AgroLife Scientific Journal - Volume 2, Number 2, 2013
ISSN 2285-5718; ISSN CD-ROM 2285-5726; ISSN ONLINE 2286-0126; ISSN-L 2285-5718

SUMMER FIELD TRIP TO SFÂNTU GHEORGHE BRANCH AT ILGANII DE JOS (TULCEA COUNTY, ROMANIA): A NATURALISTIC APPROACH

Ionela DOBRIN, Emilia Brînduşa SĂNDULESCU, Mala-Maria STAVRESCU-BEDIVAN

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăşti Blvd., 011464, Bucharest, Romania, ioneladobrin@gmail.com

Corresponding author email: mala_stavrescu@yahoo.com

Abstract

Between July 29 and August 5 2013, near Ilganii de Jos village (part of ROSCI 0065 Danube Delta, Nufăru commune, Tulcea County), on the oldest Danube branch, Sfântu Gheorghe, a personal field trip took place. In order to complete the didactic collections with some new fresh material, both animal and vegetal samples were collected, photographed, preserved and brought back in Bucharest, at U.A.S.V.M. laboratories. With the aid of an entomological net, various terrestrial arthropods (adult and larval insects, opilionids and arachnids) were captured on plants. Many species of the local vascular flora were pressed and dried further in a herbarium. Some of the specimens were already arranged for the use of students in class, like a Decticus verrucivorus (Orthoptera, Tettigonidae) female ovipositor, unionid adductor muscles or water caltrop (Trapa natans, Lythraceae) seeds. Natural phenomenons as mimicry and camouflage were noticed for Hyla arborea/Xanthium italicum or Coreus marginatus/Rumex obtusifolius associations.

Key words*: Sfântu Gheorghe branch, Danube Delta Biosphere Reservation, field trip, sampling, didactic collections.*

INTRODUCTION

In the Danube Delta is seeking to promote a tourism specialist less pollutant, through knowledge about tourism and scientific values, professional as well as aesthetic, for ornithologists, naturalists, ecologists, fish farmers, geographers, students, schoolchildren and other tourists or lovers of nature (Turtureanu, 2011; www.beautifulromania.ro).

Ilganii de Jos village (45°9′22″N 28°55′18″E, Nufăru commune, 11 km from Tulcea) is part of the Danube Delta Biosphere Reservation. This place, like many others in the Danube Delta, plays an important role for fishing, wood and reed exploitation, navigation and tourism. According to Covaliov et al. (2012), Ilganii de Jos in part of the apiarian rout no. 2, suggested in order to carry out the activity in pasture agriculture.

On the other hand, it is already known that the Danube Delta's vascular flora has drawn the attention of many scientists (Ciocârlan, 2011).

Between July 29 and August 5 2013, a personal camping holiday in the Danube Delta (Figure 1), on the Danube oldest branch Sfântu Gheorghe, has transformed into a passionate field trip, in order to observe, study and collect data about various plant and animal individuals for future student use. The most representative's species were brought back in Bucharest with the hope that they will promote, if necessary, the Danube Delta great biodiversity potential.



Figure 1. Natural habitat at Sfântu Gheorghe branch

MATERIALS AND METHODS

The main collecting sites (Figure 2) ranged from 45°10′32.91″N/28°54′09.95″E and 45°10′50.52″N/28°53′43.61″E geographical coordinates. Plants were harvested by hand pulling; a great amount of green mass was dried and pressed for storing in a herbarium. Some of the animals sampled on the shore of

Sfântu Gheorghe branch were whole preserved, in different recipients, on the spot, in alcohol 95%, subsequently transported to the Faculty of Agriculture from UASVM Bucharest laboratories. Arthropod species were captured with the aid of an entomological net. All observations were mentioned in a field notebook. Insect species have been identified according to Leraut (2012). Hundred photos and future didactic movies immortalized various aspects in the wild nature of this Danube Delta's interest place.



Figure 2. Collecting sites (map source: Google Earth)

As a good qualitative assessment provides a much richer understanding of the complexity of student learning in the classroom (http://2003.botanyconference.org/), direct observation was the most used method in this qualitative research.

RESULTS AND DISCUSSIONS

The biological material brought in the summer of 2013 from Danube Delta to the UASVM Bucharest laboratories was classified as follows: terrestrial and aquatic invertebrate samples (mollusks, arthropods) and vascular flora specimens brought together into a herbarium. Any vegetation survey should include, where possible, collection of at least one specimen of each species encountered (http://www.queensu.ca/).

The biological individuals added to our teaching collections were selected by category and identified. We were able to identify so far the following invertebrates specimens: Mollusca, Gastropoda (*Cepaea vindobonensis*, *Esperiana esperi*, *Lymnaea stagnalis*, *Planorbarius corneus, Theodoxus danubialis, T. transversalis*, *Viviparus viviparus*); Mollusca, Bivalvia (*Corbicula fluminea*, *Dreissena polymorpha*, *Pseudanodonta complanata*, *Unio pictorum, U. tumidus*) (Figure 3); Arthropoda, Arachnida (*Argiope bruennichi*); Arthropoda; Myriapoda: Diplopoda, Julidae; Arthropoda, Insecta, Coleoptera: Chrysomelidae (*Podagrica fuscicornis*), Coccinellidae (*Coccinella septempunctata, Halyzia sedecimguttata*), Dytiscidae (*Dytiscus dimidiatus*); Heteroptera: Coreidae (*Coreus marginatus*), Pentatomidae (*Aelia acuminate, Carpocoris mediterraneus, Graphosoma lineatum, Pentatoma rufipes*), Pyrrochoridae (*Pyrrhocoris apterus*); Homoptera, Cicadelidae; Neuroptera, Chrysopidae (*Chrisoperla carnea*); Odonata, Lestidae (*Lestes sponsa*), Libellulidae (*Leucorrhinia dubia*); Orthoptera, Tettigonidae (*Decticus verrucivorus*); Trichoptera, Limnephilidae.

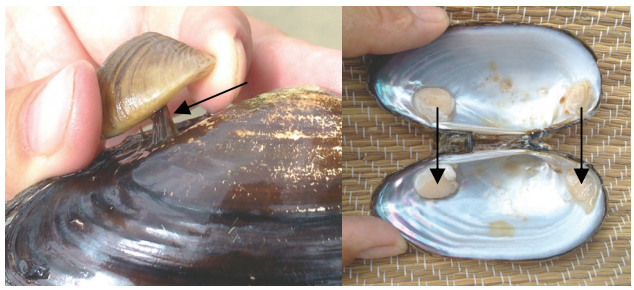


Figure 3. Bivalves from Sfântu Gheorghe Branch (left: byssus threads; right: adductor muscles – see the arrows)

As regarding the local flora, over 50 plant species belonging to over 20 families were identified and some of them – collected and dried for the herbarium collections: Amaranthaceae (*Amaranthus* sp.); Apiaceae (*Daucus carota*); Asteraceae (*Arctium lappa, Artemisia absinthium, Artemisia annua, Cichorium intybus, Helianthus annuus, Inula britannica, Lactuca serriola, Matricaria recutita, Xanthium italicum, X. spinosum*); Butomaceaea (*Butomus umbellatus*); Cannabaceae (*Cannabis sativa*); Chenopodiaceae (*Atriplex* sp., *Chenopodium* sp.); Cyperaceae (*Carex* sp., *Cyperus glomeratus*); Dipsacaceae (*Cephalaria transylvanica*); Euphorbiaceae (*Euphorbia salicifolia*); Fabaceae (*Amorpha fruticosa, Gleditsia triacanthos, Glycyrrhiza echinata, Lathyrus tuberosus, Lotus corniculatus, Melilotus albus, Medicago lupulina, Ononis*

sp., *Trifolium* sp.); Lamiaceae (*Mentha arvensis, M. pulegium, Lycopus europaeus*); Lithraceae (*Lithrum salicaria, Trapa natans*); Malvaceae (*Althaea officinalis*); Onagraceae (*Epilobium palustre*); Plantaginaceae (*Plantago* sp.; *Veronica chamaedrys*); Poaceae (*Agropyron repens, Bromus* sp., *Cynodon dactylon*, *Dactylis glomerata, Echinochloa crus-galli*, *Setaria glauca*); Polygonaceae (*Rumex obtusifolius*); Oleaceae (*Fraxinus excelsior*); Rosaceae (*Rubus caesius*); Salicaceae (*Populus alba, Salix* sp.); Solanaceae (*Solanum dulcamara*); Tamaricaceae (*Tamarix ramosissima*); Urticaceae (*Urtica dioica*); Vitaceae (*Vitis sylvestris*). As regarding the vascular flora, the best represented seem to be the Asteraceae and Fabaceaea families. Most of the enlisted vascular plant species were mentioned before for Ilgani (Doroftei et al., 2011).

Wild plants and their associated insects: *Arctium lappa – Carpocoris mediterraneus* (Figure 4a); *Daucus carota – Graphosoma lineatum* (Figure 4b); *Althaea officinalis – Podagrica fuscicornis* (Figure 4c). As concerning the trophic spectrum, it is well known that some of the polyphagous species have preferences for certain genus or families of plants (Beldean, 2005).

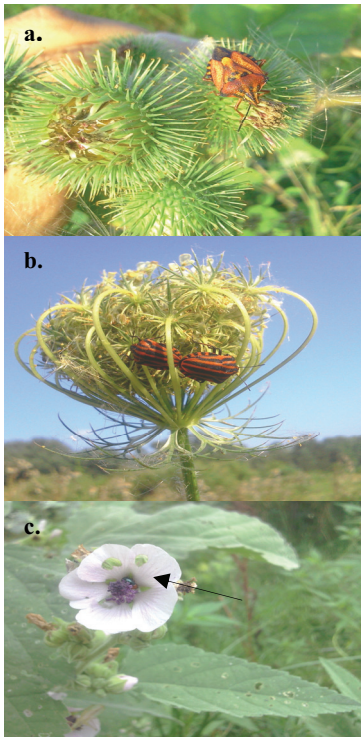


Figure 4. Insect-plant associations

Natural phenomenons was observed in the wild nature of Sfântu Gheorghe branch near Ilganii de Jos village: predation (a ranid frog eating a butterfly; a *Natrix tessellata* specimen consuming a fish on a sunny shore) (Figure 5), mimicry and camouflage – a *Hyla arborea* specimen laying on a *Xanthium italicum* leaves (Figure 6), the hemipter insect *Coreus marginatus* hiding between the seeds of the reddish-brown colour from *Rumex obtusifolius*) (Figure 7).


Figure 5. Snake eating a living fish along the shore


Figure 6. *Hyla arborea* lying in the sun on green *Xanthium italicum* leaves


Figure 7. *Coreus marginatus* prefers *Rumex* host plants

CONCLUSIONS

Due to combined efforts of the present work team to travel, collect, identify, label, well storage and transport a reach database consisting in biological samples from Sfântu Gheorghe branch, the students of Biology specialization from the Faculty of Agriculture can be familiarized with this favorable place hosting a unique flora and fauna biodiversity, represented by Ilganii de Jos village (Tulcea County).

In classes, we recommend handling either animal specimen preserved in alcohol, either plant species from a herbarium, either didactic movies or photographs, for increasing and extending the knowledge about the biodiversity concept.

Also, this paper reminds the importance of using direct observations, in order to learn about the normal behaviour and adaptations of living organisms in their natural environment.

ACKNOWLEDGEMENTS

We would like to give special thanks to Dr. Oana Paula Popa, research scientist in Molecular Biology Department from "Grigore Antipa" National Museum of Natural History of Bucharest, for her assistance in identifying mollusk species.

REFERENCES

Beldean P.V., 2005. Ecological studies on the Coreoidea (Heteroptera, Insecta) in the Nature Reserve Cheile Turzii. Studia Universitatis Babes-Bolyai, Biologia, L (1), p. 3-10.

Ciocârlan V., 2011. Vascular flora of the Danube Delta. Analele Ştiinţifice ale Universităţii "Al. I. Cuza" Iaşi, Vol. LVII, 1, p. 41-64.

Covaliov S., Doroftei M., Negrea B.M., 2012. Assessment of vegetal resources in Danube Delta, Romania. AAB Bioflux, Vol. 4 (2), p. 57-72.

Doroftei M., Oprea A., Stefan N., Sârbu I., 2011. Vascular wild flora of the Danube Delta Biosphere. Sc. Annals of the DDI, Vol. 17, p. 1-37.

Leraut P., 2012. Le guide entomologique. Delachaux et Niestle SA Paris, p. 80-86, p. 104-110.

Turtureanu A.G., 2011. Ecotourism in the Biosphere Reservation of Danube Delta. Proceedings "Danubius" University of Galaţi, Romania, p. 402-406.

***www.beautifulromania.ro.

***http://2003.botanyconference.org/.

***http://www.queensu.ca/biology/facilities/herbarium/collecting.html.