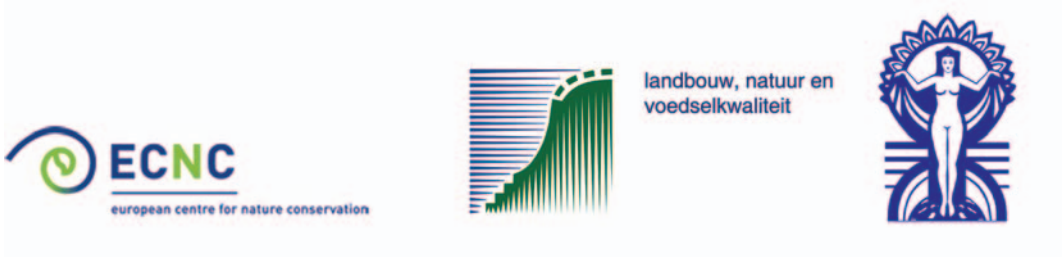

European Centre for Nature Conservation

National Ecological Centre of Ukraine

V.A. Kostiushyn, V.M. Grishchenko, O.V. Vasyluk

Pilot study of public involvement in the monitoring of biodiversity in Ukraine

Kyiv
2009

Prepared by: ECNC-European Centre for Nature Conservation, Tilburg, the Netherlands and the National Ecological Centre of Ukraine, Kyiv, Ukraine

Citation Kostiushyn, V.A., Grishchenko, V.M., Vasyluk, O.V. 2009. Pilot study of public involvement in the monitoring of biodiversity in Ukraine. [In Ukrainian & English.] National Ecological Centre of Ukraine, Kyiv, 2009. - 14 pp.

Available from: National Ecological Centre of Ukraine

Disclaimer: The views expressed in this report do not necessarily constitute ECNC policy, and do not necessarily reflect the views or opinions of the National Ecological Centre of Ukraine

Funded by: This publication is supported by the National Ecological Centre of Ukraine through a grant from the Netherlands Ministry of Agriculture, Nature and Food Quality and the Ministry of Foreign Affairs (BBI-Matra Fund / Management Programme for International Biodiversity)

Editing of English text : Glynis van Uden

Layout: I.P. Sirenko

Photos : S.O. Gladkevich, V.M. Grishchenko

Biodiversity monitoring with public involvement is widespread in developed countries in different regions of the world. In total, there are hundreds of different programmes — from local to international -in which hundreds of thousands of volunteers take part. This approach allows data to be collected from extensive areas, which could not be gathered in another way since the number of professionals and funds for biodiversity monitoring are usually very limited. In Ukraine, there is no national biomonitoring system, although some monitoring programmes have been working for more than twenty years. Among them are some programmes that are partly or entirely based on volunteers. A good example of this type of programme is the International Waterfowl Census, in which professional ornithologists and amateurs from the southern regions of Ukraine participated. The Azov-Black Sea Ornithological Group coordinates this programme in Ukraine. Every winter several tens of volunteers conduct counts of waterbirds, using their own funds or possibilities offered by their organizations (transport, petrol, etc.). This programme is partly financed by Wetlands International.

Other examples of this type of monitoring programme are programmes coordinated by the Ukrainian Bird Protection Society (the IBA programme; the programme on autumn migratory birds) or by Kaniv Nature Reserve and the Ukrainian Working Group on White Stork, conducting counts of White Stork nests. Overall, taking into account that Ukraine's area and population size make it one of the largest European countries, the level of development of the biodiversity monitoring programmes based on amateurs is insufficient. There are several reasons for this: lack of tradition, the economic situation in the country in the last twenty years and the absence of Ukrainian sources of funding for non-governmental organizations to involve the public in biodiversity monitoring. This is why one of the aims of the project 'Supporting public involvement in building capacity for Ukrainian biodiversity monitoring', funded by BBI-MATRA, is to conduct the pilot project related to the involvement of volunteers in monitoring biological diversity.

In the first stage of the project, after quite lengthy discussions between representatives of ECNC, LNV, National Ecological Centre of Ukraine, Institute of Zoology, Institute of Botany and Kaniv Nature Reserve, four species were selected for the pilot study: three animals — the White Stork (*Ciconia ciconia*), the Stag Beetle (*Lucanus cervus*), the Swallowtail Butterfly (*Papilio machaon*) — and one plant: the Martagon Lily (*Lilium martagon*).

The first criterion for species selection was that the general public should be able to recognize them easily. It is preferable if people are already familiar with the species. It is better if these species have official conservation status, for example, they are included in the Ukrainian Red Data Book. The second criterion was that the species should have quite a large area of distribution. The third criterion was that the monitoring scheme should be very simple and accessible to local people, students and schoolchildren. It is better if there is already some basic experience in the country concerning monitoring of these species.

The White Stork is a common species, present throughout most of Ukraine, well known to all people and easily accessible. A few studies involving volunteers have been conducted in the past. The other three species are quite rare and are included in the Red Data Book of Ukraine. Nevertheless, both the Stag Beetle (*Lucanus cervus*), the Swallowtail Butterfly (*Papilio machaon*) have a wide range of distribution, and are well known to the general public. The Martagon Lily (*Lilium martagon*) is less well known, but in some regions where this species in not very rare, people, especially in the countryside, know this species well.

In accordance with the project requirements, a simple manual and questionnaire for each species were prepared and published. Taking into account that Ukraine is a big country, and is not really familiar with

public biodiversity monitoring, it was decided to print as many simple, colourful manuals (leaflet format) and black-and-white questionnaires as possible. Two thousand leaflets and 2,000 questionnaires were printed for each of the three rare species. For the White Stork 3,000 manuals and 3,000 questionnaires were published. Each manual includes information about the species, its current distribution and a colour image. In addition, the manuals include detailed information on how to collect data and fill out the questionnaire. The questionnaire for each species is a special form, to be filled out by the participants and sent to the coordinators. The document also includes explanations on how to complete the form. These printed materials are presented below in Figures 1, 2 and 3.

In addition to the printing and dissemination of the manuals and questionnaires, a website was used as an information tool for the project. The website was specially created for the project 'Supporting public involvement in building capacity for Ukrainian biodiversity monitoring'. The website (see www.biomon.org) gives a general description of the project and databases on organizations, people and biodiversity monitoring programmes, as well as information related to the four species selected for the pilot study. For example, information on the Stag Beetle has pages describing its biology and ecology, colourful images of the species, information on monitoring programmes of the species in Europe and links to appropriate websites, an interactive form (questionnaire) and instructions for its completion. Moreover, this part of the website includes a database with all (or nearly all) accessible records on the beetle in the country, which can be viewed via an interactive map based on Google Map. The same kind of information, including databases, is available on the website for the three other species. The White Stork database includes information about 2,700 nests. In total, 9,000 manuals and 9,000 questionnaires, which refer to www.biomon.org, promoted the website and drew the attention of Ukrainians to the public monitoring of biodiversity. Information about the website was also disseminated among NGOs via email. Several screen-shots of the website are presented in Figures 4 to 8.

The National Environmental and Naturalistic Centre of Young People (NENC) was selected as a key partner in the project. Since the Soviet era this powerful state organization for the out-of-school education of children has had many affiliations in different regions of Ukraine and has organized different circles (hobby groups), field expeditions and camps, competitions, etc.

To create a better informational background for the pilot project, it was presented during the all-Ukrainian meeting of directors of regional and local branches of the National Environmental and Naturalistic Centre of Young People, which was attended by about 80 people from different regions.

As a next step, a letter of support was prepared, signed by the director of the National Environmental and Naturalistic Centre of Young People and the director of the National Ecological Centre of Ukraine (NECU). This letter was disseminated together with the manuals and questionnaires. All prepared materials were sent by post to affiliations of the NENC and NECU, various NGOs, etc. Materials on the White Stork were also disseminated using the network of the Ukrainian Working Group on the White Stork — professional and amateur ornithologists, higher education students and teachers, schoolchildren and school teachers, personnel of nature reserves (zapovedniks) and national parks.

The results of the pilot project for the Stag Beetle, Swallowtail Butterfly and Martagon Lily (species included in the Red Data Book of Ukraine) are reported together. The results for the White Stork are reported separately.

The Stag Beetle, Swallowtail Butterfly and Martagon Lily

Information about new findings (localities) of these species was received from 92 respondents, including educational institutions (mainly schools), regional educational departments, affiliations

МОНІТОРИНГ ПОШИРЕННЯ ЖУКА-ОЛЕНЯ В УКРАЇНІ

В багатьох країнах Європи ведуться різноманітні моніторингові програми з вивчення чисельності та поширення жука-оленя.

Дуже важливо започаткувати таку моніторингову програму і в Україні. На превеликий жаль, відомості про поширення жука-оленя дуже незначні і більшість місць, де він мешкає, не задокументовані. Дуже обмежені навіть ті дані, що включені до Червоної книги України.

До програми моніторингу поширення жука-оленя в Україні може долучитись будь-хто, хто зустрічає цих жуків у природі. Для участі у програмі необхідно відповідно до інструкції заповнити анкету, до якої вносяться відомості про Ваші знахідки жука-оленя, після чого її слід надіслати на поштову адресу:

«Моніторинг поширення жука-оленя»
Національний екологічний центр України
а/с 89, м. Київ-25, 01025.

Крім того, анкету можна заповнити і в інтернеті на сайті **www.biomon.org**. Кількість наданих Вами даних не обмежується.

Надані Вами відомості про знахідки жука-оленя будуть опрацьовані організаторами програми моніторингу і включені до бази даних, з якою можна буде ознайомитись на сайті **www.biomon.org**. При укладанні бази даних інформація про те, хто її надав, буде збережена і також оприлюднена. Надалі ці дані будуть передані до укладачів Державного кадастру тваринного світу України і нового видання Червоної книги України.

Таким чином, Ви можете зробити свій власний внесок у вивчення поширення жука-оленя в Україні вже зараз.

Національній екологічний центр України
Європейський центр охорони природи (ECNC)
Інститут зоології ім. І. І. Шмальгаузена НАНУ
Національний еколого-натуралістичний центр учнівської молоді

ПРОГРАМА МОНІТОРИНГУ ПОШИРЕННЯ ЖУКА-ОЛЕНЯ В УКРАЇНІ

ECNC

ІНФОРМАЦІЯ ПРО ЖУКА-ОЛЕНЯ

У фауні України немає більш відомого жука, ніж **жук-олень (*Lucanus cervus Linnaeus, 1758*)**. Це найбільший представник ряду Твердокрилих у фауні України, і його не можливо сплутати з будь-якою іншою комахою. Жук-олень, не зважаючи на невелику чисельність, трапляється в різних регіонах країни. Разом з тим, він належить до видів, ареал яких скорочується і яким у недалекому майбутньому може загрожувати зникнення.

Жук-олень трапляється в окремих місцях по всій території України. Загальний ареал цього виду доволі широкий. Він охоплює Центральну, Південну і Східну Європу, а також Північну Африку. Колись жук-олень був звичайним видом по всій Європі, проте зараз спостерігається повсюдне скорочення його чисельності. Поширення цього жука пов'язане не так з географічними регіонами та кліматичними зонами, як зі специфічними біотопами, які є типовим місцем його перебування. Як правило, місцями виявлення жука-оленя є широколистяні та мішані ліси з домішкою дуба. В Україні такі ліси є у передгір'ях Кримського півострова та Карпатах. Трапляється жук-олень також у дібровах та байрачних лісах Північної, Центральної та Східної України.

Жук-олень оселяється переважно в дубових пралісах. Саме у стовбурах старих дубів відбувається розвиток його личинок. Живлячись деревиною, личинка живе в дереві до семи років.

Самці та самиці відрізняються за розмірами мандибул, що дозволяє дуже легко їх розрізняти. Загальна довжина тіла самця – до 7,5 см самки – до 5 см. Голову самця прикрашають великі мандибули, які сягають чверті загальної довжини тіла. Це пристосування використовується самцями під час двобоїв. Поширена думка про те, що жуки вбивають один одного, але насправді кожен із жуків просто намагається обхопити супротивника мандибулами і перекинути його на спину. Переможений таким чином жук, перевернувшись в нормальне положення, покидає місце двобою. Втім «щелепи» часто використовуються жуками для рішучого захисту від нападників (у т.ч. і людей). Самки жуків-оленів дещо менші від самців і мають значно коротші мандибули. Проте також легко можуть дати відсіч порушникові їх спокою.

Жуки-олені добре літають, і нерідко їх можна побачити у польоті на висоті від 1 до 10 метрів. **На дорослих жуків можна натрапити в природі з травня по липень.** Живляться вони соком, що витікає з пошкоджених стовбурів дерев – переважно дубів, рідше – буків або берез.

Невдовзі після парування самці здебільшого гинуть. У місцях, придатних для розмноження жуків-оленів, подекуди виявляють скупчення як живих, так і мертвих особин. Згодом, відклавши яйця у дуплах дерев та пеньках, гинуть і самки. Розвиток личинок триває у більшості випадків 5–6 років. Личинка сліпа, її тіло має кремове забарвлення, майже прозоре з помаранчевими ногами та головою. За допомогою ніг личинки здатні цвірчати, що забезпечує їм комунікацію між собою. Личинки переживають декілька линянь і у травні останнього року розвитку перетворюються на лялечку.

Випадки розмноження у неволі не відомі. Найвірогідніше, штучне розведення ніколи не проводилось.

Чисельність жука-оленя майже повсюдно низька і продовжує скорочуватись. Причиною зникнення цього неординарного виду комах є безвідповідальна лісогосподарська діяльність людини – зменшення площ старовікових дібров, які є природними місцями перебування жука, та обробка лісових масивів пестицидами. На жаль, для рубок в першу чергу обирають найбільші дерева, не лишаючи старих дубів з дуплами. Не останню роль у скороченні чисельності жука-оленя відіграють і несвідомі громадяни, які збирають жуків для аматорських колекцій або й просто заради цікавості.

Зараз жук-олень занесений до Червоної книги України (II категорія). Знищення як самих комах, так і місць їхнього існування заборонено. Жук-олень фігурує у багатьох переліках видів, які охороняються на території тих чи інших об'єктів природно-заповідного фонду України.

Заходами охорони для цього виду комах може бути лише збереження у первинному стані властивих йому біотопів, зокрема створення ентомологічних заказників на території дібров та інших лісів з домішкою дуба; збереження окремих старовікових дубів.

Figure 1: Monitoring manual for the Stag Beetle.

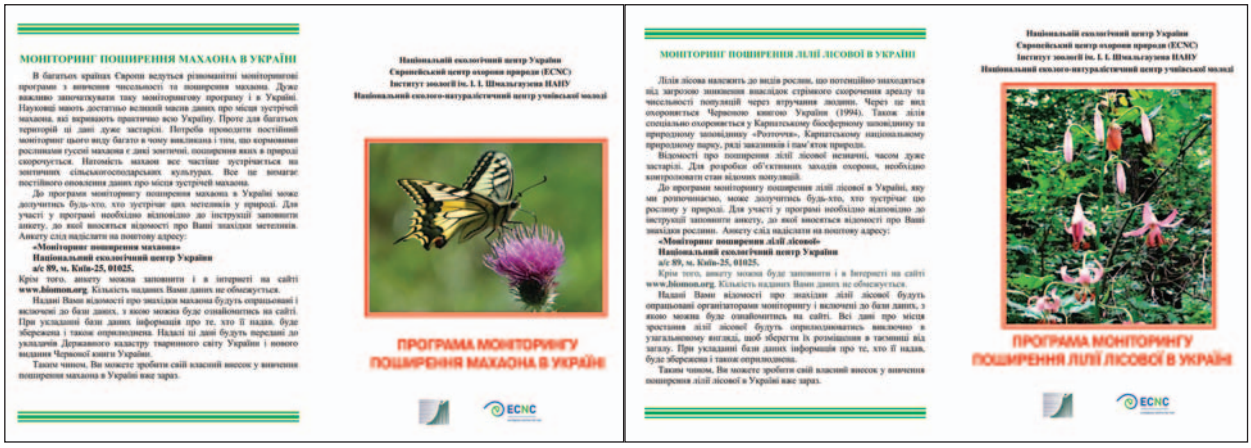

Figure 2: Front pages of manuals for the Martagon Lily and Swallowtail.

Figure 3: Monitoring manual for the White Stork.

Figure 4: Main page of the website www.biomon.org

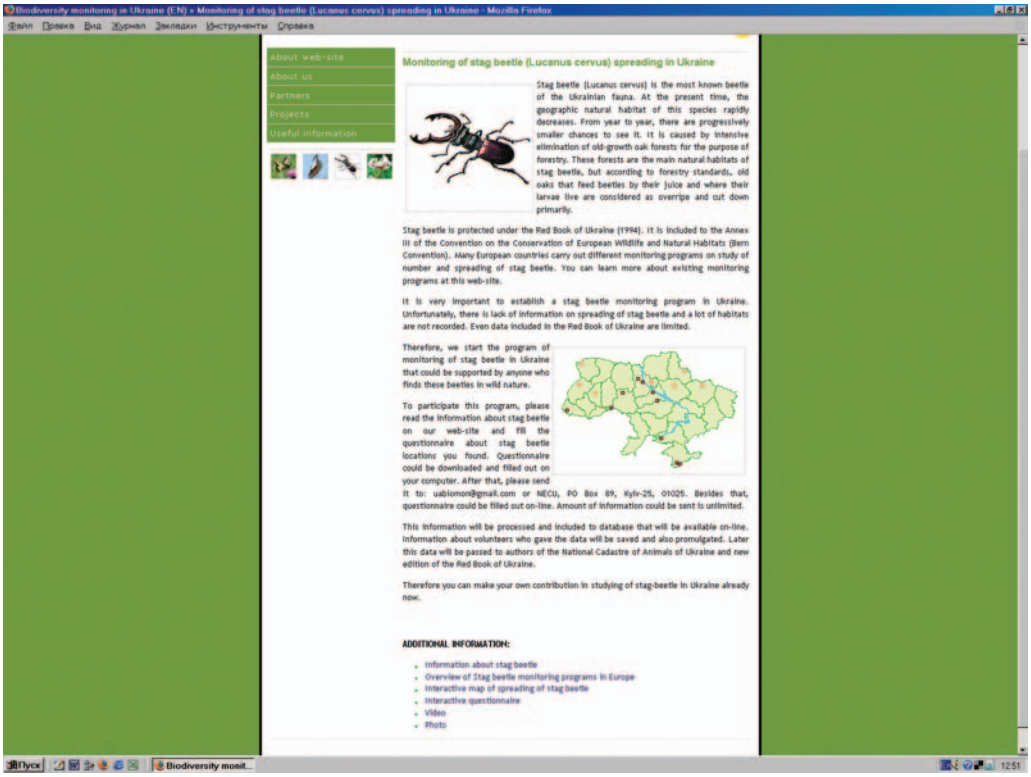

Figure 5: Information on the Stag Beetle monitoring programme.

Figure 6: General information on the Stag Beetle.

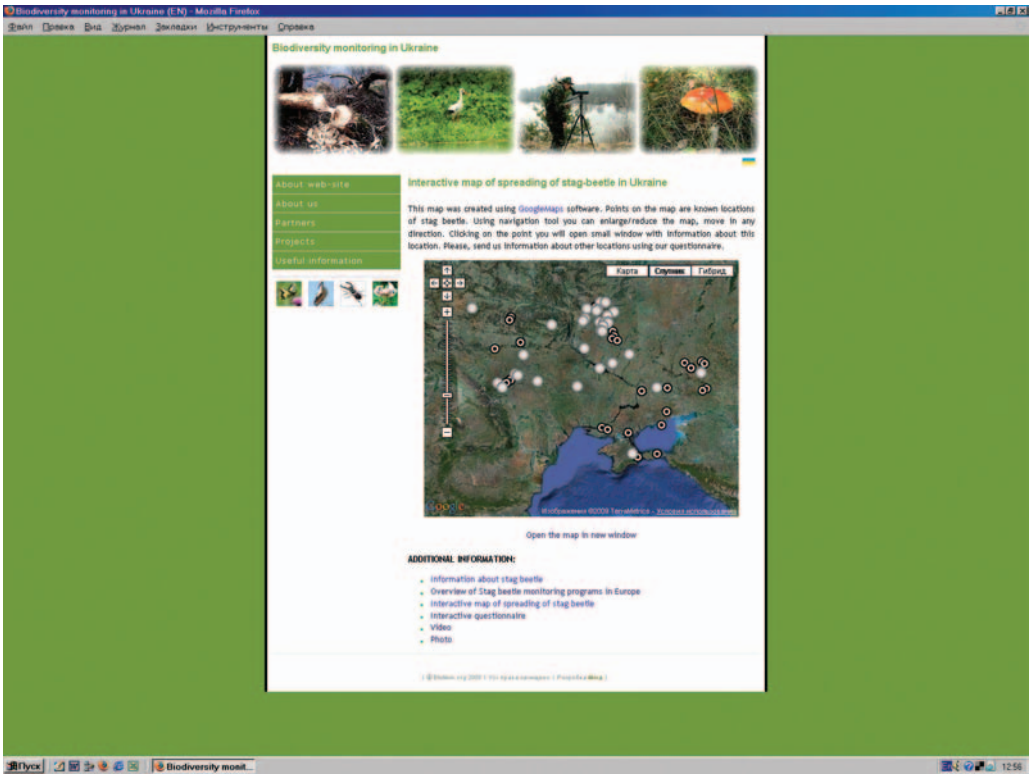

Figure 7: Interactive map of Stag Beetle distribution.

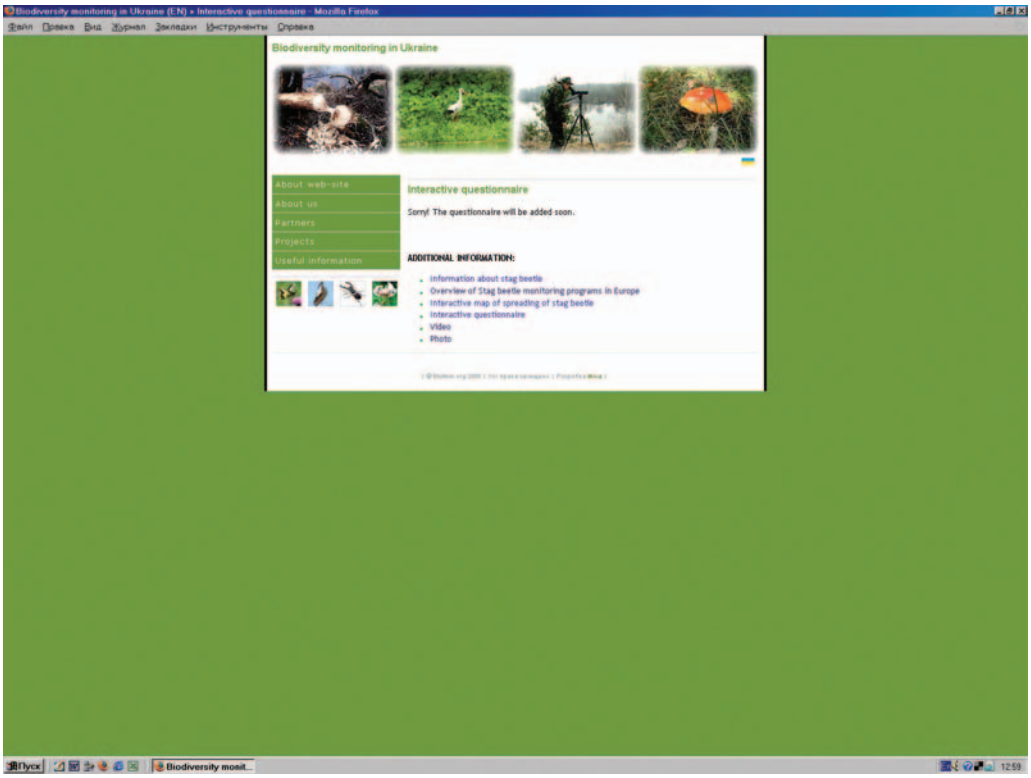

Figure 8: Web questionnaire for Stag Beetle monitoring.

Figure 9: Geographical scope of pilot study of Stag Beetle, Swallowtail Butterfly and Martagon Lily.

Figure 10: Registrations of Stag Beetle in Ukraine.
Red dots - data collected during pilot study; on this scale it is not possible to see all registrations.

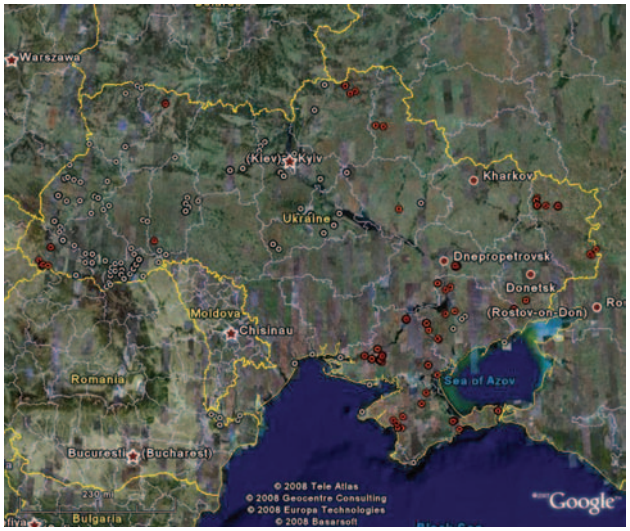

Figure 11: Registrations of Swallowtail Butterfly in Ukraine.
Red dots — data collected during pilot study; on this scale it is not possible to see all registrations.

Figure 12: Registrations of Martagon Lily in Ukraine.
Red dots — data collected during pilot study; on this scale it is not possible to see all registrations.

of NENC, NGOs and some individual people. In total 72 organizations took part in the pilot project: 52 educational institutions, 2 administrative rayon educational departments, 12 regional affiliations of NENC, and 6 NGOs. Information was also received from 20 people from different regions of Ukraine. The geographical spread of the participants is wide; they were located in the Autonomous Republic of Crimea and Lugansks'ka, Dnipropetrovs'ka, Zaporizhs'ka, Ivano-Frankivs'ka, Sums'ka, Kharkivs'ka, Donets'ka, Rivnens'ka, Zhytomyrs'ka, Khersons'ka, Mykolaivs'ka, Khmel'nits'ka, Poltavas'ka, Chernigivs'ka, Ternopils'ka, Zakarpats'ka oblasts (see Figure 9). In all, representatives of 18 high-level administrative units out of a total of 26 (or 69%) participated in the pilot study.

In total during the project, data were collected on 721 new localities of 3 rare species: Stag Beetle — 419; Swallowtail — 279; Martagon Lily — 23. For comparison, before the pilot study, specialists from the Institute of Zoology, the Institute of Botany and NECU collected the following data on these rare species from scientific publications: Stag Beetle — 230 localities; Swallowtail — 620 localities; Martagon Lily — 170 localities. 'Old' and 'new' localities are presented in Figures 10 to12.

To sum up the results of this part of the project and taking into account the amount of information materials (manuals and questionnaires) distributed, and the dissemination of information through email and website, one can conclude that the general level of public activity was not really high. At the same time, information was obtained from two-thirds of the high-level administrative units of Ukraine and quite a lot of new data on the three rare species of animals and plants were collected.

It is interesting to note that most of the information (about 91%) was received via ordinary mail, and only a small part via email, using the interactive questionnaire located on www.biomon.org. This is because most of the participants were from schools located in villages and small cities which have no or limited access to the Internet. The higher level of participation in the project of children from the villages is related to the fact that they spend much more time in nature than children in large cities, where about 70% of the Ukrainian population live.

The White Stork

The White Stork is a very appropriate model species for monitoring programmes with public involvement. This species is widely distributed in Ukraine, nesting in cities and villages, and is well known to the general public. In some countries, for example Germany, the Czech Republic and Slovakia, the annual total nests count is used for monitoring. Unfortunately, this is not possible in Ukraine because the country covers a rather large area and the number of amateur ornithologists is very small. Moreover, the level of nature conservation activity decreased sharply in the 1990s and still is quite low. Therefore, for Ukraine, the most realistic approach to the monitoring of this species is to conduct annual counts on sampling areas with the support of volunteers.

As mentioned earlier, Kaniv Nature Reserve, the Ukrainian Working Group on White Stork and the National Environmental and Naturalistic Centre of Young People were selected as key organizations for White Stork monitoring within the pilot study. The work was conducted by dissemination of manuals/questionnaire (by post and website) and the conducting of expeditions with the participation of local organizations.

During June and July 2008 seven expeditions were conducted, with a total route length of about 7.5 thousand kilometres (see Figure 13). During the expeditions White Stork nest counts were conducted on sampling areas. There were 30 areas in 32 administrative rayons of 13 oblasts of Ukraine, occupying a total of 1,330 km^2. Altogether, 373 nests with 1,087 nestlings were found.

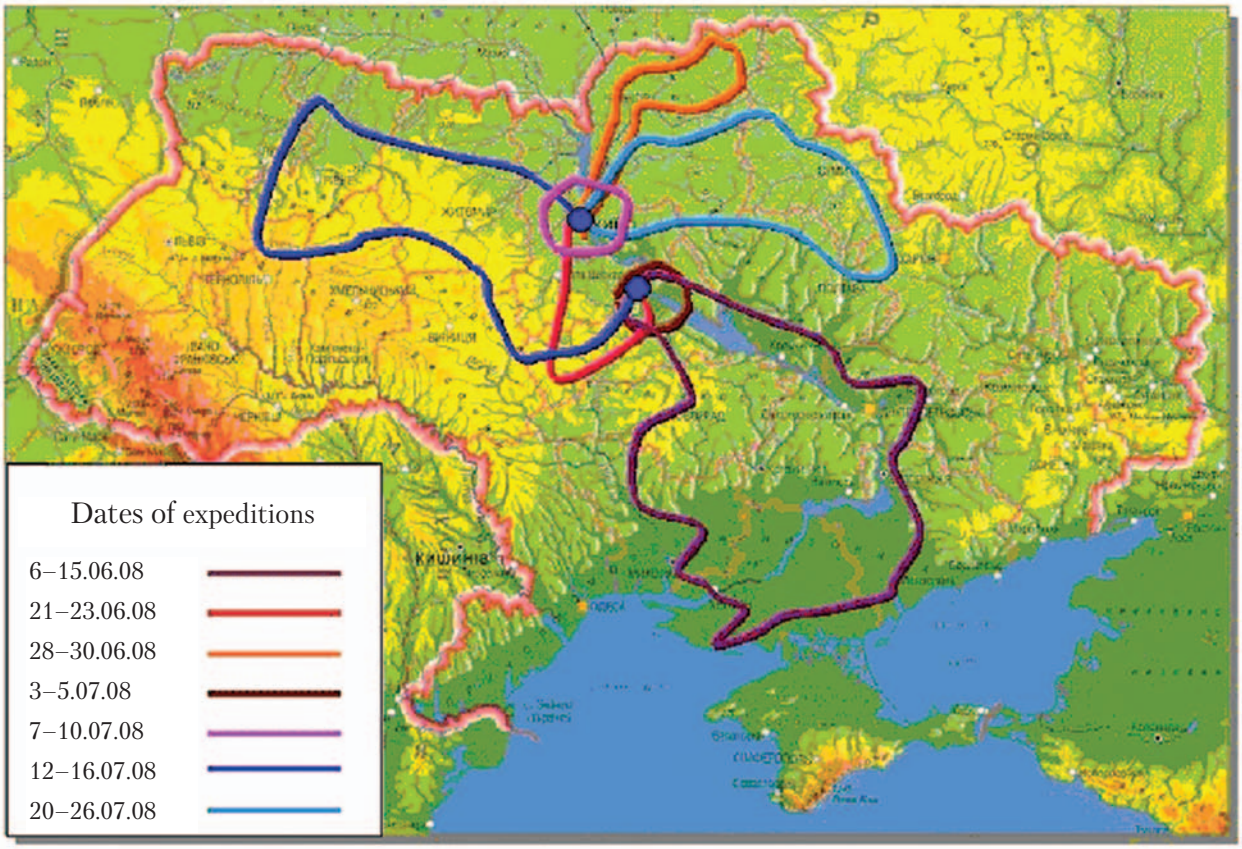

Figure 13: Routes of White Stork monitoring expeditions in 2008.

Figure 14: Geographical scope of the pilot study of the White Stork

Table 1: Number of White Stork nests counted in different oblasts of Ukraine.

Oblast	Number of nests
Cherkas'ka	124
Chernigivs'ka	254
Chernivets'ka	5
Dnipropetrovs'ka	24
Ivano-Frankivs'ka	27
Kharkivs'ka	20
Khersons'ka	4
Khmel'nits'ka	206
Kirovograds'ka	2
Kyivs'ka	113
Lugansks'ka	6
Lvivs'ka	110
Mykolaivs'ka	3
Poltavas'ka	101
Rivnens'ka	151
Sums'ka	162
Ternopils'ka	24
Vinnits'ka	55
Volyns'ka	136
Zakarpats'ka	1
Zhytomyrs'ka	106
Total:	**1634**

Additional information was collected by questionnaire. In all, 64 responses were received from 18 oblasts of Ukraine. Some of the information was unusable because the forms were not filled in correctly. Nevertheless, in general, these data substantially supplemented data collected during the expeditions and allowed a much bigger area to be covered.

The largest category of people who submitted information was school teachers and schoolchildren: 55; professional ornithologists: 5; amateur ornithologists: 3; postgraduate student: 1. Most of them have expressed an interest in continuing their participation in White Stork monitoring.

In all, using the questionnaire information was collected on 63 areas from 65 rayons of 19 oblasts of Ukraine and counted 747 White Stork nests were counted.

In total, by means of expeditions and the questionnaire 1,634 White Stork nests were counted in 129 rayons of 21 oblasts of Ukraine (see Figure 14 and Table 1).

Data from the eastern regions of Ukraine provided new information about the eastern border of distribution of this species in Ukraine.

The data collected on White Stork nests were put on the website www.biomon.org, on the pages devoted to this species (see Figure 15).

Figure 15: Website map of White Stork nests in Ukraine.

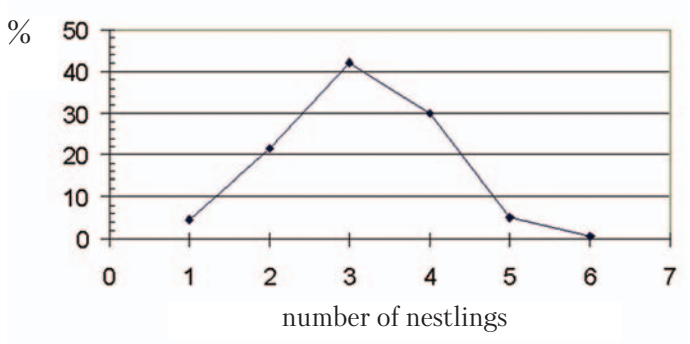

Figure 16: Distribution of the number of nestlings in broods of White Stork.

Based on the collected data, the level of White Stork breeding success was calculated. 2008 was successful for this species; the value was much higher than long-term average figures (see Figure 16). More than 40% of broods have 3 nestlings, about 30% have 4 nestlings. In 3 nests 6 nestlings were found in each nest, which is the maximum for the White Stork.

The level of breeding success of the White Stork in Ukraine is among the highest in European countries. The Ukrainian population of this species plays an important role in supporting this species in Europe and furthering its spread to the east.

Besides data on nests and breeding success, new information was also gathered on the arrival date of this species in Ukraine in spring and its departure from breeding areas in autumn.

Conclusions:

1. The level of public activity in Ukraine with regard to biodiversity monitoring is quite low.
2. The most active population group with respect to biomonitoring is school teachers and schoolchildren (or NGOs based on these categories).
3. Electronic means of communication (email, Internet) are still not developed/used enough by local people, especially in small cities and villages, for them to be effective tools in biomonitoring.
4. Despite the low level of public activity, it is already possible in Ukraine, using volunteers, to collect valuable data on biodiversity.
5. It is not possible to develop a large-scale biodiversity monitoring system with public involvement only on the basis of foreign short-term grants. This requires long-term national funding, which is absent at the moment (in fact, in Ukraine there is no national funding system for NGOs).