

PEȘTERA WIND FARM

Monitoring Report

Biodiversity

During the operating period of the wind farm

Period: NOVEMBER 2010 - OCTOBER 2011

Client: **EDP RENEWABLES ROMANIA S.R.L.**

Prepared by: **SC BLUE TERRA CONSULTING SRL CONSTANȚA**

Subject:

Follow-up on the environmental impact study in view of quantifying the impact on flora, habitats and avifauna – according to the Environmental Permit no. 463/October 18, 2010 issued by the ENVIRONMENTAL PROTECTION AGENCY CONSTANȚA

1. Introduction

1.1. Purpose

The purpose of this report is to quantify the impact of performing the activity of Peștera Wind Farm on the biodiversity of the area, for the compliance with the conditions specially imposed in the Environment Permit no. 463/October 18, 2010 issued for Peștera Wind Farm.

1.2. Reference documents

Environmental Agreement no. 10 dated June 20, 2008, reviewed on October 1, 2008, issued by the Environmental Protection Agency Constanța;

Monitoring plan for Peștera Wind Farm prepared by the Office of Petrescu Traian, Environmental Expert;

Report on the environmental impact study for Peștera Wind Farm issued by the Office of Petrescu Traian, Environmental Expert;

Supplementary information report, 2010 edition, prepared by WSP Environmental UK;

Management and Monitoring Plan, 2010 edition, prepared by WSP Environmental UK, in compliance with the Environmental and Social Policy of EBRD (European Bank for Reconstruction and Development) and IFC (International Financial Corporation);

Environmental Permit no. 463 dated October 18, 2010 issued by the Environmental Protection Agency Constanța;

Service contract between SC EDP RENEWABLES ROMANIA SRL and SC BLUE TERRA CONSULTING SRL.

1.3. Monitoring team

Adriana Selea – Senior expert assessor/environmental auditor;
Dr. Glavan-Caranghel Teodor, environmental assessor expert.

1.4. Short description of the site

Location:

Peștera Wind Farm is located on the land outside the development boundary of Peștera Commune, Constanța County, on the heights of the following hills: Ivrinezu Est Hill, Sarapcicului Hill, La Peri Hill, Ivrinezu Hill, Crasan Hill and Dealul Mare Hill, being roughly inscribed in a quadrilateral with the following boundaries:

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- To the east: Peștera Locality, Guran's Valley, Ardeleanu's Hump, Islazului Hill and the communal road Peștera – Abrud;
- To the north: 223B county road and Peșterii Valley, Ivrinezu Mare and Ivrinezu Mic Localities;
- To the south: Caramancea Valley, Crasan Hill and Dealul Mare Hill;
- To the west: Cosor Hill, Giam Pașa Hill and Dealul Mare Hill;

According to the analyzed documents, mentioned in article 1.2., the site on which the wind farm is built is not located in a protected natural area.

The closest protected natural area to the site area is SPA (*special protected area*) Aliman Adamclisi, Natura 2000 site, designated as such in compliance with EU Birds Directive. This site houses important numbers of several protected bird species and is important during the migration period for birds of prey and for the nesting populations of some species of birds of prey, such as *Falco Cherrug*, *Milvus migrans*, *Circaetus gallicus*, *Circus pygargus*, *Falco vespertinus*, *Hieraaetus pennatus*.

Lands:

The total area of the wind farm is of 1200 ha out of which

Components:

Table no. 1 – Main components of Peștera Wind Farm

	Measuring unit	Value	Remarks
Wind turbines	pieces	30	Type VESTAS V90 3.0 MW, conical metal tubular tower, diameter of 4.15 - 2.30 m, rotor with 3 blades with a radius of 45 m
Foundation of turbine	pieces	30	Reinforced concrete bases located at 1 m below the natural ground level which will be covered with soil
Technological deck of turbine	pieces	30	Approximately 45 x 35 m meaning 1,575 sqm for each turbine and with a temporary nature during the period of construction works
Transformer station 20 kV/110 kV	pieces	1	According to the applicable Romanian standards
Access road to the wind farm and access roads to the turbines	m	2682	Width of 4 m (2 m for each way) with a structure of 20 cm compacted soil fill + 30 cm bitumen-penetrated tarmac
Overhead power line (<i>linie electrică aeriană</i> – LEA) 110 kV	m	2833	Connects the transformer station to ENEL
Underground power lines (<i>linie electrică subterană</i> – LES) 20 kV	m	101169	Cables laid in trenches of 1.2 m depth and 0.7 m width
Weather towers	pieces	2	Deck of 20 x 20 m for each weather tower

2. Monitoring

2.1. Monitoring programme

In the project area, a programme for monitoring the biodiversity of the area is performed, the aim of which being to identify and quantify the impact caused by the operation of the wind farm mainly on bird species, habitats and flora of the area, according to the provisions of the contract concluded by S.C. BLUE TERRA CONSULTING S.R.L. and the owner of the activity and according to the provisions of the Environmental Permit no. 463/2010 issued by APM CONSTANȚA for the operation of the wind farm.

The present report includes monitoring data for the period: November 2010 – October 2011.

2.2. Methods used for the performance of monitoring

Visual direct observations and sample collection – direct observations were made of the flora and fauna within the boundaries of Peștera Wind Farm, Constanța County and its proximity, the phenological features of plant species and vegetal associations, of fauna species (invertebrates and vertebrates). The monitoring was made by establishing some observation points/areas within the wind farm, during the vegetation period of the flora species, during the nesting and spring migration periods of the avifauna, the location and registered effect being noted. In certain conditions, sampling (plant specimens) took place with the aim of establishing subsequently the taxonomic classification.

Observations (optical devices) and photo records – thus the observation and/or record of some phenomena that occur quickly, at large distances or that require a detailed subsequently analysis being possible. This type of observations allows the grasping on site of the ethology of different bird species, without influencing the results with the presence of the observer. In making on-site observations, the following were used: DEKAREM 10 x 50, CARL ZEISS JENA binoculars, one KENKO PRO FIELD 63 ornithological telescope, photographic cameras: CANON EOS 30D.

Subsequent analyses and syntheses made based on the first two methodologies – data obtained during the visual direct observations and those made with special devices have been centralized, verified and interpreted.

Correlation with the existent bibliographic data – general data have been analyzed regarding the local or regional biodiversity (the use of specialized literature represents a procedure which is included in each stage of the monitoring and its role is to support the observer even prior to the beginning of the field observations); guides have been used in order to identify the plant and animal species (invertebrates and vertebrates) in the field or within the analyses and syntheses which result from the observations made (field guides for flora: “Flora României. Determinator ilustrat al plantelor vasculare” (Romanian Flora. Illustrated Guide to the Vascular Plant), vol. I and II (Beldie 1979); a bird guide: “Guide des Oiseaux d’Europe” (Peterson and contributors. 1989); an insect guide: Insecta. Odonata, Fauna RPR,

Vol. VII, Fasc. 5 (Cirdei and contributors. 1965); a butterfly guide: Butterflies of Britain & Europe (Tolman and Lewington 1997); a guide for reptiles: Reptilia. Fauna RPR, vol. XIV, Fasc. 2 (Fuhn and contributors. 1961); a mammal guide: Cartea Rosie a Vertebratelor din România. Mamifere (Red Book of Romanian Vertebrates. Mammals (Botnariuc and contributors. 2005); data of the observations from Peștera Wind Farm, Constanța County have been correlated with the results of some foreign wind farm monitoring activities. In conclusion, these permanent correlations with other existent bibliographic data have considerable effects on obtaining results which are as credible as possible of the performed monitoring.

As regards the November 2010-October 2011 monitoring period, the following specifications have to be made:

Flora monitoring. The methods used have been aimed to the identification, inventory of the vegetation types, of the species from the area of interest and included:

- Inventory of the flora in the area of interest and its proximity;
- Sampling of vegetal material in case of species which are hard to identify directly in the field;
- Making of photo images in view of establishing the taxonomic identity or, as the case may be, in view of identification in the laboratory, with the help of specialized guides;
- Identification of habitats/vegetal associations based on specific species;
- Identification of samples, verification of the species identified in the field, preparing of plant lists.

Inventory of plant species in the targeted areas was made on itinerant transects and thus an as large as possible area was covered. As a result of the field visits, the flora inventory was made periodically (approximately 2-3 days/month in the vegetation period) and thus all the vegetation stages and as much species as possible are included.

Also, data regarding plant phenology have been registered. The field observation sheets included: Systematic data regarding species, abundance of species, dominance, phenology etc.

Fauna monitoring. As regards the fauna, a monitoring plan was prepared so that a continuity of data collection is ensured, as well as their correlation with the existent ones. Thus, all the particularities of the area have been shown, as well as details regarding the animal populations present within the site, depending on the taxonomic group to which they belong and the period in which they are present.

Avifauna monitoring methods

Method of fixed points and transects. The number of fixed points and transects was established according to the number of turbines, the area of the wind farm and the area features.

The method of fixed points involves the movement to a certain pre-established place (point) and then the recording of the observations from that place in a pre-established period of time (in general, 5-10 minutes) and then the movement to another place (point). In the context of the observations made in each point, the bird species which were seen, their number, the activities performed by the seen species and the habitat in which the species were seen are recorded.

In Figure no. 1, the observation points established within the monitoring programme of Peștera Wind Farm are shown.

The use of transects implies the movement of the observer along transects and the registration of birds seen on both sides of the transect. Within Peștera Wind Farm, transects have been established for the study perimeter and its proximity, the transects travelled within the area having lengths of 2-4 km.

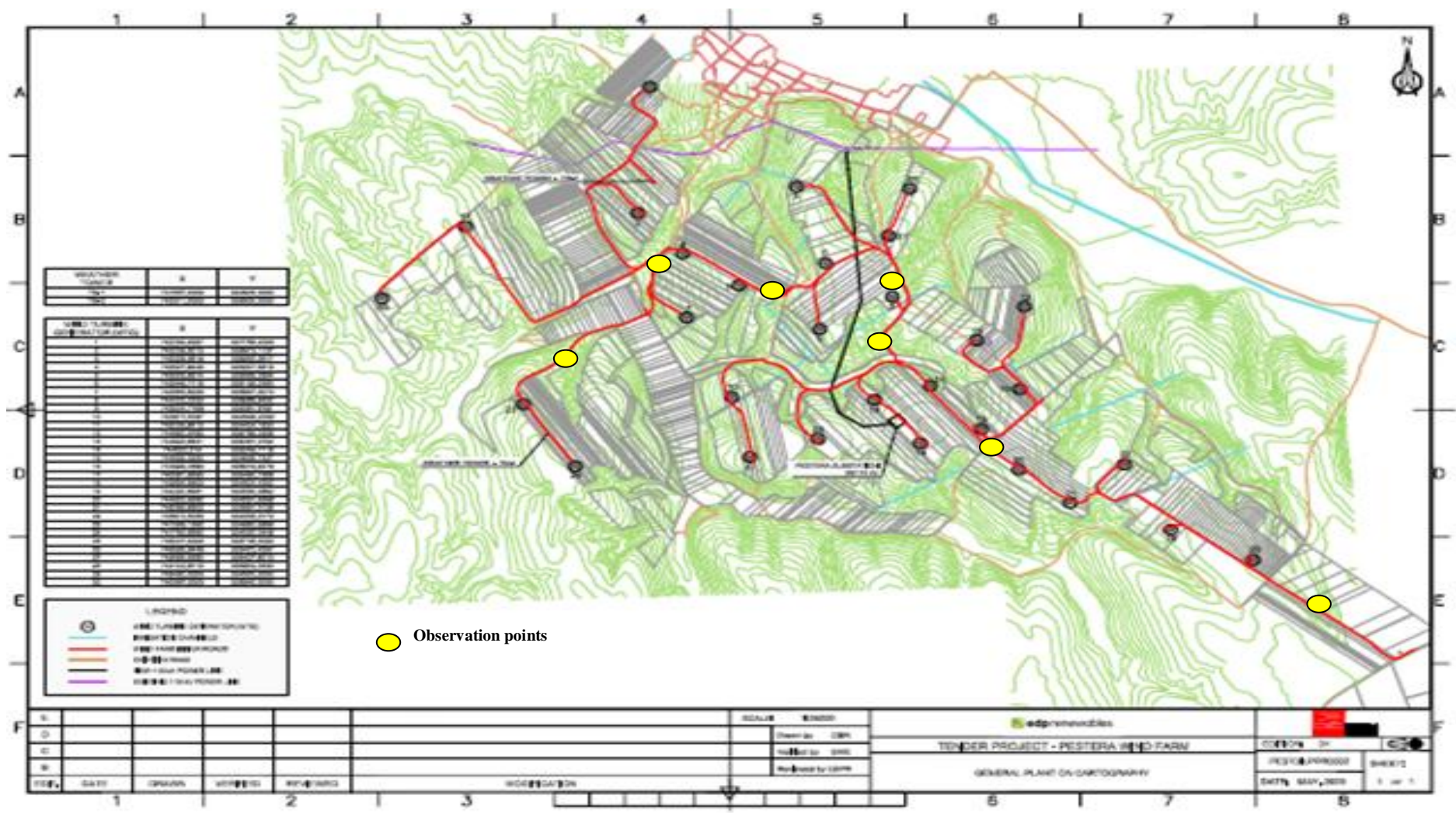


Figure no. 1. Establishing the avifauna observation points within the wind farm

2.3. Results of the monitoring programme

2.3.1. Observations regarding avifauna

The monitoring of wind farm avifauna included the period November 2010 – October 2011, in the observations, respectively in the monitoring sheets, the following being included: Date, place of observation, species observed, number of specimens, observation periods etc.

The area of Peștera Wind Farm, Constanța County is made of agricultural land with monoculture crops, especially grains, and also sunflower, rape etc. with small inserted areas of steppe vegetation, in the south-western area of the wind farm, an acacia plantation existing also.

In the area of the agricultural crops (wide area monocultures), common species have been identified in agro-ecosystems or ubiquitous, such as:

Perdix perdix – grey partridge
Coturnix coturnix – common quail
Merops apiaster – European bee-eater
Coracias garrulus – blue roller
Upupa epops – hoopoe
Melanocorypha calandra – Calandra lark
Galerida cristata – crested lark
Alauda arvensis – Eurasian skylark
Anthus campestris – tawny pipit
Pica pica – black-billed magpie
Corvus frugilegus – Eurasian rook
Corvus corone cornix – hooded crow
Sturnis vulgaris – European starling
Passer montanus – Eurasian tree sparrow
Carduelis carduelis – European goldfinch
Miliaria calandra – corn bunting



Photo 1: *Miliaria calandra* (corn bunting)

The open territories on which the steppe vegetation develops are populated with bird species which are specific to the steppe area:

Coturnix coturnix – common quail
Perdix perdix – grey partridge
Melanocorypha calandra – Calandra lark
Alauda arvensis – Eurasian skylark
Anthus campestris – tawny pipit
Miliaria calandra – corn bunting



Photo 2: *Coturnix coturnix* (common quail)

Among the other avifauna species identified in the area of forest sectors (forest plantations) of the wind farm, we list the following:

Oriolus oriolus – golden oriole
Emberiza hortulana – ortolan bunting
Dendrocopos medius – middle spotted woodpecker
Accipiter nisus – European sparrowhawk
Luscinia megarhynchos – European nightingale
Streptopelia turtur – turtle dove
Fringilla coelebs – common chaffinch
Turdus merula – Eurasian blackbird
Erithacus rubecula – European robin
Phylloscopus collybita – chiffchaff
Phylloscopus trochilus – willow warbler
Garrulus glandarius – Eurasian jay
Muscicapa striata – spotted flycatcher
Carduelis carduelis – European goldfinch

The area of the wind farm is also transited by species of anthropophilic birds in search of food, from the adjacent localities (Peștera, Ivrinezu), among which we specify the following:

Streptopelia decaocto – Eurasian collared dove

Galerida cristata – crested lark

Hirundo rustica – barn swallow

Motacilla alba – white wagtail

Corvus monedula – Eurasian jackdaw

Passer domesticus – house sparrow

Sturnis vulgaris – European starling

Columba livia domestica – domestic pigeon



Photo 3: *Galerida cristata* – crested lark

For the diurnal birds of prey, the area of the wind farm represents an auspicious hunting ground. The food includes locusts, dragonflies, lizards and common voles which represent important food sources for this group of birds. The species of birds of prey, which were more frequently identified in the area during the monitoring period, are: *Buteo buteo* (common buzzard) and *Falco tinnunculus* (Eurasian kestrel). With a lower frequency and in very small numbers, especially during migration period, the following have been identified: *Circus cyaneus* (Northern harrier), *Buteo rufinus* (long-legged buzzard), *Hieraaetus pennatus* (booted eagle).

Other bird species with a high degree of adaptability, such as gulls (for example, yellow-legged gull (*Larus cachinnans*), Eurasian rook (*Corvus frugilegus*), have been seen flying over the study area. During the period of agricultural works, they follow the tractors that plough or the combines, trying to catch the animals driven away by these machines.

As regards migration, the main migration corridor in Dobrogea is located on the Black Sea shore and along the coastline lakes (sarmatic and pontic routes - Ciochia, V. 1984). Thus, the area of the wind farm is located outside this migration path and the sea birds prefer the humid area on the seashore, weak chances existing that they will cross the plateau within the area of the wind farm.

Within the programme for monitoring the avifauna of Peștera Wind Farm, Constanța County (November 2010 – October 2011), 57 bird species have been observed (Tables no. 2, 3 and 4).

From a phenological point of view, the observed bird species have been grouped as follows (Figure no. 2):

- Sedentary birds: 16 species
- Partially migratory birds: 10 species
- Summer resident birds: 26 species
- Winter resident birds: 3 species
- Birds of passage: 2 species

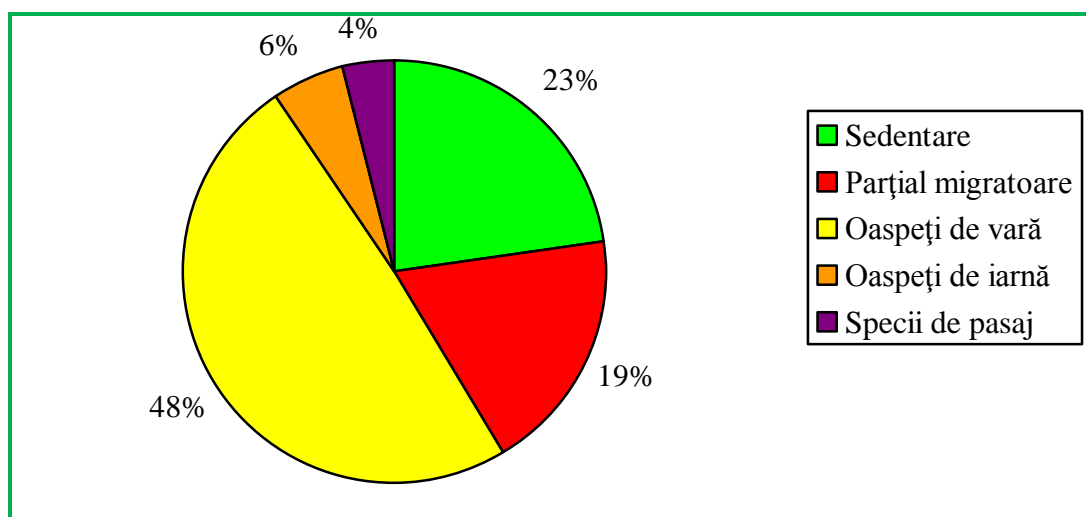


Figure no. 2: Phenological classification of the bird species identified in the site area

Table no. 2: List of the birds species which were seen in the area of Peștera Wind Farm, Constanța County in the period November 2010 – October 2011

No.	Scientific name	Common name	Family	Order	F type	E type	R type	Abd.	Annex 3 of GEO 57/2007	Annex 4B of GEO 57/2007	IUCN* category
1.	<i>Ciconia ciconia</i>	European white stork	Ciconiidae	Ciconiiformes	OV	Acv	N	SR			L.C.
2.	<i>Accipiter nisus</i>	European sparrowhawk	Accipitridae	Falconiformes	S, OI	Ter	N	SR			L.C.
3.	<i>Circus cyaneus</i>	Northern harrier	Accipitridae	Falconiformes	OI	Ter	N	SFR			L.C.
4.	<i>Hieraaetus pennatus</i>	Booted eagle	Accipitridae	Falconiformes	OV	Ter	N	SFR			L.C.
5.	<i>Buteo buteo</i>	Common buzzard	Accipitridae	Falconiformes	MP	Ter	C	SC			L.C.
6.	<i>Buteo rufinus</i>	Long-legged buzzard	Accipitridae	Falconiformes	P, OV	Ter	N	SR			L.C.
7.	<i>Falco tinnunculus</i>	Eurasian kestrel	Falconidae	Falconiformes	MP	Ter	C	SC			L.C.
8.	<i>Perdix perdix</i>	Grey partridge	Phasianidae	Galliformes	S	Ter	C	SC			L.C.
9.	<i>Phasianus colchicus</i>	Ring-necked pheasant	Phasianidae	Galliformes	S	Ter	C	SC			L.C.
10.	<i>Coturnix coturnix</i>	Common quail	Fasianidae	Galiiformes	OV	Ter	C	SC			L.C.
11.	<i>Larus ridibundus</i>	Common black-headed gull	Laridae	Charadriiformes	MP	Acv	N	SN			L.C.

12.	<i>Larus cachinnans</i>	Yellow-legged gull	Laridae	Charadriiformes	S	Acv	N	SR			L.C.
13.	<i>Columba livia domestica</i>	Domestic pigeon	Columbidae	Columbiformes	S	Ter	N	SC			There are no data
14.	<i>Streptopelia decaocto</i>	Eurasian collared dove	Columbidae	Columbiformes	S	Ter	N	SR			L.C.
15.	<i>Merops apiaster</i>	European bee-eater	Meropidae	Coraciiformes	OV, P	Ter	C	SR			L.C.
16.	<i>Coracias garrulus</i>	Blue roller	Coraciidae	Coraciiformes	OV	Ter	PC	SFR			There are no data
17.	<i>Upupa epops</i>	Hoopoe	Upupidae	Coraciiformes	OV	Ter	N	SR			L.C.
18.	<i>Dendrocopos medius</i>	Middle spotted woodpecker	Picidae	Piciformes	S	Ter	N	SR			L.C.
19.	<i>Melanocorypha calandra</i>	Calandra lark	Alaudidae	Passeriformes	MP	Ter	C	SC			L.C.
20.	<i>Galerida cristata</i>	Crested lark	Alaudidae	Passeriformes	S	Ter	N	SC			L.C.
21.	<i>Alauda arvensis</i>	Eurasian sky lark	Alaudidae	Passeriformes	MP	Ter	C	SC			L.C.
22.	<i>Lullula arborea</i>	Wood lark	Alaudidae	Passeriformes	OV	Ter	N	SR			L.C.
23.	<i>Hirundo rustica</i>	Barn swallow	Hirundinidae	Passeriformes	OV	Ter	N	SC			L.C.
24.	<i>Anthus campestris</i>	Tawny pipit	Motacillidae	Passeriformes	OV	Ter	C	SR			L.C.
25.	<i>Motacilla flava feldegg</i>	Black-headed wagtail	Motacillidae	Passeriformes	OV	Ter	PC	SR			There are no data

26.	<i>Motacilla alba</i>	White wagtail	Motacillidae	Passeriformes	OV	Ter	N	SC			L.C.
27.	<i>Parus major</i>	Great tit	Paridae	Passeriformes	S	Ter	PC	SR			L.C.
28.	<i>Lanius collurio</i>	Red-backed shrike	Laniidae	Passeriformes	OV	Ter	C	SR			L.C.
29.	<i>Pica pica</i>	Black-billed magpie	Corvidae	Passeriformes	S	Ter	C	SN			L.C.
30.	<i>Corvus monedula</i>	Eurasian jackdaw	Corvidae	Passeriformes	S	Ter	N	SN			L.C.
31.	<i>Corvus frugilegus</i>	Eurasian rook	Corvidae	Passeriformes	S	Ter	N	SN			L.C.
32.	<i>Corvus corone cornix</i>	Hooded crow	Corvidae	Passeriformes	S	Ter	C	SC			L.C.
33.	<i>Sylvia communis</i>	Whitethroat	Sylviidae	Passeriformes	OV	Ter	C	SC			L.C.
34.	<i>Sylvia atricapilla</i>	Blackcap	Sylviidae	Passeriformes	OV	Ter	C	SC			L.C.
35.	<i>Phylloscopus collybita</i>	Chiffchaff	Turdidae	Passeriformes	OV	Ter	C	SC			L.C.
36.	<i>Phylloscopus sibilatrix</i>	Wood warbler	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
37.	<i>Phylloscopus trochillus</i>	Willow warbler	Turdidae	Passeriformes	OV	Ter	C	SR			-
38.	<i>Muscicapa striata</i>	Spotted flycatcher	Muscicapidae	Passeriformes	OV	Ter	C	SR			L.C.

39.	<i>Oenanthe oenanthe</i>	Northern wheatear	Turdidae	Passeriformes	OV	Ter	C	SC			L.C.
40.	<i>Saxicola rubetra</i>	European whinchat	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
41.	<i>Erithacus rubecula</i>	European robin	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
42.	<i>Luscinia megarhynchos</i>	European nightingale	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
43.	<i>Turdus philomelos</i>	Song thrush	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
44.	<i>Turdus merula</i>	Eurasian blackbird	Turdidae	Passeriformes	OV	Ter	C	SR			L.C.
45.	<i>Turdus pilaris</i>	Fieldfare	Turdidae	Passeriformes	MP, OI	Ter	C	SR			-
46.	<i>Oriolus oriolus</i>	Golden oriole	Oriolidae	Passeriformes	OV	Ter	C	SR			L.C.
47.	<i>Sturnus vulgaris</i>	European starling	Sturnidae	Passeriformes	MP	Ter	PC	SC			L.C.
48.	<i>Passer domesticus</i>	House sparrow	Passeridae	Passeriformes	S	Ter	C	SN			L.C.
49.	<i>Passer montanus</i>	Eurasian tree sparrow	Passeridae	Passeriformes	S	Ter	C	SN			L.C.
50.	<i>Fringilla coelebs</i>	Common chaffinch	Fringillidae	Passeriformes	MP	Ter	PC	SC			L.C.
51.	<i>Carduelis spinus</i>	Eurasian siskin	Fringillidae	Passeriformes	MP	Ter	PC	SC			L.C.
52.	<i>Carduelis carduelis</i>	European goldfinch	Fringillidae	Passeriformes	S	Ter	N	SC			L.C.

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53.	<i>Carduelis cannabina</i>	Eurasian linnet	Fringillidae	Passeriformes	MP	Ter	PC	SR			L.C.
54.	<i>Emberiza citrinella</i>	Yellowhammer	Emberizidae	Passeriformes	S	Ter	C	SC			L.C.
55.	<i>Emberiza hortulana</i>	Ortolan bunting	Emberizidae	Passeriformes	OV	Ter	C	SR			L.C.
56.	<i>Emberiza melanocephala</i>	Blackcap	Emberizidae	Passeriformes	OV	Ter	C	SR			L.C.
57.	<i>Miliaria calandra</i>	Corn bunting	Emberizidae	Passeriformes	MP	Ter	C	SR			L.C.

Legend: F type – phenological type (S – sedentary birds; MP – partially migratory birds; OV – summer resident birds; OVP – summer resident birds of passage; OIP – winter resident birds and/or birds of passage; E type – ecological type (Acv – sea birds; Ter – terrestrial birds); R type – reproduction type (C – nesting; N – non-nesting; PC – potential nesting); Abd. - abundance (SN – numerous species; SC - common species; SR - rare species; SFR - very rare species).

*Note: According to the international abbreviations used by IUCN - LC (LEAST CONCERN) = the least vulnerable species

Table no. 3: Monitoring the avifauna of Peștera Wind Farm, Constanța County during winter (November 2010 – February 2011)

No.	Scientific name	Common name	Number of specimens				Phenology	Ecology	Remarks
			November	December	January	February			
1.	<i>Accipiter nisus</i>	European sparrowhawk	2	0	2	0	S, OI	terrestrial bird	singular specimens/flying
2.	<i>Circus cyaneus</i>	Northern harrier	0	1	1	0	OI	terrestrial bird	singular specimens/flying
3.	<i>Buteo buteo</i>	Common buzzard	2	0	0	2	MP	terrestrial bird	singular specimens/flying
4.	<i>Falco tinnunculus</i>	Eurasian kestrel	7	0	0	2	MP	terrestrial bird	singular specimens, groups of birds/flying
5.	<i>Perdix perdix</i>	Grey partridge	8	5	6	0	S	terrestrial bird	singular specimens/flying
6.	<i>Phasianus colchicus</i>	Ring-necked pheasant	3	1	1	0	S	terrestrial bird	singular specimens/flying
7.	<i>Larus ridibundus</i>	Common black-headed gull	10	4	6	8	MP	terrestrial bird	singular specimens
8.	<i>Larus cachinnans</i>	Yellow-legged gull	22	12	15	18	S	sea bird	singular specimens/groups of birds flying
9.	<i>Columba livia domestica</i>	Domestic pigeon	12	8	17	14	S	terrestrial bird	singular specimens/flying
10.	<i>Streptopelia decaocto</i>	Eurasian collared dove	10	6	9	0	S	terrestrial bird	groups of birds flying
12.	<i>Galerida cristata</i>	Crested lark	14	7	10	8	S	terrestrial bird	singular specimens/flying
13.	<i>Parus major</i>	Great tit	4	2	6	3	S	terrestrial bird	singular specimens/flying
14.	<i>Pica pica</i>	Black-billed	8	4	6	3	S	terrestrial	singular specimens

		magpie						bird	flying/lying on the ground
15.	<i>Corvus monedula</i>	Eurasian jackdaw	4	2	5	3	S	terrestrial bird	singular specimens flying/lying on the ground
16.	<i>Corvus frugilegus</i>	Eurasian rook	23	31	25	16	S	terrestrial bird	singular specimens, groups of birds/flying/on the ground
17.	<i>Corvus corone cornix</i>	Hooded crow	10	8	4	7	S	terrestrial bird	singular specimens flying/lying on the ground
18.	<i>Sturnus vulgaris</i>	European starling	14	10	16	19	MP	terrestrial bird	singular specimens, groups of birds/flying/on the ground
19.	<i>Passer domesticus</i>	House sparrow	22	10	14	8	S	terrestrial bird	singular specimens, groups of birds/flying/on the vegetation within the area
20.	<i>Passer montanus</i>	Eurasian tree sparrow	15	12	16	14	S	terrestrial bird	singular specimens, groups of birds/flying/
21.	<i>Fringilla coelebs</i>	Common chaffinch	4	7	2	4	MP	terrestrial bird	singular specimens/flying
22.	<i>Carduelis spinus</i>	Eurasian siskin	0	8	0	7	MP, OI	terrestrial bird	singular specimens/on the vegetation within the area
23.	<i>Carduelis carduelis</i>	European goldfinch	0	6	0	4	S	terrestrial bird	singular specimens/flying
24.	<i>Carduelis cannabina</i>	Eurasian linnet	3	5	4	2	MP	terrestrial bird	singular specimens/on the vegetation within the area
25.	<i>Emberiza citrinella</i>	Yellowhammer	8	6	7	5	S	terrestrial bird	singular specimens flying/on the

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									vegetation within the area
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Abbreviations: MP – partially migratory birds; S – sedentary birds; OI – winter resident birds.

Table no. 3: Data regarding the monitoring of avifauna in Peștera Wind Farm, Constanța County, in the spring-autumn 2011 period

No.	Scientific name	Common name	Number of specimens								Phenology	Ecology	Remarks
			March	April	May	June	July	August	September	October			
1.	<i>Ciconia ciconia</i>	European white stork	-	27	-	-	20	-	-	-	OV	terrestrial bird	groups of birds flying
2.	<i>Accipiter nisus</i>	European sparrowhawk	-	3	-	-	-	-	3	-	S, OI	terrestrial bird	singular specimens /flying
3.	<i>Circus cyaneus</i>	Northern harrier	-	1	-	-	-	-	-	-	OI	terrestrial bird	singular specimens/flying
4.	<i>Hieraaetus pennatus</i>	Booted eagle	-	2	-	-	-	2	-	-	OV	terrestrial bird	singular specimens/flying
5.	<i>Buteo buteo</i>	Common buzzard	3	4	2	3	2	-	4	2	MP	terrestrial bird	singular specimens, groups of birds /flying
6.	<i>Buteo rufinus</i>	Long-legged buzzard	-	2	-	-	-	-	2	-	P, OV	terrestrial bird	singular specimens, groups of birds /flying
7.	<i>Falco tinnunculus</i>	Eurasian kestrel	-	2	3	2	2	-	2	-	MP	terrestrial bird	singular specimens, groups of birds /flying
8.	<i>Perdix perdix</i>	Grey partridge	-	-	-	-	-	-	25	-	S	terrestrial bird	singular specimens/flying
9.	<i>Phasianus colchicus</i>	Ring-necked pheasant	-	3	-	-	-	-	-	-	S	terrestrial bird	singular specimens/flying

10.	<i>Coturnix coturnix</i>	Common quail	-	8	6	-	-	-	-	-	OV	terrestrial bird	singular specimens
11.	<i>Larus ridibundus</i>	Common black-headed gull	56	25	48	-	-	-	-	-	MP	terrestrial bird	singular specimens
12.	<i>Larus cachinnans</i>	Yellow-legged gull	24	16	12	-	-	-	-	-	S	sea bird	singular specimens/groups of birds flying
13.	<i>Columba livia domestica</i>	Domestic pigeon	-	26	18	-	-	-	-	-	S	terrestrial bird	singular specimens/flying
14.	<i>Streptopelia decaocto</i>	Eurasian collared dove	-	17	24	-	-	-	-	-	S	terrestrial bird	groups of birds flying
15.	<i>Merops apiaster</i>	European bee-eater	-	10	8	-	9	-	-	-	OV, P	terrestrial bird	groups of birds flying
16.	<i>Coracias garrulus</i>	Blue roller	-	-	8	-	6	-	-	-	OV	terrestrial bird	singular specimens/flying
17.	<i>Upupa epops</i>	Hoopoe	-	6	4	-	-	-	-	-	OV	terrestrial bird	singular specimens/flying
18.	<i>Dendrocopos medius</i>	Middle spotted woodpecker	-	-	-	-	2	-	-	-	S	terrestrial bird	singular specimens
19.	<i>Melanocorypha calandra</i>	Calandra lark	-	10	14	-	-	-	-	-	MP	terrestrial bird	singular specimens/flying
20.	<i>Galerida cristata</i>	Crested lark	16	11	-	-	10	-	-	-	S	terrestrial bird	singular specimens/flying
21.	<i>Alauda arvensis</i>	Eurasian sky lark	24	15	12	10	18	14	16	12	MP	terrestrial bird	singular specimens flying/on the ground
22.	<i>Lullula arborea</i>	Wood lark	-	-	4	4	-	-	-	-	OV	terrestrial bird	singular specimens/flying
23.	<i>Hirundo rustica</i>	Barn swallow	-	16	20	14	8	10	12	-	OV	terrestrial bird	groups of birds flying

24.	<i>Anthus campestris</i>	Tawny pipit	-	4	4	-	2	-	-	-	OV	terrestrial bird	singular specimens/on the ground
25.	<i>Motacilla flava feldegg</i>	Black-headed wagtail	-	-	7	-	-	-	-	-	OV	terrestrial bird	singular specimens/flying/on the vegetation within the area
26.	<i>Motacilla alba</i>	White wagtail	-	24	8	12	20	8	6	6	OV	terrestrial bird	singular specimens flying/lying on the ground
27.	<i>Parus major</i>	Great tit	5	4	-	-	-	-	-	-	S	terrestrial bird	singular specimens/flying
28.	<i>Lanius collurio</i>	Red-backed shrike	-	-	6	-	4	-	4	-	OV	terrestrial bird	singular specimens flying/on the vegetation within the area
29.	<i>Pica pica</i>	Black-billed magpie	5	4	4	6	5	3	3	2	S	terrestrial bird	singular specimens flying/lying on the ground
30.	<i>Corvus monedula</i>	Eurasian jackdaw	-	14	-	-	-	-	-	-	S	terrestrial bird	singular specimens flying/lying on the ground
31.	<i>Corvus frugilegus</i>	Eurasian rook	24	26	12	46	42	22	43	27	S	terrestrial bird	singular specimens, groups of birds/flying/on the ground
32.	<i>Corvus corone cornix</i>	Hooded crow	9	8	12	14	6	10	8	4	S	terrestrial bird	singular specimens flying/lying on the ground
33.	<i>Sylvia communis</i>	Whitethroat	-	3	2	-	-	-	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
34.	<i>Sylvia</i>	Blackcap	-	-	-	3	-	-	-	-	OV	terrestrial	singular specimens/on

	<i>atricapilla</i>											bird	the vegetation within the area
35.	<i>Phylloscopus collybita</i>	Chiffchaff	-	-	-	6	4	4	2	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
36.	<i>Phylloscopus trochillus</i>	Willow warbler	-	4	2	-	-	-	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
37.	<i>Phylloscopus sibilatrix</i>	Wood warbler	-	-	-	4	2	2	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
38.	<i>Muscicapa striata</i>	Spotted flycatcher	-	-	-	-	6	4	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
39.	<i>Oenanthe oenanthe</i>	Northern wheatear	-	-	8	6	6	4	-	-	OV	terrestrial bird	singular specimens
40.	<i>Saxicola rubetra</i>	European whinchat	-	-	-	-	4	2	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
41.	<i>Erithacus rubecula</i>	European robin	-	-	-	-	3	-	-		OV	terrestrial bird	singular specimens
42.	<i>Luscinia megarhynchos</i>	European nightingale	-	-	-	2	2	-	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
43.	<i>Turdus philomelos</i>	Song thrush	-	-	-	4	2	2	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
44.	<i>Turdus merula</i>	Eurasian blackbird	-	-	-	4	2	3	-	-	OV	terrestrial bird	singular specimens/on the vegetation within

													the area
45.	<i>Turdus pilaris</i>	Fieldfare	-	-	14	18	10	12	-	-	OV	terrestrial bird	singular specimens /flying
46.	<i>Oriolus oriolus</i>	Golden oriole	-	7	3	2	2	2	-	-	OV	terrestrial bird	singular specimens/on the vegetation within the area
47.	<i>Sturnus vulgaris</i>	European starling	-	15.	18	36	44	18	28	12	MP	terrestrial bird	singular specimens, groups of birds/flying/on the ground
48.	<i>Passer domesticus</i>	House sparrow	12	24	22	18	34	26	14	10	S	terrestrial bird	singular specimens, groups of birds/flying/on the vegetation within the area
49.	<i>Passer montanus</i>	Eurasian tree sparrow	18	16	33	28	24	44	16	8	S	terrestrial bird	singular specimens, groups of birds/flying/
50.	<i>Fringilla coelebs</i>	Common chaffinch	28	38	24	-	-	-	-	-	MP	terrestrial bird	singular specimens/flying
51.	<i>Carduelis spinus</i>	Eurasian siskin	-	-	-	-	-	-	-	14	MP, OI	terrestrial bird	singular specimens/on the vegetation within the area
52.	<i>Carduelis carduelis</i>	European goldfinch	4	8	6	-	-	-	-	-	S	terrestrial bird	singular specimens/flying
53.	<i>Carduelis cannabina</i>	Eurasian linnet	-	4	3	-	-	-	-	-	MP	terrestrial bird	singular specimens/on the vegetation within the area
54.	<i>Emberiza citrinella</i>	Yellowhammer	-	10	8	-	6	6	4	4	S	terrestrial bird	singular specimens flying/on the vegetation within the area

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55.	<i>Emberiza hortulana</i>	Ortolan bunting	-	-	-	-	10	8	-	-	OV	terrestrial bird	singular specimens flying/on the vegetation within the area
56.	<i>Emberiza melanocephala</i>	Blackcap	-	-	-	4	2	4	-	-	OV	terrestrial bird	singular specimens flying/on the vegetation within the area
57.	<i>Miliaria calandra</i>	Corn bunting	-	10	12	8	-	-	-	-	MP	terrestrial bird	singular specimens flying/on the vegetation within the area

Abbreviations: OV – summer resident species; MP – partially migratory birds; S – sedentary birds; OI – winter resident birds, P – birds of passage.

From Annex I, Birds Directive, 13 species have been observed (see Table 2: *Ciconia ciconia*, *Circus cyaneus*, *Buteo rufinus*, *Hieraaetus pennatus*, *Coracias garrulus*, *Dendrocopos medius*, *Anthus campestris*, *Melanocorypha calandra*, *Lanius collurio*, *Lullula arborea*, *Emberiza hortulana*, *Emberiza melanocephala*). In most cases, the presence of these species is accidental and does not represent a constant of the avifauna on site. The other species are included in Annex II of the Birds Directive, or in Annexes II, III of Bern and Bonn Conventions, the others not being included in protection lists.

Ciconia ciconia (Ciconiidae family) – European white stork

European status: Vulnerable species. SPEC category: 2. Included in Birds Directive, Annex I; Bern Convention, Annex II; Bonn Convention, Annex II.

Summer resident species. It does not nest in the area of the wind farm, but it nests in the adjacent localities. It has been seen flying over the site in numbers of tens of specimens. Flight directions cannot be specified, but the tendency is on north-south direction; it is considered a rare species (SR) for the wind farm.

Accipiter nisus (Accipitridae family) – European sparrowhawk

In Europe, it is a stable species, being included in NonSPEC category. It is not included in Birds Directive, but it is present in Annex II of Bonn Convention and Annex II of Bern Convention.

Winter resident species. It was seen flying in the south-western part of the wind farm, near the forest sector. It is a rare species (SR) for the wind farm.

Circus cyaneus (Accipitridae family) – Northern harrier

European status: Species with reduced number of specimens. SPEC category: 3 (species which are not concentrated in Europe and which have an unfavourable status). Included in Annex I of Birds Directive; Annex II of Bern Convention and Annex II of Bonn Convention.

Winter resident birds of passage. It prefers forested places and open spaces. On site, the species was seen flying, in the north-eastern part of the wind farm, at relatively large distance. It is a rare species (SR) for the wind farm.

Hieraaetus pennatus (Accipitridae family) – booted eagle

European status: Species with reduced number of specimens. SPEC category: 3. Included in Annex I of Birds Directive; Annex II of Bern Convention and Annex II of Bonn Convention.

Summer resident species. It is seen in forests with deciduous trees, glades and clearings, usually in lower mountain regions, but also in plains. On site, the species was seen flying, in the south-eastern part of the wind farm, at relatively large distance. It is a rare species (SFR) for the wind farm.

Buteo buteo (Accipitridae family) – common buzzard

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II; Bonn Convention, Annex II.

Partially migratory species. Probably it nests in the forest in the south-western part of the wind farm. The species was seen flying at a high enough height. It is considered a very rare species (SR) for the site area.

Buteo rufinus (Accipitridae family) – long-legged buzzard

European status: Species with reduced number of specimens. SPEC category: 3 (species which are not concentrated in Europe and which have an unfavourable status). Included in Annex I of Birds Directive; Annex II of Bern Convention and Annex II of Bonn Convention.

Bird of passage and summer resident. It does not nest in the area of the wind farm. The species was identified only flying, during migration. It is considered a rare species (SR) for the site.

Falco tinnunculus (Falconidae family) – Eurasian kestrel

European status: Declining species. SPEC category: 3. Included in Bern Convention, Annex II; Bonn Convention, Annex II.

Partially migratory species. Probably it nests in the forest in the south-western part of the wind farm. The species was seen only flying, in reduced numbers and it is considered a rare species (SR) for the site

Larus ridibundus (Laridae family) – common black-headed gull

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Partially migratory species. It does not nest in the wind farm. On site, it was seen flying at variable heights and on the ground. Flight direction - east-west; it is considered a rare species (SR) for the site area.

Larus cachinnans (Laridae family) – yellow-legged gull

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It does not nest in the wind farm. On site, it was seen flying at variable heights and on the ground. Flight direction - east-west; it is considered a rare species (SR) for the site area.

Streptopelia decaocto (Columbidae family) – Eurasian collared dove

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It does not nest in the area, but it nests in the adjacent localities (Peștera). It was seen flying in the area of the wind farm in search of food. It is considered a common species (SC) for the wind farm.

Merops apiaster (Meropidae family) – European bee-eater

European status: Declining species. SPEC category: 3. Included in Bern Convention, Annex II; Bonn Convention, Annex II.

Summer resident species. It nests in the area adjacent to the wind farm (old loess exploitation at the edge of Peștera locality). It was seen flying, at variable heights. It is a rare species (SR) for the site.



Photo. 4: Location of nests of *Merops apiaster*, *Coracias garrulus*, *Sturnus vulgaris*, *Passer domesticus*, *Passer montanus* (old loess exploitation in the northeastern part of Peștera locality, outside the wind farm)

Coracias garrulus (Coraciidae family) – blue roller

European status: Vulnerable species. SPEC category: 2. Included in Birds Directive, Annex 1; Bern Convention, Annex II; Bonn Convention, Annex II.

Summer resident species. Identified nesting, outside the wind farm, in the south-eastern part (quarry adjacent to Peștera locality) Singular specimens were identified flying. It is a very rare species (SFR) for the site.

Upupa epops (Upupidae family) - hoopoe

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II.

Summer resident species. It does not nest in the area of the wind farm, but it nests in the adjacent localities (Peștera). In the area, it is seen accidentally, especially at the edge of the wind farm, at the boundary with Peștera locality. It was seen flying in search of food. It is a rare species (SR) for the site area.

Melanocorypha calandra (Alaudidae family) – Calandra lark

European status: Declining species. SPEC category: 3. Included in Birds Directive, Annex 1; Bern Convention, Annex II.

Sedentary species. It nests in the area of the wind farm in agricultural lands. It was seen flying as isolated specimens and groups of birds. It is considered a rare species (SR) for the site.

Galerida cristata (Alaudidae family) – crested lark

European status: Declining species. SPEC category: 3. Included in Bern Convention, Annex III.

Sedentary species. It does not nest in the area of the wind farm. It was seen flying, and on the ground at the edge of the access roads to the wind farm, in small numbers. It is considered a rare species (SR) for the site.

Alauda arvensis (Alaudidae family) – Eurasian sky lark

European status: Vulnerable species. SPEC category: 3. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Partially migratory species. It nests in the area of the wind farm in agricultural lands. It was seen both flying and on the ground. It is a common species (SC) for the site.

Lullula arborea (Alaudidae family) – wood lark It is included in Birds Directive, Annex II-2 and Annex III Bern Convention. In Europe, it is considered a species the numbers of which are constantly reduced, being included in SPEC 3 category (species not concentrated in Europe and with an unfavourable conservation status).

Summer resident species. Commune for the plain and hilly areas within the entire country, at the edge of forests. It does not nest in the study area. It is a rare species (SR) for the site.

Perdix perdix (Fasianidae family) – grey partridge. It is included in Birds Directive Annex II-1 and Annex III-1, and in Annex III of Bern Convention. In Europe, it is a vulnerable species, being included in SPEC 3 category (species not concentrated in Europe and with an unfavourable conservation status).

Sedentary species. It is the most common and spread partridge among the European partridge. It prefers plains and hilly areas, in general open areas with grassy vegetation or agricultural crops where it nests.

Probably, the partridge nests in the study area. It is a common species (SC) for the site.

Coturnix coturnix (Fasianidae family) – common quail

European status: Vulnerable species. SPEC category: 3. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III; Bonn Convention, Annex II.

Summer resident species. It nests in large numbers in the wind farm, in areas with crops. It is considered a common species (SC) for the wind farm.

Phasianus colchicus (Fasianidae family) – ring-necked pheasant. It is included in Birds Directive Annex II-1 and Annex III-1, and in Annex III of Bern Convention. In Europe, it is a stable species, being included in NonSPEC category.

Sedentary species. With its origins in Asia, was colonized in Europe. Common species in forested and open places, agricultural lands, groves, lawns. Pheasant nests in the study area. It is a common species (SC) for the site.



Photo 5: Grain crops. Altricial habitat for *Alauda arvensis* and *Coturnix coturnix*

Streptopelia decaocto (Columbidae family) – Eurasian collared dove. The species is included in Annex II-2 of Birds Directive, and Annex III of Bern Convention. In Europe, it is a stable species, being included in NonSPEC category.

Sedentary species. Its origins are in Near East. Its habitat extended after 1930 when it gradually conquered new territories in Europe eliminating the turtle dove, the area of which was reduced. It nests, usually in localities, cities and villages, in trees. The Eurasian collared dove does not nest in the study area. It is a common species (SC) for the site.

Hirundo rustica (Hirundinidae family) – barn swallow

European status: Declining species. SPEC category: 3. Included in Bern Convention, Annex III.

Summer resident species. It does not nest in the area of the wind farm, but it nests in the adjacent localities (Peștera). In the area, it is seen mainly in search of food. It was not seen in large flocks (3-5 specimens). It is considered a common species (SC) for the site.

Anthus campestris (Motacillidae family) – tawny pipit

European status: Declining species. SPEC category: 3. Included in Birds Directive, Annex 1; Bern Convention, Annex II.

Summer resident species. It nests in the area of the wind farm, in lands with low vegetation. It was seen flying, as singular specimens. It is considered a rare species (SR) for the site.

Motacilla flava feldegg (Motacilide family) – black-headed wagtail

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II.

Summer resident species. It nests in the area of the wind farm. It was seen mainly in the area of the access roads with abundant vegetation. It is considered a rare species (SR) for the site.

Motacilla alba (Motacilide family) – white wagtail

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II.

Summer resident species. It does not nest in the area of the wind farm. It was seen flying and on the ground, in small numbers (isolated specimens and groups of birds). It is considered a very rare species (SR) for the site.

Erithacus rubecula (Turdidae family) – European robin. It is not included in Birds Directive. It is included in Annex II of Bern Convention and in Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Summer resident species. Common bird in gardens, parks, orchards, thick forests, bushes, underbrush. It nests in the study area. It is considered a rare species (SR) for the site.

Luscinia megarhynchos (Turdidae family) – European nightingale. It is not included in Birds Directive. It is included in Annex II of Bern Convention and in Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Summer resident species. Common bird for all the low, plain regions of the countries, but also for hilly regions. It prefers thickets, bushes, underbrush, the edge of forests, parks, gardens. It nests in the study area. It is a rare species (SR) for the site.

Turdus merula (Turdidae family) – Eurasian blackbird. It is included in Birds Directive, Annex II-2 and in Annex III of Bern Convention and Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Partially migratory species. Common bird in gardens, parks, orchards, forests, open areas. It potentially nests in the study area. It is a rare species (SR) for the site.

Turdus pilaris (Turdidae family) – fieldfare. It is included in Birds Directive, Annex II-2 and in Annex III of Bern Convention and Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Partially migratory species. The bird is specific to hilly and mountain areas, but it is expanding to the southern areas. It does not nest in the study area. It is a rare species (SR) for the site.

Sylvia communis (Sylviidae family) – whitethroat. It is included in Annex II of Bern Convention and in Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Summer resident species. It prefers habitats with high vegetation, bushes, parks and gardens. It nests in the study area. It is a common species (SC) for the site.

Sylvia atricapilla (Sylviidae family) - blackcap. It is included in Annex II of Bern Convention and in Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category.

Summer resident species. It prefers forests, orchards, parks, gardens, bushes, underbrush. The dominant colour is grey, but it distinguishes itself by its black head.

It nests in the study area. It is a rare species (SR) for the site.

Phylloscopus collybita (Sylviidae family) - chiffchaff. It is included in Annex II of Bern Convention and in Annex II of Bonn Convention. In Europe, it is considered a stable species, being included in NonSPEC category.

Summer resident species. It prefers forests, orchards, parks, gardens, bushes, underbrush. It nests in the study area. It is a common species (SC) for the site.

Parus major (Paridae family) – great tit

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II.

Sedentary species. It does not nest in the site, but it nests in the forest located in the south-western part and in adjacent localities (Peștera). It was seen flying, in small numbers. It is a common species (SC) for the site area.

Oriolus oriolus (Oriolidae family) – golden oriole. It is included in Annex II of Bern Convention. In Europe, it is considered a stable species, being included in NonSPEC category.

Summer resident species. It prefers the forested areas, parks, gardens with big trees, with thick crowns. It nests in the study area. It is a rare species (SR) for the site.

Lanius collurio (Laniidae family) – red-backed shrike. It is included in Annex I of Birds Directive and Annex II of Bern Convention. In Europe, it is considered a species with a reduced number of specimens and is included in SPEC 3 category (species not concentrated in Europe and with an unfavourable conservation status).

Summer resident species. Specific to open spaces, clearings, with many bushes and underbrush, parks, gardens. It may be also seen in trees at the edge of the roads or in trees located on agricultural lands. It nests in the study area. It is a common species (SC) for the site.

Pica pica (Corvidae family) – black-billed magpie

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It nests in the area of the wind farm, where it is seen flying, rarely on the ground, in small numbers of specimens. It is a common species (SC) for the site.

Corvus monedula (Corvidae family) – Eurasian jackdaw

In Europe, it is considered a stable species, being included in NonSPEC-E (species concentrated in Europe and with a favourable conservation status) category. It is included in Annex II-2 of Birds Directive.

Sedentary species. It does not nest in the area of the wind farm, where it is seen flying, rarely on the ground, in small numbers of specimens. It is a common species (SC) for the site.

Corvus frugilegus (Corvidae family) – Eurasian rook

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It does not nest in the area of the wind farm, where it is seen flying and on the ground, in average numbers, especially when feeding. It is a numerous species (SN) for the site.

Corvus corone cornix (Corvidae family) – hooded crow

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It does not nest in the area of the wind farm, where it is seen flying and on the ground, in small numbers. It is a numerous species (SN) for the site.

Sturnus vulgaris (Sturnidae family) – European starling

European status: Stable species. SPEC category: -. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Sedentary species. It does not nest in the area of the wind farm; it was seen flying in average numbers. It is a rare species (SR) for the site.

Passer domesticus (Passeridae family) – house sparrow

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex III.

Sedentary species. It nests in the area of the wind farm, where it is seen flying and on the ground, in average and large numbers. It is a numerous species (SN) for the site.

Passer montanus (Passeridae family) – Eurasian tree sparrow

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex III.

Sedentary species. It nests in the area of the wind farm, where it is seen flying and on the ground, in average and large numbers. It is a numerous species (SN) for the site.

Fringilla coelebs (Fringillidae family) – common chaffinch

European status: Stable species. SPEC category: 4. Included in Birds Directive, Annex 2.2; Bern Convention, Annex III.

Partially migratory species. It nests in the area of the wind farm (forest located in the south-western part of the wind farm), where it is seen flying and on the ground, in low and average numbers. It is considered a rare species (SR) for the site.

Photo 6: View of forested vegetation (acacia plantation)



Photo 7: Forest sector in the south-western part of the wind farm. Altricial habitat for *Turdus merula*, *Fringilla coelebs*, *Dendrocopos medius*, *Luscinia megarhynchos*, *Muscicapa striata*.



Carduelis carduelis (Fringillidae family) – European goldfinch

European status: Stable species. SPEC category: -. Included in Bern Convention, Annex II.

Sedentary species. It nests in the area of the wind farm (forest near the wind farm), where it is seen flying and on the ground, in small numbers. While nesting, it was also seen in Peștera Locality, located adjacent to the wind farm. It is considered a common species (SC) for the site.

Carduelis cannabina (Fringillidae family) – Eurasian linnet

European status: Stable species. SPEC category: 4. Included in Bern Convention, Annex II.

Partially migratory species. It nests in the area of the wind farm, where it is seen flying and on the ground, in average numbers. It is considered a common species (SR) for the site.

Emberiza citrinella (Emberizidae family) - yellowhammer

European status: Stable species. SPEC category: 4. Included in Bern Convention, Annex II.

Sedentary species. It nests in the area of the wind farm, where it is seen flying and on the ground, in average numbers. It is considered a rare species (SC) for the site.

Miliaria calandra (Emberizidae family) – corn bunting

European status: Stable species. SPEC category: 4. Included in Bern Convention, Annex III.

Partially migratory species. It nests in the area of the wind farm, where it is seen flying and on the ground, in average numbers. It is considered a rare species (SR) for the site.

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Among the observed bird species, 19 species are migratory, as shown in Table no. 5.

Table no. 5: Avifauna monitoring in the spring and autumn migration period in the area of Peștera Wind Farm, Constanța County

No.	Scientific name	Common name	Observation period	Number of specimens	Phenology	Remarks
1.	<i>Ciconia ciconia</i>	European white stork	April 2011	27 specimens	OV	groups of birds (36 specimens); flight altitude – 150-200 m; flight direction: S-N, V
2.	<i>Hieraaetus pennatus</i>	Booted eagle	April 2011	1 specimens	OV	singular specimens flying; flight altitude – 70-120 m; flight direction: S-E, N.
3.	<i>Buteo buteo</i>	Common buzzard	October 2010 March, April 2011	2 specimens 7 specimens	MP	singular specimens flying; flight altitude – 120-150 m; flight direction: S-E, N
4.	<i>Buteo rufinus</i>	Long-legged buzzard	April 2011	2 specimens	P, OV	singular specimens flying; flight altitude – 90-150 m; flight direction: S-E, N
6.	<i>Merops apiaster</i>	European bee-eater	April, May 2011	18 specimens	OV, P	singular specimens flying; flight altitude – 150-200 m; flight direction: S-V, N.
8.	<i>Coracias garrulus</i>	Blue roller	2011 – May	8 specimens	OV	singular specimens flying; flight altitude – 50-60 m; flight direction: S-E, N.

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9.	<i>Upupa epops</i>	Hoopoe	April, May	10 specimens	OV	singular specimens, groups of birds flying; flight altitude – 30-40 m; flight direction: S-N-V.
10.	<i>Alauda arvensis</i>	Eurasian sky lark	March, April, May 2011 September, October 2011	51 specimens 28 specimens	MP	singular specimens flying; flight altitude – 40-60 m; flight direction: S-E, N.
11.	<i>Lullula arborea</i>	Wood lark	2011 – May	4 specimens	OV	singular specimens flying; flight altitude – 40-50 m; flight direction: S-V, E.
12.	<i>Hirundo rustica</i>	Barn swallow	April, May 2011 September 2011	36 specimens 12 specimens	OV	group of birds/singular specimens flying (3-5 specimens); flight altitude 35-40 m; flight direction: S-V, E.
13.	<i>Anthus campestris</i>	Tawny pipit	April, May 2011	8 specimens	OV	singular specimens; flight altitude – 25-30 m; flight direction: E, S-E, V.
14.	<i>Motacilla flava feldegg</i>	Black-headed wagtail	May 2011	7 specimens	OV	singular specimens; flight altitude – 30-40 m; flight direction: S-E, N.
15.	<i>Motacilla alba</i>	White wagtail	April, May 2011 September, October 2011	32 specimens 12 specimens	OV	singular specimens; flight altitude – 20-30 m; flight direction: S-V, N.
16.	<i>Lanius collurio</i>	Red-backed shrike	May 2011 September 2011	6 specimens 4 specimens	OV	singular specimens flying; flight altitude – 40-50 m; flight direction: S-V, E.

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17.	<i>Sylvia communis</i>	Whitethroat	April, May 2011	5 specimens	MP	singular specimens flying; flight altitude – 35-40 m; flight direction: S-E, N.
18.	<i>Coturnix coturnix</i>	Common quail	April, May 2011	14 specimens	OV	group of birds/singular specimens; flight altitude – 40-50 m; flight direction: S- N-V
19.	<i>Fringilla coelebs</i>	Common chaffinch	March, April, May 2011	90 specimens	MP	groups of birds/singular specimens (2-3 specimens); flight altitude – 40-50 m; flight direction: S-V, E.

Abbreviations: OV – summer resident species; MP – partially migratory birds; S – sedentary birds; OI – winter resident birds, P – birds of passage.

In the following table, the nesting birds seen in the site area (25 species) are shown

Table no. 6: Avifauna monitoring – nesting species in the area of Peștera Wind Farm, Constanța County

No.	Scientific name	Common name	Phenology	Nesting	Remarks
1.	<i>Buteo buteo</i>	Common buzzard	MP	nests in the forest in south- western part of the wind farm	singular specimens, groups of birds/flying
2.	<i>Falco tinnunculus</i>	Eurasian kestrel	MP	nests in the lands adjacent to the wind farm	singular specimens, groups of birds/flying
	<i>Perdix perdix</i>	Grey partridge	S	terrestrial bird	singular specimens/flying
3.	<i>Phasianus colchicus</i>	Ring-necked pheasant	S	nests in the area of the wind farm	singular specimens/flying

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4.	<i>Coturnix coturnix</i>	Common quail	OV	nests in the area of the wind farm	singular specimens
5.	<i>Merops apiaster</i>	European bee-eater	OV, P	nests in the lands adjacent to the wind farm	groups of birds flying
6.	<i>Coracias garrulus</i>	Blue roller	OV	nests in the lands adjacent to the wind farm	singular specimens/flying
7.	<i>Melanocorypha calandra</i>	Calandra lark	MP	nests in the area of the wind farm	singular specimens/flying
8.	<i>Alauda arvensis</i>	Eurasian sky lark	MP	nests in the area of the wind farm	singular specimens/flying/lying on the ground
9.	<i>Anthus campestris</i>	Tawny pipit	OV	nests in the area of the wind farm	singular specimens/on the ground
10.	<i>Motacilla flava feldegg</i>	Black-headed wagtail	OV	nests in the area of the wind farm	singular specimens/flying/on the vegetation within the area
11.	<i>Parus major</i>	Great tit	S	nests in the forest in south-western part of the wind farm	singular specimens/flying
12.	<i>Lanius collurio</i>	Red-backed shrike	OV	nests in the area of the wind farm	singular specimens flying/on the vegetation within the area
13.	<i>Pica pica</i>	Black-billed magpie	S	nests in the area of the wind farm	singular specimens flying/lying on the ground
14.	<i>Corvus corone cornix</i>	Hooded crow	S	nests in the forest in the south-western part of the wind farm, adjacent forest plantations	singular specimens flying/lying on the ground
15.	<i>Sylvia communis</i>	Whitethroat	OV	nests in the area of the wind farm	singular specimens/on the vegetation within the area
16.	<i>Sylvia atricapilla</i>	Blackcap	OV	terrestrial bird	singular specimens/on the vegetation within the area

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17.	<i>Sturnus vulgaris</i>	European starling	MP	nests in the lands adjacent to the wind farm and in the wind farm	singular specimens, groups of birds/flying/on the ground
18.	<i>Passer domesticus</i>	House sparrow	S	nests in the lands adjacent to the wind farm and in the wind farm	singular specimens, groups of birds/flying/on the vegetation within the area
19.	<i>Passer montanus</i>	Eurasian tree sparrow	S	nests in the lands adjacent to the wind farm and in the wind farm	singular specimens, groups of birds/flying/
20.	<i>Emberiza citrinella</i>	Yellowhammer	S	nests in the area of the wind farm and in the adjacent lands	singular specimens flying/on the vegetation within the area
21.	<i>Emberiza hortulana</i>	Ortolan bunting	OV	terrestrial bird	singular specimens flying/on the vegetation within the area
22.	<i>Emberiza melanocephala</i>	Blackcap	OV	terrestrial bird	singular specimens flying/on the vegetation within the area
23.	<i>Miliaria calandra</i>	Corn bunting	MP	nests in the area of the wind farm and in the adjacent lands	singular specimens flying/on the vegetation within the area
24.	<i>Carduelis cannabina</i>	Eurasian linnet	S	nests in the area of the wind farm and in the adjacent lands	singular specimens/flying
25.	<i>Fringilla coelebs</i>	Common chaffinch	MP	nests in the forest in the south-western part of the wind farm, adjacent forest plantations	singular specimens/flying

Abbreviations: OV – summer resident species; MP – partially migratory birds; S – sedentary birds; P – birds of passage.

2.3.2. Observations related to the mammal species

As regards the chiropterans (bats), they represent an interesting group of nocturnal insectivore mammals which, due to the more and more accentuated anthropic impact in the last period, started to decline at European level and their conservation has to be seen as a priority.

The wind turbines of Peștera Wind Farm, Constanța County are located in open habitat – agricultural crops. No lines of trees or bushes are present (as connection elements between the bats' shelters and the feeding areas). During summer, such a habitat may be used as flight path only by few species, the resident ones. Therefore, in the area of the wind farm, the negative impact on the bats during summer is minimum. This is owed to the fact that there are no shelters to be used by the bats near the site. Among all the habitats used by the bats, the open areas, represented by agricultural crops, are the least frequented.

The study on chiropterans was targeted on the following observations:

- The bat species which are present in the area and in the areas which represent potential hunting routes and flight routes, during the period of summer colony formation and the migration period;
- Inventory of the potential shelters, around the wind farm, by correlation with the previous studies;
- The degree in which the habitat is used by the bats (with the help of ultrasound detectors).

The bats follow two types of flight routes:

- From the shelter to the feeding place (along the lines of trees or bushes, in the forests, at the edge of the forest or in open space);
- From the summer shelter to the winter shelter and back (these are migration routes, performed in open space or along the tree lines).

As regards the feeding areas, the bats prefer forested areas, the edge of forests, clearings, humid habitats and localities. They shelter in forests, parks, localities and underground shelters.

Among the species identified until now in the area of Peștera Wind Farm, 3 species are found in Annex 4 of the Habitats Directive, being Species of Community Interest.

During the field assessments, records have been made, with the help of the time expansion detector. The heterodyne detector was also used, for a better identification of the chiropteran species. The records have been made in fixed points and on transects.

During this period of the year, in the area of Peștera Wind Farm, Constanța County, the flight activity is very low. Several flight routes have been registered, for the following species: *Nyctalus noctula*, *Pipistrellus pipistrellus* and *Pipistrellus nathusii*.

No feeding areas have been identified within the boundaries of the wind farm. Feeding areas could be present in the adjacent localities and forests (Special Protection Area for birds ROSPA0001 Aliman – Adamclisi).

As regards other species of mammals, in the area, hills made by *Talpa europaea* (European mole), and in the surrounding agricultural crops, specimens of *Microtus arvalis* (common voles) have been identified.

Talpa europaea (European mole), Talpidae family, Soricomorpha order

Common species in the entire country, especially in plains and hills. On site, it was seen in agricultural lands and pastures, in a small number of specimens. It is not included in any European or national protection list (Habitats Directive) and it does not need special conservation measures.

Microtus arvalis (common vole), Cricetidae family, Rodentia order

Common species in all the plains of the country. On site, it was seen in agricultural lands and pastures, in a small number of specimens. It is not included in any European or national protection list (Habitats Directive) and it does not need special conservation measures.

In the open areas with low vegetation, the European ground squirrel - *Spermophilus citellus* is seen.

Spermophilus citellus (European ground squirrel), Sciuridae family, Rodentia order

Typical steppe species. It lives in fields, pastures, ditches, at the edge of the roads etc. Vulnerable species. Included in Annex III of Habitats Directives 92/43/EEC, Natura 2000, Bern Convention

On the site of the wind farm, three microcolonies of this species have been identified until now (area with galleries, up to several tens of galleries), located at a distance of approximate 500 m – 1.5 km from each other (the first and the second colonies are found on slopes with southern and south-eastern exposure, in the northern area of the wind farm, the third one - in the south-eastern part of the site, on a grazed area, with southern, south-western exposure.

As a result of the monitoring performed during this period, it was found that the local squirrel population is reduced as numbers. Nevertheless, it is recommended that during the period of performing maintenance works to the wind farm, the boundaries of the areas in which squirrels' galleries have been identified to be observed, and to minimize the disturbance level in their area, as follows:

- Observance of the traffic routes for motor vehicles (which do not intersect with the spreading area of the species);
- Preservation of the vegetation structure existent in the area and of the type of land usage (pasture).



Photo 8: Habitat with steppe vegetation for *Spermophilus citellus*, *Podarcis taurica*, *Testudo graeca iberica* (summer period)



Photo 9: View of the steppe habitats in the area of Peștera Wind Farm during autumn

Among other species of mammals, the following have been identified: *Lepus europaeus* – European brown hare; *Vulpes vulpes* – red fox; *Capreolus capreolus* – European roe deer and others.

Lepus europaeus (European brown hare), Leporidae family, Lagomorpha order

Common species, spread in the entire country, especially in plains and hills. On site, it was seen in agricultural lands, on the boundary with lawn, pasture and forest sectors. It is not included in any European or national protection list (Habitats Directive) and it does not need special conservation measures.

Vulpes vulpes (red fox), Carnivora order, Canidae

Species with a wide distribution in Dobrogea area, including in the analysed area. Within the boundaries of Peștera Wind Farm and in its proximity, singular specimens have been identified, which were in transit (passing). Probably the species populates the forest plantations in the south-eastern part, located outside the wind farm and the forest sector from the south-western part of the site.

Capreolus capreolus (European roe deer). *Artiodactyla* order, *Cervidae* family

Species which can be found in relatively high numbers in Dobrogea. During summer, it prefers shaded and cool places, during winter - sunny places which are protected against the wind. In the study perimeter, singular specimens and groups of animals belonging to this species and which were in transit (passing) have been identified.

2.3.3. Observations related to amphibian and reptilian species

Herpetofauna is represented by *Bufo viridis* (European green toad), *Lacerta taurica* (Crimean lizard), *Lacerta viridis* (European green lizard), found in habitats with thick vegetation at the edge of agricultural crops, and *Testudo graeca iberica* (Greek tortoise).

Bufo viridis (European green toad). Species which is included in Annex 4, Habitats Directive. Successfully populates the arid steppe areas of Dobrogea and Bărăgan. On the site of the wind farm, it was seen in a relatively low number of specimens.

Podarcis taurica (Balkan wall lizard).

Species which is included in Habitats Directive, Annex 4, Bern Convention. Specimens of this species have been identified in the study perimeter and in areas with steppe vegetation, lawn and pasture sectors. The habitat of the Balkan wall lizard – *Podarcis taurica* is located on slopes with southern, south-eastern and western exposure, in the northern and southern parts of the wind farm.

Lacerta viridis (Lacertidae family) – European green lizard

Rare species on the study territory, included in Habitats Directive, Annex 4. It was seen in the south-western part of the wind farm, at the edge of the access roads to the wind farm. It is very mobile; due to the homochromy, it is hard to identify and follow.

The area of the slopes with abundant vegetation create favourable conditions for other reptilian species, such as *Testudo graeca iberica* (Greek tortoise).

Testudo graeca iberica (Greek tortoise).

Species with reduced numbers on site. Species which is included in Annex 2, Habitats Directive 92/43/EEC. Probably, the species may be seen in reduced numbers on the southern and south-eastern exposure slopes, in the northern part of the wind farm, as well as in the south-eastern part of the site, on land areas with steppe vegetation, on southern, south-western exposure slopes. It is not affected in any way by the operation of the wind farm within the area.

2.3.4. Observations related to the terrestrial invertebrate fauna (insects)

The invertebrate (insects) fauna in the area of Peștera Wind Farm, Constanța County is characterized by a relatively low diversity, being represented, especially by orthopterans and lepidopterans. The cause of this situation is the presence of few types of vegetation associations (forest, pasture), with a limited number of species, which do not allow the development of a large number of invertebrate species.

Thus, at the edge of the agricultural crops, species which are typical to the anthropized ecosystems of agroecosystem type appear, such as some coleopteran (cereal leaf beetle), heteropteran (cereal bug), orthopteran (grasshoppers as *Decticus* and *Calliptamus*) species.

Entomofauna near the agricultural crops is represented by specific species. On site, a series of species have been identified, the development cycle of which takes place on cereals or brasicaceae (in the area, rape crops exist). The following heteropteran species have been identified – *Eurygaster maura*, *Eurygaster austriaca*, *Eurygaster integriceps* (sunn pest) which indicates the lack of efficient treatment with chemical substances, coleopteran – *Anisoplia austriaca*, *Anisoplia segetum* (cereal leaf beetles), *Anoxia villosa* (scarabeid beetles), *Malachius bipustulatus* (Malachidae), *Trichodes apiarius*; orthopteran – *Decticus verrucivorus*, *Platycleis* sp., *Poecilimon* sp., *Chorthippus brunneus*, *Chorthippus albomarginatus*, *Omocestus ruffipes*, *Sthenobothrus lineatus* etc. Among lepidopterans, in the area were present species which are resistant to the anthropic impact, such as *Pieris rapae*, *Pontia daplidice*, *Colias croceus*, *Pararge megera*, *Polyommatus icarus*, *Aricia agestis*, *Carcharodus alceae*, *Autographa gamma*, *Helicoverpa armigera*.

Odonates (dragonflies) are represented by large, good flier species such as *Anax imperator* and *Aeschna* sp., which hunt several insects in agricultural crops. Among *dipterans*, we have noticed bombilides - *Bombylus* sp., *Anthrax* sp. (nectarivore species attracted by the inflorescences of *Melilothus*) and species of prey – *Asilus* sp. (which feed with other insects – diptera, orthopteres, hymenopteres). Hymenopteres were represented by species of *Apis* (*Apinae* – *Apis mellifica*, *Bombinae* – *Bombus agrorum*, *Bombus hortorum*, *Halictidae* – *Halictus* sp.), and *Vespoidea* – *Polystes* sp., *Scolia hirta*.

Among *gastropods* (snails), the following have been seen in the area: *Cernuella virgata*, *Cepaea vindobonensis*, *Helix pomatia* and *Chondrula tridens*.

2.3.5. Flora and habitats

The main type of ecosystem found in the area of the wind farm is included in the category of anthropized ecosystems being represented by the agroecosystem of cereal plants and industrial crops. Thus, the lands within the area of the wind farm are mostly agricultural lands with grain, barley, sunflower, corn or rape crops.

At the edge of the access roads to Peștera Wind Farm, Constanța County and to the wind turbines, weeds have been identified, composes of ruderal species such as: *Centaurea solstitialis*, *Carthamus lanatus*, *Carduus thoermeri* and *Conium maculatum* (poison hemlock), *Convolvulus arvensis* (field bindweed), *Polygonum aviculare* (common knotgrass), *Schlerochloa dura*, *Descurainia sophia* (herb sophia), *Seseli campestre*, *Sisymbrium orientale*, *Delphinium orientale* (hairy knight's-spur), *Hordeum murinum* (false barley), *Ballota nigra*, *Heliotropium europaeum* (European heliotrope), *Echium vulgare* (viper's bugloss) or vegetal taxons migrated from the adjacent crops – *Setaria viridis* (green foxtail), *Avena fatua* (common wild oat), *Sorghum halepense* (Johnsongrass).

This areas alternates with surfaces located mainly in areas with slopes where crops cannot be farmed, surfaces on which a steppe vegetation develops, which is typical to Dobrogea area.



Photo 10: View of the vegetation in the area of Peștera Wind Farm (summer)

The vegetal associations identified in the area of interest are specific to the habitats which are characteristic to the biogeographic region of steppe type, the following being prevalent: *Agropyretum pectiniformae* (Prodan 1939) Dihoru 1970, *Medicagini-Festucetum valesiaca* Wagner 1941 and *Calamagrostetum epigeii* Eggler 1933, being formed mainly by the typical species *Festuca valesiaca* (Volga fescue), *Medicago minima* (little bur-clover), *Agropyron cristatum* ssp. *pectinatum* (crested wheatgrass) and *Calamagrostis epigeios* (chee redgrass).



Photo 11: Vegetation in the study area during autumn

The *Medicagini-Festucetum valesiaca* vegetal association, very common in Dobrogea, is included in the Ponto–panonic lawns of *Festuca valesiaca* type of habitat, meaning R3414 type of habitat (according to the Romanian classification system) and 6250* according to Natura 2000 classification system. Nevertheless, in Peștera Wind Farm, Constanța County, it does not show in its floristic composition conservation reliant species included in the Romanian Red Lists or in the annexes of Habitats Directive or Bern Convention.

On small areas, fragments of phytocenoses of the following vegetal associations may be encountered: *Botriochloetum ischaemi* (Krist. 1937) I. Pop 1977, *Stipetum capillatae* (Hueck 1931) Krausch 1961, *Thymio pannonic-Chrysopogonetum grylli* Doniță et al. 1992 and *Teucrio polii-Melicetum ciliatae* V. Pușcaru et al. 1978, which include mainly the following typical species: *Botriochloa ischaemum* (yellow bluestem grass), *Chrysopogon gryllus* (scented grass), *Teucrium polium* și *Melica ciliata* (hairy melic).

In the lower areas, phytocenoses have been noticed with *Calamagrostis epigeios*, *Pulicaria dysenterica*, *Rumex crispus* (curly dock), *Convolvulus arvensis* (field bindweed) etc.

Among other plant species from the spontaneous flora, we specify the following: *Bromus erectus* (upright brome), *Setaria viridis* (green foxtail), *Verbascum phlomoides* (Wooly Mullein), *Onopordon acanthium* (Scotch thistle), *Eryngium campestre* (field eryngo), *Xeranthemum annuum* (immortelle), *Papaver rhoeas* (corn poppy), *Convolvulus arvensis* (field bindweed), *Cannabis ruderalis* (wind marijuana), *Stachys annua* (annual hedgenettle), *Lathyrus tuberosus* (tuberous pea), *Vicia cracca* (tufted vetch), *Consolida regalis* (royal knight's-spur), *Centaurea solstitialis* (yellow star-thistle), *Anagalis arvensis* (scalet pimpernel), *Althea rosea* (rose mallow), *Reseda lutea* (wild mignonette), *Salvia aethiopis* (Mediterranean sage), *Achillea millefolium* (common yarrow), *Cichorium intybus* (common chicory), *Agrimonia eupatoria* (churchsteeples), *Xanthium strumarium* (rough cocklebur), *Heliotropium europeum* (European heliotrope) and others.

3. Conclusions

As a result of performing the activities for monitoring the biodiversity of Peștera Wind Farm, Constanța County, during the period November 2010 – October 2011, we mention the following:

- The area of the wind farm is occupied, mainly, by *agricultural crops*, which are replaced on several portions by areas with no crops, with *lands used as pastures*, on which a vegetation typical to the steppe develops, the entire area being crossed by access roads to the turbines of the wind farm;
- Here are found mainly *vegetal associations which are specific to agroecosystems* and partially *xerophile associations which are common in the steppe area*, composed of a relatively small number of herbaceous species. Within these associations, *no conservation reliant plant species have been identified*, which are included in the Romanian or European Red Lists, Annexes to Bern Convention or the Habitats Directive, the vegetation being composed of species which are typical to the steppe of Dobrogea;
- At the edge of the access roads and as islands within the agroecosystems, *bush vegetation mixed with other ruderal species* develops;
- Placing and operating within the area the wind turbines *does not create major imbalances in the agroecosystems of the area*, already affected by the anthropic impact. In case that the lands will no longer be farmed, as a result of the normal ecological sequence, the area will undergo a secondary progressive steppization process;
- *Fauna of the analysed location is represented mainly by common species, frequently seen in ecosystems with a high degree of anthropization*. Their presence in the area is an outcome of the way in which the lands are used;
- As regards the impact on the avifauna, during the period of performing the monitoring (November 2010 – October 2011), in the area of the wind farm *no dead specimens of birds have been identified and reported* which could have resulted from the possible collisions of birds with the moving blades of the wind turbines or with the tower (pillar) of the wind power plant.

- As regards migration, *the main migration corridor in Dobrogea area is on the seaside of the Black Sea and along the Danube coastal lakes, at a great distance from the location where the wind farm is placed* (see the Report on the Environmental Impact Study for “Peștera Wind Farm”, 2008: the study area is at a distance of 6.7 km of the Danube and 45 km of the Black Sea and the species of sea birds – herons, egrets, ducks, geese, shorebirds and others migrate to that areas, avoiding the steppe lands with a high degree of aridity and with no water, such as the area of Peștera Wind Farm, Constanța County). *The site of Peștera Wind Farm is not used by migratory birds as passage, rest or feeding space.* The reported presences (birds of prey: *Circus cyaneus* - Northern harrier, *Buteo rufinus* - long-legged buzzard, *Hieraaetus pennatus* - booted eagle and other, storks: *Ciconia ciconia*) are random;
- During the monitoring period, a total number of 57 bird species has been reported, a much higher number than the one registered in 2010 (for example, in the period March-April 2010, a number of 19 bird species has been seen in the area of the wind farm, and in the period May-July 2010, 23 bird species have been seen in the area of the wind farm), when all the construction works took place, which could be explained by the *incomplete recording of the avifauna species* (the monitoring data does not include a period of one year), possibly also due to the different weather conditions in the two years and only partially due to the impact of the construction works on the avifauna.
- A stress factor for the fauna (including avifauna) of the wind farm is the *traffic of people, motor vehicles and other machineries in the area of the wind power plants*, however, due to the higher and higher automation and computerization of the wind turbines, they need a minimum surveillance and maintenance.
- *The bird species which nest in the area of the wind farm (agricultural crops/steppe pastures) are in general common species, typical to such habitats, and their presence in the area proves the fact that they are not negatively affected by the activities performed within the wind farm;*
- *Herpetofauna is represented by the species which are common to the anthropized ecosystems, within the area, there is no risk of disappearance of the species which are mentioned in the report because they are species which are resistant to the anthropic impact and which also survive very well in urban type ecosystems;*
- As regards the *existent entomofauna*, if the current system of land use is kept, *it will maintain a favourable conservation status.*