

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

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Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

10 January 2011

3. Country:

Romania

4. Name of the Ramsar site:

Comana Natural Park (Parcul Natural Comana)

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
- ii) the boundary has been extended ; or
- iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced**

** **Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a **hard copy** (required for inclusion of site in the Ramsar List):
- ii) an **electronic format** (e.g. a JPEG or ArcView image): ;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables**

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary is the same as Comana Natural Park as described in Romanian Government Decision 2151/2004.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Coordinates of the limits of the site:

North part: 44°14'7,08'' N 5°56'38,61'' E

East part: 44°8'48,68'' N 26°55'56,54'' E

South part: 44°2'53,49'' N 26°6'16,58'' E

West part: 44°13'12,99'' N 25°55'30,42'' E

Coordinates of the approximate centre of the site:

44°09' N 26°09' E

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Comana Natural Park is located in the southern part of Romania, in Giurgiu County, in the Romanian Plain, at a relatively equal distance (40 km) between two important cities within the southern area of Romania: Bucharest and Giurgiu.

10. Elevation: (in metres: average and/or maximum & minimum)

The average altitude is of 80 m.

The minimum elevation is of 45 m.

The maximum elevation is of 90 m.

11. Area: (in hectares)

24963 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The area proposed as Ramsar site was validated as Natural Park (Parcul Natural Comana) in December 2004 by Government Ordinance. no. 2151 "Decision regarding protected natural area for new areas constitution" having special conservation areas *Ruscus aculeatus* Reservation, *Paeonia peregrine* Reservation and Comana wetland (avifauna protection area). Comana wetland is considered as the third important wetland in Southern Romania following the Small Island of Brăila and Danube Delta, and the second for biodiversity following the Danube Delta. Besides the above protected areas already constituted, there are 8 other proposals of the Institute of Biology, of the Romanian Academy, to constitute special protection areas for conserving plant and animal species together with their habitats (forms submitted some years ago to the Ministry of Environment and Forests). Among these proposed protected areas we can mention *Fântânele* Forest Protected Area, a small area comprising a high species diversity.

The characteristic landscape is the flat plain with slight depressions formed during the geological evolution due to the deepening of Argeş, Neajlov, Câlniştea and Gurban Rivers.

The whole area is characterized by a high diversity of flora and fauna species specific to the wetlands, located along the three important rivers within the southern area of Romania (Argeş, Neajlov and Câlniştea), on their interflow. Comana Natural Park is characterized by a large diversity of microrelief conditions, determined by the numerous springs and water streams that cross the relief typical of a flat plain. Small level differences in the wetlands of Neajlov and Câlniştea rivers determined the formation of numerous ins and outs and branches of dead rivers, and even of a microdelta in the case of Neajlov River. Nevertheless, within the area of Comana Natural Park, the Neajlov receives some branches with permanent water flow, with their own springs, where several endemic taxa have been identified.

Comana Natural Park lays at the limit between steppe and sylvo-steppe, which provides the Park with its specific phytocoenological traits and high floristic variability.

The exceptional value of the flora and fauna diversity within Comana wetland and forest, with springs and permanent or temporary water bodies is completed by its historical importance.

The temperate–continental climate, with Mediterranean influences allowed the great diversity of higher plants species.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

1st Criterion:

Comana Natural Park is constituted by a complex of terrestrial ecosystems, (forests, agro-ecosystems, meadows, areas with increased soil salinity and aquatic (rheophil and stagnophil) ecosystems connected with Argeş Neajlov and Câlniştea Rivers. Comana wetland covers about 1200 ha and it represents an important area for the reproduction and feeding of numerous migratory bird species. The microdelta features, with inner lakes, canals and dead river branches support high diversity of plant and animal species. The natural hydrologic range of the wetland was changed by anthropogenic activities which substantially disturb the bird populations connected with wetlands. Nevertheless, recent ornithological inventories certify the presence of more than 150 species. The woodland areas existing now are relatively compact and represent the vestige of Old Vlasia Forests (which covered almost the whole southern area of Romania, between the Carpathians and Danube hundreds of years ago). Due to special preservation measures adopted in order to preserve the biological diversity within scientific reservation of the Romanian Academy established in 1953, at present the woodland vegetation has remained almost intact.

The following habitat types mentioned in Annex I of the EU Habitat Directive are present within the site existing in the temperate floodplain rivers and wetlands as major habitat type according to FEOW (Freshwater Ecoregions of the World) framed in ecoregion 418. Dniester-lower Danube:

- R2202** Danubian communities with *Lemna minor*, *L. trisulca*, *Spirodela polyrhiza* and *Wolffia arrhiza*
3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* –type vegetation
- R2203** Danubian communities with *Salvinia natans*, *Marsilea quadrifolia*, *Azolla caroliniana* and *A. filiculoides*
- R2205** Danubian communities with *Hydrocharis morsus-ranae*, *Stratiotes aloides* and *Utricularia vulgaris*
- R 3122** Ponto-Pannonic scrub with *Prunus spinosa* and *Crataegus monogyna*
40A0* Subcontinental peri-Pannonic scrub
- R3130** Ponto-Pannonian cherry (*Cerasus fruticosa*) scrub
- R3415** Ponto-balcanic steppes with *Botriochloa ischaemum* and *Festuca valesiaca*
6240* Sub-pannonic steppic grasslands
- R3716** Danubiano-pontic meadows with *Poa pratensis*, *Festuca pratensis* and *Alopecurus pratensis*
6440 Alluvial meadows of river valleys of the *Cnidion dubii*
- R4147** Mixed danubian forest with pedunculate oak (*Quercus robur*) and silver lime (*Tilia tomentosa*) with *Scutellaria altissima*
91Y0 Dacian oak-hornbeam forests
- R4148** Pannonic forest with pedunculate oak (*Quercus robur*) with *Convallaria majalis* on sandy plains
91I0* Euro-Siberian steppic woods with *Quercus* spp.
- R4151** Mixed balcanic turkey oak forest (*Quercus cerris*) with *Lithospermum purpureocoeruleum*
91M0 Pannonian-Balkan turkey oak-sessile oak forests
- R4152** Dacian turkey oak (*Quercus cerris*) forests with *Carpinus betulus* and *Digitalis grandiflora*
- R4153** Danubian-balcanic forests with *Quercus cerris*, *Q. frainetto* and *Crocus flavus*
- R4155** *Quercus frainetto*, turkey oak (*Q. cerris*) danubian-balcanic forest with *Carex praecox*
- R4156** Danubian-Balcanic forests with *Quercus pedunculiflora*, *Q. cerris*, *Q. frainetto*, *Q. pubescens* and *Acer tataricum*
91I0* Euro-Siberian steppic woods with *Quercus* spp.

- R4403** Danubian-Pannonian forest *Alnus glutinosa* with *Iris pseudacorus*
- R4405** Dacian-getian *Populus nigra* forests with *Rubus caesius*
91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
- R4406** Danubian-Pannonian *Populus alba* forests with *Rubus caesius*
92A0 *Salix alba* and *Populus alba* galleries
- R4407** Danubian *Salix alba* forests with *Rubus caesius*
- R4408** Danubian *Salix alba* forests with *Lycopus exaltatus*
- R4410** Mixed danubian riverine *Quercus* sp. and *Fraxinus* sp. forests with *Galium rubioides*
91F0 Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia* along the great rivers (*Ulmenion minoris*)
- R5305** Danubian communities with *Typha angustifolia* and *T. latifolia*
- R5307** Dacian-Danubian communities with *Glyceria maxima* and *Schoenoplectus palustris*
- R5309** Danubian communities with *Phragmites australis* and *Schoenoplectus lacustris*
- R5310** Daco-Danubian communities with *Carex elata*, *C. rostrata*, *C. riparia* and *C. acutiformis*
- R5311** Western-Pontic communities with *Phragmites australis* ssp. *humilis* and *Aster tripolium*
- R5312** Ponto-danubian communities with *Bidens tripartita*, *Echinochloa crus-galli* and *Polygonum hydropiper*
3270 Rivers with muddy banks with *Chenopodium rubri* p.p. and *Bidenton* p.p. vegetation

2nd Criterion:

The habitat diversity is high in Comana Natural Park (see attached to this RIS Annex Habitats) supporting high species diversity. In the Annex are presented also priority habitat type according to Annex I to Habitats Directive 92/43/EEC and important non wetland habitats present inside the Park. Together with wetlands, all the habitat types present in the park are very important supporting vulnerable, endangered species and threatened ecological communities.

In Comana Natural Park 1300 plant species have been assessed (See Annex Species).

According to Oltean et al. (1994) 72 species present different degree of threat:

- 52 are rare at national level
- 3 species (*Marsilea quadrifolia* L. (Annex 1 Berne Convention, Annex 2 Habitats Directive), *Salvinia natans* L., *Trapa natans* L. (both Annex 1, Berne Convention),
- 11 species are vulnerable and vulnerable/rare at national level
- 3 species are endangered and endangered/rare at national level

The site supports animal species protected **under the convention on the conservation of Migratory Species of Wild Animals (CMS)**: birds: *Aythya nyroca** (*Appendix I*), *Pelecanus onocrotalus* (*Appendix I+II*) *Accipiter gentilis*, *A. nisus*, *Acrocephalus arundinaceus*, *A. palustris*, *A. scirpaceus*, *Anas acuta*, *A. clypeata*, *A. crecca*, *A. platyrhynchos*, *A. querquedula*, *A. strepera*, *Anser albifrons*, *A. anser*, *A. fabalis*, *Ardea purpurea**, *Aythya nyroca*, *Botaurus stellaris**, *Buteo buteo*, *B. lagopus*, *Chlidonias niger**, *Ciconia ciconia**, *C. nigra**, *Circus aeruginosus**, *C. cyaneus**, *Coracias garrulous**, *Coturnix coturnix*, *Crex crex**, *Cygnus olor*, *Erithacus rubecula*, *Falco columbarius*, *F. peregrinus*, *F. subbuteo*, *F. tinnunculus*, *F. vespertinus*, *Ficedula albicollis*, *Gallinago gallinago*, *Gallinago media*, *Himantopus himantopus*, *Hippolais icterina*, *H. pallida*, *Ixobrychus minutus*, *Limosa limosa*, *Locustella fluviatilis*, *L. luscinioides*, *Luscinia luscinia*, *L. megarhynchos*, *Lymnocyptes minimus*, *Merops apiaster*, *Muscicapa striata*, *Numenius arquata*, *Oenanthe oenanthe*, *Phylloscopus collybita*, *P. trochilus*, *Podiceps grisegena*, *Recurvirostra avosetta*, *Scolopax rusticola*, *Sterna hirundo*, *Sylvia atricapilla*, *Sylvia borin*, *Sylvia communis*, *Sylvia curruca*, *Sylvia nisoria*, *Tringa tetanus*, *Tringa nebularia*, *Vanellus vanellus* (*Appendix II*); mammals: *Myotis myotis*, *Nyctalus noctula*, *Plecotus auritus*, *Vespertilio murinus* (*Appendix II*).

*also listed in the EU Bird Directive

The site additionally supports a number of species protected in Europe, including species listed in **the EU Bird Directive:**

Alcedo atthis, Ardeola ralloides, Bubo bubo, Caprimulgus europaeus, Dendrocopos medius, D. syriacus, Dryocopus martius, Egretta alba, E. garzetta, Emberiza hortulana, Falco columbarius, F. peregrinus, F. vespertinus, Gallinago media, Himantopus himantopus, Ixobrychus minutus, Lanius collurio, Lanius minor, Lullula arborea, Nycticorax nycticorax, Pelecanus onocrotalus, Pernis apivorus, Phalacrocorax pygmeus, Picus canus, Recurvirostra avosetta, Sterna hirundo, Sylvia nisoria (Annex I) and **the EU Habitat Directive:**

Fishes: *Cobitis taenia, Misgurnus fossilis, Aspius aspius, Barbus meridionalis, Rhodeus sericeus amarus, Gobio kessleri, Umbra krameri* (Annex II), *Gymnocephalus baloni* (Annexes II and IV);

Amphibians: *Triturus cristatus, Bombina bombina* (Annexes II and IV), *Bufo viridis, Hyla arborea, Pelobates fuscus, Rana dalmatina* (Annex IV);

Reptiles: *Coronella austriaca, Elaphe longissima, Natrix tessellate, Ablepharus kitaibelli, Lacerta agilis, Lacerta viridis* (Annex IV), *Emys orbicularis* (Annexes II and IV);

Mammals: *Cricetus cricetus, Felis silvestris, Muscardinus avellanarius, Nyctalus noctula, Plecotus auritus, Vespertilio murinus* (Annex IV), *Lutra lutra, Myotis myotis* (Annexes II and IV);

Plants: *Dianthus diutinus, Marsilea quadrifolia* (Annex II).

The site supports species protected under **the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** *Lutra lutra* (Appendix I).

The site supports vulnerable fish species listed in the **2008 IUCN Red List of Threatened Species:** *Cyprinus carpio* and *Umbra krameri*.

Additionally, the site supports many species listed in the Red Data Book of Vertebrates of Romania (see Annex "Species" attached).

3rd Criterion:

Comana Natural Park lays at the limit between steppe and sylvo-steppe, which provides the Park with its specific phytocoenological traits and high floristic variability.

Comana wetland is considered as: the third important wetland in Southern Romania following the Small Island of Brăila and Danube Delta, and the second important area for biodiversity following the Danube Delta.

Nevertheless, within the area of Comana Natural Park, the Neajlov receives some branches with permanent water flow, with their own springs, where several endemic taxa have been identified (*Crocus flavus* Weston subsp. *flavus*, *Dictamnus albus* L. (*D. flaxinella* Pers.), *Orchis laxiflora* Lam. Ssp. *elegans*, *Marsilea quadrifolia*, *Cadamine parviflora*, *Digitalis ferruginea*, *Iris graminea*, *Paeonia peregrine* Miller var. *romanica*).

The site contains the range of biological diversity existing in the region and a significant proportion of species adapted to special environmental conditions especially because the site is like an oasis in the area defined as the limit between steppe and sylvo-steppe in Romania. In spite of an incomplete data base, we can argue that the site is a

“hotspot” of biological diversity and is evidently species-rich, because studies are still necessary

Out of 1300 higher plant species, 53 rare, 10 vulnerable and rare at national level plant species are sheltered here (See attached to this RIS Annex Species, worksheet Plants).

4th Criterion:

In Comana Natural Park many bird species find here a stop-over (staging) place during migration: corncrake – *Crex crex*, *Anser albifrons*, *Scolopax rusticola*, nesting: *Vanellus vanellus*, *Picus canus*, *Ixobrychus minutus*, *Gallinago gallinago*, *Egretta alba*, and a wintering place as *Circus cyaneus* and other active day and night predatory species (coming down from the alpine and sub-alpine areas during winter).

Comana Lake and the wetlands of Neajlov and Câlniștea Rivers, Zboiu and Gurban rivulets are considered as concentration areas for migratory birds during the migration periods: a big number of species of aquatic birds can be seen in these habitats. The location of the Park (within the limit between steppe and sylvo-steppe, a relatively dry area typical for the southern part of Romania), explains the large densities of individuals and the large number of species seen during migration periods (February-March and September-November). During these periods, within the area of Comana Natural Park there can be seen majority of duck species present in Romania, almost all stork species and the majority of aquatic bird species which nest in Romania and travel during favorable periods in summer (floods bringing more food) over large places for feeding and refuge/shelter. Compact areas of forests that have different age provide shelter and food for many bird species typical for woodland habitats, including summer and winter guests in Romania and species which come down from the mountain areas near the Danube plain, where the climate is milder.

The large mammals (red deer - *Cervus elaphus*, wildboar - *Sus scrofa*, roe deer - *Capreolus capreolus*) find here an optimal environment for reproduction and shelter.

Neajlov River and the microdelta which it forms near Comana locality represent the optimal habitat for the otter (*Lutra lutra*). The wild cat (*Felis silvestris*) can be seen here as well as the tree-marten (*Martes martes*), the fitchew (*Putorius putorius*), the fox (*Vulpes vulpes*), the jackal (*Canis aureus*), the badger (*Meles meles*). The artificial dams and low terraces of the rivers are the concentration areas for the hamsters (*Cricetus cricetus*) and gopher (*Spermophilus citellus*). In forests there can be seen many dormouse species (*Myoxus glis*, *Dryomys nitedula*). Among the bats there can be seen two species (*Myotis myotis* and *Nyctalus noctula*), but many other bat species identified in Romania might be found in the area in the future.

5th Criterion:

Out of about 500 bird species existing at European level, in Comana Natural Park a total of 157 bird species inhabit the complex site, breeding, nesting, wintering or stopping over (staging) during migration.

The list comprising the bird species which inhabit characteristic humid areas, which make altogether more than 20,000 individuals, is presented in the attached RIS Annex_criteria_4_and_5 (worksheets: protected species, population size, and species list).

The wetlands (forming an ecological unit together with the surrounding terrestrial ecosystems from Comana Natural Park) are important for migratory waterbirds.

There is a strong need for more studies for identification of all bird species from the Park and the assessment of threatened species, involving the assessment of their PVA (Population Viability Analysis) for conservation and sustainable and adaptative management

7th Criterion:

The high diversity of wetland habitats is the reason of the presence of a relatively high number of rheophile and stagnophile fish species. The habitats are very diverse including along the river water course. In the main course of Neajlov river there are segments with different speeds of water flow, different depths, and different bottom conditions (sandy or covered with a thin layer of fine sediments). Comana Wetland now consists of many water branches with small surfaces and depths, connected by natural canals. The water level of Comana Lake varies in spring and it depends on the water inflow from Neajlov river. The affluents of Neajlov River are characterized by permanent and relatively constant water flows that depend mainly on the underground water supply.

Excepting the lower part of Comana Lake affected by a drainage canal, the other aquatic ecosystems and vegetation typical for wetlands have been less influenced by anthropogenic activities. Within the area of Comana wetland included in Comana Natural Park there can be found many fish species (*Leuciscus borysthenticus*, *Cobitis megaspila*, *Umbra krameri*, *Misgurnus fossilis*). In this regard, we can mention two endemic and rare fish taxa: *Petroleuciscus boristhenticus* and *Cobitis megaspila* ssp.).

The list of all fish species found within the Comana Wetland is provided in the attached RIS Annex Species (worksheet Vertebrates).

8th Criterion:

Comana Lake and Gurban rivulet are reproduction, feeding and spending the winter habitats for *Leuciscus borysthenticus* and *Cobitis megaspila* endemic fish species, but also for other endangered or rare species (*Misgurnis fossilis*, *Rhodeus sericeus amarus* etc.), as well as feeding habitats for *Esox lucius*, *Styzostedion lucioperca*.

The canals, rivers, rivulets and springs forming Comana wetlands are important and diverse area for fish migration/transition among water courses and between watercourse and lakes/ponds. All the above mentioned wetlands are very important source of food for fishes (see Attached RIS Annex Species, worksheet Plankton and Invertebrates). More studies are necessary regarding the trophic need of the fishes.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

It is part of Palaearctic Region, Euro-siberian sub region, Central European, plain area, steppe and sylvo-steppe area.

Continental – according to scheme used for Emerald Network

Ecoregion 418. Dniester-lower Danube according with FEOW (Freshwater Ecoregions of the World).

b) biogeographic regionalisation scheme (include reference citation):

Călinescu R. (1969) Biogeografia Românei, Editura Academiei Române, București
Emerald Network (European Environment Agency)
FEOW (Freshwater Ecoregions of the World)

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

As a general location inside Romania, Comana Natural Park territory is located in eastern Romanian Plain, Burnaz Plain in the vicinity of: Vlășia Plain (North), Bărăgan Plain (East), and Danube floodplain (South). The hydrographic network is generally well developed, the river valleys having terraces and some rivulets as tributaries; the landscape is diverse with different exposures. In the depressions of relief there can be found dales, mud valleys and numerous closed micro-depressions, depending on the soil depth and structure, water input and low evaporation. Within the site the oldest relief forms can be found on Burnaz plain.

The altitude is comprised between 85 and 90 meters, presenting about 30 meters level difference in the northern area of the region (from Neajlov to Arges Rivers) and about 60 meters level difference from Danube floodplain.

The platform has an attenuate bias from the eastern to the western part, and is crossed by valleys from the southern to the northern part, which depth is up to 40 - 70 meters. On the plane there are depressions with diameters between 500 and 1500 meters. Ground waters occur at a depth of about 30 meters. The soils are typical of the area of Burnazului Platform where Comana Natural Park is located: red brown automorphic soils, more or less solithic sites, degraded black earth soils,, etc. .

Southern-eastern Burnazului platform is edged by a high terrace (Greaca terrace) which has 72-75 m altitude, the level differences against Danube floodplain being 56-58 m. There are no forests on this terrace. Former wetland has been converted to agricultural land.

The wetlands are spread on large areas, their diversity depending on the river water and materials input .

The area of Comana Natural Park belongs to the plain continental climate. This specific climate is determined by the location of Comana Natural Park at the limit between steppe and sylvo-steppe from Romania, developing regional characteristics of climate due to the specific vegetation cover (compact and well spread forests) and big wetlands surface from the region. Multi-yearly average precipitations are comprised between 520-560 mm and present a relatively uniform repartition during the year. Nevertheless, there is a decrease of precipitation quantities during the autumn and winter periods. This seasonal precipitation division is as follows: winter (76-100 mm), spring (125-150 mm), summer (150-175 mm), autumn (100-125 mm). Dominant winds have north-eastern and south-western directions. Dry winds during the summer time determine decrease of air and soil humidity.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Neajlov River, the affluent on the technical right side of Argeș river, is the main water course which crosses Comana Natural Park from west to east; based on the flow characteristics it can be considered in the category of medium catchment area in Romania. Although it is located in the plain area, Neajlov river is considered among the rivers with average hydrographical networks ($3\,660\text{ km}^2$) of our country. Neajlov participates in forming one of the most important convergence points within the plain area, at Stoenesti, where Neajlov and Câlniștea Rivers together with Dâmbovnic and Glavacioc rivulets are confluent. The sinuosity coefficient, characteristic for the rivers within the plain area, varies between 1.30 and 1.60. In the case of Neajlov River, the sinuosity coefficient reaches its maximum value. But rehabilitation works within the Argeș river floodplain resulted in decreasing the influx level of affluent and reducing the sinuosity degree within Neajlov River. The medium height of Neajlov course is of 162 meters, and the water average flow is of $6.48\text{ m}^3/\text{s}$. The

maximum value of monthly average inflow is during the spring period (March-April) and the minimum is within summer-autumn period (August-September)(Table 1).

Table 1: The principal characteristics of Neajlov River

River	Monitoring station	catchment total surface (km ²)	Annual average altitude (m)	Annual average flow capacity (m ³ /s)	Monthly average flow (% within yearly average flow)											
					I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Neajlov	Calugăreni	3361	162	6,48	10,3	12,5	20,5	14,8	8,2	8,0	4,36	2,74	2,72	3,06	4,96	7,81

Table 2: Characteristics for the maximum and minimum average flow of Neajlov River

The highest monthly average flow within the year for the multi-yearly period	The lowest monthly flow within the year for the multi-yearly period	Months with the highest monthly average flow and their frequency (%)		Months with the lowest monthly average flow and their frequency (%)	
24,1	1,57	III - 33	I - 16	VIII - 33	IX - 28

Table 3: Neajlov River flow average

Season average flow (multi-yearly period)				Multi-yearly average flow	
Winter %	Spring %	Summer %	Autumn %	Water debit (m ³ /s)	Water debit (l/sKm ²)
30,6	43,5	15,1	10,8	6,48	1,93

In Romanian Plain (Comana area) approximately 70 % of maximum flows have pluvial origin and only 29 % have mixed provenience.

The analysis of large and rain waters frequency for the hydrometric posts proved that during the year the maximum number is registered in spring time (30 – 50 % din total), and the minimum number is registered in autumn time (10 – 20 %) or winter time (5 – 30 %).

The Romanian Plain is generally covered by quaternary-loess sediment deposits and deposits from the Mesozoic era, disposed on crystalline layers. Within the area of Burnaz plain district where Comana Natural Park is located, Pre-Balkan fundament could be found at more than 100 m depth; placed over Pliocene deposits (clays, sands and stones) there are the Quaternary deposits consisting of Frătești stones. They can be found at a depth of 40-45 meters and they consist of gneiss, silex, quartz, gritstones, chalkstone marls and Carpathian and Balkanian chalkstones. Over these deposits we can meet eroded marls, sands or sand marls which appear in an adobe-clay layer up to 6 meters thick. Over them we can see the adobe-clay layer Aeolian fine deposits accumulated during Riss-Holocen period. On the Neajlovului plain these deposits are less deep than on the rest of Burnazului plain.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The hydrological features and ecological functions of the wetlands are not well studied in Comana Natural Park. Even if the wetlands perform vital ecological functions, the people from the area and the scientist need to look into and recognize the ecological benefits provided by the wetland and the entire complex of ecosystems present in Comana Natural Park.

Now our understanding of the complexities of wetland ecosystems is still developing. Wetland scientists have already documented the following environmental benefits of wetlands: water purification, flood protection, shoreline stabilization, groundwater recharge, and streamflow maintenance. Wetlands also provide habitat for fish and wildlife, including endangered species.

All these benefits depend on wetland type, how particular wetland types work and where they are located.

Wetlands protect water quality by trapping sediments and retaining excess nutrients and other pollutants such as heavy metals. These functions are especially important in the case of Comana Wetland because the wetland is connected to groundwater sources used by local communities for drinking, and surface water sources (rivers and lakes) used for swimming, fishing, or other activities. These same functions are also critical for the fish and other wildlife that inhabit these waters.

The wetland and terrestrial ecosystems have economic importance for the people from the area (fisheries), provide services (indirect values, e.g., watershed protection, carbon sequestration). There are in the area ecosystems and habitats of social and cultural importance (religious significance), and they are also important for the maintenance of threatened and endemic species (high diversity). The ecosystems and habitats have considerable recreational importance being included in Natural Park.

In a few areas from Comana Natural Park the human impact is minimal (possible exception making the input of the pollutants from air and water, greenhouse gases). The wilderness from these areas is affected mainly by invasive species. Species and communities representative for the Park (see annexes) are important for research for conservation and sustainable use of biological diversity.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance: P, Ts, U, Xf, Xp, Y, 2, 3, L, M, N, O, Tp, 1, 6, 9

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Among all types of wetlands characteristic for Ramsar classification system are described in Comana Natural Park the following:

Inland Wetlands :

L – Permanent inland deltas-zona Baltii Comana

M- Permanent rivers/streams/creeks – Argeş, Neajlov, Călniste, Gurban, Zboiu, Dadilovat

N- Seasonal/intermittent/irregular rivers/streams/creeks – tributaries of Neajlov River, streams in Comana wetland

O- Permanent freshwater lakes – permanent lakes in Comana and Gurbanu wetlands

P – Seasonal/intermittent freshwater lakes – temporary lakes in Comana and Gurbanului wetlands

Tp – Permanent freshwater marshes/pools – ponds below 8 ha, with emergent vegetation water-logged

Ts – Seasonal intermittent freshwater marshes/pools – seasonally flooded meadows

U – Non-forested peatlands –shrub, open bogs, swamps and fens

Xf – Freshwater, tree-dominated wetlands –Călugăreni forest

Xp – Forested peat land

Y – Freshwater springs – springs of Gurban, Zboiu, Dadilovat rivulets and rheocrene springs in Comana wetland, situated at the north boundary of Comana wetland, at North boundary of the forest

Human-made wetlands:

1. Aquaculture ponds – fish nursery (Cyprinidae)

2. Ponds – ponds arranged along Zboiu rivulet and old canal of Neajlov river, downstream Comana Lake

3. Irrigated land – irrigation canals for agriculture

6. Water storage areas – inside Comana and Gurbanu wetlands

9. Canals and drainage channels, ditches – on Argeş and Neajlov rivers

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The plain relief characterized by relatively small level difference within the lower floodplain of Neajlov and Călniștea Rivers and their affluents, favours the formation of numerous meanders and permanently or temporarily flooded areas, which represent reproduction and feeding habitats for numerous vertebrate species. Inside Comana Pound, Comana Lake and the shoreline represent one of the most important reproduction habitats for the aquatic birds. The high diversity of biotope conditions within the floodplains of the aforementioned rivers, as well as neighbored mentioned habitats (mostly forests) determined diversity of flora and fauna.

More than 50% of Comana Natural park area is covered by natural or almost natural aquatic and terrestrial ecosystems. The category of running aquatic ecosystems is represented by Neajlov and Călniștea Rivers, with natural running water regime and with permanent water debit. Along the rivers the vegetation characteristic for wetlands can be found especially in Neajlov river floodplain, where, in long time, a true micro-delta was formed, with: inner lakes having a permanent hydrological regime, being connected by canals, temporary ponds inundated during spring and autumn floods, connection canals network with waters having a permanent or temporary character among the lakes delimited in the interior of Comana wetland.

Inside the Comana Natural Park there are three rivulets with permanent character supplied by the underground water from the zone: Gurbanului, Zboiu and Dadilovat rivulets. The most important is Gurbanului rivulet, kept in natural estate, it forms meanders and a major river bed temporarily flooded. Flora and fauna are rich in species, diverse and specific to the wetlands. Zboiu rivulet, situated south-east inside of the Park, is partially arranged for pisciculture activities, but flora and fauna specific for wetlands, except fish, are under favourable conservation status. In the interior of the forest there are lowland areas, temporarily flooded during spring and such they form optimal habitats for amphibians reproduction. At the north boundary of the forest, at the contact with Comana Lake, there are more rheocrene springs with small water debits but with permanent character.

The forests cover almost 8500 ha, almost like a compact body, securing optimal conditions for flora and fauna species development, species characteristic for forestry area from plain region. Most of the forests areas are situated along the rivers, deciduous forests from rivers floodplains being formed by species as: oak, ash tree, lime, hornbeam, poplar, willow, etc. In

south and south-east the forests are formed mainly by oak belonging to the xerophytic species. In this area is defined the limit between steppe and sylvo-steppe in Romania.

Comana Lake is a shallow lake which has relatively uniform water temperatures throughout the water column. Aquatic vegetation can affect water temperatures in the lake. Management from a whole catchment perspective is necessary to protect and maintain healthy ecosystems.

1. Water biotopes:

a) the aquatic ecosystems belonging to Neajlov and Câlniștea Rivers and Gurban affluent, represents the characteristic habitat for the native fish species, as well as for a big number of migratory birds species with a rich vegetation characteristic for riparian areas with poplar and willow woods;

b) Lakes/Swamps– stagnant aquatic ecosystems constituted on river floodplain are the reproduction areas for fish and aquatic birds; they are characterized by the exceptional diversity of flora and fauna. Fresh water lakes are connected by canals which provide a permanent inflow of fresh water and maintain survival of aquatic organisms. The islands with permanent vegetation are excellent nesting places for aquatic birds. Macrophyte vegetation is dominated by *Tipha* and *Pragmites* species, but numerous other aquatic plant species are also present (see attached RIS Annexes). The wetland depends on Neajlov river regime and it reaches its maximum during spring.

2. Terrestrial biotopes:

a) Terrestrial habitats have high scientific importance (see attached RIS Annex Habitats), for instance reservations with *Ruscus aculeatus*, *Paeonia peregrina* and *Convallaria majalis*, but also other special conservation areas proposed for protection of plant and animal species and their habitats.

b) Riparian habitats comprise both, dry and flooded biotopes (only during exceptional rains) as well as frequently flooded, with dense and specific vegetation. These biotopes are frequently modified by water regime.

c) Indigenous meadows:

Vast marshes disappeared here after the anthropogenic landscape transformation.

Tall-herbaceous lowland meadows are mainly secondary habitats on abandoned lands, (communities with *Poa pratensis*, *Agrostis* sp., *Phleum pratense*, *Alopecurus pratensis*).

Lowland pastures are covered first of all by communities of *Lolium perenne*, *Poa pratensis* and *Agrostis stolonifera*.

Danubian communities with *Typha angustifolia* and *T. latifolia*, Danubian communities with *Phragmites australis* and *Schoenoplectus lacustris*, Daco-Danubian communities with *Carex elata*, *C. rostrata*, *C. riparia* and *C. acutiformis*, Western-Pontic communities with *Phragmites australis* ssp. *humilis* and *Aster tripolium*, Ponto-danubian communities with *Bidens tripartita*, *Echinochloa crus-galli* and *Polygonum hydropiper* occupy areas in permanent and intermittent ponds and along drainage channels and shorelines.

d) Agricultural arable lands include mainly fields of annual crops and orchards.

The Aquaculture is less developed. The water used for the aquaculture is pumped from Argeș River and discharged into Neajlov River throughout a drainage canal, and there are minimum chances for the fish youngsters to escape in Neajlov river due to the sieve from the beginning of the canal.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Within the protected area with *Ruscus aculeatus* 111 higher plant species have been identified, among which 5 are included on the Red List of higher plants in Romania. Within the protected area with *Paeonia peregrine* 102 plant species have been identified, and within the proposed protected area of Fântânele Forest, 331 species, among which 12 are present on the Red List (Red List of higher plants from Romania) (Oltean et al., 1994).

Within the area of Comana Natural Park more than 1300 plant species have been found, the high species diversity being determined by the microrelief diversity and climate characteristics. 50 tree species and 36 scrub species are known in the park. In Comana there are present all 5 indigenous ash species (*Fraxinus ornus*, *F. oxycarpa*, *F. holotricha*, *F. coriariifolia*, *F. excelsior*) and 7 indigenous oak species (*Quercus cerris*, *Q. frainetto*, *Q. petraea*, *Q. pedunculiflora*, *Q. robur*, *Q. pubescens*, *Q. virginiana*).

Inside Comana wetlands and depression areas *Alnus glutinosa* it has almost the northern limit of its distribution area. Among the scrubs there should be noted *Ruscus aculeatus* (being on the northern limit of its distribution), *Crataegus pentagyna* and *Staphyllea pinata*. Within the area of Comana lake and ponds there can be found many species, characteristic for such water bodies: *Salvinia natans*, *Marsilea quadrifolia*, *Carex spp.*, *Lemna spp.* A large surface of the Comana Wetland is covered by reed (*Phragmites* sp.) which is considerably dense and high, having tetraploid and octoploid clones similar to those from the Danube Delta.

A big number of plant species considered rare or endangered at the national level are found in the Park: *Marsilea quadrifolia*, *Ranunculus polyphyllus*, *Cardamine parviflora*, *Cardamine majowski*, *Digitalis ferruginea*, *Orchys laxiflora*, *Paeonia peregrina*, *Dictamnus albus*, *Iris germanica*, *Iris variegata*, *Leucanthenella serotina*, *Carpesium cernuum*, *Nectaroscordum siculum*. Within grasslands on Neajlov river floodplain there are grasslands specific for high salt concentration in the soil: *Puccinella limosa*, *Camphorosma annua*, *Plantago maritime*, *Hordeum murinum*, *Scorzonera canna*, *Limonium gmelini*, *Artemisia santonicum*, *Scilla autumnalis* (according to the studies performed by specialists from Institute of Biology, Romanian Academy and Bucharest University).

Inside Comana Natural park, there are protected areas comprising numerous old trees (*Pyrus pyraeaster*, *Quercus*, *Fraxinus*, *Ulmus*, *Alnus*), also nature's monuments represented by the secular trees.

The high diversity of plant species is also explained by the fact that Comana Natural Park is situated at the limit of distribution areas for some European, Eurasian and Mediterranean species. Among the scrub species there can be mentioned *Ruscus aculeatus* being on the northern limit of its distribution area, as well as *Crataegus pentagyna* and *Staphyllea pinnata*. Among the forest herbaceous species, being on the limit of their distribution areas, there should be mentioned *Convallaria majalis*, *Sanicula europaea*, *Salvia glutinosa*, *Cyperus serotinus*, *Medicago arabica* and *Doronicum orientale* (Pauca et al., 2000).

There is also an extremely diverse aquatic vegetation from wetlands connected with Neajlov and Călnistea Rivers as well as Gurban and Zboiu rivulets. The exceptional plant species and communities' diversity from Comana Wetland, is due to the interconnections among Neajlov, Argeş rivers and their tributaries, Comana Lake, ponds and natural connecting canals.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RLS.*

Fauna of vertebrates includes: 38 mammal species, 157 bird species (from which more than half are migratory and seasonal visitors), 10 reptile species, 10 amphibian species, and 31 fish species. The invertebrate fauna is well represented by mollusks and insects.

The fishes are better represented, and some species found within the area have scientific importance, especially being endemic or rare species, *Leuciscus borysthenticus*, *Cobitis megaspila*, *Umbra krameri*, *Misgurnus fossilis*. Beside them there are other species which distribution area and natural population size become smaller and smaller in Romania (*Esox lucius*, *Carassius carassius*).

Many species found in the park are also listed in the Annexes of the Bern Convention, the EU Bird Directive and/or in EU Habitat Directive (see also point 14).

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The historical importance of the area is given by the Comana Monastery, apparently built by Vlad Tepes in 1462, and used by him as halting place during his journeys to Istanbul. At one point in time, the monastery was destroyed, but it was rebuilt by Radu The Great in year 1505. This historical monument still exists and it is in perfect shape, representing one of the most important touristic sites of the Park. Also, at the site called The Neajlov Swamps, in the Calugareni area, the battle between Mihai the Brave army and the army of Sinan Pasa took place in 1598, when the Romanians were victorious.

The oldest human settlements in Comana Park area are from the Neolithic era; this fact is established by the archeological site discovered in the Islaz Forest.

The wetland and terrestrial ecosystems have economic importance for the people from the area (fisheries), provide services (indirect values, e.g., watershed protection, carbon sequestration). There are in the area ecosystems and habitats of social and cultural importance (religious significance), and they are also important for the maintenance of threatened and endemic species (high diversity). The ecosystems and habitats have considerable recreational importance being included in National Park.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

- a) within the Ramsar site:

The ownership belongs to the State (about 85%) and private persons (about 15%).

- b) in the surrounding area:

The agricultural land, located in the vicinity of the Park, is mostly private and is administrated by the owners or by the legally incorporated owners' associations.

25. Current land (including water) use:

- a) within the Ramsar site:

Hunting is allowed throughout the Park, excepting the special conservation areas (Comana Lake, the scientific reservations and other areas proposed as protection areas for the species living there and their habitats.

The Comana Natural Park area is estimated at 24 963 hectares and includes several villages of Giurgiu county (Comana, Mihai-Bravu, Călugăreni, Singureni, Baneasa, Prundu, Greaca, Hotarele and Gostinari; their total population is about 10 000). The arable land around these villages and 9,613 hectares of forest of which 9,416 hectares represent state forests is administrated by Giurgiu Forest Department.

The economy of this area is underdeveloped. There are no industrial enterprises. The majority of the population is involved in traditional agriculture. The vegetable sector is a little bit more developed than the others, and this vegetable gardening is made by family associations. Raising animals is another traditional activity, but it is poorly represented. The private economical activities are also underdeveloped. Fishing has been restricted, as percentage of the local's traditional activities. The population's average age exceeds 50 years.

The education system includes primary schools, with classes from I to VIII. To continue their studies, children have to go to high schools and professional schools situated in the nearby cities (Bucharest and Giurgiu), but the number of young people who goes on with their studies is dropping.

The majority of the arable land located within the Park is divided into small plots, usually smaller than 1 ha, and are planted with cereals. The irrigation system existing here prior to 1989 has become inoperable and the low price obtained by the farmers for their products, has determined the limited number of mechanical agrarian works, the limited quantities of fertilizer and of chemical treatments, or even the absence of them. So, the agriculture remains being of extensive type, very close to the traditional agriculture. According to the Comana Natural Park Management Regulation, the use of genetic modified sorts of plants is prohibited in the Park. Giving the high costs for acquiring the seeds selected and certified by the authorized bodies, most of the time the sowed seeds come from the previous harvests, and are sorted by traditional methods. The commercial gardening is well developed, but it is made in private gardens, on small land plots. Associations of a few owners, united in order to increase the garden area and the production performance, are very seldom.

Animal breeding is another traditional activity, performed in our days, but the number of grazing animals is dropping due to the low prices obtained for the products by the breeders

and, also because of the restrictions imposed by the state regarding the sale of these products. Therefore land use for this kind of activity decreased over years.

Fish farming is poorly developed. A single farm runs in the Park, having a total surface smaller than 6 ha, and being specialized in obtaining aquaculture fish species. In the swamps of small rivers they arranged tanks where sport fishing is practiced, but the fish population is small; for this kind of business common fish species are used (*Ciprinus carpio*, *Carassius auratus*).

b) in the surroundings/catchment:

In the neighboring areas the situation is the same. Usually there are no monocultures on extended surfaces, and use of mechanical and chemical innovations in agriculture is low. The economic decrease, lack of economic development in the villages and impoverished local people who reduced land use for agriculture determined the abandonment of many arable fields.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Among the activities with a negative impact over the biodiversity, the most important is the drainage of the Comana Lake lower part, by digging a drainage canal. This work was made prior to year 1989 and its purpose was to ensure the widening of arable terrain. Frequent floods and the soil characteristics showed that this area is inadequate for agriculture. The restraint of the surfaces covered with water resulted in microclimate changes, meaning that the area becomes dry. Descend of the ground-water level emphasized the trees fading phenomenon. The complex works to arrange the Argeş river bed, made in the same period, caused the modification of the tributaries draining parameters, increasing the draining speed and along with it, the decrease of the minor river beds anfractuositities degree.

Another factor that can affect the natural ecosystems integrity is the continuous extension of the built-up area and the constructions made in the vicinity of the preservation areas. But the constructions were forbidden by the Park Functioning Regulation.

Grazing, as an activity disturbing the biological balance and the vegetal diversity, has less significance because of the small number of animals and because there are enough grazing surfaces. However, the grazing areas productive capacity and their rational use must be taken into consideration in order to avoid the soil degradation process.

In a few areas from Comana Natural Park the human impact is minimal (possible exception making the input of the pollutants from air and water, greenhouse gases). The wilderness from these areas is affected mainly by invasive species.

b) in the surrounding area:

At the outskirts of the Park the extension of the village is fast and it is a process made usually along the communication ways (local, county and national roads), but also in the proximity of ecological valuable areas.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The Ramsar site overlaps with Comana Natural Park boundaries.

To protect the natural values of Comana, following the proposal made by the Institute of Biology, Romanian Academy, Comana Natural Park was established in December 2004 by the Government Decision. on 24 963 ha area, the park has its own administration and is subordinated to Giurgiu Forest Department. The Comana Park includes the following conservation areas:

- **Comana Lake (avifauna protection area)**, considered as the third important wetland area in South Romania after the Small Island of Braila and The Danube Delta, and as the second area important for biodiversity after the Danube Delta.
- **Natural reservations:**
 - *Ruscus aculeatus* reservation established for protection of **the thorn** (*Ruscus aculeatus*) - mediterranean plant found at the northern limit of its distribution area, which is a protected species in Romania;
 - *Peonia peregrina* reservation proposed for protection of **Romanian peony** (*Peonia peregrina*) which is a local species;Both *Ruscus aculeatus* and *Peonia peregrina* reservations were scientific reservation from 1953 till 2000. The Romanian Government Law 5/2000 designated these scientific areas as natural reserve (losing the status as scientific reservation);
 - the lily of the valley (*Convallaria majalis*) reservation, which is proposed as a scientific reserve in *Fantanele*

The entire area of Comana Natural Park was designated in 2007 as Natura 2000 site, RO SPA 0022 Comana and RO SCI 0043. Their boundaries overlap Comana Natural Park boundaries.

The Institute of Biology, Romanian Academy proposed in 2002 at the Ministry of Environment and Forests the assignation of another 8 special conservation areas inside of the Park.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?

The management plan is used by the Comana Natural Park Administration but waits for the approval of the Ministry of Environment and Forests.

d) Describe any other current management practices:

Government Emergency Ordinance no. 57/2007 on the regime of protected areas, natural habitats, flora and fauna, approved with amendments by Law no. 49/2011.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

In order to rehabilitate the hydrologic regime of Comana Lake, it is necessary to completely close the drainage canal. The purpose is the restoration of the aquatic ecosystems existent before the drainage. Of course this will be treated with very much care following detailed long term studies and possible scenarios (tendencies).

For the restoration of the Comana Lake it was proposed to build a water retaining dam, foreseen with a hydraulic ram that will allow to adjust the water level in the lake and to restore the aquatic ecosystem on a surface of about 700 ha. The technical projects and the feasibility studies are ready but the dam construction was not made due to the lack of financing.

- at this time there are proposals to extend the special conservation area with new land surfaces that need to be included in the protected area network of Romania, according to the table:

No.	Reservation name	Geographic location	Administrator
1	Fantanele	Long.26°00'03''/26°01'10'' Lat.44°09'33''/44°10'28''	O. S. Comana
2	Zboiu	Long.26°25'30''/44°08'10'' Lat.	O. S. Comana Private owners
3	Puieni	Long.26°10'38''/44°05'55'' Lat.	O. S. Comana
4	Cranguri	Long.25°59'10''/44°11'40'' Lat.	O. S. Comana Private owners
5	Valea Hotilor	Long.26°00'30''/44°09'35''	O. S. Comana
6	Valea Gurbanului	Long.26°08'10''/44°09'11'' Lat.	SNCFR, Comana Local Council, Bradul

7	Saraturile Comana Gradistea	Long.26°09'10''/44°01'45'' Lat.	Comana Local Council
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O.S. – ocol silvic (forestry district)

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

To investigate tremendous diversity of the fauna and flora, of the characteristic habitats and the dynamic of the species living here, the long-term studies were needed. Inventory studies were made by different specialists from the Biology Institute of the Romanian Academy, from the Biology Faculty of Bucharest University and from other university centers. The studies regarding the management of the forests existing in the Park were made by specialists from the Forest Research and Management Institute – Bucharest. The Comana Natural Park biological diversity was important subject for studies necessary for Bachelors, Masters and PhD Theses. Monitoring studies of species and their characteristic habitats are realized at present time; they are coordinated by the Bucharest Biology Institute, the Cantacuzino Institute, by the Biology Faculty of Bucharest University and by the Forest Research and Management Institute. The development of GIS techniques allowed a more accurate monitoring of the land surfaces, of the special conservation areas included in Comana Natural Park, and will allow an accurate monitoring of rare and vulnerable species population distribution.

Comana Natural Park own aerophotograms and satellite images for the entire surface. GIS map of the park was done by Forest Research and Management Institute. The park's boundaries have been described by the Institute of Biology, Romanian Academy having as base the researches made in the period 2000-2002 in the framework of Natura 2000 network realization and they have been published officially in Government Decision 2151/2004. The areas of ecosystem or habitat will be the subject of long-term study (monitoring and assessment) due to their great scientific value, providing data about the ecosystem and habitat changes over time.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

After establishment of the Comana Natural Park, there were increased educational activities aimed at raising public awareness about the need to protect natural values of this area. During this period of time documentaries about this area were filmed, and TV programs were broadcast to highlight activities with potentially negative impact on the environment.

Each year, at the end of May, the Comana Natural Park together with the Giurgiu Forest Department and the Giurgiu County Council and with non-governmental organizations organize the "Peony Festival". This festival is attended by experts involved in nature conservation work, pupils, historians, etc.

The Comana Natural Park Administration together with the Forest National Administration and the Romanian Television are involved in an environmental education program oriented on young people.

Results of Bachelors, Masters and PhD students studies were presented at various scientific symposia and conferences.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

In Comana Natural Park tourism is little developed. Now the touristic infrastructure ensures a limited number of accommodation places, routes and site seeing. The main touristic interests are:

- Comana Lake, bird species concentration area that attracts ornithologists, students, pupils and nature lovers, especially young people who are filming, taking pictures and observing the bird's life in their habitat.
- The Comana Monastery built by Radu Serban in 1588 and rebuilt by Serban Cantacuzino in 1700. This monastery is raised on the ruins of the one built by Vlad Tepes in 1461.
- Natural reservations are known by people and they are subject of tourism. :

We mention as visiting points inside the area:

- Secular trees, especially oaks declared nature monuments;
 - Fantana cu Nuc Chalet, historic monument, built in 1889;
- and touristic activities:
- Religious visits of Comana Monastery and other new churches/monasteries from the area
 - Boat trips on Neajlov.
 - Archeological sites visits
 - Filming, photographing (from species to landscape)

Other recreational activities imply: fishing (excepting Comana Lake), birds and insects watching, barbeques,

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The Comana Natural Park Administration is coordinated by the Giurgiu Forest Department and the Forest National Administration-ROMSILVA.

The Comana Natural Park is located on the administrative territories of Comana, Mihai-Bravu, Calugareni, Singureni, Baneasa, Prundu, Greaca, Hotarele, Gostinari villages subordinated to the Giurgiu County Council. The agrarian lands from the park are owned mostly by private owners, and the agricultural activities are coordinated by Local Councils agricultural Chambers, the County Council and the Agriculture, Forest and Rural Development Ministry.

The forest terrains are mostly owned by the Romanian state, and are administrated by Comana Forest Ward of the Giurgiu Forest Administration. The state's forests administrator is the Forest National Administration-ROMSILVA.

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Comana Natural Park decision forums are the Comana Natural Park Administration and the Park's Scientific Council, each of them having a well defined purpose in activity coordination:

- the Natural Park Administration handles the administration and the finances; it is subordinated to the Forest National Administration-ROMSILVA, which signed the administration contract of the Park following the winning of the tender organized by the Water Management and Environment Ministry, in year 2005,
- The Park Scientific Council handles the scientific activities, and it reunites scientists, renowned specialists from various domains related to the protection of nature, biologists, university teachers, etc.

Along these structures, the Administrative Consulting Council, composed of representatives of major interested groups in the area, has the role to guide the Park activities.

The administrative structure of the Park is as follows: park manager, economist, biologist, IT responsible, security chief and four rangers.

R.N.P. Romsilva

Comana Natural Park Administration

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34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

1. Arnold, N., Oviden, D., - Field Guide Reptiles and Amphibians of Britain and Europe, Harper Collins Publishers,, 2004
 2. Ciochia,C. - Păsările clocitoare din România, Editura Științifică, București, 1992;
 3. Clark, W. S. - A Field Guide to the Raptors of Europe, the Middle East and North Africa, Oxford University Press, 1999
 4. Heath, M., Evans, M. (2000) - European Bird Population, Estimates and trends Cambridge, UK: BirdLife.
 5. Heath, M., Evans, M. (2000) - Important Bird Areas in Europe: Priority sites for Conservation. 2: Southern Europe. Cambridge, UK: BirdLife.
 6. Lindberg, K., Wood, M.E., Engeldrum, D. – Ecotourism – A guide for planners and managers, North Bennington, Vermont, 1998
 7. Miller, P. J., Loates, M. J. - Fish of Britain and Europe, Harper Collins Publishers, 1997
 8. Doniță N., Popescu A., Paucă-Comănescu M., Mihăilescu S., Biriș I.-A.- *Habitatele din România*, Editura Tehnică Silvică, București, 2005
 9. Gafta D., Mountford O. (coord.) - Manual de interpretare a habitatelor Natura 2000 din România, Edit. Risoprint. 2008.
 10. Oltean M. et all. - Lista roșie a plantelor superioare din România, studii, sinteze, documentații de ecologie, Acad. Rom. 1994
 11. Mullarnez, K., Svensson, L., Zetterstrom, D., Grant, P. J. – Bird Guide, Harper Collins Publishers, 1999
- *** Îndrumar pentru Categoriile de Administrarea Ariilor Protejate –UICN, Ediția a doua corectată, 2000;
- *** Flora RSR, vol. I-XIII;

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