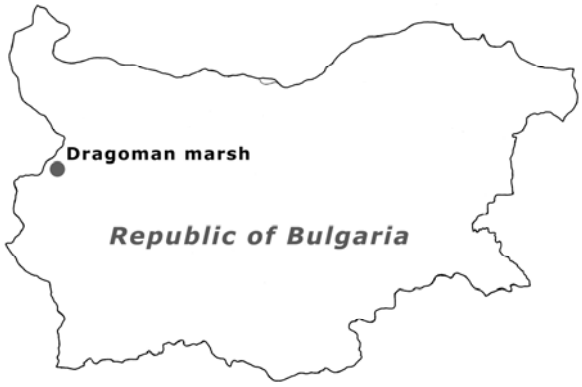
Investigation on the ornithofauna of Dragoman Marsh in Western Bulgaria - a tool towards the site conservation

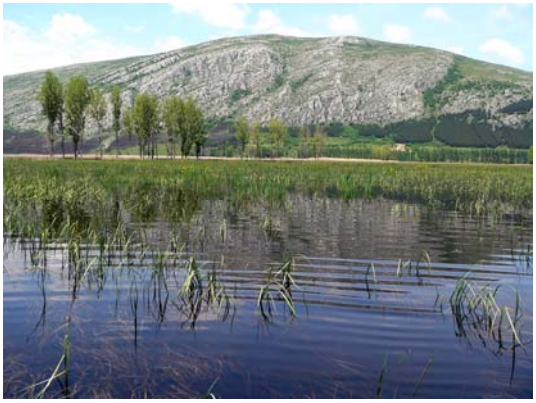
Applicant: Ivailo Nikolov
Address: P.O. Box 193, 1000 Sofia, Bulgaria;
E-mail: ivailo_nikolov@abv.bg

1. Introduction

Located to the north-west of the city of Sofia (42˚06'N 23˚04'E) Dragoman Marsh is placed in the lowering between the hills Chepan and Three Ears. It is a part of the heterogeneous complex comprising marshes, wet meadows and karst heights in the NW corner of the field of Sofia - places, very famous in the near past with their phenomenal diversity of plants and animals.

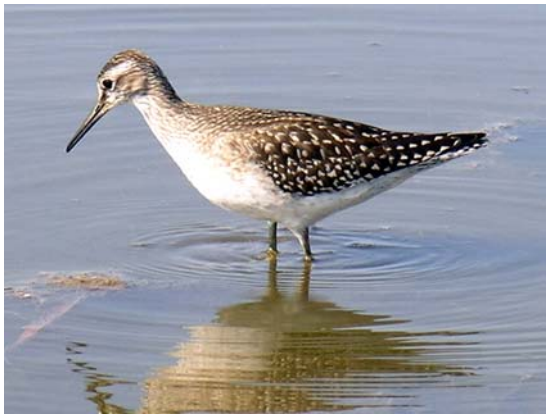


During the last decade the water from the marsh was not pumped out regularly. As a result on the territory of the former marsh began to retain more and more water, forming a number of little open water bodies (with diameter ca. 10-30 m and depth of 0,8-1,3 m) within the extensive reedbeds. Today these marshy areas remain there throughout the whole year. At present the territory of Dragoman Marsh covers a territory of about 350 ha, of which 150-200 remain flooded all year round.



Currently Dragoman Marsh is the only one of its kind karst marsh left in Bulgaria. On the other hand there are no other natural wetlands close to the city of Sofia, which could be used for outdoor educational programs with children and students by revealing them the ecological essence of these endangered habitats.

Due to its position, Dragoman Marsh is an important stop-over along the Balkans' migratory route "Via Aristotelis". During nesting season in the past there used to breed Red-necked and Black-necked Grebes, Bitterns, Pintails, Common Cranes, Redshanks, Snipes etc. Before the beginning of the autumn migration in late summer thousands of waterfowl prefer the secure conditions of Dragoman Marsh in order to moult here.



Although detailed studies and assessment of the nesting population of the breeding species were missing so far, it was known that recently the marsh and the surrounding meadows are of great importance for globally threatened species of birds like Ferruginous Duck and Corncrake. For other species as Rail, Spotted, Little and Baillon's Crakes it is also renowned breeding site. The wetland is among the most valuable places for resting and feeding migrants in Western Bulgaria. During migration there were observed Pygmy Cormorants, Common Cranes, Montagu's Harriers, Imperial Eagle, Saker Falcons, Lesser Kestrels, Jack Snipes, Wood Sandpipers etc. Most of these species are included in Annexes 2 and 3 of the Bern Convention (as strictly protected or protected fauna species), in the Directive 79/409/EEC on conservation of wild birds, in the Appendices 1 and 2 of the Bonn Convention on the conservation of migratory species of wild animals and in the Red List of IUCN.

2. Objectives as stated in the application and their progress

1. To collect recent detailed information on the migration and breeding status of all species of birds, inhabiting Dragoman Marsh just before the beginning of any kind of restoration and conservation activities in the site.

Table 1. Avifauna composition of some of the non-passerine breeding species in 2005

Species (latin names)	Breeding numbers for 2005
Podiceps ruficollis	15 - 25
Ixobrychus minutus	20 - 35
Botaurus stellaris	1 - 2
Anas clypeata	2
Anas platyrhynchos	55 - 70
Aythya ferina	2
Aythya nyroca	35 - 50
Anas querquedula	25 - 40
Anas crecca	4 - 5
Circus aeruginosus	1
Rallus aquaticus	55 - 70
Fulica atra	130 - 165
Gallinula chloropus	120 - 140
Crex crex	5 - 7
Porzana sp. (parva + pusilla + porzana)	Unknown yet
Vanellus vanellus	8

For the duration of the project (on the basis of the regular monitoring activities as well as the bird ringing in the area) and as a result of the information, gathered during previous years and literature sources, 196 species of birds have been recorder in the area. 50 of them breed regularly on the territory of the marsh, while 56 breed in the adjacent area. The highest water level ever recorder in the marsh in 2005 (reaching almost the original water body size of the marsh before the beginning of the draining procedures) was the reason for much bigger numbers of nesting non-passerine birds in the wetland compared to previous years (**Table 1**).

Except for regular monitoring of the marsh, bird ringing together with the Bulgarian Ornithological Centre (at the Bulgarian Academy of Sciences) was also conducted as another method for investigation of the avifauna in terms of its species composition, breeding ecology, migration etc. During the spring migration of 2005 bird ringing activities were carried out in Dragoman Marsh, making possible also the education in the field of young students from the town of Dragoman and Sofia, together with collecting valuable scientific data (taking body measurements, blood samples for blood parasites, status of fat reserves etc.) (**Table 2**).

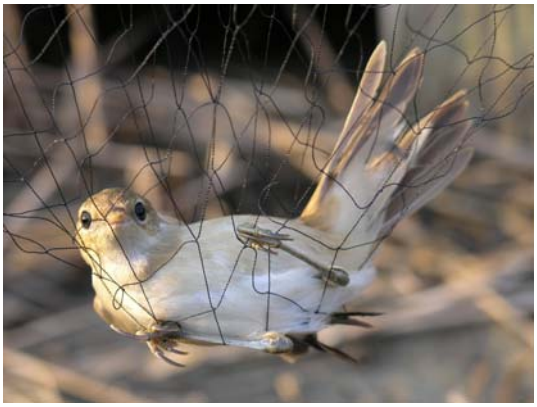


Table 2. Results of 15 days of bird ringing in Dragoman Marsh during the spring of 2005

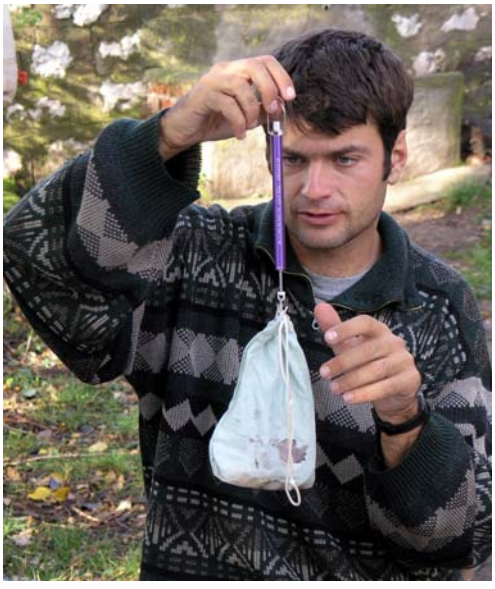
Species (latin names)	Numbers
Acrocephalus scirpaceus	159
Acrocephalus arundinaceus	113
Hirundo rustica	47
Acrocephalus schoenobaenus	30
Locustella luscinioides	15
Lanius collurio	9
Sturnus vulgaris	9
Riparia riparia	8
Motacilla flava	4
Sylvia curruca	4
Ixobrychus minutus	3
Phylloscopus collybita	2
Emberiza cia	2
Carduelis chloris	2
Delichon urbica	2
Turdus merula	2
Emberiza calandra	1
Rallus aquaticus	1
Aegithalos caudatus	1
Alcedo atthis	1
Muscicapa striata	1
Lanius minor	1
Sylvia atricapilla	1
Sylvia communis	1
Phylloscopus sibilatrix	1
Fringilla coelebs	1
Luscinia megarhynchos	1
Acrocephalus palustris	1
Total	**423**

423 birds of 28 species

The same initiative for ringing birds continued voluntarily also during the autumn of 2005 as a follow up of the interest, raised among the students during the spring bird ringing, which made possible the collection of additional valuable data about the autumn migration of birds over the territory of Dragoman Marsh. For 22 days a total of 985 birds from 46 species were ringed during the autumn of 2005.

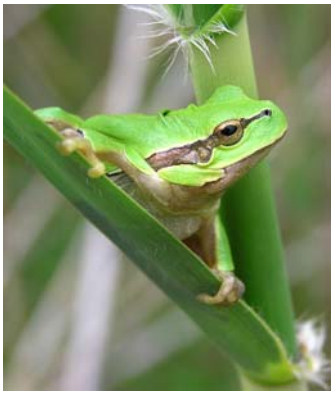
The results of these events will be summarised and processed into a scientific paper in the near future.

FOR THE GENERAL BIRD LIST AND STATUS SEE ANNEX 1.



2. To prepare a photo archive, presenting the local biodiversity.

Huge archive of high quality digital photos and scanned slides have been collected so far most of them with a camera, bought as a part of the project. The photographs represent many different sides of the biodiversity of both the Dragoman Marsh and the neighbouring Chepun Hill. Pictures of animals, plants, sceneries and microhabitats were taken, making any advertising activities in the future assured as regards to photo materials. Public events on the territory of the marsh, like forestation and planting acorns, outdoor educational programs with students etc. were also photographed. Photographs (free of charge) have been provided to Balkani Wildlife Society (the NGO, managing the restoration activities in the marsh) for educational purposes like: making information tables, revealing to the visitors the "hidden life" of the wetlands and the marsh in particular; cover of a CD with movie about the marsh; brochure about Dragoman Marsh and its biodiversity; educational booklet for students; promoting the area in the Internet as an Important Bird Area and as an attractive place for birdwatching, photo-hunting and eco-tourism in general etc.



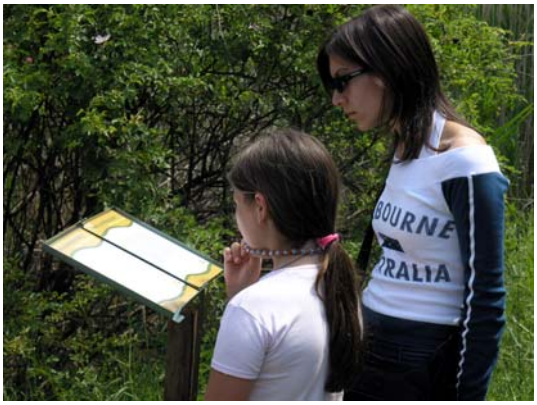
3. Targets achieved through the project

The main project aim was to contribute to the development of the most appropriate conservation and restoration activities, concerning Dragoman Marsh. The valuable data collected for the project duration showed that the marsh fully covers the criteria of the Community-wide network of nature protection areas NATURA 2000. All documents needed for that were filled and submitted and are expected to be approved without any objections by the authorities. Being a part of it, the marsh will be assured long-term survival as a wildlife area, housing many endangered species - that is how this will meet the internationally identified priorities of the European community.

On the other hand the same results were used for the preparation of the documentation, that are needed the marsh to be given the status Protected Area “Dragoman Marsh”. The proposal was submitted during the summer of 2005 to the Ministry of Environment and Waters, where the procedure for the marsh’s designation as protected area is onward.

The knowledge received for the project duration gave the possibility to carry out, together with Balkani Wildlife Society and scientists from the Bulgarian Ornithological Centre and other institutes at the Bulgarian Academy of Sciences, few educational courses in the field with students from the towns of Sofia and Dragoman and the neighbouring country – Serbia and Montenegro. All participants were able to see and better understand the “secrets” of the wetlands in general and the fate of Dragoman Marsh in particular.

As the data collected so far is already summarised it was provided to Balkani Wildlife Society for the development of local Biodiversity Action Plan, which will also help the local community to identify their own environmental priorities and take active steps to improve their environment. The results are available to the local and national authorities, which could use them for the implementation of the National Biodiversity Strategies that will assist the government of Bulgaria to meet its obligations to the Convention on Biological Diversity.



The information tables with pictures and information collected by the project staff, together with the educational route (including wooden bridge and observation tower in the marsh) made by Balkani Wildlife Society, attract local people during weekends. It came out that families use to spend more and more time by the marsh and the educational facilities with just one purpose – staying close to “nature”. On the other hand raising public awareness by the bird ringing and

monitoring campaigns allowed students and children to extend their knowledge on wetlands and their inhabitants.

Chronicle about Dragoman Marsh, with pictures and information collected through the project, was published in one of the biggest ecologically directed magazines in Bulgaria ("Eco world"). This is how the marsh was given also publicity to a larger audience which could be interested in visiting the area or to gain an insight into wetlands.

4. Challenges faced & solutions adopted

Several problems were met during the project. One of them was the very high water level of the marsh in 2005, which almost reached its original size before the draining procedures.

This made the monitoring of the avifauna extremely difficult as most of the birds used to concentrate within the reed beds and the small water bodies in between. These areas (1-1,2 m deep) were accessible only on foot, which was actually very exhausting method (combined with ultra dense population of mosquitoes!). However the results received (proved breeding of Shoveler (*Anas clypeata*) for the first time around Sofia during the last 20 years, breeding Pochards (*Aythya ferina*) found, much bigger breeding numbers of the globally threatened Ferruginous Duck (*Aythya nyroca*) than expected, breeding Teals (*Anas crecca*) etc.) could be considered as more than successful!

Because of the high water level the educational wooden bridge in the marsh (built by Balkani Wildlife Society few years ago) remained under the water. This was used before as a good opening for ringing birds in the core area of the reed beds, which became apparently difficult in 2005. This was also the reason why many people could not reach the hide for observing birds at the end of this bridge, which led to the establishment of new (shorter) bridge with information tables that should keep the tourists' interest about the area. However establishment of new tourist facilities are much needed in order to make the whole process sustainable in terms of financial turnover, which should ensure their future (respectively the interest of the people to the marsh).

As for carrying out bird ringing activities mist nets for catching birds were needed (but buying mist nets was not included in the project!), Balkani Wildlife Society purchased several mist nets that made this method possible. This helped the project a lot, providing us the

possibility to record few species of small passerines that have highly hidden way of life or that are very scarce in the area (e.g. an individual of Moustached Warbler (*Acrocephalus melanopogon*) was caught during these ringing actions).

5. Changes to the project arising during the year

No significant changes were made to the project. However few items from the budget came out to be unnecessary, thus part of the money were transferred to other articles, mostly related with extended field work (see **Budget & expenditure**). Another difference (to a lesser extend) that appeared was the currency rate GBP:BGN. It was a bit higher when the project was planned in 2004 (1:2,92) but dropped down during 2005 to 1:2,8 and even less.

6. Budget & expenditure

Table 3. Budget & expenditure

Description of items	Planned budget (as per project proposal)	Expenditure	Remarks
1. Field work (120 person-days)			*The field work carried out was extended to 190 days for better coverage in the course of time*
- Fuel (for 6 000 km)	350 £	300 £	*Decrease related to using gas-driven vehicles sometimes*
- Travel costs (bus/train tickets)	50 £	75 £	*Increase related to more person days*
- Overhead expenses (for 120 person-days)	690 £	1095 £	*Increase related to more person days*
- Accommodation	200 £	50 £	*Accommodation in local house*
SUBTOTAL	**1290 £**	**1520 £**	
2. Technical equipment			
- Photo camera (incl. lenses, tripod, accessories)	800 £	810 £	*Camera Olympus C-8080, incl. tripod, UV filter, memory card*
- Photo films (20 films for color slides)	130 £	30 £	*Although the camera (C-8080) is digital, several films were purchased for SLR camera, supplied with different lens*

- Processing of photo films	80 £	70 £	*Scanning of films*
- Long rubber boots (2 pairs)	60 £	60 £	*3 pairs bought instead as 1 of them got pierced by the reed*
- Wellingtons (2 pairs)	35 £	55 £	*3 additional pairs bought for some volunteers during the activities in the marsh (5 pairs total)*
- Mosquito repellents (7 vials)	25 £	25 £	
SUBTOTAL	**1130 £**	**1050 £**	
3. Others			
- Preparation of preliminary design for information boards	50 £	0 £	*As money was not enough for the production of a whole table, only photographs were provided to Balkani Wildlife Society, which produced the information tables*
- Office consumable materials	20 £	50 £	*Increase related to purchasing and maintaining of a field diary, where all birds recorded and ringed were included*
- Book-keeping (5 % of the SUBTOTALS' sum)	125 £	0 £	*Book-keeping was maintained and supervised by the project staff thus making such payment unnecessary*
SUBTOTAL	**195 £**	**50 £**	
TOTAL	**2 615 £**	**2 620 £**	

Acknowledgments

The project staff would like to express deep gratitude to Balkani Wildlife Society for their help throughout the project implementation (by providing volunteers, logistical and financial help at some stages) as well as to the Bulgarian Ornithological Centre at the Bulgarian Academy of Sciences for their help regarding the outdoor educational activities and ringing actions in the area of Dragoman Marsh.