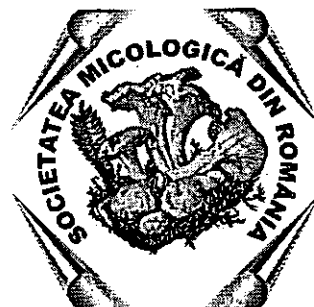
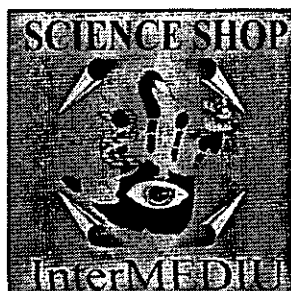


# PROJECT VLADENI 2000

**Biodiversity Conservation  
in the Wetland Vladeni (IASI COUNTY - ROMANIA)**





# PROJECT VLADENI 2000

**Biodiversity Conservation  
in the Wetland Vladeni (IASI COUNTY - ROMANIA)**



**Motto:**

'What looks first impossible to start, often appears to be simply possible once started' (Ing. Arie Fokkink).

**SUMMARY**

*Project VLADENI - 2000, Biodiversity Conservation in the Wetland Vladeni (IASI COUNTY - ROMANIA) was the initiative of the Romanian students from the Faculty of Biology, 'Al. I. Cuza' University of Iasi. It approached the field of Conservation Biology - a new domain of interest and research in Romania. It continued the study carried out between 1995 - 1998 by the Romanian Ornithological Society (R.O.S.), viewing a full biological documentation for a RAMSAR site assessment in the area. Results concerned birds only and have been published in the Important Birds' Areas List of the Romanian Ornithological Society, (D. Munteanu & C. Gache, 1995, 1998).*

**INTRODUCTION**

Previous studies revealed the importance of the ponds existing in Vladeni area as nesting place offered to waterfowls. A. Papadopol and C. Mandru (1967) described the territory as important for the aquatic birds' migration. Consequent to the preliminary research achieved by Carmen Gache, the Romanian Ornithological Society comprised the ponds within the list of Important Bird Areas in Romania, 1995 issued.

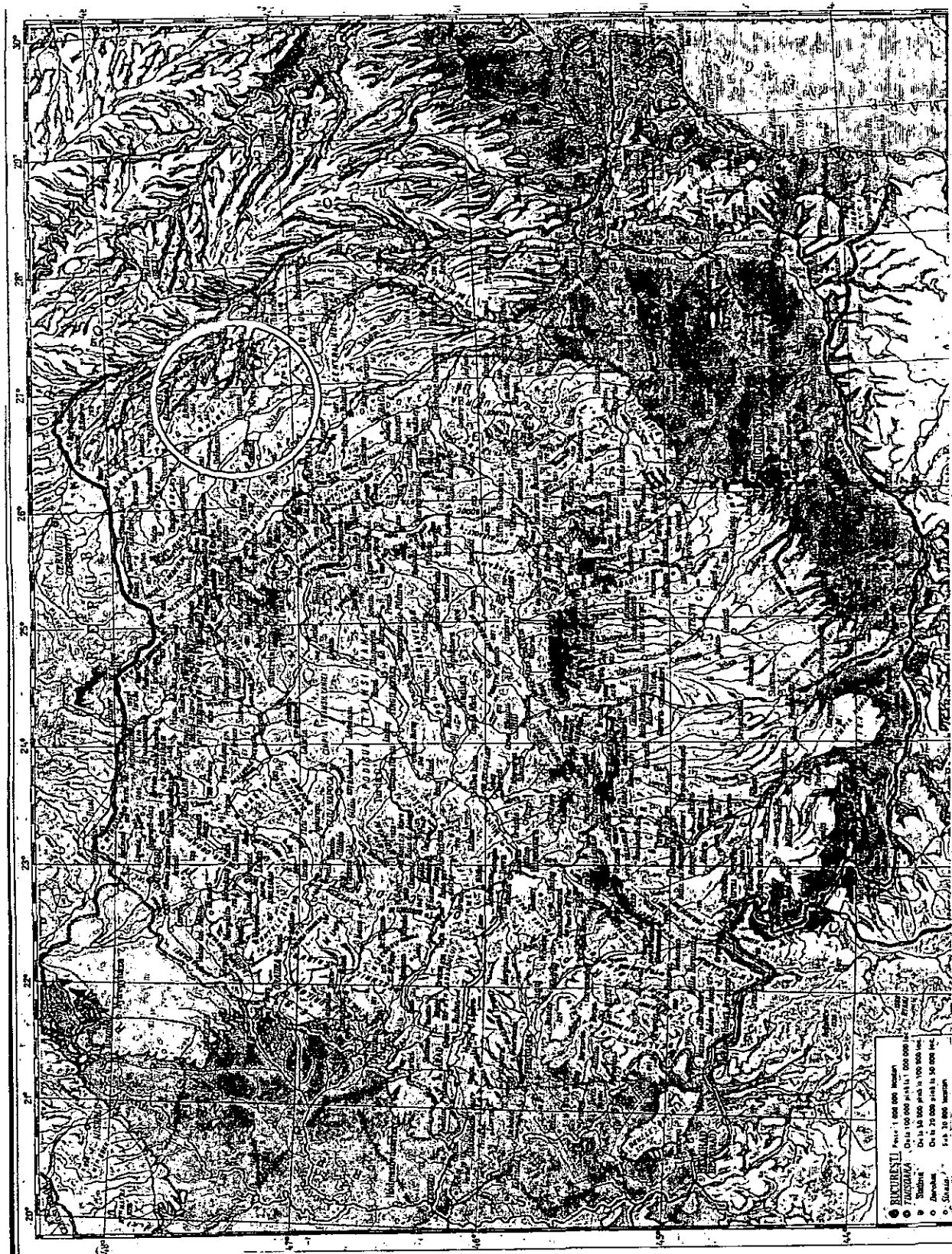
Ponds are used for fish rearing while the dam lake Halceni is a very important water resource in the region (for ponds and agriculture). Reedbed covers more than 450 ha of Jijia's ponds. The ponds are a very valuable nesting place for waterfowls. In the recent past, 4 species new for Moldova region fauna were recorded.

This is the first systematic study in the area that provided needed information and helped the foundation of a long-term research and biological monitoring activity.

Data acquired was brought together into a computational database at NGOs', residents, students, scientists, and local authorities' free disposal. The study might be further developed as starting point for a more complex research project viewing a monograph of the area. A leaflet is to be issued in order to sustain governmental bodies' efforts for a thinking and attitude regarding wetlands and sustainable development. Results are to be further used as the scientific background for an official request regarding a RAMSAR site statement of the area. The project investigated the status, distribution and habitat requirements of several globally threatened species of birds: Pygmy cormorant (*Phalacrocorax pygmeus*), Lesser white - fronted Goose (*Anser erythropus*), Ferruginous Duck (*Aythya nyroca*), Red - breasted Goose (*Branta ruficollis*), Spotted Eagle (*Aquila clanga*), Imperial Eagle (*Aquila heliaca*), Pallid Harrier (*Circus macrourus*), White - tailed Eagle (*Haliaeetus albicilla*), Corncrake (*Crex crex*), Great Snipe (*Gallinago media*) etc. Close collaboration with local population and authorities helped to raise public awareness and formulate an efficient conservation programme.

**DESCRIPTION OF THE WETLAND VLADENI****Location**

Biodiversity of the wetland located 47°25' N and 27°20' E in the mid basin of the River Prut has been occasionally studied and for a large number of areas data regarding the avifauna are not enough. Vladeni ponds are placed in the floodplain of River Jijia crossing the Central Moldavian Plateau. Jijia is the most important tributary of the River Prut. It is 282.6 km long while the total surface of the hydrographic basin is 5.722 km<sup>2</sup>. A large, liable to inundation area covering tens of thousands ha of reedbed existed prior to 1970 at the confluence of Rivers Miletin and Jijia.



ROMANIA

Jijia was scattered between Borsa and Vladeni, into few small branches that were gathering again in the main riverbed near the village Mihail Kogalniceanu. The region of the localities: Larga Jijia - Mihail Kogalniceanu - Borsa - Vladeni - Halceni supported some hydrotechnical arrangements (early '70 - early '80) in order to decrease the flood risk and enlarge agricultural areas. Jijia's course was regularised while large chains of ponds and accumulation lakes used as water sources for localities, irrigation, and fisheries were created.

### **Pedological characteristics**

From the pedogeographic point of view, Vladeni ponds are situated in the Moldo-Sarmatian Province. Their foundation consists of alluvial soils, generally characteristic to the inferior terrace of the Jijia valley. In the lateral peripheral areas, including the land with forest plantations, there are levigated chernozems. These are very fertile, enabling the agriculture development in the area. Patches of puddles, salty pastureland weakly drained also exist on the low surfaces.

### **The Climate**

The 100 - 150 m height of the middle basin of the Jijia as well as the placement of the studied site at 47°23' N and 27°21' E determined a temperate climate with excessive shades, characterizing the whole Moldavian Plateau. The climate was mostly influenced by the presence of the Siberian anticyclone and less by the Atlantic one. (The Carpathians stay in their way like a barrier.) During the summer, there are some tropical influences from the northern Africa.

The average yearly temperature is 9.8 °C, with a yearly amplitude of the monthly average of 24-25 °C. January average is -3.9 °C and July 20.6°C. The summer is rather hot with high temperatures. The absolute maximum was 40 °C (Iasi, 27.07.1909); winter is extremely cold, the Siberian air coming here from N-NE without meeting any obstacles. The absolute minimum was -32.3 °C (Podu Iloaiei, 23.01.1963). The amplitude of 72.3 °C is illustrative for the excessive character of the climate.

The first frost usually occurs around the 15<sup>th</sup> of October and the latest at the 21<sup>st</sup> of May. The average number of days without frost is 170. During the winter, the ice bridge lasts about 70 - 80 days also because of the low depth of the ponds (1 - 1.2 m). Still, large ponds in Moldavian Plain freeze only during the very cold winters (1995, 1996).

Most of the year it rains, excepting the period between the 23<sup>rd</sup> of November and the 21<sup>st</sup> of March, with 31 - 42 days when usually snows. The average yearly rainfall is 460 mm, explaining the location of the site at the interface of Central European deciduous forest with the Pontic steppe. The rainfall is not uniform during the year. The rainfall has a torrential character during the warm season, taking the form of showers with great intensity; there are long drizzles during the fall. In the summer there are periods of drought, because of the lack of rainfall (10 to 15 days but they can extend up to 50 days - especially in July and August). There are 191 days without rainfall during the year. The thickness of the snow cover is relatively small, increasing with 13 cm from the beginning of November till the middle of February. The atmosphere dynamic is dominated by the air coming from NV, SE and N (20% - NV; 8% - SE; 21.5% - N). The calm varies between 18 - 39%.

### **Presentation of the Larga Jijia main ponds**

EC 1' (150 ha) is divided in two sections - EC 1' and EC Miletin - by a East - West placed dam. The reed belt is thick and dense; the reed invades aprox. 50% of the Northern half. The extended reed favoured the nesting of the *Ciconiiformes*. The water has about 1 m depth, with the

lack of low depth areas. Towards the dam, there are zones with short reed and *Glyceria*.

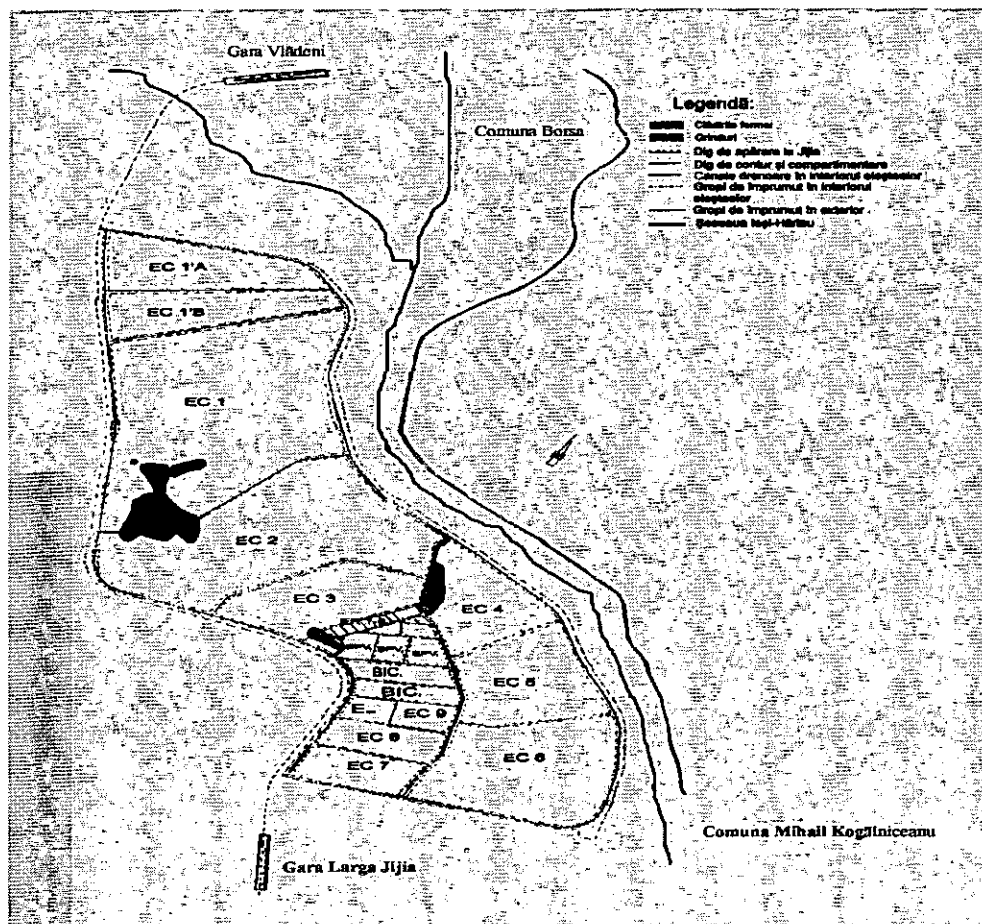
EC 1 (265 ha) In 2000 the basin was left empty but the reed belt developed normally because of the high level of the phreatic layer. Large areas are covered with hygrophile vegetation (*Polygonum amphibium* and *Glyceria*). Most of the surface was cultivated with maize and vegetables. Here and there, there are water puddles. Some zones remained under the form of gley. The reed played the role of resting and overnight staying place for a lot of bird species.

EC 2 (215 ha) is surrounded by a reed belt, more lax on the NE and SV shores, but the shore is abrupt and the anthropogenic pressure is high (sportive fishing), this preventing the shores of being used as feeding places. The depth is 1 - 1.5m. In the middle of the basin there are large areas covered with reeds (about 50%), nesting areas of maximum importance.

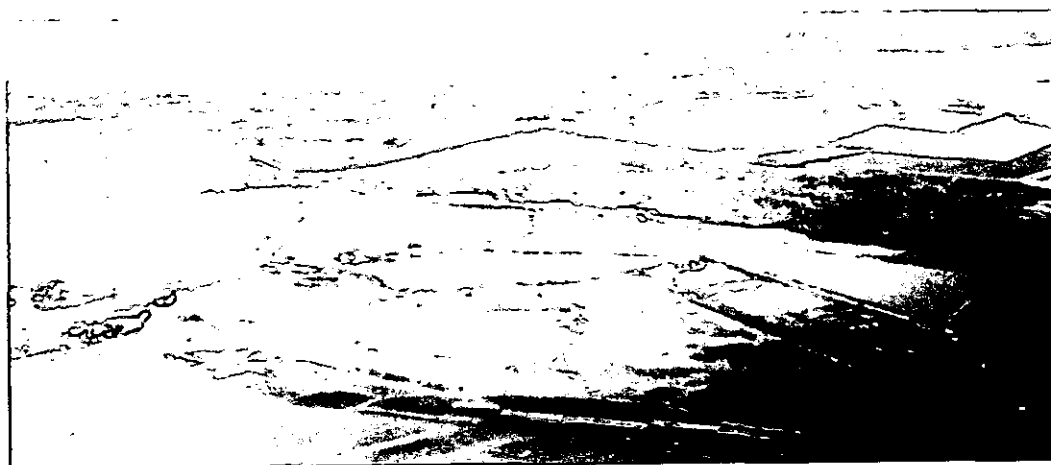
EC 3 (100 ha) has a rich reed belt, except the SE shore bordering the farm buildings. In the peripheral zones, the depth is 1.5 m, 2 m in some places, but the central zone is less deep and invaded by *Typha* and *Salix*. Nude islands appear in some places.

EC 5 (80 ha) has been empty since the beginning of the summer of 2000; it has a dense reed belt.

EC 6 (103 ha) has a thick and dense reed belt. More than 50% of the basin's surface is invaded by reeds, favourable places for the colonies (anthropogenic pressure is lower here).



Main Ponds at Larga Jijia



Lake Halceni and  
Larga Jijia ponds complex  
(Photo Dr. Sorin Trelea)

## Habitats ecological state

In the over 20 years of existence of the Vladeni ponds, paludous vegetation proliferated especially on the Borsa swamp (10 ha of reeds) and on the Larga Jijia ponds (450 ha of reeds). It is much less developed on the Vladeni ponds (15 ha). The paludous vegetation is lacking on the dam lake Halceni, its shores being either concreted (the northern and eastern ones), either cultivated till metres from the water.

Near the Borsa swamp is the forest Coasta Borsei (58 ha) while SV from Vladeni ponds is the forest Catachi (92 ha) - plantations of oaks, maples, hornbeams, beeches etc.

We consider that all the habitats of the wetland Vladeni offer favourable nesting and feeding conditions for the avifauna. The only exception is represented by the neighboured grasslands that get dry starting July and can not provide food resources for herons and waders in draught conditions.

In some years the fishery workers decrease the surface reedbeds cover by cuts and arsons. Rhizome resistance and reed regeneration power provide reedbed restoration in 1 - 2 years.

Water is qualitatively good due to pond supply with water from Halceni dam lake and provides favourable conditions for the vegetation and aquatic fauna and consequently rich food resources for birds.

Borsa swamp is the most eutrophic basin in the area. The compact reedbed, submersed and floating aquatic vegetation, and the rich aquatic fauna are the elements that transform this ecosystem into an ideal place for the aquatic birds. During migrations moments occur when may be observed hundreds of waterfowls on the swamp.

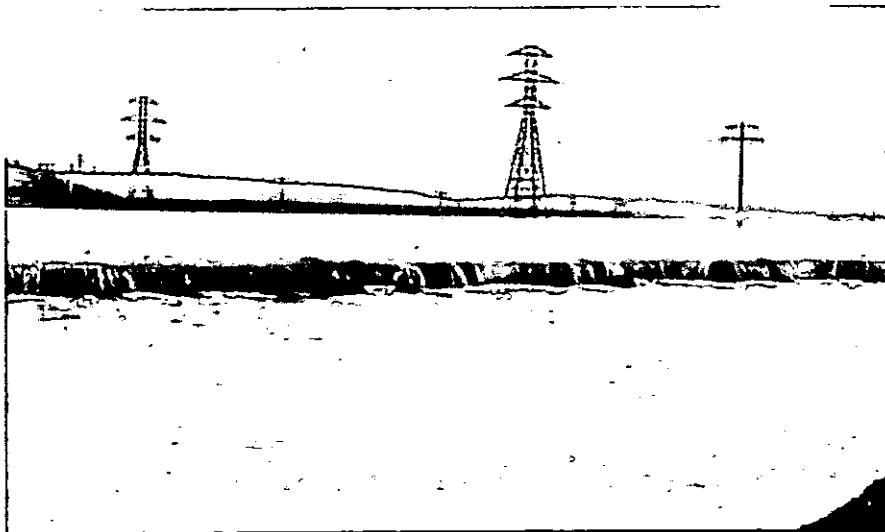
At the opposite extreme is the dam lake Halceni, an oligotrophic basin 7 - 8 m depth, with the eastern and northern shores concreted, unsuitable for reed installation and development. That's why the lake is less bird visited during the breeding season. In wintertime is not usually freezing and attracts the winter guest waterfowls.

Larga Jijia ponds are considered to be eutrophic. Fishery workers regularly increase water content in organic matter with a favourable effect in birds.

Jijia's floodplain ecological state relies on the water supply. High humidity in early spring and floods increase the biological potential of the grasslands and swamps around the ponds upstream (between villages Vladeni and Borsa) and downstream (near village Mihail Kogalniceanu) and the food available for the avifauna (especially for the passage one), consequently. Fauna is diverse. Arthropods, worms, molluscs that shelter in the forests, pond water, or field vegetation represent food sources for many bird species.

In the marshes with reed and bulrush are found: dragon flies (*Libellula*), grasshoppers (*Tetigonia viridissima*), swamp beetles (*Dytiscus marginalis*) and (*Hydrous piceus*), and many other insects adapted to aquatic life. Most present shell is the lake shell (*Anodonta cygnea*).





Spring flood in Jijia's plain



River Jijia



Pond EC 3

## DATA RESULTED

### Biodiversity of the vascular flora

Natural vegetal formations have a specific determined by the presence of the alluvial soils and wetlands periodically flooded, and a temporary excess of phreatic humidity, an increased air relative humidity and high frequency of the hydro-meteorological phenomena (dew, rime frost).

Data presented are based upon the field investigation and the available literature as well. Thus, 286 species representing 17.51% of the Iasi county flora have been so far identified in the wetland Vladeni - Larga Jijia.

Analysis of the taxa repartition within the main types of vegetation showed that 54.75% were found in meadows (18.05% in xerofile meadows, 21.3% in mesofile meadows and 15.4% in salty meadows); 29.10% were segetal and ruderal weeds; paludous flora represented 10%; aquatic flora represented 6.15%.

Coenotaxa belonging to the following vegetation types were identified:

- Xerofile meadows: *Taraxaco serotinae* - *Festucetum valesiacaе*;
- Meso-hygrofile meadows: *Rorippo sylvestris* - *Agrostietum stoloniferae* subassociation: - *agrostietosum stoloniferae*, *elytrigietosum repentis*, *trifolietosum fragiferae*, *inuletosum britannicae*, *menthosum pulegii*; *Alopecuretum pratensis*, *Trifolio repentis* - *Lolietum perennis* subassociation: *elytrigietosum repentis*;
- Salty meadows: *Salsoletum sodae*, *Camphorosmetum annuae*, *Agropyro* - *Leuzeetum salinae*, *Puccinellietum limosae*, *Agrostio* - *Beckamannietum*;
- Segetal and ruderal weeds: *Onopordetum acanthii* subassociation: *onopordetosum acanthii*, *carthamo* - *centauretosum solstitialis*, *Carduetum acanthoidis*, *Carduetum nutantis*, *Conietum maculati*, *Ivetum xanthiifolii*;
- Paludous vegetation: *Scirpo* - *Phragmitetum*, *Glycerietum maximae*;
- Natant vegetation: *Lemnetum minoris*, *Myriophyllo* - *Potametum*.

Flora protection value estimated according to the relative rarity showed 3 rare taxa representing 1.04% of the wetland flora.

At the same time, vascular flora protection value estimated according to the threat degree corresponding to the Red List and categories defined by the International Union for Conservation of Nature and Natural Resources (IUCN) showed:

- Vulnerable taxa: *Crambe tatarica*, *Leucojum aestivum*, *Iris sintenisii* ssp. *brandzae*;
- Rare taxa: *Utricularia vulgaris*, as well as *Plantago schwartzenbergiana* and *Iris halophila*, rare in the country but frequently met in the studied area.

The phyto-geographic spectre emphasised:

- Prevalence of the Eurasian elements that together with: European, Central - European and circumpolar elements represent the northern elements meaning above 70% of all floristic elements;
- Significant are the Pontic and Pontic - Mediterranean elements (12%) supplemented with a significant percentage (13%) of southern elements: Mediterranean and Balkan;
- A significant percentage (8%) of the cosmopolite and adventitious species explained by the large surfaces agro ecosystems cover.

Bioform spectre shows on the one hand the hemicryptophytes prevalence (55%) while an increased percentage (25%) of the therrophyte elements on the other hand. Phanerophytes realised a low percentage (3%) due to the restricted surfaces of forest and brushwood within the studied area.

### **List of the vascular flora species found in the wetland Vladeni**

**Phyllum PTERIDOPHYTA:** *Equisetum palustre*

**Phyllum SPERMATOPHYTA**

**Subphyllum ANGIOSPERMAE**

**Class DICOTYLEDONEAE**

**Family Apiaceae:** *Anthriscus cerefolium*; *Berula erecta*; *Bupleurum tenuissimum*; *Cicuta virosa*; *Conium maculatum*; *Eryngium campestre*; *Falcaria vulgaris*; *Oenanthe silaifolia* *Pimpinella saxifraga*; *Sium latifolium*

**Family Aristolochiaceae:** *Aristolochia clematitis*

**Family Asteraceae:** *Achillea setacea*; *Anthemis tinctoria*; *Arctium lappa*; *Arctium tomentosum*; *Artemisia austriaca*; *Artemisia maritima* ssp. *salina*; *Artemisia vulgaris*; *Aster tripolium* ssp. *pannonicus*; *Bidens cernua*; *Bidens tripartita*; *Carduus acanthoides*; *Carduus crispus*; *Carduus nutans*; *Carthamus lanatus*; *Centaurea jacea*; *Centaurea solstitialis*; *Chamomilla recutita*; *Cichorium intybus*; *Cirsium arvense*; *Cirsium vulgare* ssp. *vulgare*; *Conyza canadensis*; *Crepis foetida*; *Helichrysum arenarium*; *Hieracium pilosella*; *Inula britannica*; *Iva xanthiifolia*; *Lactuca saligna*; *Lactuca serriola*; *Lapsana communis*; *Mycelis muralis*; *Onopordon acanthium*; *Podospermum canum*; *Podospermum laciniatum*; *Senecio vernalis*; *Serratula radiata*; *Taraxacum bessarabicum*; *Taraxacum officinale*; *Tragopogon pratensis*; *Tripleurospermum inodorum*; *Tussilago farfara*; *Xanthium spinosum*; *Xanthium strumarium*

**Family Boraginaceae:** *Anchusa procera*; *Buglossoides arvensis*; *Cynoglossum officinale*; *Echium vulgare*; *Lappula squarrosa*; *Myosotis scorpioides*; *Nonea pulla*

**Family Brassicaceae:** *Alyssum alyssoides*; *Barbarea vulgaris*; *Berteroa incana*; *Capsella bursa - pastoris*; *Coronopus squammatus*; *Crambe tatarica*; *Descurainia sophia*; *Erophila verna*; *Euclidium syriacum*; *Lepidium campestre*; *Lepidium latifolium*; *Lepidium perfoliatum*; *Lepidium ruderales*; *Rorippa amphibia*; *Rorippa austriaca*; *Rorippa sylvestris* ssp. *kernerii*; *Sisymbrium loeselii*

**Family Canabaceae:** *Cannabis ruderalis*

**Family Caprifoliaceae:** *Sambucus ebulus*; *Sambucus nigra*

**Family Caryophyllaceae:** *Arenaria serpyllifolia*; *Cerastium anomalum*; *Melandrium album*; *Spergularia marina*; *Stellaria media*

**Family Ceratophyllaceae:** *Ceratophyllum demersum*; *Ceratophyllum submersum*

**Family Chenopodiaceae:** *Atriplex hastata*; *Atriplex littoralis*; *Atriplex patula*; *Atriplex tatarica*; *Camphorosma annua*; *Chenopodium album*; *Chenopodium glaucum*; *Kochia prostrata*; *Salsola australis*; *Salsola kali*; *Salsola soda*

**Family Convolvulaceae:** *Calystegia sepium*; *Convolvulus arvensis*

**Family Dipsacaceae:** *Dipsacus sylvester*

**Family Euphorbiaceae:** *Euphorbia cyparissias*; *Euphorbia esula*

**Family Fabaceae:** *Astragalus austriacus*; *Astragalus cicer*; *Astragalus onobrychis*; *Coronilla varia*; *Galega officinalis*; *Lathyrus hirsutus*; *Lathyrus pannonicus* ssp. *collinus*; *Lotus corniculatus*; *Lotus tenuis*; *Medicago falcata*; *Medicago lupulina*; *Melilotus alba*; *Melilotus officinalis*; *Ononis arvensis*; *Trifolium arvense*; *Trifolium campestre*; *Trifolium fragiferum*; *Trifolium hybridum* ssp. *hybridum*; *Trifolium pratense*; *Trifolium repens*; *Trigonella coerulea*; *Vicia grandiflora*; *Vicia tetrasperma*

**Family Geraniaceae:** *Erodium cicutarium*; *Geranium pusillum*

**Family Haloragaceae:** *Myriophyllum spicatum*; *Myriophyllum verticillatum*

**Family Hippuridaceae:** *Hippuris vulgaris*

**Family Hypericaceae:** *Hypericum elegans*; *Hypericum perforatum*

**Family Lamiaceae:** *Ajuga reptans*; *Ballota nigra* ssp. *nigra*; *Glechoma hederacea*; *Lamium maculatum*; *Leonurus cardiaca*; *Lycopus europaeus*; *Marrubium peregrinum*; *Marrubium vulgare*; *Mentha aquatica*; *Mentha longifolia*; *Mentha pulegium*; *Phlomis pungens*; *Prunella vulgaris*; *Salvia austriaca*; *Salvia nemorosa*; *Salvia pratensis*; *Scutellaria hastifolia*; *Stachys palustris*; *Teucrium chamaedrys*; *Teucrium polium*; *Teucrium sordium*; *Thymus pannonicus*

**Family Lentibulariaceae:** *Utricularia vulgaris*

**Family Linaceae:** *Linum flavum*

**Family Lythraceae:** *Lythrum salicaria*; *Lythrum virgatum*

**Family Malvaceae:** *Malva sylvestris*

**Family Plantaginaceae:** *Plantago lanceolata*; *Plantago major*; *Plantago media*; *Plantago schwarzenbergiana*

**Family Plumbaginaceae:** *Limonium gmelini*

**Family Polygonaceae:** *Polygonum amphibium* var. *terrestre*; *Polygonum aviculare*; *Polygonum hydropiper*; *Rumex conglomeratus*; *Rumex crispus*; *Rumex hydrolapathum*; *Rumex palustris*; *Rumex sanguineus*

**Family Primulaceae:** *Lysimachia punctata*

**Family Ranunculaceae:** *Adonis vernalis*; *Batrachium trichophyllum*; *Caltha palustris*; *Consolida regalis*; *Ficaria verna*; *Ranunculus acris*; *Ranunculus pedatus*; *Ranunculus polyanthemus*; *Ranunculus repens*; *Ranunculus sardous*; *Ranunculus sceleratus*

**Family Resedaceae:** *Reseda lutea*

**Family Rosaceae:** *Agrimonia eupatoria*; *Geum urbanum*; *Potentilla argentea*; *Potentilla recta*; *Potentilla reptans*; *Rubus caesius*

**Family Rubiaceae:** *Asperula humifusa*; *Cruciata glabra*; *Galium aparine*; *Galium octonarium*; *Galium palustre*; *Galium verum*

**Family Scrophulariaceae:** *Gratiola officinalis*; *Linaria vulgaris*; *Verbascum nigrum*; *Verbascum phlomoides*; *Veronica anagallis - aquatica*; *Veronica arvensis*; *Veronica austriaca* ssp. *austriaca*; *Veronica beccabunga*; *Veronica chamaedrys*; *Veronica scutellata*

**Family Solanaceae:** *Datura stramonium*; *Lycium barbarum*; *Solanum dulcamara*; *Solanum nigrum*

**Family Urticaceae:** *Urtica dioica*

## **Class MONOCOTYLEDONEAE**

**Family Alismataceae:** *Alisma lanceolatum*; *Alisma plantago - aquatica*; *Leucojum aestivum*

**Family Butomaceae:** *Butomus umbellatus*

**Family Cyperaceae:** *Bolboschoenus maritimus*; *Carex acutiformis*; *Carex distans*; *Carex hirta*; *Carex melanostachya*; *Carex riparia*; *Carex vulpina*; *Eleocharis palustris*; *Schoenoplectus lacustris*; *Schoenoplectus tabernaemontani*

**Family Hydrocharitaceae:** *Hydrocharis morsus - ranae*

**Family Iridaceae:** *Iris halophila*; *Iris pseudacorus*; *Iris sintenisi* ssp. *Brandzae*

**Family Juncaceae:** *Juncus compressus*; *Juncus effusus*; *Juncus gerardi*; *Juncus inflexus*

**Family Lemnaceae:** *Lemna gibba*; *Lemna minor*; *Lemna trisulca*

**Family Liliaceae:** *Allium flavum*

**Family Poaceae:** *Agropyron pectinatum*; *Agrostis stolonifera*; *Alopecurus aequalis*; *Alopecurus arundinaceus*; *Alopecurus pratensis*; *Beckmania eruciformis*; *Botriochloa ischaemum*; *Bromus commutatus*; *Bromus inermis*; *Bromus racemosus*; *Bromus sterilis*; *Catabrosa aquatica*; *Chrysopogon gryllus*; *Crypsis aculeata*; *Cynodon dactylon*; *Dactylis glomerata*; *Echinochloa*

*crus - galli; Elytrigia intermedia; Elytrigia repens; Festuca arrundinacea; Festuca pratensis; Festuca pseudovina; Festuca valesiaca; Glyceria fluitans; Glyceria maxima; Glyceria plicata; Hordeum murinum; Koeleria macrantha; Leuzea salina; Lolium perenne; Phalaris arundinacea; Phragmites australis; Poa angustifolia; Poa annua; Poa palustris; Poa pratensis; Puccinellia distans; Puccinellia limosa; Setaria viridis; Stipa capillata*

**Family Potamogetonaceae:** *Potamogeton pectinatus; Potamogeton perfoliatus*

**Family Sparganiaceae:** *Sparganium erectum*

**Family Typhaceae:** *Typha angustifolia; Typha latifolia.*

### Biodiversity of the mycological flora

Fungi represent structural components of the ecotope. They occupy specific trophic niches and are subjected to the mechanisms of self-control within the ecosystem.

Numerical analysis of the mycological material and the quantitative ratio of the systematic units revealed 49 species for the Subphyllum Basidiomycotina, 25 species for the Subphyllum Ascomycotina while 8 species for the Subphyllum Mastigomycotina.

Observation was especially focused on biological diversity of the phytopathologically important species belonging to the order Erysiphales (Ascomycotina) that cause plants' rust, respectively order Uredinales (Basidiomycotina) that cause plants' mildew. Those diseases were appreciated to be more or less stable from the attack intensity viewpoint, with low variations from one month to another and a quite reduced parasitic effect. Ecological explosions of the parasitic population within the researched territory were not recorded.

The reed (*Phragmites australis*) is not a plant to bear a special economic importance in the area. Nevertheless, it proved to be a good shelter for many bird species and food resource for different species of fish. Interest was especially focused in micromycets found on the reed. Research revealed the presence of rust - *Puccinia phragmitis* (uredospores and teleutospores) and also species such as: *Lophiostoma arundis*, *Camasporium phragmitis*, *Septoria arundinacea*, *Coniosporium arundis*, *Fumago vagans*, *Napicladium arundinaceum*.

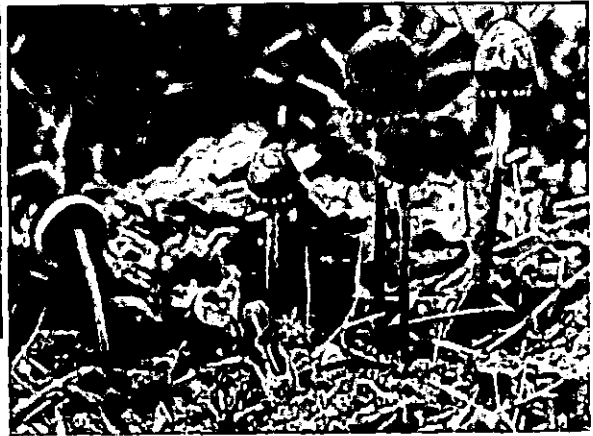
The microscopic fungi belonging to family Erysiphaceae are strictly parasitic and represent an homogenous group within Subphyllum Ascomycotina, with regard to their morpho-anatomical structure, biology and ecology, and also due to the diseases manifestation in the host plant. The host plants represent the trophic environment for the parasitic fungi and influence their distribution. Species of the family Erysiphaceae attack all stages of vegetation and aerial organs of the plants: leafs, stems, flower peduncle, fruits and seeds of the majority herbaceous plants.

521 species of Erysiphaceae are mentioned in the literature while in Romania are so far known 147 species living on 1272 host plant species. 3 genera with 20 de species within 26 de combinations with the host plants were recorded within the researched area. Analysis of the combinations emphasizes the quantitative and qualitative presence in hemicryptophytes and terrophytes.

Monthly species dynamics emphasised a maximum in August - 50 samples, followed by September 38 samples while in June and July - 16 samples containing the conidial forms of the species considered.



*Bovista graveolens*  
Basidiomata



*Paneolus sphinctrinus*



*Melanoleuca stictipes*  
Basidiomata



*Calvatia excipuliformis*  
Basidiomata



*Hypholoma sublateritium*  
Basidiomata



*Phallus hadriani*  
Basidiomata

Combination: *Erysiphe biocellata* - *Prunella vulgaris* is remarkable because is considered to be rare in Romania.

For the order Uredinales species, the analysis of the phytogeographical elements emphasised the dominance of the species with a large areal, which reached their potential area for the boreal hemisphere. Some species have a trend for the areal extension in the austral hemisphere as well. Regarding the presence within certain combinations, those species of micromycetes with large ecological valences are frequently met in the vegetal formations where the host plants presence is possible.

Analysis of the seasonal distribution of the order Uredinales species showed a quick numerical increase till late July but with a maximum number of samples (57 recorded in August).

29 macromycete species were recorded in all. 12 species of mushrooms were considered not edible, which among 5 species poisonous: *Agaricus xanthodermus*, *Coprinus atramentarius*, *Lepiota helveola*, *Lepiota scobinella*, *Paxilus involutus*. 7 species were considered edible. Natives appreciated the most: *Agaricus arvensis*, *Morchella esculenta*, *Macrolepiota procera* and *Marasmius oreades*.

The species *Phallus hadriani* was considered to be rare. It is usually found in few sites only and included on the Red List of the mushroom species in Romania.

### **List of the fungi species found in the wetland Vladeni**

#### **Subphyllum Mastigomycotina**

*Bremia lactucae* on *Leontodon autumnalis*

*Peronospora aestivalis* on *Medicago lupulina*

*Peronospora alta* on *Plantago major*

*Peronospora campestris* on *Arenaria serpyllifolia*

*Peronospora conglomerata* on *Geranium pusillum*

*Peronospora chenopodii* on *Chenopodium album*

*Peronospora ranunculi* on *Ranunculus repens*

*Peronospora trifolii* - *arvensis* on *Trifolium arvense*

#### **Subphyllum Ascomycotina**

#### **Order Erysiphales**

*Erysiphe biocellata* on *Mentha pulegium*

*Erysiphe biocellata* on *Prunella vulgaris*

*Erysiphe cichoracearum* on: *Cichorium intybus*; *Cirsium arvense*; *Inula britannica*; *Leontodon*



*autumnalis*; *Tanacetum vulgare*; *Taraxacum officinale*

*Erysiphe convolvuli* on *Convolvulus arvensis*

*Erysiphe cruciferarum* on *Arabis hirsuta*

*Erysiphe depressa* on *Arctium tomentosum*

*Erysiphe galeopsidis* on: *Ballota nigra*; *Clinopodium vulgare*

*Erysiphe galii* on *Galium verum*

*Erysiphe heraclei* on *Daucus carota*

*Erysiphe martii* on *Trifolium arvense*

*Erysiphe mayorii* on *Cirsium arvense*

*Erysiphe pisi* on: *Medicago falcata*; *Medicago lupulina*

*Erysiphe polygoni* on: *Polygonum aviculare*; *Rumex crispus*

*Erysiphe ranunculi* on *Ranunculus repens*

*Erysiphe sordida* on *Plantago major*

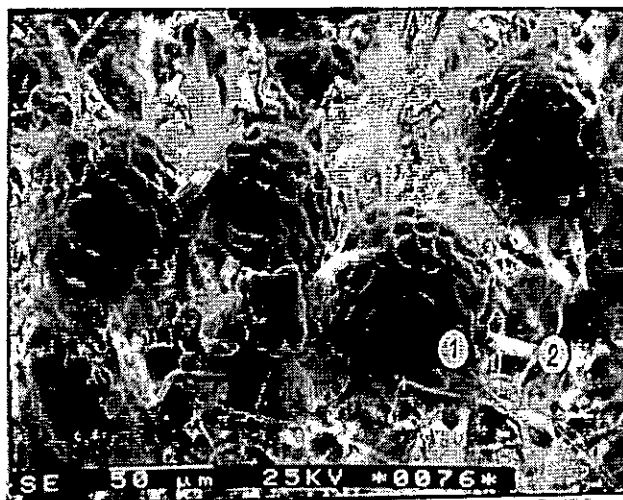
*Erysiphe urticae* on *Urtica dioica*

*Leveillula plumbaginarum* on *Limonium gmelini*

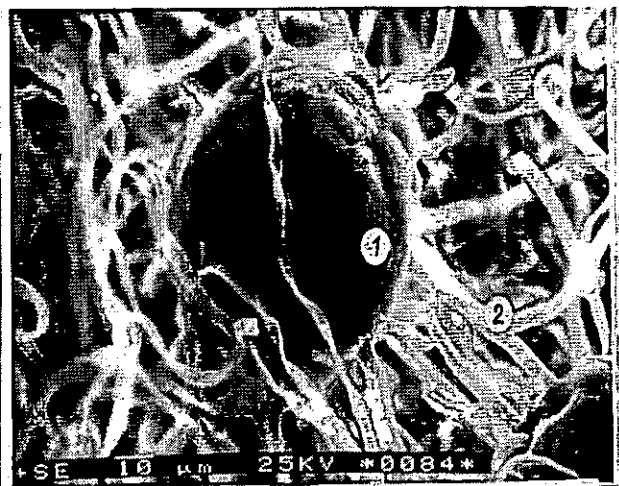
*Sphaerotheca aphanis* on *Geum urbanum*

*Sphaerotheca erygeronis - canadensis* on *Lapsana communis*

*Sphaerotheca fuliginea* on *Veronica chamaedrys*



*Erysiphe pisi*  
Cleistothecia



*Erysiphe cichoracearum*  
cleistothecia

## **Order Sphaeriales**

*Claviceps purpurea* on *Festuca pratensis*

*Epichloe typhina* on *Puccinellia limosa*

## **Order Pezizales**

*Peziza fimeti* - saprophyte, coprophilous, on cattle dung

*Peziza vesiculosa* - saprophyte, coprophilous, on manure with animal dejects

*Morchella esculenta* - saprophyte, on soil, edible

## **Subphyllum Basidiomycotina**

### **Order Agaricales**

*Agrocybe praecox* - saprophyte, on grass-grown fields, low food value

*Amanita echinocephala* - micorrhizant, on soil

*Agaricus arvensis* - saprophyte, on soil, edible

*Agaricus macrosporus* - saprophyte, on soil, with low food value

*Agaricus xanthodermus* - saprophyte, on grass-grown fields, poisonous

*Bolbitius vitellinus* - coprophilous, on cattle dung

*Calocybe gambosa* - saprophyte, on grass-grown fields, edible

*Clitocybe geotropa* - saprophyte, on grass-grown fields, edible

*Clitopilus prunulus* - saprophyte, on soil, edible

*Coprinus atramentarius* - coprophilous, grouped on grass-grown fields, poisonous

*Coprinus comatus* - coprophilous, grouped on grass-grown fields, edible while young

*Coprinus ephemerus* - coprophilous, on cattle dung

*Hypholoma marginatum* - epixyle, on wood remains

*Lepiota helveola* - saprophyte, on grass-grown fields, poisonous

*Lepiota lilacea* - saprophyte, on grass-grown fields

*Lepiota scobinella* - saprophyte, on grass-grown fields, poisonous

*Macrolepiota procera* - saprophyte, on grass-grown fields rich in humus, edible

*Marasmius oreades* - sapro-parasitic, on grass-grown fields, edible

*Melanoleuca stictipes* - saprophyte, on soil, on uncultivated grass-grown fields

*Paneolus papilionaceus* - coprophilous, in manured places

*Paneolus sphinctrinus* - coprophilous, on cattle dung, poisonous

*Paxilus involutus* - mycorrhizant, on soil, poisonous

*Pholiota mutabilis* - epixyle, on wood remains, edible

*Psathyrella fatua* - saprophyte, on grass-grown fields

*Volvariella pusilla* - saprophyte, on uncultivated grass-grown fields

*Xerula badia* - epixyle, on wood remains

### **Order Lycoperdales**

*Bovista graveolens* - saprophyte, on grass-grown fields

*Calvatia excipuliformis* - saprophyte, on grass-grown fields

### **Order Phallales**

*Phallus hadriani* - saprophyte, on sandy soil, rare

### **Order Uredinales**

*Coleosporium tussilaginis* on *Tussilago farfara*

*Puccinia absinthii* (II, III) on *Artemisia absinthium*

*Puccinia bardanae* (II, III) on *Arctium tomentosum*

*Puccinia cichorii* (II, III) on *Cichorium intybus*

*Puccinia hieracii* (II) on *Hieracium pilosella*

*Puccinia iridis* (II, III) on *Iris halophila*

*Puccinia lapsanae* (II, III) on *Lapsana communis*

*Puccinia leontodontis* (II, III) on *Leontodon autumnalis*

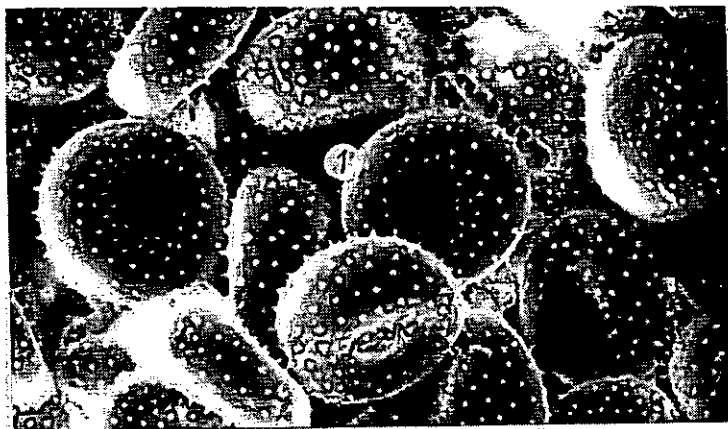
*Puccinia menthae* (II, III) on *Mentha longifolia*; *Mentha pulegium*

*Puccinia phragmitis* (II, III) on *Phragmites australis*

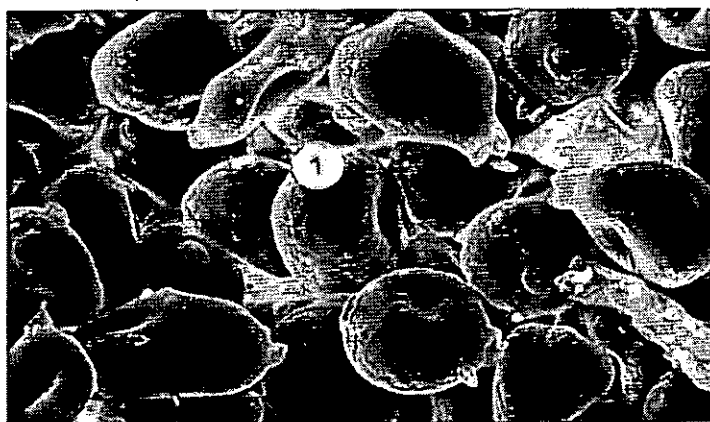
*Puccinia podospermi* (II, III) on *Podospermum canum*

*Puccinia punctiformis* (II, III) on *Cirsium arvense*

*Puccinia tanacetii* (II, III) on *Tanacetum vulgare*



*Puccinia hieracii*  
Uredospores (x 3000)



*Uromyces ficariae*  
Teleutospores (x 2500)

*Puccinia taraxaci* (II, III) on *Taraxacum officinale*

*Uromyces arenariae* (II, III) on *Arenaria serpyllifolia*

*Uromyces limonii* (II, III) on *Limonium gmelini*

*Uromyces polygoni* (II, III) on *Polygonum aviculare*

*Uromyces rumicis* (III) on *Rumex crispus*

*Uromyces striatus* (III) on *Trifolium arvense*

*Uromyces trifolii* (III) on *Trifolium fragiferum*.

Mycological team:

Students: **Adina Asoltanei**

**Dr. Catalin Tanase** (supervisor)



Corn field in EC1



*Iris pseudacorus*



Mycological observation at Larga Jijia



Paludous vegetation:  
*Scirpo - Phragmitetum* association

### Aquatic biocoenosis analysis

Hydrobiology team was involved in a specific work program consisting of: sampling, species identification, species monitoring, and ecological importance of biota assessment. Field trips for observation and sampling were organised periodically.

Physicochemical water properties assessment was provided by the 'Romanian Waters' SA (County Waterboard).

Numerical analysis of the pelagic primary producers (i.e. phytoplankton) was carried out using a Burkner - Türk counting chamber while biomass assessment using the volumetric equivalence method (Oltean & Carausu).

Pelagic consumers were caught using nets with different mesh sizes and numerically expressed.

Information regarding the nekton diversity and numbers was gathered by the means of the fishers (sportive and employed) in the area.

Benthic consumers (zoobenthos) were caught using a Marinescu grab while the quantitative analysis run according to the probe square method.

Saprobiological analysis of the water quality was assessed using Sladeczek method.

Water physical-chemical parameters that were investigated:

water source	site	dissolved O <sub>2</sub> (mg/dm <sup>3</sup> )	saturation (O <sub>2</sub> %)
<b>Halceni</b>			
February	Lake's entrance	6.50	46.0
<b>Halceni</b>			
February	spillway	12.60	89
<b>Halceni</b>			
March	Lake's entrance	11.20	85
<b>Halceni</b>			
March	spillway	13.00	96.0
<b>Halceni</b>			
April	Lake's entrance	7.9	76.2
<b>Halceni</b>			
April	spillway	8.2	79
		<b>CBO<sub>5</sub> mg/dm<sup>3</sup></b>	<b>CCO-Mn mg/dm<sup>3</sup></b>
<b>Halceni</b>			
February	Lake's entrance	18.40	29.00
<b>Halceni</b>			

February	spillway	4.40	7.2
<b>Halceni</b>			
March	Lake's entrance	16.5	22.10
<b>Halceni</b>			
March	spillway	8.4	14.5
<b>Halceni</b>			
April	Lake's entrance	7.1	12.3
<b>Halceni</b>			
April	spillway	6.79	13.12

	steady residue	NH <sub>4</sub>	NO <sub>2</sub>	NO <sub>3</sub>	N total	P total
<b>Halceni</b>						
February						
Lake's entrance	770	1.230	0.091	1,610	4,516	0.147
<b>Halceni</b>						
February						
Spillway	490	0.63	0.057	11,80	3,098	0.090
<b>Halceni</b>						
March						
Lake's entrance	868	0.2	0.057	4.3	5,183	0.0
<b>Halceni</b>						
March						
spillway	861	0.2	0.033	2.2	2.3	0.0
<b>Halceni</b>						
April						
Lake's entrance	922	0.8	0.1461	2,000	3,300	0.32
<b>Halceni</b>						
April						
spillway	972	0.350	0.070	5,200	1,434	0.0

Previous data for the pelagic primary producers (phytoplankton) and consumers (zooplankton) - 1997:

	FPK density (ind.l <sup>-1</sup> )	FPK biomass (mg.l <sup>-1</sup> )	FPK dominant group	ZPK density (ind.l <sup>-1</sup> )	ZPK dominant group
<b>Halceni</b>					
February					
Lake's entrance	115,000	0.240	diatoms	11	ciliates
<b>Halceni</b>					

February					
spillway	127,000	0.390	blue-green algae	7	ciliates
<b>Halceni</b>					
March					
Lake's entrance	167,000	0.2	diatoms	6	ciliates
<b>Halceni</b>					
March					
spillway	1,803,500	0.950	diatoms	12	ciliates
<b>Halceni</b>					
April					
Lake's entrance	827,000	0.740	diatoms	34	ciliates
<b>Halceni</b>					
April					
spillway	2,257,000	1.450	diatoms	11	ciliates

Diversity of the primary producers (phytoplankton) - 2000:

Taxa	Density (ind.l <sup>-1</sup> )	Biomass (mg.l <sup>-1</sup> )	Observation
<b>Pond EC 1</b>			
<i>Oscillatoria</i> sp.			
250			
<i>Anabaena affinis</i>			
500		0.08	β-m
<i>Stephanodiscus hantzschii</i>			
500		0.000400	α-m
<i>Cyclotella meneghiniana</i>			
1,000		0.0008	β-m, α-m (4, 6)
<i>Nitzschia acicularis</i>			
1,250		0.002	α-m
<i>Euglena acus</i>			
1,000		0.0076	β-m, α-m (6, 3)
<i>Phacus</i> sp.			
500			
<i>Scenedesmus quadricauda</i>			
250		0.00025	β-m
<b>Totals:</b>	<b>5,250</b>	<b>0.0908</b>	
<b>Jijia (Bridge)</b>			
<i>Merismopedia glauca</i>			
4,000		0.0012	β-m



<i>Merismopedia tenuissima</i>			
	2,000	0.0006	$\beta$ -m, $\alpha$ -m (5, 4)
<i>Chroococcus turgidus</i>			
	500	0.0021	$\alpha$ , $\beta$ -m (7, 3)
<i>Nitzschia acicularis</i>			
	1,000	0.0016	$\alpha$ -m
<i>Scenedesmus quadricauda</i>			
	500	0.00075	$\beta$ -m
<i>Scenedesmus acuminatus</i>			
	250	0.000625	$\beta$ -m
<i>Chlorella vulgaris</i>			
	750	0.001875	$\alpha$ -m, p (6, 4)
<i>Crucigenia rectangularis</i>			
	250	0.000875	$\beta$ -m, $\alpha$ -m (4, 5)
<i>Schroederia setigera</i>			
	1,000	0.000125	$\beta$ -m
<b>Totals:</b>	<b>10,250</b>	<b>0.00975</b>	

#### Lake Halceni

<i>Cyclotella meneghiniana</i>			
	250	0.0002	$\beta$ -m, $\alpha$ -m (4, 6)
<i>Euglena acus</i>			
	500	0.0037	$\beta$ -m, $\alpha$ -m (6, 3)
<i>Schroederia setigera</i>			
	750	0.00009375	$\beta$ -m
<b>Totals:</b>	<b>1,500</b>	<b>0.00404</b>	

#### Pond EC 3

<i>Anabaena affinis</i>			
	1,000	0.08	$\beta$ -m
<i>Aphanizomenon flos-aquae</i>			
	500	0.025	$\beta$ -m, $\alpha$ -m (6, 3)
<i>Merismopedia glauca</i>			
	3,000	0.0009	$\beta$ -m
<i>Tetraedron minimum</i>			
	500	0.0001625	$\beta$ -m
<i>Schroederia setigera</i>			
	1,000	0.000125	$\beta$ -m
<i>Scenedesmus quadricauda</i>			
	500	0.0005	$\beta$ -m

*Melosira varians*

1,250	0.1375	o, $\beta$ -m (3, 5)
<i>Cymbella lanceolata</i>		
500	0.011	$\beta$ -m
Totals:	8,250	0.255188

Following biomarker species were found:

- The **oligosaprobe (o)** domain: *Chroococcus turgidus*; *Melosira varians*.
- The  **$\beta$ -mesosaprobe ( $\beta$ -m)** domain: *Anabaena affinis*; *Cyclotella meneghiniana*; *Euglena acus*; *Scenedesmus quadricauda*; *Scenedesmus acuminatus*; *Merismopedia glauca*; *Merismopedia tenuissima*; *Chroococcus turgidus*; *Crucigenia rectangularis*; *Schroederia setigera*; *Aphanizomenon flos-aquae*; *Tetraedron minimum*; *Melosira varians*; *Cymbella lanceolata*.
- The  **$\alpha$ -mesosaprobe ( $\alpha$ -m)** domain: *Stephanodiscus hantzschii*; *Cyclotella meneghiniana*; *Nitzschia acicularis*; *Euglena acus*; *Merismopedia tenuissima*; *Chlorella vulgaris*; *Crucigenia rectangularis*; *Aphanizomenon flos-aquae*.
- The **polisaprobe (p)** domain: *Chlorella vulgaris*.

General score of saprobity consequently was: **o** - 2;  **$\beta$ -m** - 14;  **$\alpha$ -m** - 8; **p** - 1. Water quality clearly was  **$\beta$ -m** to  **$\alpha$ -m**.

Macroinvertebrate fauna collected in the Jijia - Miletin basin.

7 sampling points were fixed as follows:

1 - Miletin swamp; 2 - River Miletin; 3 - Lake Halceni; 4 - Jijia (Bridge); 5 - Pond EC 6; 6 - Pond EC 2; 7 - Pond EC 1.

Sampling sessions covered the period: June - November 2000.

35 taxa realising different percentages were found in the samples as showed below:

**1. Miletin swamp**

Species found here were:

Phyllum Porifera:

- Family Spongillidae - 0.4%

Phyllum Annelida:

- Class Oligochaeta - 25.7%

Phyllum Mollusca

Class Gastropoda:

- *Valvata cristata* - 0.4%

Class Bivalvia:

- *Sphaerium* - 0.4%

Phyllum Arthropoda

Class Chelicerata:

- Order Acari - 0.8%

Class Insecta:

- *Peltodytes caesus* (larvae) - 1.7%

- *Corixa* sp. - 8.5%

- Family Corixidae sp. (larvae) - 9%

- Family Chironomidae - 48.9%

- Family Ceratopogonidae - 2.1%

- Family Culicidae (nymphae) - 1.7%

## 2. River Miletin

Species found here were:

Phyllum Annelida:

- Class Oligochaeta - 3.2%

Phyllum Nemathelminthes:

- Class Nematoda - 25.1%

Phyllum Arthropoda

Class Insecta:

- *Peltodytes caesus* (larvae) - 0.08%

- *Corixa* sp. - 0.6%

- *Ordella* sp. - 0.1%

- *Baetis* sp. - 0.1%

- Family Chironomidae - 69.6%

- Subfamily Ceratopogoninae - 0.4%

- Family Culicidae (larvae)- 0.1%

- Family Tabanidae - 0.3%

## 3. Lake Halceni

Species found here were:

Phyllum Annelida:

- Class Oligochaeta - 1.5%

Class Gastropoda:

- *Valvata cristata* - 1%

- *Valvata pulchella* - 1%

- *Valvata piscinalis piscinalis* - 0.5%

- *Bithynella leachi* - 1%

- Family Lymnaedidae - 0.5%

- Family Physidae - 2.1%

Phyllum Arthropoda

Class Chelicerata:

- Order Acari - 1.5%

Class Insecta:

- *Peltodytes caesus* (larvae) - 0.5%
- *Corixa* sp. - 13.1%
- *Baetis* sp. - 0.5%
- Family Chironomidae - 11.7%
- Family Culicidae (nimphae) - 3.1%

#### **4. Jijia (Bridge)**

Species found here were:

Phylum Annelida:

- Class Oligochaeta - 78.7%

Phylum Arthropoda

Class Insecta:

- Family Hydropsychidae - 1.2%
- Family Chironomidae - 8.7%
- Family Ceratopogonidae - 2%
- Family Dolichopodidae - 8.7%

#### **5. Pond EC 6**

Species found here were:

Phylum Annelida:

- Class Oligochaeta - 32.2%

Phylum Arthropoda

Class Insecta:

- *Sigara* sp. - 3.2%
- Family Notonectidae larvae - 6.4%
- Family Chironomidae - 45.1%
- Family Ceratopogonidae - 12.9%

#### **6. Pond EC 2**

Species found here were:

Phylum Mollusca

Class Gastropoda:

- *Valvata cristata* - 1.4%
- *Bithynella leachi* - 5%
- Family Physidae - 0.7%

Phylum Arthropoda

Class Insecta:

- *Corixa* sp. - 27.3%
- Family Corixidae (larvae) - 3.6%
- *Caenis* sp. - 1.4%
- Family Phryganeidae - 10.1%
- Family Chironomidae - 48.9%

- Family Culicidae (nimphae) - 1.4%

## 7. Pond EC 1

Species found here were:

Phylum Mollusca

Class Gastropoda:

- *Valvata cristata* - 12.7%
- *Valvata pulchella* - 5.4%
- *Valvata piscinalis piscinalis* - 10.9%
- Family Lymnaeidae - 1.8%
- *Anisus spirorbis* - 1.8%
- *Planorbis* sp. - 3.6%

Class Bivalvia:

- *Sphaerium* - 1.8%
- *Anodonta cygnaea* - 1.8%

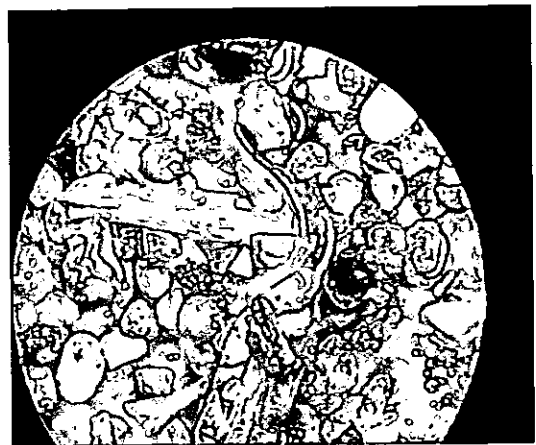
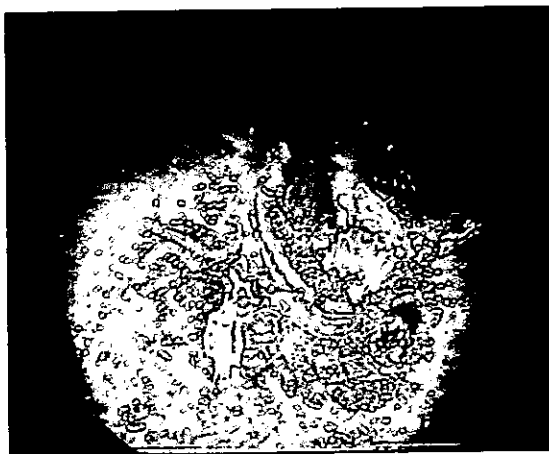
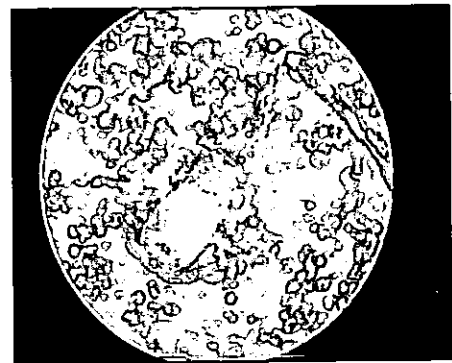
Phylum Arthropoda

Class Insecta:

- Family Poduridae - 3.6%
- Family Coenagrionidae - 3.6%
- *Ochthebius* sp. - 1.8%
- *Corixa* sp. - 1.8%
- *Caenis* sp. - 1.8%
- Family Chironomidae - 40%
- Family Dolichopodidae - 1.8%
- Family Limoniidae - 5.4%.

Following biomarker species were found: *Valvata cristata*; *Valvata pulchella*; *Valvata piscinalis piscinalis*; *Anodonta cygnaea*, all for the  **$\beta$ -mesosaprobe** domain.

In the two rivers and ponds water live fish species such as: *Esox lucius*, *Umbra krameri*, *Ictiobus cyprinellus*, *Ictiobus niger*, *Ictiobus bubalus*, *Rutilus rutilus*, *Leuciscus cephalus*, *Tinca tinca*, *Scardinius erythrophthalmus*, *Aspius aspius*, *Leucaspis delineatus*, *Alburnus alburnus*, *Blicca bjoerkna*, *Abramis brama*, *Pelecus cultratus*, *Rhodeus sericeus*, *Pseudorasbora parva*, *Cyprinus carpio*, *Carassius carassius*, *Carassius auratus gibelio*, *Gobio gobio*, *Aristichthys nobilis*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Mylopharyngodon piceus*, *Misgurnus fossilis*, *Cobitis taenia*, *Silurus glanis*, *Pungitius platygaster*, *Lepomis gibbosus*, *Perca fluviatilis*, *Acerina cernua*, *Stizostedion lucioperca*.



Aquatic invertebrates (stereomicroscope view)

## Herpetofauna

In order to catch the amphibians and reptiles, Barber traps, and nets were used. Other materials used for study and observations were: recorder, photo camera, video camera, balance, and sliding.

Stationeries across the ponds were established in order to catch the animals and for anura in the aquatic environment was successfully used the net while in the terrestrial environment the anura and reptiles were successfully caught by hand.

Captured animals (anura) were transported within the camp in plastic boxes 12 cm diameter and 10 cm height, filled with grass and water.

At the instalment of the Barber traps was avoid the use of preservative substances such as: alcohol or phormaline; traps were checked twice a day in all the established stations.

### Amphibians inventory:

#### Spring (May)

Visual and auditory transects 3 km long were carried out during the fieldtrips (9.05.2000 - 19.05.2000).

The males of anura were recorded and identified according the song during the breeding time. 45 individuals of green frogs belonging to the complex *Rana* were counted consequent to the visual transect while consequent to the auditory transect were identified two specimens of *Bombina* (9.05.2000). At 19.05.2000 numbers of anura counted were: 15 specimens belonging to the complex *Rana*, consequent to the visual transect and 20 specimens, consequent to the auditory transect respectively.

Observations were made in stations established within ponds EC 1, EC 1', EC 3 perimeters.

Similar, at 9.05.2000 on the pond EC 1 were observed numerous layings belonging to the individuals of the complex *Rana* and also many individuals in metamorphosis stages.

#### Summer - July

Field trips took place at 24.07.2000, 25.07.2000, 26.07.2000 and 27.07.2000.

Visual transects within the farm perimeter were carried in the stations: EC 2 (24.07.2000, 25.07.2000 and 27.07.2000), on the dams to EC 6 (26.07.2000), EC 6 (26.07.2000), EC 5 (26.07.2000).

In those stations were counted the animals captured in the aquatic and terrestrial environment and the ones observed in the field. Species determined were *Hyla arborea*, 1 specimen; green frogs belonging to the complex *Rana*, 40 adult individuals and 58 juveniles; *Bufo viridis*, 5 juveniles.

### Reptiles inventory:

#### Spring (May)

One individual of *Emys orbicularis* was observed on the pond EC 1 while on EC 2 three specimens which among two (25 cm diameter) were mating.

#### Summer - July

Within the camp perimeter (the dam between EC 1 and EC 2), were counted 8 specimens of *Lacerta*. The 4 individuals captured were determined to be *Lacerta agillis*.

One single specimen of *Natrix tessellata* was observed and captured within the camp perimeter at 26.07.2000.

### Morphometry

The sliding was used to run the main biometrics measures at Anura: **B.l.** - body length; **A.l.l.** - Anterior limb length; **F.l.** - Femur length; **T.a.l.** - Tarsal articulation length; **F.f.l.** - First finger length; **M.t.l.** - Metatarsal tubercle length; **H.b.** - Head breadth; **T.d.** - tympanum diameter, **H.l.** - Head length.

## Conclusions:

Groups of pupils from Iasi schools no. 7, 16 and 39 also participated within those activities. Following conclusions upon the area herpetofauna were drawn:

- Aspect in a specific area completely changed at 10 days interval in springtime, leading to the amphibian species movement to another station;
- Turtles (*Emys orbicularis*) breeding takes place till May;
- Due to the abundance of individuals we renounced to the species marking and their maltreating;
- Amphibians captured were predominantly males;
- Difference between the two species of green frogs of the *Rana* complex was made upon the males vocal bags colour, as follows: *Rana esculenta* with white vocal bags, while *Rana ridibunda* with dark grey vocal bags;
- High temperatures in July, above 30 °C, put in danger captured animal's life;
- Species in the area were heavily observed due to the draught;
- Increased juveniles numbers were observed;
- Numerous individuals of *Bufo viridis* were found at the bottom of the dried pond EC<sub>5</sub>;
- Anura in metamorphosis stages still existed at 25.07.2000;
- Reptile's capture was predominantly made within the perimeter camp;
- Large specimens captured of *Lacerta agillis* length mean were 19.5 cm;
- The species *Natrix tessellata* regurgitated the entire food recently swallowed in stress conditions.

Hydrobiology team components were:

Students:

**Stefan Miron** (Plankton)

**Dragos Zaharescu** (Zoobentos)

**Oana Chachula** (Herpetology)

**Dr. Mircea Nicoara** (superviser)

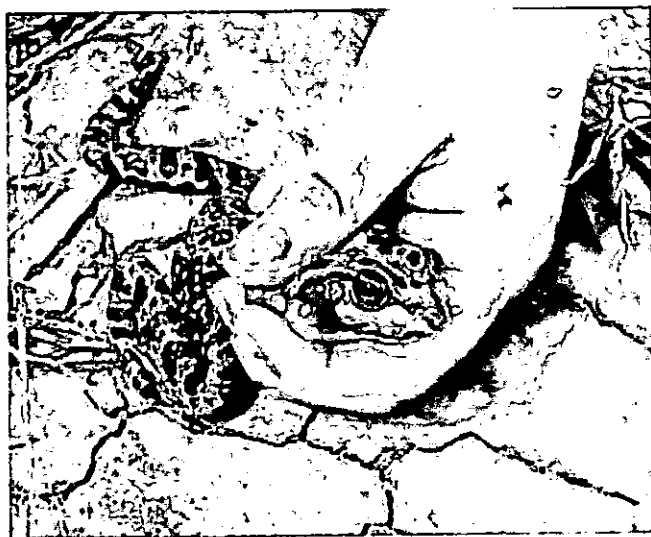




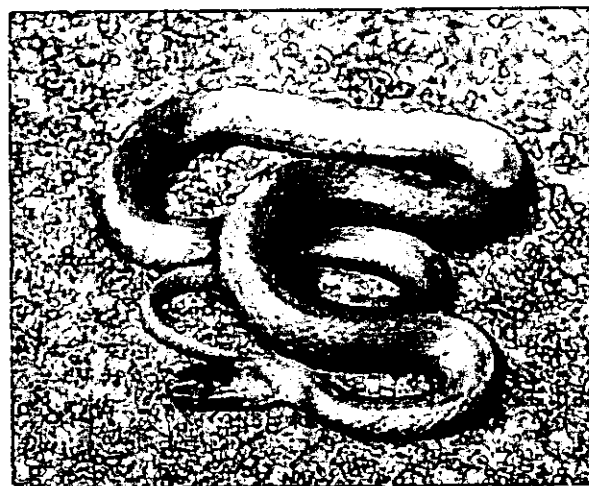
*Hyla arborea*



*Silurus glanis*



*Rana ridibunda*



*Natrix tessellata*



*Natrix natrix*



*Lacerta agilis*

## Ornithological fauna

Wetland Vladeni avifauna consists of 197 de species of birds which among 116 species are nesting in the area. The birds benefit of favourable conditions for nesting either in the perimeter of the Vladeni and Larga Jijia ponds or on Borsa swamp, as well as in the forests Catachi and Borsa. A ratio of this territory avifauna and that recorded for Romania emphasises that the wetland Vladeni shares aprox. 53.11% of the total amount of species present in the country.

### Species of birds present in the wetland Vladeni – Iasi county (Romania)

**Phenology:** NDJFMAMJJASO – the first letter of each month starting with November

B – breeding species; B? – probably breeding species

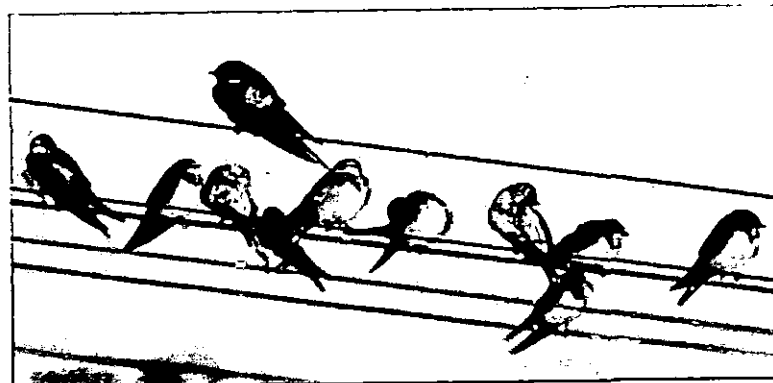
#### List of the Bird Species

1.	<i>Gavia arctica</i> (Black-throated Diver)	ND	
2.	<i>Gavia stellata</i> (Red-throated Diver)	ND	
3.	<i>Podiceps cristatus</i> (Great Northern Diver)	B	MAMJJASO
4.	<i>Tachybaptus ruficollis</i> (Little Grebe)	B	AMIIAS
5.	<i>Podiceps grisegena</i> (Red-necked Grebe)	B	AMJJASO
6.	<i>Podiceps nigricollis</i> (Black-necked Grebe)	B	MAMJJA
7.	<i>Podiceps auritus</i> (Slavonian Grebe)	DJ	
8.	<i>Phalacrocorax carbo</i> (Cormorant)	B N	MAMJJASO
9.	<i>Phalacrocorax pygmeus</i> (Pygmy Cormorant)	B	MAMJJASO
10.	<i>Botaurus stellaris</i> (Bittern)	B	AMJJASO
11.	<i>Ixobrychus minutus</i> (Little Bittern)	B	MJJAS
12.	<i>Nycticorax nycticorax</i> (Night Heron)	B	AMJJASO
13.	<i>Ardeola ralloides</i> (Squacco Heron)	B	MJJASO
14.	<i>Egretta garzetta</i> (Little Egret)	B	MAMJJASO
15.	<i>Egretta alba</i> (Great White Egret)	B ND	MAMJJASO
16.	<i>Ardea cinerea</i> (Grey Heron)	B ND	MAMJJASO
17.	<i>Ardea purpurea</i> (Purple Heron)	B	AMJJAS

18.	<i>Ciconia nigra</i> (Black Stork)		AMJJAS
19.	<i>Ciconia ciconia</i> (White Stork)	B	AMJJA
20.	<i>Plegadis falcinellus</i> (Glossy Ibis)		A AS
21.	<i>Platalea leucorodia</i> (Spoonbill)	B	AMJJAS
22.	<i>Cygnus olor</i> (Mute Swan)	B	NDJFMAMJJASO
23.	<i>Cygnus cygnus</i> (Whooper Swan)		D
24.	<i>Branta ruficollis</i> (Red-breasted Goose)		D
25.	<i>Anser anser</i> (Greylag Goose)	B	NDJFMAMJJASO
26.	<i>Anser fabalis</i> (Bean Goose)		D
27.	<i>Anser erythropus</i> (Lesser White-fronted Goose)		A O
28.	<i>Anser albifrons</i> (White-fronted Goose)		NDJFM O
29.	<i>Anas platyrhynchos</i> (Mallard)	B	NDJFMAMJJASO
30.	<i>Anas strepera</i> (Gadwall)	B	AMJJASO
31.	<i>Anas acuta</i> (Pintail)	N	MA
32.	<i>Anas penelope</i> (Wigeon)	N	MA J ASO
33.	<i>Anas querquedula</i> (Garganey)	B	MAMJJAS
34.	<i>Anas crecca</i> (Teal)		NDJFMA SO
35.	<i>Anas clypeata</i> (Shoveler)	B N	MAMJJASO
36.	<i>Tadorna tadorna</i> (Shelduck)	N	A O
37.	<i>Tadorna ferruginea</i> (Ruddy Shelduck)		O
38.	<i>Aythia fuligula</i> (Tufted Duck)		NDJFMAMJJASO
39.	<i>Aythia marila</i> (Scaup)		ND M O
40.	<i>Aythia nyroca</i> (Ferruginous Duck)	B ND	MAMJJASO
41.	<i>Aythia ferina</i> (Pochard)	B	NDJFMAMJJASO
42.	<i>Bucephala clangula</i> (Goldeneye)		D A
43.	<i>Haliaeetus albicilla</i> (White-tailed Eagle)		AS
44.	<i>Aquila heliaca</i> (Imperial Eagle)		NDJFMAMJJASO



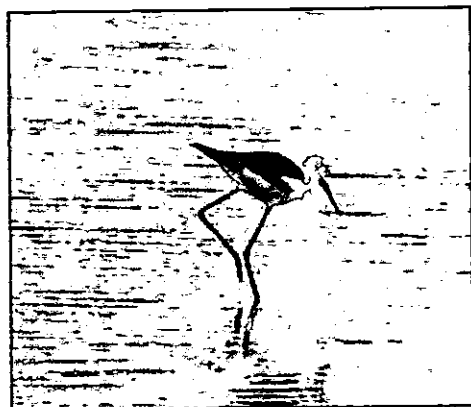
Ciconiiformes nest on EC 2



*Hirundo rustica*



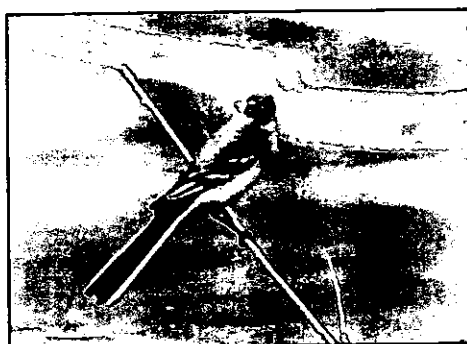
*Egretta garzetta*



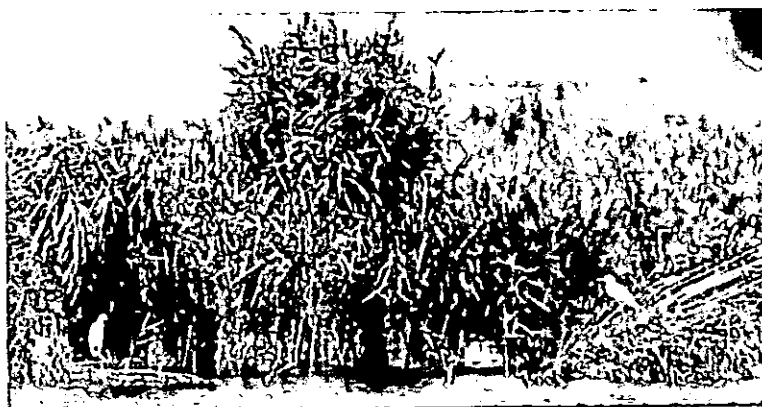
*Himantopus himantopus*



*Gallinula chloropus*



*Motacilla alba*



*Egretta alba*

45.	<i>Aquila pomarina</i> (Lesser Spotted Eagle)		AMJJAS
46.	<i>Hieraaetus pennatus</i> (Booted Eagle)		A
47.	<i>Circaetus gallicus</i> (Short-toed Eagle)		A
48.	<i>Buteo buteo</i> (Common Buzzard)		NDJFMAMJJASO
49.	<i>Buteo lagopus</i> (Rough-legged Buzzard)		NDJF
50.	<i>Pernis apivorus</i> (Honey Buzzard)		A A
51.	<i>Accipiter gentilis</i> (Goshawk)		NDJFMAMJJASO
52.	<i>Accipiter nisus</i> (Sparrowhawk)		NDJFMAMJJASO
53.	<i>Milvus milvus</i> (Red Kite)		MA J
54.	<i>Pandion haliaetus</i> (Osprey)		A
55.	<i>Circus aeruginosus</i> (Marsh Harrier)	B	AMJJASO
56.	<i>Circus pygargus</i> (Montagu's Harrier)		MA O
57.	<i>Falco columbarius</i> (Merlin)	ND	A O
58.	<i>Falco vespertinus</i> (Red-footed Falcon)	B	AMJJAS
59.	<i>Falco subbuteo</i> (Hobby)		MJJAS
60.	<i>Falco tinnunculus</i> (Kestrel)	B N	AMJJASO
61.	<i>Perdix perdix</i> (Grey Partridge)	B	NDJFMAMJJASO
62.	<i>Phasianus colchicus</i> (Pheasant)	B	NDJFMAMJJASO
63.	<i>Coturnix coturnix</i> (Quail)	B	AMJJA
64.	<i>Grus grus</i> (Crane)	N	SO
65.	<i>Rallus aquaticus</i> (Water Rail)	B	MJIJASO
66.	<i>Porzana parva</i> (Little Crane)		A
67.	<i>Crex crex</i> (Corncrake)	B	MJJASO
68.	<i>Gallinula chloropus</i> (Moorhen)	B	MAMJJASO
69.	<i>Fulica atra</i> (Coot)	B N	MAMJJASO
70.	<i>Vanellus vanellus</i> (Lapwing)	B N	MAMJJASO
71.	<i>Charadrius hiaticula</i> (Ringed Plover)		A

72.	<i>Charadrius dubius</i> (Little Ringed Plover)	B	AMJJAS
73.	<i>Calidris ferruginea</i> (Curlew Sandpiper)		AMJJASO
74.	<i>Calidris alpina</i> (Dunlin)		A J
75.	<i>Limicola falcinellus</i> (Broad-billed Sandpiper)		A JASO
76.	<i>Calidris minuta</i> (Little Stint)		AM S
77.	<i>Calidris temminckii</i> (Temminck's Stint)		JA
78.	<i>Gallinago media</i> (Great Snipe)		M JAS
79.	<i>Gallinago gallinago</i> (Snipe)		JASO
80.	<i>Lymnocyrtus minimus</i> (Jack Snipe)		JAS
81.	<i>Numenius arquata</i> (Curlew)	N	M JASO
82.	<i>Limosa limosa</i> (Black-tailed Godwit)	B N	MAMJJASO
83.	<i>Actitis hypoleucos</i> (Common Sandpiper)		MAMJJASO
84.	<i>Tringa ochropus</i> (Green Sandpiper)		AM JASO
85.	<i>Tringa glareola</i> (Wood Sandpiper)		AM JASO
86.	<i>Tringa nebularia</i> (Greenshank)		AM O
87.	<i>Tringa stagnatilis</i> (Marsh Sandpiper)		AM JASO
88.	<i>Tringa totanus</i> (Redshank)		MAMJJASO
89.	<i>Tringa erythropus</i> (Spotted Redshank)		AMJJASO
90.	<i>Philomachus pugnax</i> (Ruff)		MAM JAS
91.	<i>Recurvirostra avosetta</i> (Avocet)	B N	MJJASO
92.	<i>Himantopus himantopus</i> (Black-winged Stilt)	B	MJJAS
93.	<i>Larus fuscus</i> (Lesser Black-backed Gull)		MA O
94.	<i>Larus argentatus</i> (Yellow-legged Gull)	B	NDJFMAMJJASO
95.	<i>Larus canus</i> (Common Gull)		ND
96.	<i>Larus ridibundus</i> (Black-headed Gull)	B	NDJFMAMJJASO
97.	<i>Larus minutus</i> (Little Gull)		MA
98.	<i>Chlidonias niger</i> (Black Tern)	B	AMJJAS

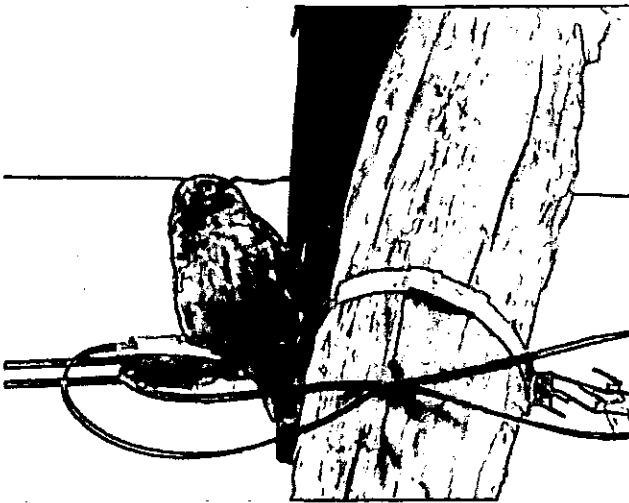
99.	<i>Chlidonias hybridus</i> (Whiskered Tern)	B	AMJJAS
100.	<i>Chlidonias leucopterus</i> (White-winged Black Tern)		A
101.	<i>Gelochelidon nilotica</i> (Gull-billed Tern)		A
102.	<i>Sterna hirundo</i> (Common Tern)	B	AMJJASO
103.	<i>Columba palumbus</i> (Woodpigeon)	B	AMJJAS
104.	<i>Streptopelia turtur</i> (Turtle Dove)	B	AMJJAS
105.	<i>Streptopelia decaocto</i> (Collared Dove)	B	NDJFMAMJJASO
106.	<i>Cuculus canorus</i> (Cuckoo)	B	AMJJA
107.	<i>Athene noctua</i> (Little Owl)	B	NDJFMAMJJASO
108.	<i>Bubo bubo</i> (Eagle Owl)	B	NDJFMAMJJASO
109.	<i>Asio otus</i> (Long-eared Owl)		NDJFMAMJJASO
110.	<i>Strix aluco</i> (Tawny Owl)		NDJFMAMJJASO
111.	<i>Tyto alba</i> (Barn Owl)	D	J
112.	<i>Caprimulgus europaeus</i> (Nightjar)	B	AMJJAS
113.	<i>Apus apus</i> (Swift)	B	MJJA
114.	<i>Alcedo atthis</i> (Kingfisher)	B?	AMJJASO
115.	<i>Merops apiaster</i> (Bee-eater)	B	MJJA
116.	<i>Coracias garrulus</i> (Roller)	B	MJJA
117.	<i>Upupa epops</i> (Hoopoe)	B	AMJJAS
118.	<i>Picus viridis</i> (Green Woodpecker)		NDJFMAMJJASO
119.	<i>Picus canus</i> (Grey-headed Woodpecker)	B	NDJFMAMJJASO
120.	<i>Dendrocopos major</i> (Great Spotted Woodpecker)	B	NDJFMAMJJASO
121.	<i>Dendrocopos syriacus</i> (Syrian Woodpecker)	B	NDJFMAMJJASO
122.	<i>Dendrocopos medius</i> (Middle Spotted Woodpecker)	B	NDJFMAMJJASO
123.	<i>Jynx torquilla</i> (Wryneck)	B	AMJJA
124.	<i>Galerida cristata</i> (Crested Lark)	B	NDJFMAMJJASO
125.	<i>Alauda arvensis</i> (Skylark)	B	MAMJJASO



*Acrocephalus schoenobaenus*



*Panurus biarmicus*



*Athene noctua*



*Acrocephalus schoenobaenus* caught in the net



*Acrocephalus arundinaceus* (nest)



*Panurus biarmicus*



126.	<i>Lullula arborea</i> (Woodlark)	B	AMJJA
127.	<i>Riparia riparia</i> (Sand Martin)	B	MJJAS
128.	<i>Hirundo rustica</i> (Swallow)	B	AMJJASO
129.	<i>Delichon urbica</i> (House Martin)	B	MJJA
130.	<i>Anthus trivialis</i> (Tree Pipit)	B	AMJJA
131.	<i>Anthus pratensis</i> (Meadow Pipit)	B	A A
132.	<i>Anthus campestris</i> (Tawny Pipit)	B	AMJJA
133.	<i>Anthus cervinus</i> (Red-throated Pipit)		M
134.	<i>Motacilla flava</i> (Blue-headed Wagtail)	B	AMJJASO
135.	<i>Motacilla cinerea</i> (Grey Wagtail)		AM A
136.	<i>Motacilla alba</i> (White Wagtail)	B N	MAMJJASO
137.	<i>Lanius collurio</i> (Red-backed Shrike)	B	AMJJASO
138.	<i>Lanius minor</i> (Lesser Grey Shrike)	B	AMJJA
139.	<i>Lanius excubitor</i> (Great Grey Shrike)		DJFMA
140.	<i>Oriolus oriolus</i> (Golden Oriole)	B	MJJA
141.	<i>Sturnus vulgaris</i> (Starling)	B ND	MAMJJASO
142.	<i>Garrulus glandarius</i> (Jay)	B NDJFMAMJJASO	
143.	<i>Pica pica</i> (Magpie)	B NDJFMAMJJASO	
144.	<i>Corvus monedula</i> (Jackdaw)	B NDJFMAMJJASO	
145.	<i>Corvus frugilegus</i> (Rook)	B NDJFMAMJJASO	
146.	<i>Corvus corone cornix</i> (Hooded Crow)	B NDJFMAMJJASO	
147.	<i>Corvus corax</i> (Raven)	B NDJFMAMJJASO	
148.	<i>Troglodytes troglodytes</i> (Wren)	NDJ	O
149.	<i>Locustella luscinioides</i> (Savi's Warbler)	B	AMJJAS
150.	<i>Locustella fluviatilis</i> (River Warbler)		AM S
151.	<i>Acrocephalus scirpaceus</i> (Reed Warbler)	B	AMJJAS
152.	<i>Acrocephalus schoenobaenus</i> (Sedge Warbler)	B	AMJJAS

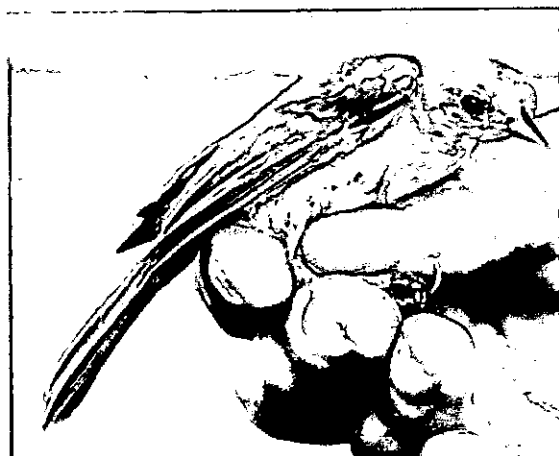
153.	<i>Acrocephalus arundinaceus</i> (Great Reed Warbler)	B	AMJJASO
154.	<i>Hippolais icterina</i> (Icterine Warbler)	B	AMJJASO
155.	<i>Sylvia atricapilla</i> (Blackcap)	B	MJJA
156.	<i>Sylvia nisoria</i> (Barren Warbler)	B	MJJ
157.	<i>Sylvia borin</i> (Garden Warbler)	B	AMJJA
158.	<i>Sylvia communis</i> (Whitethroat)	B	MJJA
159.	<i>Sylvia curruca</i> (Lesser Whitethroat)	B	MJJA
160.	<i>Phylloscopus trochilus</i> (Willow Warbler)		AM A
161.	<i>Phylloscopus collybita</i> (Chiffchaff)		AMJJA
162.	<i>Phylloscopus sibilatrix</i> (Wood Warbler)	B	MJJA
163.	<i>Regulus regulus</i> (Goldcrest)	NDJ	O
164.	<i>Oenanthe oenanthe</i> (Wheatear)	B	AMJJA
165.	<i>Saxicola rubetra</i> (Whinchat)	B	AMJJA
166.	<i>Saxicola torquata</i> (Stonechat)	B	AMJJA
167.	<i>Phoenicurus phoenicurus</i> (Redstart)	B	AMJJAS
168.	<i>Phoenicurus ochruros</i> (Black Redstart)	B	AMJJAS
169.	<i>Luscinia svecica cyanacula</i> (Bluethroat)	B	AMJJA
170.	<i>Erithacus rubecula</i> (Robin)	B	MAMJJA
171.	<i>Luscinia luscinia</i> (Thrush Nightingale)	B	MJJA
172.	<i>Luscinia megarhynchos</i> (Nightingale)	B	MJJA
173.	<i>Turdus merula</i> (Blackbird)	B	NDJFMAMJJASO
174.	<i>Turdus viscivorus</i> (Mistle Thrush)	ND	
175.	<i>Turdus philomelos</i> (Song Thrush)		ASO
176.	<i>Turdus pilaris</i> (Fieldfare)	NDJF	
177.	<i>Parus palustris</i> (Marsh Tit)	ND	SO
178.	<i>Parus caeruleus</i> (Blue Tit)	B	NDJFMAMJJASO
179.	<i>Parus major</i> (Great Tit)	B	NDJFMAMJJASO



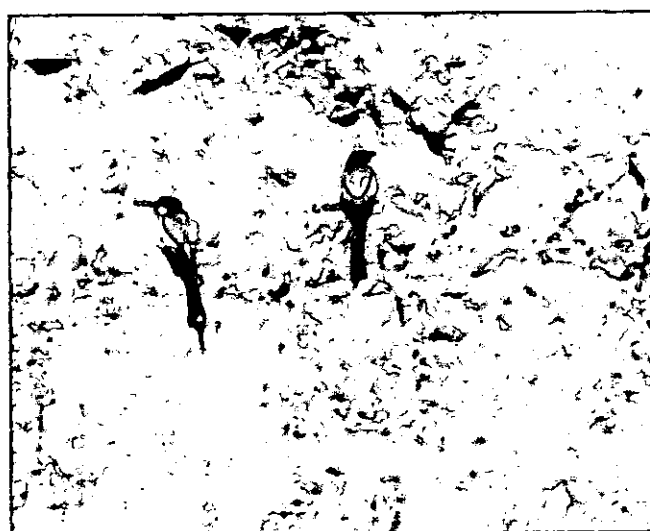
*Remiz pendulinus* (nest)



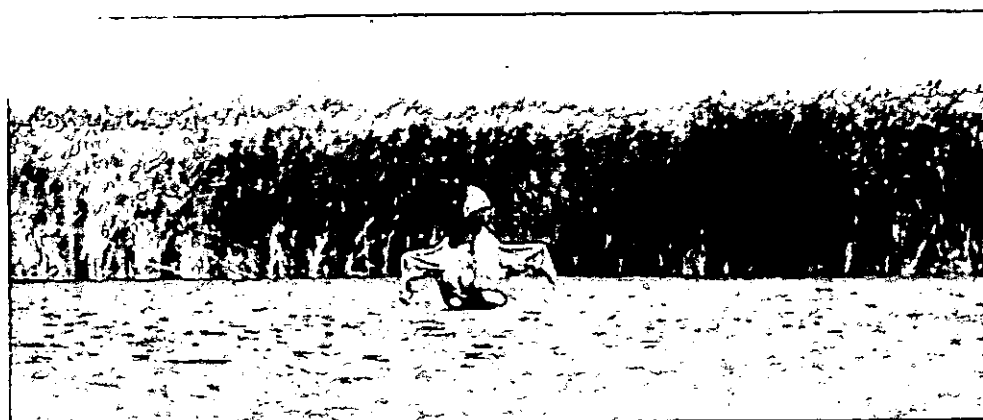
*Ardea cinerea*



*Remiz pendulinus*



*Merops apiaster*



Peaceful means for the cormorants removing

180.	<i>Panurus biarmicus</i> (Bearded Tit)	B N	AMJJASO
181.	<i>Remiz pendulinus</i> (Penduline Tit)	B	AMJJASO
182.	<i>Sitta europaea</i> (Nuthatch)	B	AMJJASO
183.	<i>Passer domesticus</i> (House Sparrow)	B	NDJFMAMJJASO
184.	<i>Passer montanus</i> (Tree Sparrow)	B	NDJFMAMJJASO
185.	<i>Fringilla coelebs</i> (Chaffinch)	B	NDJFMAMJJASO
186.	<i>Fringilla montifringilla</i> (Brambling)		NDJF
187.	<i>Coccothraustes coccothraustes</i> (Hawfinch)	B	NDJFMAMJJASO
188.	<i>Carduelis chloris</i> (Greenfinch)	B	NDJFMAMJJASO
189.	<i>Carduelis spinus</i> (Siskin)		NDJF
190.	<i>Serinus serinus</i> (Serin)		A O
191.	<i>Carduelis cannabina</i> (Linnet)	B	JFMAMJJAS
192.	<i>Carduelis carduelis</i> (Goldfinch)	B	NDJFMAMJJASO
193.	<i>Carduelis flammea</i> (Redpoll)		NDJFM
194.	<i>Miliaria calandra</i> (Corn Bunting)	B	NDJFMAMJJASO
195.	<i>Emberiza hortulana</i> (Ortolan)	B	MJJAS
196.	<i>Emberiza schoeniclus</i> (Reed Bunting)	B	NDJFMAMJJASO
197.	<i>Emberiza citrinella</i> (Yellowhammer)	B	NDJFMAMJJASO

In order to follow the quantitative dynamics across the seasons and the years of the populations that are forming the ornithocoenosis of the wetland Vladeni has been produced a census of the populations belonging to the orders: Ciconiiformes, Anseriformes and Charadriiformes – subord. Charadrii, data collected by us in 2000 being processed and interpreted, and also information belonging to Dr. Carmen Gache (starting 1992).

Index of relation (IR) expresses the ratio among one species effective and the total effective of a reviewed population; offers an image of the global contribution of the envisaged species to the total population, while its graph shows the numerical fluctuations of each species during a season or during the whole study.

Wetland Vladeni - birds' wintering quarter

Avifauna of the wetland Vladeni is influenced in its hiemal appearance by two factors: meteorological conditions (temperature, especially) and the condition of the aquatic surfaces in the area. During October the water is evacuated for fishing from some ponds and partially from the

dam lake Halceni. In normal circumstances the free water surface of the fish ponds is reduced during winter facilitating the installation of the ice bridge soon after the atmosphere temperature decreases below - 5° C. Lake Halceni is freezing only in the circumstances of the very hard winters (e.g. 1995, 1996, 1998) or when due to the dry autumn lake lasts partially empty after fish harvesting, and atmosphere temperature decreases below - 10° C, even for a few days only (1999). Usually, lake Halceni represents one of the most important wintering quarters for waterfowls (especially geese and ducks) in the middle basin of the River Prut.

The hiemal appearance (November – February) of the wetland Vladeni showed thousands of geese and ducks that constitute the group numerically most representative of the winter avifauna. Among the 17 species of anseriforms that may be seen during winter within the territory, *Anser anser* and *Anas platyrhynchos* represented supradominant species within the hiemal population of this order, *Anser albifrons* and *Anas crecca* were dominant species while *Aythya ferina* reached the upper limit of the complementary species; significant values were also realised by *Anas penelope* and *Aythya nyroca*.

In December on the lake Halceni were counted over 500 individuals of Mallards (*Anas platyrhynchos*), 20 of Greylag Geese (*Anser anser*), 14 of Ferruginous Ducks (*Aythya nyroca*), tens of gulls (*Larus argentatus* and *Larus ridibundus*) and Red-breasted Geese (*Branta ruficollis*). In January was dominant: White-fronted Geese - aprox. 5,000 individuals of *Anser albifrons*. There were also present 120 individuals of Greylag Geese (*Anser anser*), 160 of Mallards (*Anas platyrhynchos*), 40 of Teals (*Anas crecca*) and more than 100 gulls (which among 6 individuals of Lesser Black-backed Gull - *Larus fuscus*). An insolite presence for this time of the year were the two Curlews (*Numenius arquata*) – representing the tardiest signalisation of this species for the River Prut basin (3.01.2001)!

### Birds Migration

Mircea Maties (1986) enumerated River Prut valley among the most privileged migration regions in Romania. Our observations confirmed the passage of some significant effectives of aquatic and waterfowls in the wetland Vladeni perimeter, revealing the special importance of the site for birds migration in the eastern Romania.

Spring migration covers the months March - April - May, the birds halting for a few days on the fitted out water surfaces or in Jijia's floodplain, in their way between the southern wintering quarters and northern nesting areas. Though groups of hundreds and thousands of aquatic and waterfowls are constantly present, the specific composition and numerical effectives of the species gradually change, each spring month being dominated by a different group of birds.

Thus, in the years with severe and snow rich winters followed by wet springs and sudden warming, Jijia's plain is completely water covered in March (e.g. 1996, 1997, 1999). In the first decade of March the coots and gulls are dominant (Aprox. 900 Coots – *Fulica atra* and 300 Black headed Gulls - *Larus ridibundus* were present between Vladeni and Borsa - 12.03.1999); the geese pass quick to North in the second half of the month; in a single day were recorded thousands of individuals (16.03.2000, Larga Jijia, 7,500 White-fronted Geese - *Anser albifrons*). At the end of the month the ducks become dominant (25.03.2000, lake Halceni, aprox. 1,000 ducks, among which: 460 Teals - *Anas crecca*, 314 Garganeys - *Anas querquedula*, and 168 Pochards - *Aythya ferina*; 31.03.1996, in Jijia's floodplain between Vladeni and Borsa, were found: 1200 Pochards - *Aythya ferina*, 700 Mallards - *Anas platyrhynchos*, and 120 Garganeys - *Anas querquedula*, other species being represented by small groups; 11.04.1996:



*Sterna hirundo* (young)



*Charadrius dubius* (nest)



Bird capture net installed in the reedbed



Efforts to save a young of *Ardea cinerea*



Peaceful means for the birds removing

1,500 Garganeys - *Anas querquedula*, 800 Pochards - *Aythya ferina*, 150 Mallards - *Anas platyrhynchos* and some tens of individuals belonging to other species (*Anas penelope*, *Anas clypeata* and *Aythya fuligula*). In such years tens to hundreds of individuals of herons, storks and waders appear in the area in late March or early April. In the years with mild winters hundreds to thousands of waders appear since March (20.03.1994: Halceni, 1,200 Lapwings - *Vanellus vanellus*, 240 Black-tailed Godwits - *Limosa limosa*, 60 Common Sandpipers - *Actitis hypoleucos*, and 42 Redshanks - *Tringa totanus*; 19.03.2000, the Vladeni ponds: 400 Lapwings - *Vanellus vanellus*, 200 Black-tailed Godwits - *Limosa limosa* and 140 Redshanks - *Tringa totanus*, while the lake Halceni: 1,200 Black-tailed Godwits - *Limosa limosa* and 14 Lapwings - *Vanellus vanellus*; 25.03.2000, the lake Halceni: 2,100 Lapwings - *Vanellus vanellus*, 1,900 Lapwings - *Vanellus vanellus* and 48 Redshanks - *Tringa totanus*, while the Vladeni ponds: 90 Lapwings - *Vanellus vanellus* only).

The values of the index of relation showed that population of anseriforms is formed in March by 3 supradominant species: *Anas platyrhynchos*, *Anser albifrons* and *Aythya ferina*, 2 dominant species: *Anas crecca* and *Anser anser*, while the rest are complementary species, *Aythya nyroca* standing for the upper limit of the complementary zone. In April population of anseriforms has a completely modified aspect: *Anas platyrhynchos* is supradominant as well as *Anas penelope*; *Anas querquedula* and *Anas strepera* are dominant species, the other species becoming complementary (*Anser albifrons* disappears in the wetland Vladeni in the first decade of April).

Three species of Ciconiiforms appear in the wetland Vladeni in March, all supradominant: *Ardea cinerea*, *Egretta alba* and *Ciconia ciconia*; in April a single species is still supradominant: *Ardea cinerea*, while dominant are: *Egretta alba*, *Ciconia ciconia* and *Egretta garzetta*, the rest being complementary (*Nycticorax nycticorax* has high values of the IR).

The waders representing the subord. Charadrii (Order Charadriiformes) appear in the wetland Vladeni in the second decade of March, spring migration of the waders taking place till the middle of May. Birds halt on lake Halceni, Miletin swamp, fish ponds in course of filling in early spring: Vladeni, Larga Jijia or on temporary marshes in Jijia's floodplain between villages Vladeni and Borsa.

In March, *Vanellus vanellus* is supradominant, *Limosa limosa* dominant, while other 4 species are complementary: *Actitis hypoleucos*, *Tringa totanus*, *Tringa glareola* and *Philomachus pugnax*. In April, population of waders birds consist of two supradominant species: *Vanellus vanellus* and *Limosa limosa*, two dominant species: *Philomachus pugnax* and *Tringa totanus* and 9 complementary species (e.g. *Tringa erythropus*, *Tringa ochropus*, *Actitis hypoleucos* and *Calidris ferruginea*). In May are supradominant: *Philomachus pugnax* and *Tringa erythropus*; *Tringa totanus* is a dominant species; same as *Tringa ochropus* while *Vanellus vanellus* and *Limosa limosa* are complementary.

Autumn migration in the wetland Vladeni starts since July and takes place till late October or early November. First groups of waders appear in July and halt on the swampy fields arisen consequent to water withdrawal due to summer drought: e.g. 8.07.2000 on the pond EC 6 belonging to the Larga Jijia complex were counted: 500 Curlews - *Numenius arquata*, 400 Lapwings - *Vanellus vanellus*, 60 Redshanks - *Tringa totanus*, 18 Ruffs - *Philomachus pugnax*, 18 Black-winged Stilts - *Himantopus himantopus* (adult birds that nested there), 7 Common Sandpipers - *Actitis hypoleucos*, 6 Green Sandpipers - *Tringa ochropus* and 4 Marsh Sandpipers - *Tringa stagnatilis*. On the other hand, in 2000 this pond and the lake Halceni represented the most important halt stations for the waterfowls and waders during July – October. Thus, on the pond EC 6 were found at 28.07.2000: 580 Redshanks - *Tringa totanus*, 480 Black-tailed God-

wits - *Limosa limosa*, 120 Dunlins - *Calidris alpina*, 60 Curlews - *Numenius arquata*, 60 Ruffs - *Philomachus pugnax*, 60 Spotted Redshanks - *Tringa erythropus*, 40 Curlew Sandpipers - *Calidris ferruginea*, 20 Green Sandpipers *Tringa ochropus* and 4 Marsh Sandpipers - *Tringa stagnatilis*, as many 8 individuals of *Himantopus himantopus* and *Tringa ochropus*, 6 Avocets - *Recurvirostra avosetta*, 6 Little Ringed Plovers - *Charadrius dubius* and 4 Lapwings - *Vanellus vanellus*. At 1.08.2000 on the lake Halceni were counted over 1000 waders, among which: 160 Lapwings - *Vanellus vanellus*, 110 Dunlins - *Calidris alpina*, 80 Black-tailed Godwits - *Limosa limosa*, 320 Redshanks - *Tringa totanus*, 80 Spotted Redshanks - *Tringa erythropus* and 290 Ruffs - *Philomachus pugnax*. At the middle of August on the pond EC 6 besides the waders appeared the first agglomerations of waterfowls: 1,800 Mallards - *Anas platyrhynchos*, 210 Gadwalls - *Anas strepera*, 160 Garganeys - *Anas querquedula*, 240 Coots - *Fulica atra*, 6,000 Lapwings - *Vanellus vanellus*, 180 Dunlins - *Calidris alpina*, 72 Broad-billed Sandpipers - *Limicola falcinellus*, 16 Little Ringed Plovers - *Charadrius dubius*, 520 Curlews - *Numenius arquata*, 270 Black-tailed Godwits - *Limosa limosa*, 360 Redshanks - *Tringa totanus*, 60 Green Sandpipers - *Tringa ochropus*, 20 - *Tringa glareola* and 360 Spotted Redshanks - *Tringa erythropus*.

Autumn migration is slower than the spring one. Birds halt longer in the territories that offer abundant food resources, use it as 'fattening place' - points in which the birds accumulate adipose reserves that provide the energy necessary for flight during the migration. By catching, marking (ringing) and recapturing birds after intervals of days or weeks during the autumn passage in the very same territory, information expressing the territory value for birds can be obtained.

The test Wilcoxon was applied for 17 mixed pairs of: *Acrocephalus schoenobaenus*, *Acrocephalus scirpaceus* and *Acrocephalus arundinaceus* captured and recaptured in august 2000 at Larga Jijia, by processing the value  $d$  - difference of weight recorded between recapture and capture time. Differences were found to be statistically significant, thus conclusion was that reeds from Larga Jijia represent such a 'fattening place' for warblers during the autumn migration.

Dynamics of the autumn migration was followed by calculation of index of relation (IR) for the waders, herons, storks, geese and ducks.

In July, population of waders was formed by 21 species which among five species were supradominant: *Vanellus vanellus*, *Numenius arquata*, *Limosa limosa*, *Tringa totanus* and *Tringa erythropus*; group of dominant species was formed by *Actitis hypoleucos*, *Tringa ochropus*, *Tringa glareola* and *Philomachus pugnax*, the rest of the species being complementary (significant values were produced by *Tringa stagnatilis* and *Calidris ferruginea*).

In August, three species were supradominant: *Vanellus vanellus*, *Numenius arquata* and *Tringa totanus*; 7 species were dominant: *Numenius arquata* (supradominant in 1996 and 2000), *Actitis hypoleucos*, *Tringa glareola*, *Tringa erythropus*, *Tringa stagnatilis*, *Tringa ochropus* and *Philomachus pugnax*; among complementary species high values were produced by *Calidris ferruginea* and *Calidris alpina*.

In September, *Vanellus vanellus* and *Limosa limosa* were supradominant, *Numenius arquata*, *Tringa totanus* and *Tringa erythropus* were dominant, the rest of species being complementary.

In October, within the population of waders, *Vanellus vanellus* and *Limosa limosa* were still supradominant, *Numenius arquata* and *Tringa glareola* dominant, while *Tringa totanus* and *Tringa erythropus* were at the upper limit of the complementary zone.



Migration of the ciconiiforms was faster and started in August when the effectives of White Stork (*Ciconia ciconia*) recorded maximum values, species being supradominant; dominant species were: *Ardea cinerea*, *Egretta alba* and *Egretta garzetta*, while complementary were: *Platalea leucorodia*, *Nycticorax nycticorax*, *Ardea purpurea*, *Ardeola ralloides* and *Plegadis falcinellus*.

In September, population of ciconiiforms was formed by two supradominant species: *Ardea cinerea* and *Egretta alba*. 6 species were complementary, only *Nycticorax nycticorax* with higher IR values.

In the wetland Vladeni may be usually observed during October 4 species only: *Ardea cinerea*, *Egretta alba* (supradominant), *Nycticorax nycticorax* (dominant) and *Egretta garzetta* (complementary). The year 2000 brings an exceptional observation: on 8.10.2000 at 10h47' a flock of aprox. 200 Black Storks (*Ciconia nigra*) coming from NV descended for feeding on the pond EC 2 in course of water drainage; birds were present till the evening of 9 October, when they left Vladeni wetland heading SE. This was the first observation in eastern Romania of a such numerous group of Black Storks. This shows the basin of River Prut to be a passage of the birds nesting in Poland and Baltic countries to Bosfor straight.

In August also starts the autumn migration of the anseriforms. *Anser anser* and *Anas platyrhynchos* were supradominant, *Anas querquedula* dominant, 8 species were complementary (e.g. *Anas acuta*, *Anas crecca*). In September, *Anas platyrhynchos* and *Anser anser* were still supradominant while no species was dominant; among complementary species were: *Aythya ferina*, *Anas penelope* and *Anas crecca*.

In October, supradominant only was *Anas platyrhynchos*; *Anser anser* was dominant as well as *Anas penelope*, *Anas crecca* and *Aythya ferina*; though numerous, *Aythya nyroca* was just complementary. The White-fronted Goose (*Anser albifrons*) passes to South in the first decade of November (on the Larga Jijia ponds were counted 19,270 individuals at 2.11.2000). Groups as large as 5,000 specimens remain over the winter in the perimeter of the Lake Halceni.

#### Breeding season

The avifauna nesting in the wetland Vladeni and in the neighboured territories: forests Catachi and Borsa, plantation between villages Mihail Kogalniceanu and Borsa represent aprox. 60% of the avifauna recorded in the perimeter: 116 species surely nesting, among which 6 species are irregularly nesting in the area and one probably nesting species (the Kingfisher - *Alcedo atthis*).

Many aquatic birds find satisfactory conditions and populate in large numbers the Jijia's and Mileti's ponds, especially the ones surrounded by reed strips or partially invaded by paludous vegetation (e.g. Borsa swamp, Larga Jijia ponds, Vladeni ponds). Reed beds firstly represent a nesting place for majority of the species excepting grebes and terns that build floating nests on the water surface. In the reedbeds breed: herons, geese, swans, ducks, some rails and passerines.

Among the waterfowls nesting in the perimeter of the wetland Vladeni, the grebes and the terns: *Podiceps cristatus*, *Podiceps nigricollis* and *Chlidonias hybridus* form mixt colonies on the Borsa swamp (absent in the years 1999 and 2000 when the swamp was cleared for maintenance works) while *Tachybaptus ruficollis* and *Podiceps grisegena* nest solitarily on the Vladeni and Larga Jijia ponds. The largest breeding population was recorded for the Great Crested Grebe (*Podiceps cristatus*).

The presence of cormorants as nesting species is not agreed within the perimeter of the fish

farms, birds being driven away by peaceful means – gun shots and explosions (cannons with calcium carbide), installation of scarecrows on the water surface with offspring. The Pygmy Cormorant (*Phalacrocorax pygmeus*) irregularly nest in the forest Catachi. In the years '90, the Cormorant (*Phalacrocorax carbo*) nested on willows at Larga Jijia; after willows were cut cormorants started install their nests in the reed – similar to the Danube Delta – but succeed only if the nests were not found when the breeding season started (e.g. 1998, at the edge of herons colony on the pond EC 2, nested 22 pairs of Cormorant, nests being discovered when the offspring already hatched, thus the farm staff quitted the idea of destroying it).

Situation of the ciconiiforms breeding in the territory was carefully monitored, because in the reedbeds from Larga Jijia there is one of the largest colonies of herons from Romania, besides the Danube Delta, the most numerous population being recorded on the pond EC 2 where the reed forms large compact surfaces, but also some insular 'sheafs', ideal for installation of nests. Remarkable is the nesting on the reedbeds of certain species that prefer to nest in the trees: Night Heron (*Nycticorax nycticorax*), Little Egret (*Egretta garzetta*) and Grey Heron (*Ardea cinerea*). Also remarkable is the evolution of the breeding population of Spoonbill (*Platalea leucorodia*) from 9 pears in 1997 to 37 pears at present.

Population of ciconiiforms breeding in 2000 in the wetland Vladeni was estimated to be formed by: 80 pairs of Grey Heron (*Ardea cinerea*), 4 pairs of Purple Heron (*Ardea purpurea*), 48 pairs of Great White Egret (*Egretta alba*), 37 pairs of Little Egret (*Egretta garzetta*), 20 pairs of Night Heron (*Nycticorax nycticorax*), 2 pairs of Squacco Heron (*Ardeola ralloides*), 18 - 20 pairs of Little Heron (*Ixobrychus minutus*) and 37 pairs of Spoonbill (*Platalea leucorodia*). The breeding population of the Bittern (*Botaurus stellaris*) is hard to estimate due to its life hidden in dense reed thickets, cryptic coloration and polygamous males; in May 2000, four males of Bittern have been sonorously recorded. In 2000, birds used as feeding place the pond EC 6, swampy places on the pond EC 5 (cleared since May) while the lake Halcenii and Miletin swamp (especially the Spoonbills) after the offspring left the nests.

Importance of the area Vladeni for the ciconiiforms:

- It's the only place in the Prut's basin where nest the species: *Ardea purpurea* and *Platalea leucorodia*;
- It's one of the few sites in the Prut's basin where nest the species: *Egretta alba*, *Egretta garzetta*, *Ardeola ralloides*;
- Breeding populations of the species *Egretta alba* and *Platalea leucorodia* living in this perimeter are the largest in Romania besides Danube Delta (for the Spoonbill is the only colony out of the Danube Delta).

Number of the breeding pears of anseriforms is quite small in the wetland Vladeni but certain species quite rare in the eastern Romania are present in the area: the Mute Swan (*Cygnus olor*), 2 - 4 pairs nesting on the Larga Jijia ponds; the Greylag Goose (*Anser anser*), species very sensitive to the anthropogen factor, nested irregularly prior to 1995 while after 1996 6 - 8 pairs nested in the reedbeds of the ponds EC 1, EC 1' and EC Miletin; the Shoveler (*Anas clypeata*) is irregularly nesting, and the Ferruginous Duck (*Aythya nyroca*) became a constant presence at Larga Jijia; two females with ducklings were observed in 2000.

Ecosystems of the wetland Vladeni offered favourable conditions for nesting of Marsh Harrier (*Circus aeruginosus*) and since 1995 for one pair of Red-footed Falcon (*Falco vespertinus*).

Few species of waders nest in the perimeter. Dominant is the Lapwing (*Vanellus vanellus*) with a population of 30 - 40 pairs that nest on the wet lawns in the area; on the ponds Vladeni and Larga Jijia were counted in 2000 six pairs of Little Ringed Plover (*Charadrius dubius*) while since 1999 at Larga Jijia nested three pairs of Black-winged Stilt (*Himantopus himantopus*), species very rarely nesting in Romania. Irregularly nest in the wetland Vladeni another two species, very rarely present as breeding species out of the Danube Delta: the Black-tailed Godwit (*Limosa limosa*) – one pair on the meadow near Borsa swamp and the Avocet (*Recurvirostra avosetta*) – one pair at the lake Halceni tail.

The breeding gulls and terns were represented by 5 species: Black-headed Gull (*Larus ridibundus*), Yellow-legged Gull (*Larus argentatus*), Whiskered Tern (*Chlidonias hybridus*), Black Tern (*Chlidonias niger*) and Common Tern (*Sterna hirundo*): maximum 5 pairs prior to 1999 when 63 pairs formed a mixed colony with two pairs of Black-winged Stilts and two pairs of Little Ringed Plovers on an isle of the pond EC 3 at Larga Jijia.

Remarkable is that after 1997 two pairs of Rollers (*Coracias garrulus*) nested in the abandoned clay pit near the Larga Jijia farm - the northern limit of the breeding area in Romania. The constant presence of the Kingfisher (*Alcedo atthis*) in the perimeter of the Larga Jijia ponds and of immature birds, inclusively, suggests that the species probably breeds in the perimeter.

Reedbirds are abundant in the reedbeds of the wetland Vladeni. It is possible that increased by time from one year to another according to the reedbeds extension. Among the species surely breeding: Sedge Warbler (*Acrocephalus schoenobaenus*), Reed Warbler (*Acrocephalus scirpaceus*), Great Reed Warbler (*Acrocephalus arundinaceus*), Savi's warbler (*Locustella luscinioides*), Bearded Tit (*Panurus biarmicus*) and Reed Bunting (*Emberiza schoeniclus*). We emphasised the presence of the Bluethroat (*Luscinia svecica cyanicula*) nesting at Larga Jijia, species extremely rare in Romania.

Ecosystems of the wetland Vladeni are relatively young: aprox. 25 years old. We presume that the local avifauna gradually enriched, simultaneously with eutrophication of the basins, development of the paludous vegetation and aquatic fauna - elements essential for waterfowls and waders birds' nesting, shelter, halt and feeding. It is doubtless that in the last years in the area appeared species not seen a long time since: *Cygnus olor*, *Tadorna ferruginea*, *Egretta alba*, *Platalea leucorodia*, *Platalea leucorodia*, *Plegadis falcinellus*, *Phalacrocorax carbo*, *Himantopus himantopus*, *Recurvirostra avosetta*, etc. On the other hand, according to the information delivered by the natives, flocks of ducks and geese that now halt in the area are much larger than 10 - 15 years ago while the time they remain on the ponds is longer. Even winter birds' appearance on the accumulation Halceni increased.

It is doubtless that due to its extent and multiple value the wetland Vladeni will never be completely cleared, thus the population of Iasi county (and not only!) can take advantage of this minute delta in the eastern Romania.

Ornithology team:

**Luminita Boldu, Mariana Cazacu** – Herons, Spoonbills, Storks

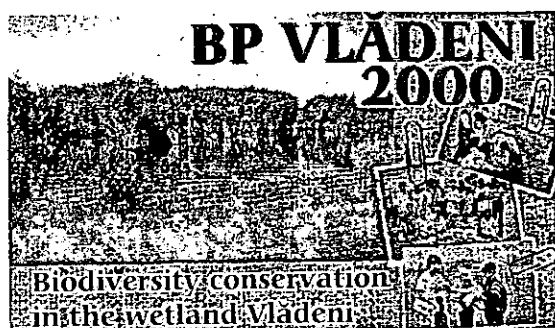
**Ana Maria Badaluta, Ovidiu Pop** – Birds' Migration

**Johanna Wallie Muller** – Birds' Breeding

**Dr. Carmen Gache** (supervisor)



**BP-Vlădeni  
2000**



La începutul lunii octombrie a anului 1999, Filiala Iași a SOR a fost solicitată de către coordonatorul Centrului InterMediu de pe lângă Universitatea „Al. I. Cuza” Iași pentru o întâlnire cu studenții olandezi care vizitau în acel moment centrul. Intenția era de a prezenta activitățile derulate și proiectele de viitor ale filialei ca ONG activ în această parte a României. Invitația ne-a oferit și motivația unei întreprinderi a echipei dintre cei mai activi membri ai filialei. Cu numai două zile înainte acestei întâlniri, a sosit la filială și un plic cu informații despre derularea sub auspiciile Universității Petroliului, Foselor și Florii Internațional și a BirdLife International a unei concurs internațional de proiecte cu subiecte legate de conservarea naturii. Detaliile păreau destul de descurajatoare la întâi, dar pe măsură ce se deschideau paginile grupului echipelor de lucru pentru ornitologie - Lorela Căndan, Luminița Boldu, Johanna Müller și Rabeca Antonescu, coordonator Carmen Gache - și pentru hidrobiologie - Cristian Cojocariu, Dragoș Tiliță și Ovidiu Pop, coordonator Mircea Nicotru - Ștefan Chelbăș s-a angajat să se ocupe de studiul herpetofaunei, iar în următoarele zile, s-a constituit și echipa de micologie - Mihaela Măruș și Cristina Adămoșanu, coordonator Catalin Tănasu. În urma discuțiilor,

Ilor, Cristian Cojocariu a fost desemnat ca și coordonator al proiectului. Principalele condiții de eligibilitate erau îndeplinite - minimum 80% din echipă erau studenți și membri ai unei ONG, iar Centrul InterMediu a oferit ca ultimă bază logistică pentru desfășurarea proiectului, el a sperând grupul de lucru pentru obținerea acordurilor de sprijin din partea autorităților locale. Fiecare echipă a întocmit un plan de lucru astfel încât să se poată realiza propunerile de proiecte expediate prin email în Anglia. La începutul lunii februarie, am fost asigurați că proiectul a intrat în faza de selecție finală: practică, contra-cronometru, a fost redactat proiectul în extenso, beneficiind și de o prelungire de cinci zile a termenului limită de depunere - problema de finanțare ale unor universități așteptând să aibă la dispoziție funcționarii noștri interes pentru o buclă de zile, exact în perioada în care sosisse anulul din partea organizatorilor. Credeam că este potrivit să mulțumim pentru înțelegerea înțelegerea și sprijinul acordat de către Catherine Gatto, care era la acea vreme președinta societății de consultanță pentru proiectul de cercetare și pentru rețeaua favorabilă (confidențial) întocmită de conducerea SOR. Venise cea bună a sosit în dimineața zilei de 16 noiembrie 2000: proiectul nostru obținuse premiul al treilea, în valoare de 3000 de lire sterline. Luminița Boldu a plecat în Londra ca reprezentant al echipei la

cursurile de pregătire și la festivitatea de decernare a premiilor, devenind ulterior și coordonator al proiectului ca urmare a plecării lui Cristian Cojocariu la specializare postuniversitară în Germania.

În paralel cu derularea lucrului în teren, s-a pregătit și partea de educație ecologică prevăzută în proiect și despre care aflasem prin intermediul

Luminiței că este privită cu foarte multă atenție de către organizații și constituită unul dintre cele mai importante criterii de apreciere a raportului final. Centrul InterMediu inițiasse în anul școlar 1999 - 2000 un program-pilot de educație ecologică în câteva instituții de învățământ preuniversitar din Iași: școlile generale „Mircea cel Bătrân” (16), „Nicolae Titulescu” (7) și „George Clădușescu” (39), precum și liceele „Dimitrie Cantemir” și „Al. I. Cuza”. Pe baza activităților desfășurate de elevi, au fost selectați cei care urmau să participe la taberele ecologice programate pe durata varii în perimetrul complexului S. C. „Lotca” - Larga Răz.

Pe parcurs, s-au produs modificări, chiar radicale pe alocuri, ale echipei de lucru, unii membri renunțându-se mai mult sau mai puțin motivat, lucrul pe teren și în echipă dovedindu-se o dată în plus esențialul de căpătâi al biologului. Aceste tabere s-au derulat pe parcursul lunilor iulie și august 2000, antrenând un total de 39 de participanți, dintre care 17 elevi cu vârste cuprinse între 12 și 15 ani. Dincolo de activitățile științifice ale echipei, prezența copiilor a adus un mare plus și responsabilități ridicate, ci și o putere de culoare în programul zilnic. Dacă majoritatea au participat la activitățile realizate de hidrobiologi și botanici, câțiva au îndrăznit și chiar au învățat să evalueze pășunile din pășuni și să le identifice - până și „accusările” lor!

Dacă este permis să prezintăm rezultatele științifice, credem că au fost foarte interesante și interesantă aici câteva

impresii ale elevilor participanți la taberele ecologice.

„Un loc atât de comenit, care pare a fi doar în grădina lui Dumnezeu și a câtorva oameni cu mult suflet - aici am înțeles ce e natura cu adevărat, cu toată simplitatea și frumusețea” (Cătălin Cojocariu, 13 ani). „Nu știu cui i-a venit ideea acestei tabere în natură, dar mie mi s-a părut grozavă, dintr-un oraș murdar și poluat, am simțit înțeles

loc puțin unde mi-a plăcut să mă simt însoțit.” (Stefan Sava, 12 ani). „Mi-a plăcut activitatea de învățare și determinarea a păsărilor, dar mi-a plăcut, eliberarea lor.” (Ruxana Teodorescu, 13 ani). „Am avut ocazia să văd nenumărate păsări, insecte și flori, să mă plimb cu barca; cel mai mult mi-a plăcut explicațiile domnului profesor hidrobiolog despre gândacii de pe fundul apei.” (Mădălin Onu, 14 ani). „Mi-am făcut o mulțime de prieteni.” (Alexandru Negrescu, 14 ani).

Toate activitățile și momentele cheie ale derulării proiectului au fost conștientizate prin intermediul emisiunii „Ecologie” a postului de Radio Iași.

Dorim să mulțumim în mod deosebit conducătorii complexului piscicol de la Larga Răz S.C. „Lotca”, în special domnilor ingineri G. Iliescu și F. Fulgenciu pentru sprijinul acordat în organizarea și derularea activităților de tabără în perimetrul complexului.

Mulțumim conducătorii instituțiilor de învățământ preuniversitar și profesorilor implicați în programul „Educație ecologică în școli”, contribuind în mod special pe domnii profesore Meria Onu (Sc. gen. nr. 39) și Camelia Focione (Sc. gen. nr. 16), precum și pe domnișoarele Johanna Müller (Sc. gen. nr. 16) și Luminița Boldu (Sc. gen. nr. 7), profesore și membre active ale echipei de ornitologie în egală măsură.

A conștientizat pentru „Alcedo” în calitate de purtător de cuvânt al echipei, Dr. Carmen Gache.

Materials about Vlădeni project  
R.O.S. review - 'Alcedo'

## Environmental education

The Centre InterMEDIU organised during the 2<sup>nd</sup> semester of the year 1999 - 2000 the pilot project '*Environmental Education in Schools*'. Pupils from two Iasi high schools ('Dimitrie Cantemir' and 'Alexandru Ioan Cuza') and three elementary schools: no. 7 ('Nicolae Tonitza'), no. 16 ('Mircea cel Batran') and no. 39 ('George Calinescu') took part.

Theoretic topic of the project has been established on the basis of the pupils' questions and suggestions. It was prepared and presented by volunteer students (some of the members team 'Vladeni - 2000' inclusively). Among the activities performed by the pupils were:

- Exhibitions of draws on environmental topics;
- Essays and communications on the theme 'Nature and Man';
- Contest with the subject 'Birds and their life';
- 'Birds festival';
- Collection and valorisation of waste paper, with the slogan 'Let's us help the birds in our town!'. Money obtained were used to buy wooden material for artificial nests and birds feeding terraces that are to be installed in Iasi parks and monitored by pupils' teams.

Children with special results were granted diplomas and were selected for a free participation within the ecological summer camps 'Vladeni - 2000'.

Iasi Branch of the Romanian Ornithological Society (R.O.S.) and the Centre InterMEDIU organised in the period 1 - 8.04.2000 a series of manifestations in order to celebrate 'The National day of Birds - 1<sup>st</sup> April' and the 10 years of R.O.S. existence:

- Ornithological trip in the perimeter of the wetland Vladeni, following a 12 km itinerary (railway station Vladeni - ponds Vladeni - Lake Halceni - railway station Vladeni), with 14 students of the 3<sup>rd</sup> year Biology students;
- Photo exhibition: 'Wings - R.O.S., 10 years';
- Leaflet: '1<sup>st</sup> April - National Day of Birds';
- Radiobroadcasts regional station: Radio - Iasi, 3.04.2000, invited: Dr. Carmen Gache, co-ordinator of R.O.S., Iasi Branch.

An itinerary photo exhibition with the slogan 'Birds' Destiny in our Hands' was organised in the period 5 - 20.06.2000. Exhibition took place in collaboration with R.O.S. Iasi in the Elementary schools no. 7, 16 and 39. Most pictures show aspects recorded in the wetland Vladeni. Children met Dr. Carmen Gache (ornithologist and photographer) who also presented the programme of the ecological summer camp 'Vladeni - 2000'.

Pupils from the Elementary School no. 16, co-ordinated by Prof. Johanna Muller (member of the project team 'Vladeni - 2000') organised 'Birds' Festival', marking the 'International Day of the Environment - 5 June'.

A 20' radiobroadcast with the topic: Ecological summer camps 'Vladeni - 2000' was realised at Radio Iasi broadcast station (6.06.2000).

16 children aged 12 - 15 years, pupils of the Elementary School no. 7, 16 and 39, participated at the first two Ecological summer camps (5 - 10.07. 2000 and 23 - 29.07.2000, respectively) organised in the perimeter of the Larga Jijia ponds ('Lotca' fishery enterprise). Children participated at all the activities performed within the camp. They:

- learnt to install in the reedbeds the nets for birds capture, how to set free and identify the birds captured and ringed;
- participated at field trips for bird census;
- joint the team of botanists and mycologists and learnt to identify the plant species and realise a herbarium;
- learnt to collect hydrobiological samples, install and check the traps for the amphibians;
- made boat trips in small groups on the pond EC 2 for observation of the colonies of herons, egrets, spoonbills and terns;
- participated at the beach arrangement on the northern shore of the pond EC 2;



InterMEDIU meeting



Birds identification using the guidebook



Diploma award



Ecological summer camp 'Vladeni 2000'



'Dinner' in the ecological camp Vladeni 2000



Birdwatching

- participated at games on ecological topics.

The 3<sup>rd</sup> camp (16 -22.08.2000) only was for the members of the project 'Vladeni - 2000' team. 39 persons in all participated within ecological summer camps 'Vladeni - 2000'.

Dr. Carmen Gache, person authorised by Central Ornithological Romanian, carried out bird ringing.

### Child impressions...

All the children that participated at the ecological summer camps 'Vladeni - 2000' manifested their wish to return there and future involve in such activities.

*'A place forgotten by humans, that looks like only protected by God and some people with large hearts is the camp at Larga Jijia. Here Science and Education interweave in a pleasant manner. I took boat trips, caught birds in the net, learnt about plants, fungi, birds and fishes. That experience taught me what means to be free' (Cojocarui Catalin - aged 13, Elementary school no. 23).*

*'Larga Jijia is like a 2<sup>nd</sup> Delta for us, especially created by God to protect different flowers, animals, birds particularly. While on the pond EC 6, I saw egrets, spoonbills, cormorants, gulls, grey herons, ducks, divers, and avocets. Through the telescope I could very well see their behaviour, how they eat - that enjoyed me most because were things never seen before and I never expected to see it. One late evening we looked at the stars through the telescope and was very nice' (Dascalu Irina - aged 15, Elementary school no. 16).*

*'I very much enjoyed to be near my new friends and yourself (project team), in a place God created and forgotten by man hand. It is cheaper here than in the Danube Delta while you can see as many bird species, wonderful spoonbills and not only' (Alexandru Negrescu - aged 13, Elementary school no. 16).*

*'I had the opportunity to see here countless birds, insects, and animals and take boat trips on the lakes. I most enjoyed the explications about the beetles living at the bottom or on the water surface' (Onu Madalin - aged 14, Elementary school no. 39).*

*'I do not know who's was the idea of the trip at the heart of nature but it looked to be gorgeous to me. I liked very much the teamwork and people kindness. This place is proper for fishing and activities in the nature: a boat trip, bird watching, learning about plants and animals' (Sava Stefan - aged 12, Elementary school no. 39).*

*'It was the most beautiful camp in my life. I here saw many birds about which new and heard nothing before. I most enjoyed birds ringing and determination. I liked that we could release the birds' (Teodorescu Roxana - aged 13, Elementary school no. 39).*

*'I discovered that wish to become an ornithologist or a veterinary able to help the wounded animals' (Butuc Corina - aged 12, Elementary school no. 7).*

The opinion of **Camelia Fecioru** (Physics teacher, Elementary school no. 16), volunteer participated within ecological summer camp 'Vladeni - 2000' (24 - 29.07.2000):

*'With adequate equipment: binoculars, guidebooks, reviews, field equipment, photo cameras, pneumatic boat and large at heart, organisers helped us to get into the marvellous world of the birds and plants. We spent wonderful days within an area unique through its landscape. Field activities were very attractively organised, children getting without a special effort the Ecology and Ornithology knowledge. Pupils had at the same time the opportunity to learn how is organised a fieldtrip, how an Ecology paper is written, how is installed a tent, how is ringed a bird and the census made. They got into the secrets of the medicinal plants, and amphibians'.*

### Recommendations:

1. Given the first step already done (the scientific documentation in order to include the wetland Vladeni on the list of the areas protected in Romania was submitted to the Ministry of Environment with the support of the Environmental Protection Agency, Iasi county), joint efforts in order to acknowledge at local and national level the avifaunistical importance of the perimeter are required.
2. Construction of an ornithological stationary in the wetland Vladeni would facilitate the monitoring of the ecosystem evolution and have a positive impact upon public opinion at a local level.
3. Achievement of a study on ecosystems' capitalization by the birds' population and on the impact of different human activities upon avifauna evolution.
4. Contact with the Association of Romanian Hunters, Iasi branch, viewing limitation of the hunters' entry in the wetland Vladeni territory, especially during breeding period but also in wintertime (n.b. At Larga Jijia ponds there is a rigorous control of human presence in the ponds' perimeter (S.C. 'Lotca' S.R.L.).
5. Involvement of the children from the villages: Vladeni, Halceni, Borsa, Larga Jijia, and Mihail Kogalniceanu within ecological summer camps through popularisation of the project '*Vladeni - 2000*' by direct meetings with the team members, within the framework of Biology classes in the 2<sup>nd</sup> semester of the teaching year 2000 - 2001 and further.
6. A campaign of local population sensitising, aiming the protection of the wetland Vladeni and limitation of birds disturbance during the breeding season.

### PUBLIC AWARENESS

Since 1995, formal possibilities to hear citizens in environmental decision procedures have been created in Romania. The practice is that this law exists but real communication has not been achieved. Interest of the public seems very low. Project aimed to enhance public awareness of the need for conservation. Increased public awareness is a result of the public access to concrete actions within the scientific programme.

Field study confirmed the presence in the area of some endangered, rare or insufficiently known vegetal and animal species.

A number of mini-conferences and round tables in order to highlight the conservation issues was organised by the InterMEDIU Centre:

Meetings with the Environmental Protection Agency representatives: Diana Croitoru, Ezsaias Bomher, Gheorghe Patrascu, Nicolae Peiu (monthly).

Documentation needed in order to declare the wetland Vladeni a natural reserve was submitted to the above institution.

Media meetings:

Mihaela Zaharia - *Radio Trinitas*

Iris Cretu and Stelian Ciocoiu - *Radio Iasi*

Tiberiu Podoleanu - *24 Ore* (newspaper)

Pastorel Grigore - *Universul* (newspaper)

Mihail Lechkun - *Romania Libera* (newspaper).



Project results were made public by the means of papers and posters presented at different scientific events:

- 3rd National Conference for Environmental Protection, Brasov 26 – 27.05.2000 - '*Local Network Functioning and the Consensual Approach of Nature Protection*', M. Nicoara, C. Gache, St. Miron
- Days of the Bacau University, 10 – 11.11.2000 '*Education for nature within the ecological summer camps Vladeni – 2000*', C. Gache, L. Boldu, J. W. Muller
- Days of the Bacau University, 10 – 11.11.2000, '*Study upon the ornithofauna annual dynamics in the wetland Vladeni*', C. Gache, J. W. Müller, L. Boldu
- Annual's 6 international conference, Venetia (Italy) '*Bridging Minds and Markets*', 5 – 7.04.2001 '*Problem-based learning through Science Shop at the Faculty of Biology, 'Al. I. Cuza' Romania*', M. Nicoara, C. Gache, C. Tanase, St. Miron
- Ecological Protection of the Planet Earth I, Xanthi Conference, Greece, 5 – 8.06.2001, '*Education of the Romanian civil society viewing Fungi Protection*', C. Tanase, M. Nicoara, C. Gache, St. Miron.

#### ACKNOWLEDGEMENTS

We hereby express our deepest gratitude to the Romanian Ornithological Society which informed us about the opportunity of the Conservation projects contest.

We also thank to '*Al. I. Cuza*' University of Iasi, Faculty of Biology, and Research and Information Centre InterMEDIU that supported us with logistics and scientific advice.

Our thanks equally go to the governmental (Environmental Protection Agency Iasi, Iasi county Waterboard, Elementary schools: 7, 16, 23 and 39) and non-governmental (Association for Ecology Iasi) institutions that showed us interest and especially to those who gave their support ('Lotca' fishery enterprise) to the project above.

We are specially mentioning the Science Shops of Biology and Chemistry within the University of Groningen (Netherlands).

#### CORRESPONDENCE ADDRESS

To: Mr. Dr. Mircea Nicoara

*PROJECT VLADENI - 2000*

'Al. I. Cuza' Iasi University -Romania, Bd. Carol I, 20 A, corp B, 375 c

Research and Information Centre InterMEDIU

Or: Ms. Dr. Carmen Gache

Romanian Ornithological Society (R.O.S.) Iasi, 6600

Tel: / Fax: + 40 32 201 525 (Office)/ + 40 32 157 306 (Home)

E-mail: mirmag@uaic.ro; inmediu@uaic.ro

# Conservarea biodiversității de la Vlădeni, sprijinită internațional

[illegible]

**International support for biodiversity conservation in the wetland Vladeni**  
**National newspaper**

## JANUARY 2000

leseni sim în via

[illegible]

Citizens of Iasi are invited to a lecture of Ecology  
Local newspaper

## REFERENCES

- Beldie, Al., 1979 Flora României, determinator ilustrat al plantelor vasculare. Ed. Academiei Române, Bucuresti, vol. I : 412 p.; II : 406 p.
- Brandza, D., 1879 - 1883 Prodromul Florei Române. Bucuresti: 568 p.
- Bon, M., 1988 *Champignons de France et d'Europe occidentale* - Ed. Arthaud: 368 p.
- Bon, M., 1991 *Tricholomataceae* (Fayod) Heim (1 ère partie), Flore Mycologique d'Europe, Documents Mycologiques, Mémoire Hors série No<sup>2</sup>: 153 p.
- Bon, M., 1997 *Tricholomataceae* (Fayod) Heim, (2 ème partie), Flore Mycologique d'Europe, Documents Mycologiques, Mémoire Hors série N<sup>o</sup> 4: 173 p.
- Bontea V., 1985, 1986 *Ciuperci parazite si saprofite din România*, Ed. Academiei Române, Bucuresti, vol. I, II
- Breitenbach, J., & Kränzlin, F., 1981, 1986, 1991, 1995 *Champignons de Suisse*, Edition Mykologia, Luzern, Tome I – IV
- Burduja, C., 1939 Note sur la flore de la valle de Cristesti - Iasi. An. Sc. Univ. 'Al. I. Cuza' Iassy, XXV : 2
- Cappelli, A., 1984 *Agaricus* L: Fr. ss. Karsten (*Psaliota* Fr.), Libreria editrice Biella Giovanna, Saronno: 558 p.
- \*\*\* Categories of species framed within The Red List - IUCN 1994, World Conservation Monitoring Centre
- Chifu, T., M. Toma & D. Dascalescu, 1964 Contributii la cunoasterea macromicetelor din Moldova (II), An. St. Univ. 'Al.I.Cuza' Iasi, s. II a. (St. Nat.), Biologia, X, 2: 379 – 382
- Chifu, T., M. Toma & D. Dascalescu, 1965 Contributii la cunoasterea macromicetelor din Moldova (III), An. St. Univ. 'Al.I.Cuza' Iasi, s. II a. (St. Nat.), Biologia, XI, 2: 367 – 370
- Chifu, T., M. Toma & D. Dascalescu, 1965 Contributii la cunoasterea macromicetelor din Moldova (I), Com. Bot., SSNG, III: 169 - 176
- Chifu, T. & M. Toma, 1966 Macromicete noi si rare pentru micoflora R. S. România, An. St. Univ. 'Al.I.Cuza' Iasi, s. II a. (St. Nat.), Biologia, XII, 2: 405 – 406
- Ciocarlan, V., 1988, 1990 Flora ilustrata a României. Ed. Ceres, Bucuresti, vol. I : 512 p.; II : 598 p.
- Cojocaru, I. & Nicoara M., Data regarding aquatic entomofauna diversity in mid basin of Prut River (County Botosani), unpublished
- \*\*\* Council Directive 79/409/EEC on the conservation of wild birds, Luxembourg
- Courtecuisse, R. & B. Duhem, 1994 Guide des champignons de France et d'Europe, Ed. Delachaux et Niestlé S.A. Lausanne (Switzerland) – Paris: 476 p.

Davideanu, A. & Cojocaru I., New recording of *Aphelocheirus aestivalis* Fabricius (Heteroptera: Aphelocheiridae) in Romania, unpublished

Eliade E., 1990 *Monografia Erysiphaceelor din România*, Acta Horti Bucurestiensis: 105 – 574

\*\*\* European Red List of Globally Threatened Animals and Plants, 1991- United Nations, New York

Frazier, S., 1999 Ramsar Sites Overview. A synopsis of the World's Wetlands of International Importance, Wetlands International, Lelystad

Gache, C., 1995 Anthropogenetic pressure on avifauna in Prut River's valley, National Symposium 'Protection and conservation of wetlands from the Danube basin', Braila, unpublished

Gache, C., 1995 Fenological aspects of Jijia River's avifauna (Romanian), Works of 3<sup>rd</sup> Conference of Zoology, Republic of Moldova, Chisinau: 13 - 14

Gache, C., 1995 Preliminary data on ornithofauna in Jijia River's valley, Days of Chisinau University, unpublished

Gache Carmen, 1996 Globally threatened birds in Europe, Action plans, author for Romania, Council of Europe Publishing, Germany: 205 - 243

Gache, C., 1995/1996/1997 La vallee de Jijia: aire d'importance avifaunistique dans le bassin moyen de la riviere Prut, Anal. St. Univ. 'Al. I. Cuza', t. XLI - XLIII: 116 - 119, Iasi

Gache, C., 1997 Important Birds' Areas on the Prut River' Valley, 'EOU - First Conference', Bologna, 67

Gache, C., 1998 Avifaunistical rarities in future Ramsar site: Jijia and Miletin's ponds, Cluj Napoca, unpublished

Gache, C., 1998 Dynamics of avifauna living in mid basin of River Prut during passage period (Romanian), Anal. Bucovinei, an V, 1: 187 - 190, Bucuresti

Gache, C., 1998 Fenological observation on avifauna living in mid basin of River Prut (Romanian), Works of IV<sup>th</sup> National Conference for Environmental Protection, Univ. Transilvania : 371 - 374, Brasov

Gache, C., 1998 Taxonomic analysis of the avifauna from the middle basin of Prut river (1992 - 1997), Anal. Univ. Bacau

Gache, C., Comparative study of avifauna of the Bahlui and Jijia rivers valleys, submitted

Gache, C., I. Ion & I. Gerghescu, 1996 Jijia and Miletin's Ponds - Avifaunistic Draft (Romanian), Publications of Romanian Ornithological Society, 3: 33 - 35, Cluj Napoca

Gache, C., I. Ion & L. Caradan, 1996 Stanca Stefanesti Dam Lake - important avifaunistic area on the Prut River's valley, (Romanian), Publications of Romanian Ornithological Society, 3: 36 - 38, Cluj Napoca

Gache, C. & St. Zamfirescu, 1998 - 1999 Contribution to the study of vertebrates from the Jijia river drainage basin, Anal. Univ. 'Al. I. Cuza', XLIV - XLV, Iasi

- Grecescu, D., 1898 Conspectul florei României. Bucuresti: 836 p.
- Greceanu, D., 1909 Suplement la Conspectul florei României. Bucuresti: 220 p.
- Ienistea, M. A., 1972 Beitrage zur Kenntniss der *Laccobius* - Arten Rumaniens (Coleoptera, Palpicornia), Trav. Mus. Hist. Nat. 'Gr. Antipa', vol. XII: 229 - 239, Bucuresti
- Ion, I. & C. Gache, 1993 Observations sur la dispersion zonale de l'avifaune du bassin de la riviere Prut, An. St. Univ. 'Al. I. Cuza' Iasi, t. 38 - 39 Biol. (1992 - 93): 163 - 166
- Ion, I., C. Gache & Adela Rotaru, 1993 Observation on migratory birds in Prut River's basin, Romanian Ornithological Society Symposium, Galati, unpublished
- Kelemen, A. & Z. Szombath, 1975 Studiul fenodinamic al familiei Muscicapidelor, *Nymphaea*, III: 245-2 56, Oradea.
- Mandru, C., 1958 Zoogeographical data regarding some birds from Moldova, Stud. si Cerc. Biol., St. Agric., IX, 1: 97 - 103, Iasi
- Maties, M., 1986 Les routes de migration des oiseaux en Roumanie, Trav.Mus-Hist.Nat.'Gr. Antipa', XXVIII:247-263, Bucuresti.
- Melanie, H., 1996 I. B. A. Criteria (Romanian translation), Cluj Napoca
- Mititelu, D. & Gh. Vitelariu, 1967 Caracterul florei si vegetatiei împrejurimilor orasului Iasi. An. St. Univ. 'Al. I. Cuza' Iasi, s. II.a, XIII, 1: 131 - 135
- Mititelu, D. & N. Barabas, 1972 Raspândirea unor asociatii ierboase în lunca Prutului. St. Com., Muz. St. Nat. Bacau : 189 - 196
- Mititelu, D. & N. Barabas, 1975 Vegetatia din lunca Prutului. St. Com., Muz. St. Nat. Bacau: 219 - 285
- Mititelu, D. & N. Stefan, 1983 Noi contributii corologice. An. Muz. Jud. Suceava, fasc. St. Nat, VII: 31 - 33
- Mititelu, D. & T. Chifu, 1993 Flora si vegetatia jud. Botosani. St. Com., Muz. St. Nat. Bacau: 109 - 126
- Mititelu, D. et al., 1995 Flora si vegetatia jud. Iasi, Bul Grad. Bot. Iasi, 5 : 99 - 124
- Moser, M., 1983 Die Röhrlinge und Blätterpilze, Kleine kryptgamen flora, Band IIb/2, VEB Gustav Fischer Verlag Jena: 533 p.
- Munteanu, D., 1984 Proposal for a Red List of species of Romanian avifauna (Romanian), Ocrotirea Naturii si Mediului Inconjurator, t. 28, no. 2: 112 - 115, Bucuresti
- Papadopol, A. & C. Mandru, 1967 Contribution to knowledge of birds (*Aves*) from Iasi region (I), Com. Zool., IV: 89 - 126
- Ravarut, M., 1941 Flore et végétation du district de Jassy. Teza de doctorat, Univ. Mihaileana Iasi, Fac. de Stiinte: 388 p.

Salageanu, Gh. & A. Salagean, 1985 Determinator pentru recunoasterea ciupercilor comestibile, necomestibile si otravitoare din România, Ed. Ceres: 329 p.

Savulescu, T., 1953 Monografia Uredinalelor din R.P. Româna, vol. I - II, Bucuresti, Ed. Academiei Române: 1168 p.

Tesu, C., 1964 Contributii la studiul vegetatiei din lunca Jijiei. Lucr. st. Inst. Agron. Iasi: 153 - 162

\*\*\* Threatened Animals 1996 IUCN Red List, The IUCN Species Survival Commission

Tutin, T. G. et al., 1964 - 1980, 1993 Flora Europaea. Cambridge University Press, vol. I -

Topa, E. & E. Marin, 1970 Schedae ad 'Floram Moldaviae et Dobrogeae Exsiccata', Hortus Bot. Iassensis, Centuria 2: 24 p.

Zwetko, P., 1993 Rostpilze (*Uredinales*) auf *Carex* im Ostalpenraum, Bibliotheca Mycologica, Berlin, Stuttgart, Band 153: 222 p.