: from genome to ecosystem in changing world” (Bangkok, Thailand, Jan 2012). Also, RSGF are acknowledged in the papers which deal with current project results.

11. Any other comments?

I would like very much to express my sincere acknowledgements for RSGF for great possibility to include lichens to the public nature conservation action! It was my first attempt to lead project, and I fix many mistakes and underestimation of our resources from my side like leader group. However, it was extremely valuable experience and, main, - we have got real results: within collaborations with publicity, within paying attention on our objects in frame of nature conservation, within solving several scientific issues and many others. I am appreciated very much to receive RSG, thank you very much!

Terricolous lichens in the Ukrainian Steppes: assessment, conversation, perspectives

ed. by *O. Khodosovtsev, O. Nadyeina*.

reviewers: Prof. *S. Kondratuyk* (Kyiv); Prof. *M. Boyko* (Kherson); Dr. *A. Akulov* (Kharkiv).

volume: c. 250-300 p., with colored pictures.

circulation: 300 issues.

Kyiv, 2012.

in Ukrainian.

Introduction: about aim of our ideas, studying and project "Arid lichens from the Red Data Book of Ukraine: studying, conservation and perspectives" – *O. Nadyeina*

1. Steppes of Ukraine: past and modern. Change in native vegetation, ecological assessment. – *M. Peregrym, I. Korotchenko*.

2. Terricolous lichens in the Ukrainian Steppes.

a. Check-list, floristic including data about modern vs. previous occurrence, total range distribution. – *O. Nadyeina, L. Dymytrava, Yu. Nazarchuk, A. Gromakova, O. Khodosovtsev*.

b. Arid ecologically and arid geographically (distributed in the Eurasian Steppe zone only) lichen species. – *O. Nadyeina, O. Khodosovtsev*.

c. Reproduction strategy of terricolous arid lichens, their distribution in Ukraine and conservation state. – *O. Nadyeina, A. Vojtsekhovich, O. Khodosovtsev*.

d. Secondary chemistry study of terricolous arid lichens and conservation state. – *O. Nadyeina, T. Lutsak*.

e. Assessment of terricolous arid lichens of Ukraine according to IUCN criteria, proposals for including to new edition of Red Data Book of Ukraine. – *O. Nadyeina, L. Dymytrava, Yu. Nazarchuk, O. Khodosovtsev*.

3. "Geolichenology" – associations of terricolous arid lichens of Ukraine, state of their population in different regions of Ukrainian Steppes.

a. Prodrum of terricolous arid lichen associations in the Ukrainian steppes. – *O. Khodosovtsev*.

b. Key role of terricolous lichens in weathering intensity with emphasis to psammophyte associations of the lower Dnieper sand dunes. – *O. Khodosovtsev*.

c. Succession pattern depending of photobiont circulations in the terricolous arid associations (Nostoc-Collema, Leptogium-Cladonia, Catapyrenium-Diploschistes, Toninia, Endocarpon-Psora, Fulgensia). – *A. Vojtsekhovich*.

d. Proposals for the "Green Book of Ukraine" – lichen associations. – *O. Khodosovtsev, O. Nadyeina*.

4. Protection state of the terricolous arid lichens in the Ukrainian Steppes – the network of existing protected and perspective to be protected areas. – *O. Nadyeina, L. Dymytrava, Yu. Nazarchuk, N. Rusina, G. Naumovich, T. Boyko, A. Gromakova, O. Khodosovtsev*.

5. Computer Database, based on MsAccess, which was created during project exploration. – *O. Nadyeina*.

6. Social part of the project – first feedbacks (*O. Nadyeina, Yu. Nazarchuk, O. Khodosovtsev*):

- information in the internet including social networks (<http://www.lichenologist.net>, <http://www.lichens.od.ua/events.shtml>, <http://vkontakte.ru/club29217268>, <http://www.facebook.com/groups/150880938305901/>)
- collaboration with social group "Save Ukrainian Steppes" (<http://pryroda.in.ua/step/biblio/lichens/>)
- Brochure "What do you know about steppe lichens? Minute world under your foot": feedback from scholars, amateurs, colleagues who is not lichenologist and their involvement into the project
- photo exhibition on arid terricolous lichens during conference "Plant Kingdom in the Red data Book of Ukraine: Implementing the Global Strategy for Plant Conservation" (Kyiv, 2010)
- Publications about steppe lichens and their conservations in kid`s and historic-cultural journals ("Parostok", "Biology for inquisitives", "Saint business"), and in specific steppe-oriented journal "Steppe Bulletin"
- Objectives for new protected areas creating and dealing with Ministry of Environmental Protection of Ukraine

Conclusions and proposals – *O. Nadyeina, O. Khodosovtsev*.

Persons, contributed as authors in the Monograph:

Boyko T., Msc, Senior Lecture, Kherson Agricultural University (Kherson, lichenologist)

Dymytrova L., Dr., M.H. Kholodny Institute of Botany National Academy of Sciences of Ukraine (Kyiv, lichenologist)

Gromakova A., Dr., V.N. Karazin National University (Kharkiv, lichenologist)

Khodosovtsev O., Prof., Kherson State University (Kherson, lichenologist)

Korotchenko I., Dr., M.H. Kholodny Institute of Botany National Academy of Sciences of Ukraine (Kyiv, ecologist)

Lutsak T., Msc., National Taras Shevchenko University of Kyiv (Kyiv, lichenologist)

Nadyeina O., Dr., M.H. Kholodny Institute of Botany National Academy of Sciences of Ukraine (Kyiv, lichenologist)

Naumovych G., Msc, Senior Lecture, Kherson State University (Kherson, lichenologist)

Nazarchuk Yu., Msc, Senior Lecture, I.I. Mechnykov National University (Odessa, lichenologist)

Peregrym M., Dr., O.V. Fomin Botanical Garden, National Taras Shevchenko University of Kyiv (Kyiv, botanist)

Rusina N., Msc, PhD student, Luhansk Nature Reserve (Stanychno-Luhansk, lichenologist)

Vojtsekhovich A., Msc, PhD student, M.H. Kholodny Institute of Botany National Academy of Sciences of Ukraine (Kyiv, algologist – specialist on lichen`s photobionts)