ERM Environmental Resources Management SRL

Bucharest
145 Calea Victoriei Blvd.,
Victoria Center, 8th Floor,
Sector 1, 010072
Romania
T: +40 (0) 31 405 1680
F: +40 (0) 31 405 1681
E: romania@erm.com
http://www.erm.com

Crucea North Wind Farm 99 MW
(extension to 108 MW as option)

Constanta County, Romania

Additional Assessment Report

5 September 2013

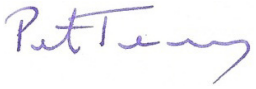
Prepared for:

Crucea Wind Farm S.R.L.
75 Zorelelor Street, postal code 900562
Constanta City, Constanta County
Romania

PROJECT NO. P 0182298

ERM Environmental Resources
Management S.R.L.

Bucharest, September 05, 2013



Peter Temesvary
ERM Romania
Managing Director

Dana Bratu
Project Manager

ERM Project team is comprised of the following members:

Les Hatton, ERM UK, Technical Director
Peter Wright, ERM UK, Senior Ecologist
Alan Leitch, UK Independent Associate
Horia Herța, ERM Hungary, Principal Consultant
Dana Bratu, ERM Romania, Consultant
Florin Tudor, ERM Romania, Consultant
Iulia Luță, ERM Romania, Consultant

CONTENTS

1 INTRODUCTION TO THE PROJECT AND NEED FOR ADDITIONAL ASSESSMENT

1.1 BACKGROUND

ERM Environmental Resources Management S.R.L. *(ERM)* was requested by Crucea Wind Farm S.R.L. (hereinafter referred to as *"the Client" or "SPV"*) to perform a retrospective Additional Assessment (AA) based on Habitat Directive Assessment (HDA) methodologies of the impacts of Crucea North Wind Farm on Natura 2000 sites.

The author of this study, ERM is registred in Romania in the National Register of elaborators for environmental studies, including Appropriate Assesments.

The project is in construction phase and has received the relevant permits following an Environmental Impact Assessment accepted by the Romanian authorities.

The aim of this Additional Assessment is not to provide Romanian authorities with the information required to make a decision on whether the project can be consented, given that this consent has already been given. Rather it is to ensure that the assessment performed is consistent with the various Commission guidance documents, the most relevant of which is *Guidance Document: Wind Energy Developments and Natura 2000. European Commission 2011*, not published in its final version at the time of project consenting. These guidance documents state that the primary purpose of the Habitats Directive Assessment process is to ensure that development does not damage the coherence of the Natura 2000 network, and a hierarchy of avoidance, mitigation and, where overriding reasons of public interest apply, compensation to prevent such effects is integral to that protection.

Biodiversity surveys have been performed at the site in 2009-2010. The surveys informed the impact assessment and permitting procedure completed for the project, which also included undertaking an Appropriate Assessment of impacts on Natura 2000 sites as required by the Habitats Directive. The 2010 Appropriate Assessment Report provides a high level review of the neighboring protected areas, but was not considered to be robust enough by external financing organizations.

The original surveys for the Crucea North site suggested impacts in isolation on migratory birds would be insignificant. A cumulative impact assessment of the project (undertaken as part of additional ESIA work by ERM February 2013) concluded: "*In general the land use, topography, and lack of proximity to*

protected areas suggests that Crucea North's contribution to cumulative impacts is unlikely to be significant for most features. Direct loss of protected areas will not occur and cumulative impacts on mobile features such as bats will be minimal. Further work on displacement and its effects on qualifying bird species are required although initial work suggests such impacts are minimal" (ERM, 2013).

A biodiversity survey methodology and a definition of monitoring program covering construction and operation phases, in line with best international practice, were developed in December 2012. Furthermore a biodiversity survey and monitoring program extended over several years and covering the construction and operation phases of the project has been initiated as of March 2013 and is currently underway until March 2014 for construction phase, and in years 1, 2, 3, 5, 10 and 15 during operation.

Existing monitoring information from 2009-2010 based on local methodology and 2013 spring migration data collected in line with international guidelines are available and are considered in the current Additional Assessment. Once one years worth of data has been gathered (March 2014), a collision risk assessment will be performed to update the ESIA and refine mitigation, considering in addition the summer, autumn and winter monitoring data. An updated mitigation and ESMP based on this collision risk assessment will be available before the project starts operation. A final Additional Assesment considering a full one year survey in line with Habitat Directive Assessment methodology will be prepared in May 2014.

1.2 PURPOSE OF THIS DOCUMENT

The main shareholder of the SPV, STEAG GmbH is in discussion with European Bank for Reconstruction and Development to conclude a financial agreement which regards 99 MW (up to 108 as an option) Crucea North Wind Farm in Romania, the project being located in the vicinity of Natura 2000 sites. It is in ERM's understanding that, in the context of STEAG proceedings of securing international financing for the Projects, one of the potential lenders (EBRD), has requested the STEAG to carry out an Additional Assesment of the project that meets the requirements of the EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the *Habitats Directive*) and the EC Directive 2009/147/EC[(1)] on the conservation of wild birds (the *Birds Directive*) in testing the projects impact against the potential for likely significant adverse effects on Natura 2000 sites, and where these may occur, effects on the integrity of Natura 2000 sites. No Natura 2000 sites are

[(1)] This is the codified version of Directive 79/409/EEC as amended.

present within the wind farm boundary. Five Natura 2000 sites are located within a 10 km buffer around the project site, as shown in the Annex A of the current Additional Assessment Report:

- ROSCI0053 Dealul Allah Bair;
- ROSCI0215 Recifii Jurasici Cheia;
- ROSPA0002 Allah Bair – Capidava;
- ROSPA0019 Cheile Dobrogei;
- ROSPA0101 Stepa Saraiu – Horea.

Three other Natura 2000 sites are located outside the 10km buffer area or connected to the sites above mentioned:

- ROSCI0022 Canaralele Dunarii - 12 km away from Project boundary;
- ROSCI0201 Podisul Nord Dobrogean -11 km km away from Project boundary;
- ROSPA0100 Stepa Casimcea -11 km km away from Project boundary.

Connectivity with protected areas is primarily through bird interests and relates to the all four SPAs. The current suite of surveys will allow a robust assessment of impacts on SPA populations.

The 2010 EIA and AA studies, , conclude that no connectivity with SCI qualifying features exists and predictions of no LSE are reasonable and defensible. Environmental permits for the construction of the wind farm were issued on the basis of these studies.

Whilst undertaking an HDA based assessment in the construction phase is unusual, the purpose of this Additional Assessement is to screen for impacts and identify the mitigation or compensation measures required to ensure that the project will not affect the integrity of European sites and that the coherence of the Natura 2000 network will be maintained. It will also provide future proofing against potential infringement proceedings by demonstrating the aims of the birds and habitat directives have been achieved.

1.3 DOCUMENT STRUCTURE

The structure of the Additional Assessment report is summarised below.

- Introduction to Project and need for Additional Assessment;
- Approach to Additional Assessment

- Project Description;
- Summary of available data to inform the Additional Assessment;
- Description of Natura 2000 Sites;
- Screening for Likely Significant Adverse Effects ; and Adverse Effects on Site Integrity
- Conclusions.

2 APPROACH TO ADDITIONAL ASSESSMENT

2.1 OVERVIEW OF THE ADDITIONAL ASSESSMENT PROCESS

A formal Appropriate Assessment of the project has been undertaken by the competent authority as required by Article 6 (3) of the Habitats Directive[2] and has concluded there would be no significant adverse effect on the integrity on any Sites of Community Interest (SCIs) and Special Protection Areas (SPAs).

An Additional Assessment that shadows the Habitats Directive Assessment process required under Article 6 (3) has been requested by the lenders .s. This shadow Additional Assessment process is intended to provide a robust evaluation of the assumption that no adverse effect on Natura Sites will result from the Chirnogeni wind farm project either alone or in combination with other plans/ projects.

The shadow Additional Assessment uses the first two stages of the HDA process:

Stage 1 (Screening) Identify the likely impacts of the project upon the European sites (Natura 2000 areas), either alone or in combination with other plans and projects and consider whether the impacts are likely to be significant. Where there is a risk of a significant impact, the Stage 2 assessment must be undertaken.

Stage 2 (Appropriate Assessment) Where there is potential for a significant impact, this stage then assesses those impacts on the integrity of the European Site, either alone or in combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine if adverse effect on integrity of the site can be avoided.

The shadow Additional Assessment is based on the biodiversity survey data from 2009- 2010 and the 2013 monitoring surveys for March to July. It is a Preliminary Report.

Autumn and winter surveys will continue to feed into that process of continued monitoring and adaptive mitigation. The final shadow Additional Assessment will be submitted on May 2014 to build on on-going survey work and provide on-going validation of assessment.

[2] *Conservation of natural habitats and of wild fauna and flora Directive 92/43/EEC*

Based on ERM's considerable experience in HDA/AA and on relevant guidance (e.g.: EC 2012, EC 2001 etc.), for the purposes of this assignment we propose the following approach in undertaking the shadow Additional Assessment:

A. Define the Study Area;

B. Identify the Conservation Objectives of the Sites;

C. Identify the Species and Habitats to be considered in the Additional Assessment;

D. Assess Effects on Species and Habitats;

E. Define Mitigation and/or Restoration Measures. Determine Effects on Sites' Integrity;

2.2 *STAGE 1: SCREENING FOR LIKELY SIGNIFICANT ADVERSE EFFECT*

The screening stage examines the likely effects of a project either alone or in-combination with other projects and plans on a Natura 2000 site, and addresses the question "*can it be concluded that no likely significant effect will occur?*"

To determine if the proposals are likely to have any significant effects on the designated sites the following issues should be considered:

- could the proposals affect the qualifying interest and are they sensitive/vulnerable to the effect;
- the probability of the effect happening;
- the likely consequences for the site's Conservation Objectives if the effect occurred; and
- the magnitude, duration and reversibility of the effect.

There are a number of well documented effects of wind farms which birds and their supporting habitats are recognized as being vulnerable too. The 2010 EU guidance sets these out as follows:

- collision fatalities;
- disturbance and displacement;
- barrier effect; and
- habitat loss and degradation.

There is the potential for all of these effects to result from development of the Crucea North Wind Farm.

The screening stage therefore looks at these effects and seeks to conclude one of the following three outcomes[3]:

1. no likely significant effect;
2. a likely significant effect; or
3. it cannot be concluded that there will be no likely significant effect.

Where the assessment concludes outcomes two or three, then the need for an assessement of adverse effects on site integrity is triggered.

"*Likely significant effect*" in this context is any effect that may reasonably be predicted as a consequence of the project that may significantly affect the conservation or management objectives of the features for which a site was designated. The effect must be an effect on a European site and a judgment as to significance must take into account factors relevant to the question of significance as described above. These will include such matters as temporal considerations (e.g. length of time of effect), physical considerations (e.g. extent of effect on the European site and the elements of the site including its conservation objectives). It is possible, therefore, for an effect to cause damage to the European site, but because such damage is fleeting, limited in extent or damaging to something outside of any conservation objectives the effect on the European site is insignificant. The judgment should also take into account the likely effects of mitigation. In terms of certainty, EC guidance relating to the habitats directive (EC, 2000) states that: "*The safeguards set out in Articles 6(3) and 6(4) of the directive are triggered not by a certainty but by a likelihood of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an assessment on the basis that significant effects are not certain*".

2.3 *STAGE 2: ASSESSMENT OF ADVERSE EFFECTS ON SITE INTEGRITY*

This stage in the process assesses whether the proposals will have any adverse effects on the integrity of the European site. Site integrity is defined as:

> "*the coherence of its structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*"(1). The decision on whether the integrity of the site could be adversely affected by the proposals should be taken in view of the site's Conservation Objectives.

[3] European Commission (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites. EC

The aim of the assessment (referred to in the Habitats Directive as an Appropriate Assessment) is to answer the question "*can it be demonstrated that the proposals will not adversely affect the integrity of the site?*".

The assessment takes into account any avoidance, or mitigation measures, which will be implemented to avoid or reduce the level of impact..

2.4 DEALING WITH UNCERTAINTY/UPDATED INFORMATION

This first iteration of the shadow Additional Assessment will be informed by the results of surveys of migratory bird species undertaken in spring 2013, as well as the results of 2009- 2010 surveys undertaken to inform the original EIA and AA Studies. Based on the qualifying interest features of nearby Natura 2000 sites and the species and habitats recorded on the site, the results of the spring migration survey are believed to be largely representative of the use of the project site by migratory bird species and their movements in both spring and autumn. There is sufficient confidence in the data gathered during the spring and their representativeness that an initial shadow Additional Assessment can be undertaken on the effects of the project. However, the conclusions of this Additional Assessment will be validated by an updated iteration of the report incorporating the results of autumn migration surveys to be undertaken during autumn 2013. This updated iteration will ensure that the Additional Assessment meets the requirement for presenting information on the distribution and use of the site by qualifying interest features over time.

3 PROJECT DESCRIPTION

The Project is proposed to be located on the administrative territories of Crucea, Pantelimon and Vulturu communities, Constanta County, southeastern part of Romania. The nearest residential areas to the boundary of the Project site (including the 500 m safety buffer) are listed below:

- Crucea village (Crucea commune) - approximately 1.2 km south;
- Stupina village (Crucea commune) - approximately 2.5 km southeast;
- Crişan village (Crucea commune) - approximately 3.3 km east;
- Siriu village (Crucea commune) - approximately 3 km northeast;
- Vulturu village (Vulturu commune) - approximately 2.4 km north;
- Runcu village (Pantelimon commune) - approximately 2.5 km east;
- Pantelimon village (Pantelimon commune) - approximately 5 km southeast.

The project location is represented in the figure below.

Figure 3-1 General Project location

The Crucea North Wind Farm 99 MW (extension to 108 MW as option) site covers an area of approximately 22.64 km^2 which includes the project

footprint, the wind farm safety area and a development buffer area. The footprint comprises the total area that was rezoned to industrial use, namely 90.5 ha, which includes the wind turbine towers, permanent access roads, a substation, and permanent crane platforms. A new PUZ procedure was undertaken with the purpose of regulating the land use change (from agricultural to industrial land use) implied by extending the project with additional three turbines.

Overall, for constructing the Crucea North Wind Farm 99 MW (extension to 108 MW as option), 104.5 ha of agricultural land will be rezoned in total.

The area occupied by new roads will cover approximately 2.4 ha, while the existing roads, after modernization will occupy an area of approximately 18.56 ha.

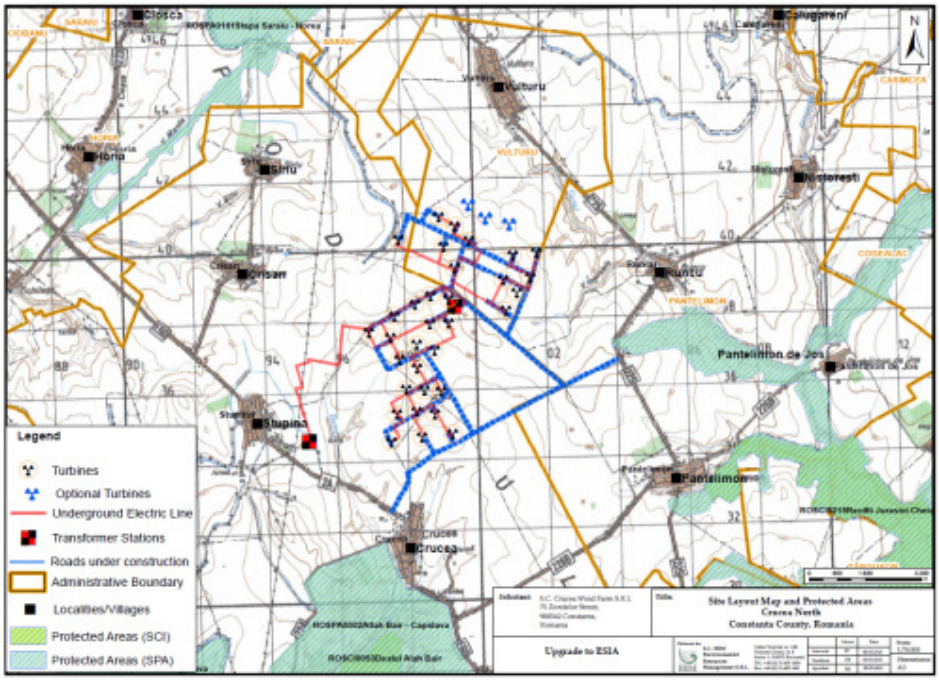
The main components of the Project are listed below:

- construction of 33 (after extension 36) horizontal axis Vestas V112 wind turbines, each with a capacity of 3 MW, total capacity of approximately 99 MW (after extension: 108 MW). The maximum height of a turbine will be 175 m, with a hub height of 119 m;
- construction of a Project Substation 33/110 kV to be located within the wind farm site boundary;
- construction of a 400/110 kV new Transformer Station Stupina 2 with one 250 MVA transformer, which will be connected to the existing Stupina 110/400 kV transformer station;
- organization of a temporary construction compound within the wind farm site boundary.
- construction of a permanent concrete platform at the site of each turbine which will be required for the installation and maintenance of the turbines;
- construction of permanent crane pads;
- upgrade of approximately 45 km of existing agricultural service roads and construction of approximately 6 km of new access roads to the turbines;
- construction and operation of approximately 43 km of underground medium-voltage (33 kV) electrical connection lines to link the turbines and the 33/110 kV Project Substation;
- construction and operation of approximately 8.8 km of underground high-voltage transmission lines (110 kV) from the 33/110 kV Project Substation to the 400/110 kV Stupina 2 Transformer Station;

- construction and operation of approximately 150 m of underground high-voltage transmission lines (400 kV) connecting the 400/110 kV Stupina 2 Transformer Station to the Power Distribution Grid owned by C.N.E.E. Transelectrica S.A. via the existing 110/400 kV Stupina Transformer Station.

The site location is represented in the figure below.

Figure 3-2 Site Layout Map



Key components & construction stages – timeline:

- applicable permits secured prior to start of construction works;
- works to rehabilitate existing roads & construct access roads have already started and are expected to be completed in December 2013;
- the commissioning of the wind farm is expected to start in May 2014 with last up to December 2014;
- a working week of 6 days (Monday – Saturday) is envisaged for the construction stage;
- the timeline for construction works and transport of turbine components will be communicated to the communities covering a period of three months starting in six months starting in February 2014 ;
- the wind farm will be operational for at least 20 years after construction.

Figure 3-3 September 2012

Figure 3-4 December 2012

Figure 3-5 December 2012

Figure 3-6 July 2013

4 SUMMARY OF AVAILABLE DATA TO ADDITIONAL ASSESSMENT

4.1 SOURCES OF INFORMATION

Following sources of information to inform the Additional Assessment are available to date:

4.1.1 *Information from external Project stakeholders*

ERM approached the following stakeholders with the purpose of collecting existing information related to the biodiversity of the Project area to be fed into the Additional Assessment Process:

- Environmental Protection Agency (EPA) Constanta (meeting held on 9th July 2013);
- Romanian Ornithological Society (ROS) affiliate Bird Life International (meeting held on 8th July 2013).

During above mentioned meetings, both LEPA Constanta and ROS have expressed their positive point of view regarding Crucea North Wind Farm, considering that, if the project, the mitigation measures and the monitoring program will be respected, the environments including the biodiversity from the site area will not be significantly affected.

The Romanian Ornithological Society (ROS) will be periodically consulted and informed in regards of biodiversity surveys and outcomes, during the project implementation phases.

4.1.2 *Studies and surveys performed for the project as part of the EIA and permitting procedure*

- Environmental Impact Assessment Romanian version, October 2010, prepared by Prof. Dr. Ing. Tudor Darie. This EIA report was the basis for the environmental permitting procedure and is available in Romanian language solely.
- Environmental Impact Assessment English version, October 2010, prepared by S.C. Hidrotermic Impex S.R.L. represented by Mr. Darie Tudor, S.C. Wildlife Management Consulting S.R.L represented by Mr. Calin Hodor, S.C. Wind Power Energy S.R.L represented by Mr. Enache Sebastian;
- Appropriate Assessment, October 2010, prepared by Wildlife Management Consulting S.R.L. represented by Mr. Calin Hodor, as result of LEPA request, during the Environmental Impact Assessment Procedure for

Crucea North Wind Farm. This study does not present additional information to the EIA Study and its value in terms of providing baseline data for current HAD process is very limited.

The biodiversity aspects were not been covered by the EIA report, but were addressed through a separate study, entitled "Biodiversity impact study for the Crucea Field Wind Farm area", dated April 2010 prepared by Wildlife Management SRL. This study is based on field observations performed within a period of 12 months (October 2009 –September 2010) and was provided in an appendix to the EIA Report.

The following data from the 2009 – 2010 surveys are considered to be relevant for the current Additional Assessment Study:

Invertebrates

No significant populations, this is linked to use of pesticides.

Amphibians

No amphibians were found in the area. In the close vicinity fire-bellied toad and green toad were reported. The possibility of common spadefoot toad being present in small numbers was noted.

Reptiles

Two species of reptiles, Balkan wall lizard and sand lizard have been found in small numbers in the grassy areas of abandoned irrigation channels. Sand lizard was found within the project impact area, the population reported as being a few dozen individuals.

Mammals

The mammal fauna present in the area is typical of intensively farmed environments.

The largest number is that of rodents, such as *Microtus arvalis* or probably *M. rossiaemeridionalis* and *Apodemus agrarius*. These species do not have conservation value. Ground squirrels *Spermophilus citellus* are also frequent the Project area. There are estimated approvimatly 100 adult individuals in the project area. Three other mammals, not protected under the Romanian and European legislation were also observed in the area: *Lepus europaeus, Vulpes vulpes* and *Capreolus capreolus.*

Bats

Bat presence in the area of Wind Farm was studied during May-October 2009 using transect surveys.

The investigated area may generally be characterised as having low bat activity, due to the absence of shelters (except in nearby localities), and the low importance of the habitats present in the area (farmland, degraded meadows) as feeding grounds for bats.

No important flight corridors were identified in the investigated area, nor connections between the shelters and feeding habitats. The number of individuals was very low.

Table 4-1 Summary of bats species observed during 2009 field visits

Scientific name	Maximum number/night in August & September	Habitat Directive 92/43/EEC	Romanian legislation 462/2001
Eptesicus serotinus	4	Annex IV	Annex IV
Nyctalus noctula	7	Annex IV	Annex IV
Pipistrellus kuhlii	4	Annex IV	Annex IV
Pipistrellus nathusii	3	Annex IV	Annex IV

Birds

Spring Migration

Spring migration of the birds was studied between 15 of March and the end of May 2009 using 4 VP's covering a number of wind farm sites within the area, not only the North Crucea site.

The main focus was on raptor and stork migration, species most likely to be impacted by the development of the future wind farm.

Only individuals showing typical migration behavior were counted. These include those that fly over the observation point at speed and following a constant direction.

Table 4-2 Birds species observed during 2009 spring migration surveys

Species	Scientific name	Total number
Black Kite	*Milvus migrans*	1

Tawny Eagle	*Aquila pennata*	7
Common buzzard	*Buteo buteo buteo*	6
Kestrel	*Falco tinnunculus*	10
Eagle sp.	*Aquila sp.*	2
Hobby	*Falco subbuteo*	8
Falcon sp.	*Falco sp.*	1
Harrier sp.	*Circus sp.*	5
Hen Harrier	*Circus cyaneus*	17
Honey Buzzard	*Pernis apivorus*	230
Lesser Spotted Eagle	*Aquila pomarina*	21
Levant Sparrowhawk	*Accipiter brevipes*	1
Long Legged Buzzard	*Buteo rufinus*	6
Marsh Harrier	*Circus aeruginosus*	20
Montagu's Harrier	*Circus pygargus*	4
Pallid Harrier	*Circus macrourus*	2
Red Legged Buzzard	*Falco vespertinus*	120
Short Toed Eagle	*Circaetus gallicus*	6
Sparrowhawk	*Accipiter nisus*	1
Steppe Buzzard	*Buteo buteo vulpinus*	220
White Stork	*Ciconia ciconia*	950
Black Stork	*Ciconia nigra*	2
Total number of raptors and storks		**1640**

The greatest migration intensity was recorded in April, the single largest flock being 400 white stork on 10th April.

65% of the birds were observed flying at over 150 m, some, especially the honey buzzards, at very high altitudes, probably more than 400-500 m, 19% flew about 50-150 m high and the remaining 16% at less than 50 m.

Autumn Migration

Similar methods were used in the autumn although it appears the 4 vantage points covered different wind farm areas, withobservations conducted on 12 days each month in August, September and 10 days in October.

Average flight altitude above the site was on most days and for more than 80% of the birds was above 200 m.

Table 4-3 Birds species observed during 2009 autumn migration surveys

Species	1-6 Aug	20-25 Aug	1-6 Sept	15-20 Sept	1-10 Oct	Total
Ciconia ciconia	1120	95	3	0	0	1218
Cicomia nigra	0	3	0	0	0	3
Pernis apivorus	3	230	15	0	0	248
Circaetus gallicus	0	2	3	0	0	5
Accipiter nisus	1	0	0	2	1	4
Accipiter brevipes	1	2	1	0	0	4
Circus aeruginosus	5	10	21	9	7	52
Circus cyaneus	0	0	0	0	4	4
Circus macrouros	0	2	0	0	1	3
Circus pygargus	2	5	1	1	0	9
Circus pyg./mac	0	1	3	0	0	4
Buteo buteo	0	0	0	9	2	11
B. b. vulpinus	0	3	29	180	190	402
Buteo rufinus	0	0	0	4	1	5
Aquila pomarina	0	0	3	1	0	4
Aquila sp.	0	1	1	2	0	4
Aquila pennata	0	1	2	1	0	4
Falco tinnunculus	0	0	1	7	1	9
Falco vespertinus	0	0	0	62	0	62
Falco subbuteo	0	0	1	1	0	2
Unidentified raptor	1	3	2	1	6	12
Total	**1133**	**358**	**86**	**280**	**213**	**2070**

The collected data reveal that the area is not important for raptors, storks and other gliding species comparing with other areas in Dobrogea.

By comparison, is to be mentioned the area of Macin Mountains, from North of Dobrogea, at approximatly 100 km north of the site, where multi-annual monitoring was conducted and where the number of predatory birds ranged between 8117 and 12491 individuals.

- The strict project footprint is not attractive to gliding predatory species or storks because of the absence of thermals generating structures;

- The largest number of birds is white storks, buzzards of the vulpinus sub-species and honey buzzards;
- On some bad weather days, the above flight pattern does not apply, with the birds flying at lower altitudes, and in smaller numbers.

Wintering Birds

Twenty bird species were observed during winter. Only the birds observed within the sites limits were considered.

The species and maximum number of individuals observed during one day are given in *Table 4-4* below.

Table 4-4 Birds species observed during 2009 winter surveys

No.	Species	Nov.	Dec.	Ian.	Febr.
1	*Alauda arvensis*	70	36	20	57
2	*Buteo buteo buteo*	4	1	2	3
3	*Buteo rufinus*	5	1	0	3
4	*Carduelis carduelis*	40	25	115	80
5	*Carduelis canabina*	5	3	0	0
6	*Circus cyaneus*	3	2	1	3
7	*Corvus c. cornix*	0	10	0	10
8	*Corvus frugilegus*	700	1879	600	650
9	*Corvus monedula*	100	500	178	125
10	*Galerida cristata*	7	4	7	6
11	*Melanocorypha calandra*	150	200	300	350
12	*Miliaria calandra*	10	12	7	21
13	*Perdix perdix*	10	0	0	21
14	*Phasianus colchicus*	6	2	2	4
15	*Pica pica*	24	30	33	28
16	*Sturnus vulgaris*	900	730	0	1250
17	*Turdus pilaris*	600	800	80	350

- The closest place where large flocks of geese were observed was near Sinoe.
- No flocks of geese were observed using the potential impact area.

- The number of birds found here, with the exception of corvids, starlings, and winter thrushes is low largely due to the fact that land tilled in autumn is a poor source of food.

Birds are generally dispersed over the wind farm area although some species of passerines showed a preference for vineyards, areas with bushes and reeds.

Nesting

Transect survey methods were used and nineteen nesting species were observed in the Project Area and its vicinity during May-July 2010. Seven of the local nesting species are listed in Annex I of *Directive 2009/147/EC (*the Birds Directive). Densities were calculated using a formula that extrapolated point count data. The area used for the extrapolation is not clear and it may be that it was a wider area than the footprint of the North Crucea wind farm.

The species and densities are shown in the Table 4-5 below:

Table 4-5 Birds species observed during 2009 nesting surveys

Scientific name (with bold- species from Annex 1 of Birds Directive)	**Common name**	**Breeding pairs number**	**Romanian population according BiE2**
Alauda arvensis	Skylark	1500-2000	460000-850000
Anthus campestris	Tawny Pipit	10-12	150000-220000
Calandrella brachydactyla	Short Toed Lark	10-15	10000-12000
Coracias garrulus	Roller	1-2	4600-6500
Coturnix coturnix	Quail	53-88	160000-220000
Emberiza hortulana	Ortolan bunting	7-8	125000-255000
Emberiza melanocephala	Black headed Bunting	7	
Falco tinnunculus	Kestrel	1	10000-14000
Galerida cristata	Crested Lark	4	220000-312000
Lanius collurio	Red beaked Shrike	7	1380000-2600000
Lanius minor	Lesser Gray Shrike	1	364000-857000
Melanocorypha calandra	Calandra Lark	500-600	85000-105000
Miliaria calandra	Corn Bunting	10-15	940000-1200000
Motacilla flava feldegg	Black headed Yellow Wagtail	80-90	216000-340000
Perdix perdix	Grey Partridge	20-30	120000-180000
Phasianus colchicus	Pheasant	5-9	200000-300000

Scientific name (with bold- species from Annex 1 of Birds Directive)	Common name	Breeding pairs number	Romanian population according BiE2
Pica pica	Magpie	1	624000-780000
Sturnus vulgaris	Starling	20-30	840000-1224000
Upupa epops	Hoopoe	1-2	24000-42000

4.1.3 *Surveys and information acquired by ERM team to date*

In response to a gap analysis undertaken of the original EIA and AA additional surveys to address impacts on Natura 2000 species in particular were commissioned. These can be summarized as;

- Project site and European sites visits by ERM biodiversity experts – several visits between September 2012 and June 2013;
- One year biodiversity survey program by ERM team, initiated as of March 2013. By the date of writing this report, the following surveys have been completed or are close to being finalized: breeding birds, vantage point (VP) for birds spring migration, *Spermophillus citellus* survey, reptiles and amphibians survey. Further survey work will cover VP monitoring (including birds autumn migration) and winter walkover surveys.

Ongoing biodiversity survey during construction period follows the Methodology statement set up by ERM international experts in February 2013 and agreed by the lenders. The Methodology Statements for construction and operation phase are annexed to the current Additional Assessment Study (Annex B).

Results

As stated in the Survey methodology, the vantage point and breeding raptor study method was used., 3 vantage points were established, after a field visit, in order to cover all the wind farm site. The breeding raptor study covered all those areas of suitable breeding habitat within 5km of the wind farm. A summary of VP site visits schedule is presented below:

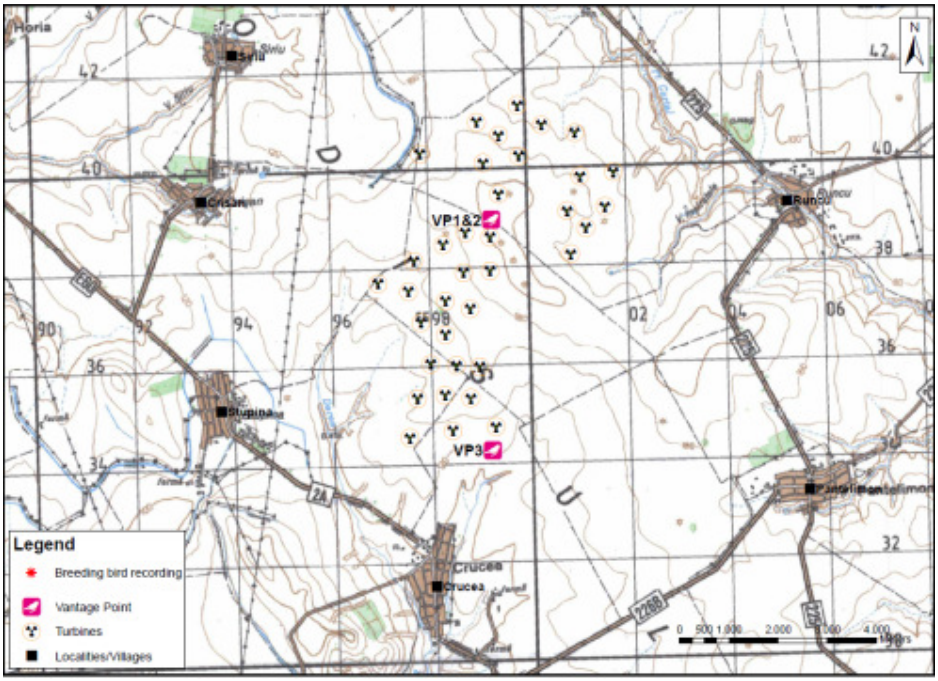
Table 4-6 Calendar of the field work for VP's surveys – March- July 2013

Date	Survey	Location	Hours
VP1			
22-03-2013*	Vantage Point	VP1	-
29-03-2013	Vantage Point	VP1	3 h
04-05-3013	Vantage Point	VP1	3 h
12-04-2013	Vantage Point	VP1	3 h
19-04-2013	Vantage Point	VP1	3 h
26-04-2013	Vantage Point	VP1	3 h
03-05-2013	Vantage Point	VP1	3 h
10-05-2013	Vantage Point	VP1	3 h
17-05-2013	Vantage Point	VP1	3 h
24-05-2013	Vantage Point	VP1	3 h
07-06-2013	Vantage Point	VP1	1,5 h
14-06-2013	Vantage Point	VP1	1,5 h
21-06-2013	Vantage Point	VP1	1,5 h
28-06-2013	Vantage Point	VP1	1,5 h
05-07-2013	Vantage Point	VP1	1,5 h
12-07-2013	Vantage Point	VP1	1,5 h
19-07-2013	Vantage Point	VP1	1,5 h
26-07-2013	Vantage Point	VP1	1,5 h
VP2			
22-03-2013*	Vantage Point	VP2	-
29-03-2013	Vantage Point	VP2	3 h
04-05-3013	Vantage Point	VP2	3 h
12-04-2013	Vantage Point	VP2	3 h
19-04-2013	Vantage Point	VP2	3 h
26-04-2013	Vantage Point	VP2	3 h
03-05-2013	Vantage Point	VP2	3 h
10-05-2013	Vantage Point	VP2	3 h
17-05-2013	Vantage Point	VP2	3 h
24-05-2013	Vantage Point	VP2	3 h
07-06-2013	Vantage Point	VP2	1,5 h
14-06-2013	Vantage Point	VP2	1,5 h

Date	Survey	Location	Hours
21-06-2013	Vantage Point	VP2	1,5 h
28-06-2013	Vantage Point	VP2	1,5 h
05-07-2013	Vantage Point	VP2	1,5 h
12-07-2013	Vantage Point	VP2	1,5 h
19-07-2013	Vantage Point	VP2	1,5 h
26-07-2013	Vantage Point	VP2	1,5 h
VP3			
22-03-2013**	Vantage Point	VP3	2 h
29-03-2013	Vantage Point	VP3	3 h
04-05-3013	Vantage Point	VP3	3 h
12-04-2013	Vantage Point	VP3	3 h
19-04-2013	Vantage Point	VP3	3 h
26-04-2013	Vantage Point	VP3	3 h
03-05-2013	Vantage Point	VP3	3 h
10-05-2013	Vantage Point	VP3	3 h
17-05-2013	Vantage Point	VP3	3 h
24-05-2013	Vantage Point	VP3	3 h
07-06-2013	Vantage Point	VP3	1,5 h
14-06-2013	Vantage Point	VP3	1,5 h
21-06-2013	Vantage Point	VP3	1,5 h
28-06-2013	Vantage Point	VP3	1,5 h
05-07-2013	Vantage Point	VP3	1,5 h
12-07-2013	Vantage Point	VP3	1,5 h
19-07-2013	Vantage Point	VP3	1,5 h
26-07-2013	Vantage Point	VP3	1,5 h

*surveys not carried out due weather condition (raining)
**surveys carried out only 2 from the 3 proposed hours, due to rain starting.

Figure 4-1 Location of Vantage points for Crucea North Wind Farm



The following species were observed during the Spring migration VP surveys undertaken between middle of March and end of May 2013:

Table 4-7 Birds species observed during 2013 spring surveys

No.	Species	Scientific name	Total number
1	Corn Bunting	*Miliaria calandra*	67
2	Skylark	*Alauda arvensis*	77
3	Calandra Lark	*Melanocorypha calandra*	212
4	Red Legged Buzzard	*Falco vespertinus*	1
5	Yellow wagtail	*Motacilla flava*	63
6	Tawny pipit	*Anthus campestris*	32
7	Buzzard	*Buteo buteo*	21
8	Common Starling	*Sturnus vulgaris*	33
9	Quail	*Coturnix coturnix*	11
10	White wagtail	*Motacilla alba*	5
11	Rook	*Corvus frugilegus*	59
12	Tree sparrow	*Passer montanus*	10

No.	Species	Scientific name	Total number
13	Stonechat	*Saxicola torquatus*	5
14	Goldfinch	*Carduelis carduelis*	7
15	Robin	*Erithacus rubecula*	1
16	Magpie	*Pica pica*	4
17	Common kestrel	*Falco tinnunculus*	32
18	Wheatear	*Oenanthe oenanthe*	59
19	Pallid Harrier	*Circus macrourus*	5
20	Barn swallow	*Hirundo rustica*	70
21	Hoopoo	*Upupa epops*	24
22	Grey partridge	*Perdix perdix*	4
23	Long Legged Buzzard	*Buteo rufinus*	8
24	Short-toed Lark	*Calandrella brachydactyla*	38
25	Ortolan Bunting	*Emberiza hortulana*	1
26	Whinchat	*Saxicola rubetra*	1
27	Roller	*Coracias garrulus*	23
28	Lesser Grey Shrike	*Lanius minor*	7
29	Marsh Harrier	*Circus aeruginosus*	7
30	Red-backed Shrike	*Lanius collurio*	3
31	Bee-eater	*Merops apiaster*	17
32	Hooded Crow	*Corvus cornix*	3
33	Booted Eagle	*Aquila pennata*	2
34	Black Kite	*Milvus migrans*	1
35	Hobby	*Falco subbuteo*	2
36	Pheasant	*Phasianus colchicus*	1
37	Song Thrush	*Turdus philomelos*	3
38	Chaffinch	*Fringilla coelebs*	4
39	White Stork	*Ciconia ciconia*	3
40	Jackdaw	*Corvus monedula*	2
41	Caspian Gull	*Larus cachinnans*	1
42	House Martin	*Delichon urbicum*	1
	Total		***930***

The following species were observed during the breeding bird VP surveys undertaken between beginning of June and end of July 2013.

Table 4-8 Birds species observed during 2013 breeding birds surveys

No.	Species	Scientific name	Total number
1	Corn Bunting	*Miliaria calandra*	18
2	Skylark	*Alauda arvensis*	68
3	Calandra Lark	*Melanocorypha calandra*	90
4	Yellow wagtail	*Motacilla flava*	32
5	Tawny pipit	*Anthus campestris*	24
6	Buzzard	*Buteo buteo*	1
7	Common Starling	*Sturnus vulgaris*	366
8	Quail	*Coturnix coturnix*	16
9	Rook	*Corvus frugilegus*	6
10	Tree sparrow	*Passer montanus*	41
11	Goldfinch	*Carduelis carduelis*	3
12	Magpie	*Pica pica*	16
13	Common kestrel	*Falco tinnunculus*	25
14	Wheatear	*Oenanthe oenanthe*	58
15	Barn swallow	*Hirundo rustica*	54
16	Hoopoo	*Upupa epops*	4
17	Grey partridge	*Perdix perdix*	6
18	Long Legged Buzzard	*Buteo rufinus*	6
19	Short-toed Lark	*Calandrella brachydactyla*	4
20	Roller	*Coracias garrulus*	19
21	Lesser Grey Shrike	*Lanius minor*	10
22	Bee-eater	*Merops apiaster*	43
23	Hooded Crow	*Corvus cornix*	14
24	Booted Eagle	*Aquila pennata*	1
25	Black Kite	*Milvus migrans*	1
26	White Stork	*Ciconia ciconia*	1
27	Crested Lark	*Galerida cristata*	2
	Total		***929***

Details of the collision risk modelling are presented in Annex C to aid in the AA.

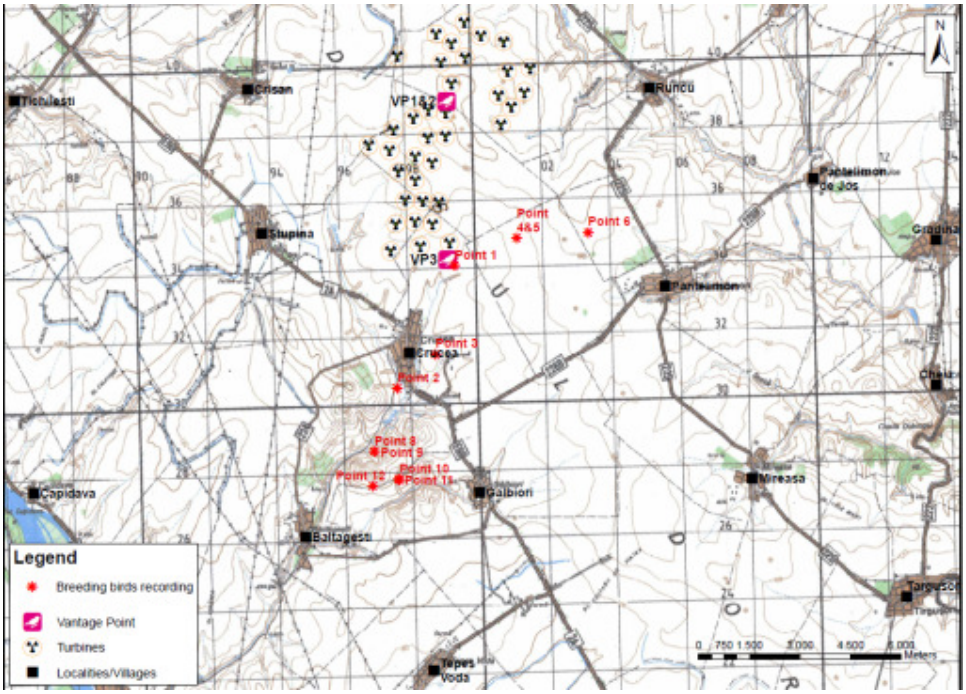
Breeding Raptor Survey: A survey of SPA breeding birds (primarily raptors) that may use the wind farm area for foraging was undertaken of all suitable areas within five kilometres of the wind farm. The results are summarised below :

Table 4-9 Results of 2013 Breeding raptors survey

Obs. date	Subject	Comment	Notes	Search Area
19 April 2013	*Ciconia ciconia*	Nest on electric line pole, with female above nest. It may be feeding on Valea Crucea river	Occupied nest	Crucea village, near the main road.
19 April 2013	*Falco tinnunculus*	Nest inside concrete electric pole, with male agonistic near the nest	Occupied nest	In the proximity of VP3
19 April 2013	*Sturnus vulgaris*	Nest inside concrete electric pole.	Male & female entering nest	In the proximity of VP3
30 May 2013	*Buteo rufinus*	Nest on electric line pole	Reconfirmed nesting information	Approximately 3,5 km east of VP3
30 May 2013	*Aquila pennata*	Agonistic amongst trees	Prob territory	44° 30' 19" N; 28° 13' 20" E
30 May 2013	*Circaetus gallicus*	In tree but no obvious sign of nest, agonistic amongst trees	Prob territory	44° 30' 19" N; 28° 13' 20" E
14 June 2013	*Milvus migrans*	One dead specimen poisoned by eating from poisoned sheep carrion	Dead (poisoned)	44° 29' 51.6280" N; 28° 13' 52.0798" E
14 June 2013	*Buteo rufinus*	Agonistic amongst trees	Prob territory	44° 29' 46" N; 28° 13' 16" E

Obs. date	Subject	Comment	Notes	Search Area
5 July 2012	*Buteo rufinus*	Nest on electric line pole, with chicks on nest. Agonistic male and female.	Occupied nest	Approximately 3,5 km east of VP3

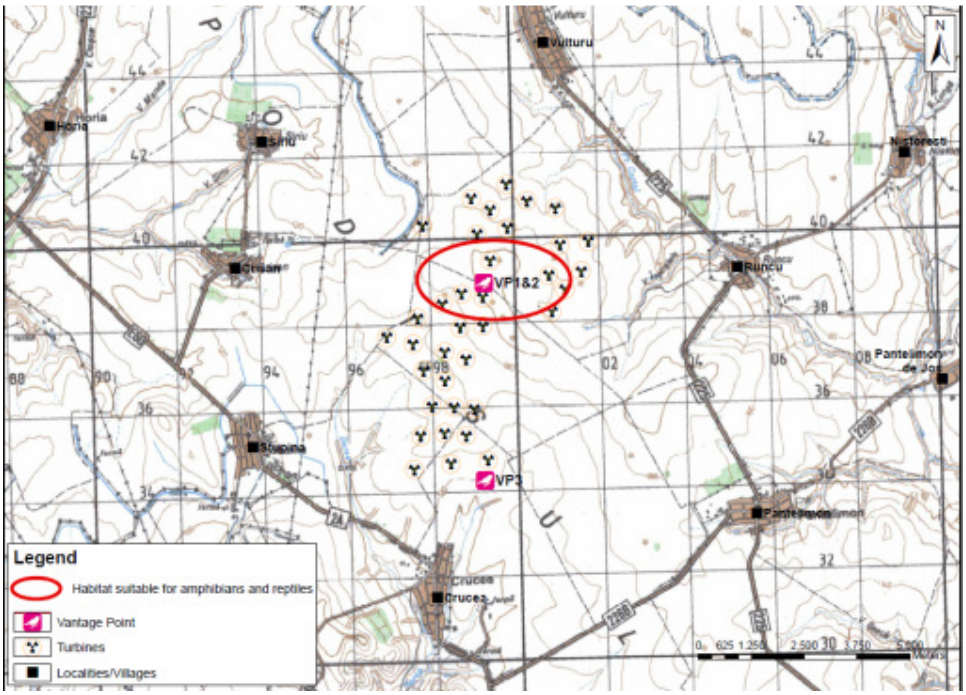
Figure 4-2 ***Breeding birds records for Crucea North Wind Farm (observation period: March- July 2013)***



Reptiles and amphibiens

To date transect surveys confirm the low number of both Balkan wall lizard (maximum count 6) and green lizard (maximum count 3) predicted from earlier studies.

Figure 4-3 Habitat suitable for amphibiens and reptiles



Spermophillus citellus

Surveys were undertaken during March- July 2013.

The species was present in low numbers and associated with the road network where there is less disturbance from ploughing.

4.1.4 *Studies pertaining to neighboring wind farm projects*

The following studies were available:

- Environmental Impact Assessment Report (2011), Cumulative Impact Assessment Report (2012), Appropriate Assessment Report (2011) and Spring Migration Report (2012)prepared for Generacion Eolica Dacia SRL (Crucea East wind farm project with a total capacity 100 MW located in the unincorporated area of Crucea commune); and
- Environmental Impact Assessment Report (2012) prepared for Raggio Verde S.A. (27.5 MW wind farm located in the unincorporated area of Crucea commune);
- Environmental Impact Assessment Report (2009) prepared for Romwind S.R.L. (7.2 MW wind farm located in the unincorporated area of Vulturu commune).

Full details are provided in Annex D but in summary they produced very similar results in terms of the species diversity and density within the wider area.

4.1.5 General studies on birds in Dobrogea Region

A strategic study to develop an understanding of areas of primary ornithological sensitivity was prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development. Full details of the text is provided in Annex D . The sensitivity maps are reproduced below.

Figure 4-4 Map with General view on the main migration routes from Dobrogea and Map with proposal for arrangement of wind farms along the hypothetical line between Lake Sinoe and the Danube

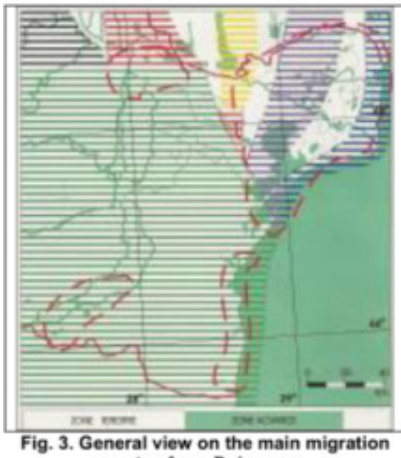


Fig. 3. General view on the main migration routes from Dobrogea.

Note. blue – Sarmatian route (s. l.); violet – Sarmatian route (s. s.); yellow – Pontic route; red – East-Elbic route; black – Carpatian route; green – "southern" (mixed) route; red line – limits of the main feeding-sites and areas for concentration of birds during the migration periods

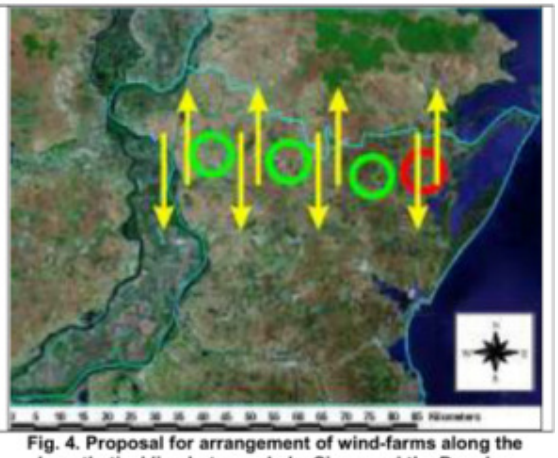
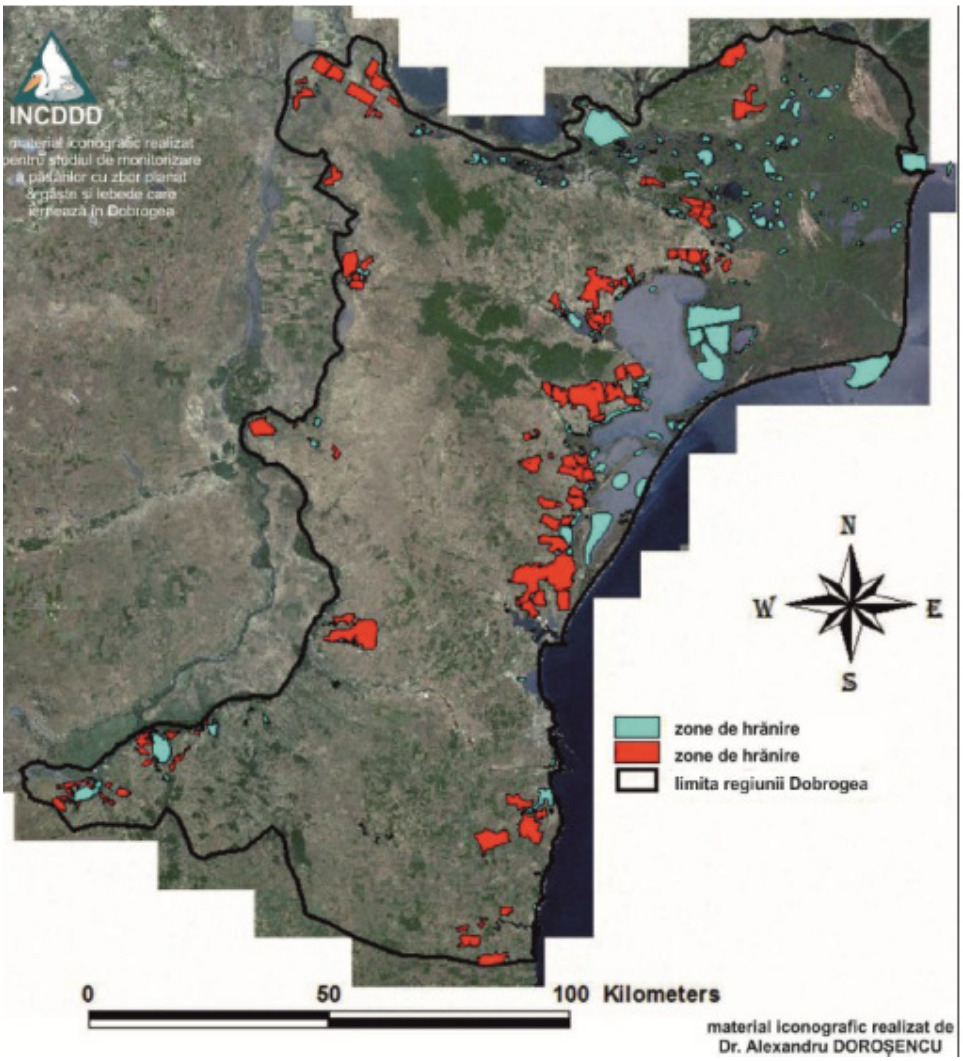


Fig. 4. Proposal for arrangement of wind-farms along the hypothetical line between Lake Sinoe and the Danube.

Note. Red circle – feeding are of goose (mostly Greater White-fronted Goose and Red-breasted Goose) that use Lake Sinoe as roosting site; green circles – areas for potential wind-farms; yellow arrows – areas proposed to be free of wind-farms.

Source: *Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development.*

Figure 4-5 Main feeding and resting places for geese and swans in Dobrogea

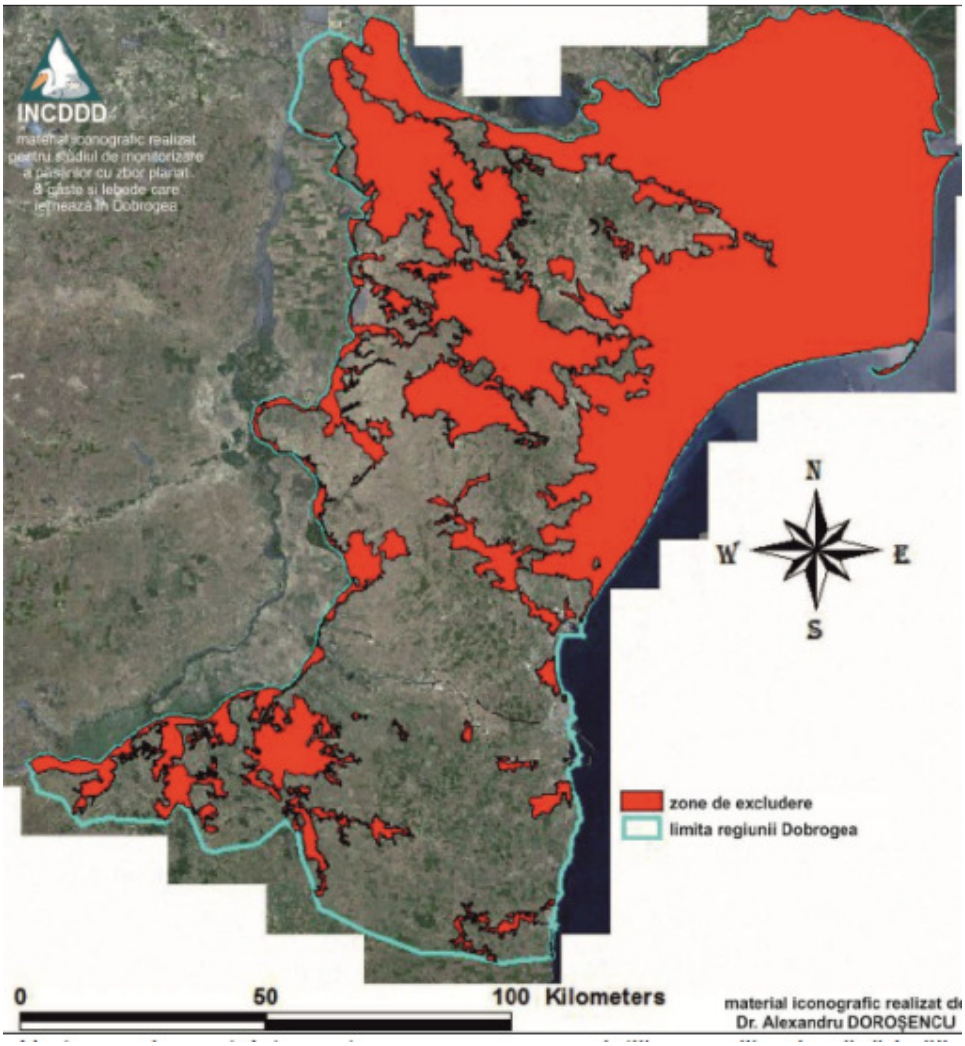


***Blue*= Resting Areas**

***Red* = Feeding areas**

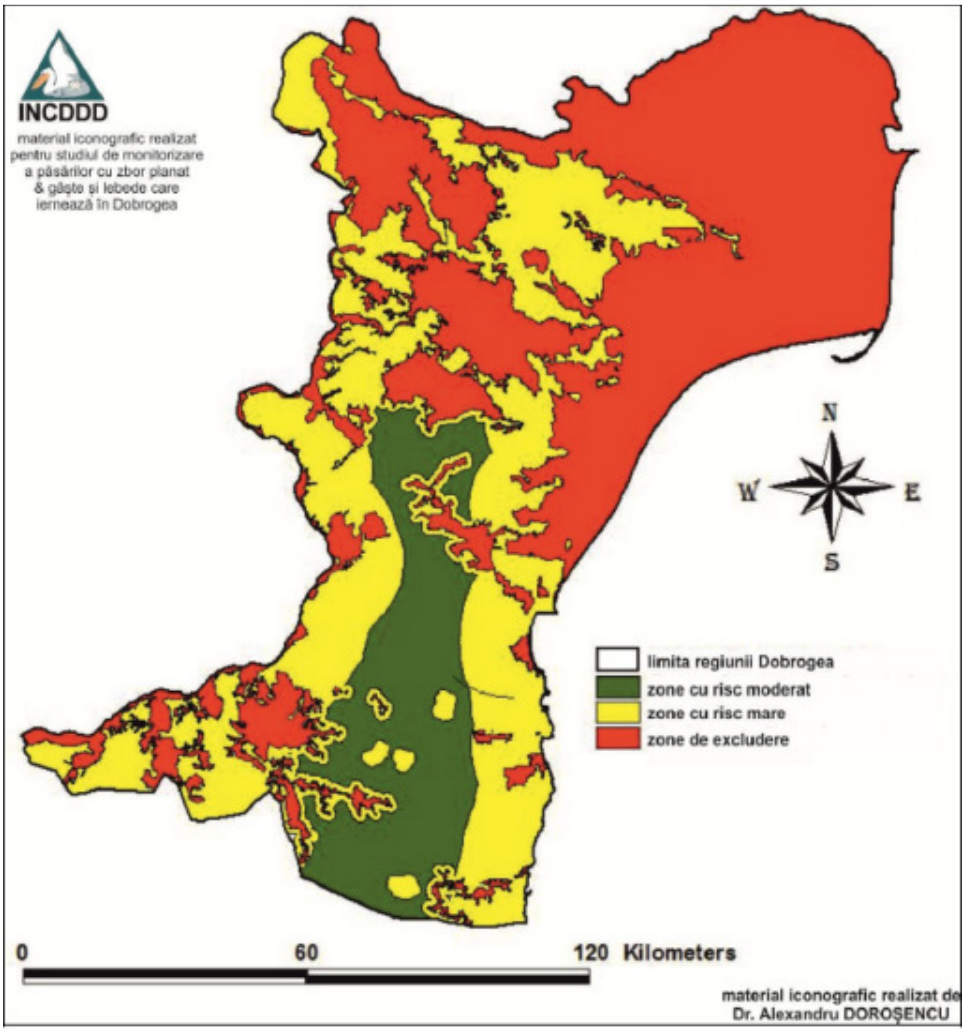
***Source**: Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development.*

Figure 4-6 ***Protected areas for the conservation of wild birds populations where is recommended the prohibition of the construction of wind power plants (excluding areas for wind turbines and related infrastructure)***



Source*: Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development.*

Figure 4-7 ***Map of areas where wind turbines construction is allowed, but their construction and operation will be restricted due to gliding flight bird migration and / or wintering populations of geese and swans.***



Green = areas with moderate risk

Yellow= areas with high risk

Red = excluding areas

Source*: Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development.*

5 DESCRIPTION OF NATURA 2000 SITES

The following Natura 2000 sites are located within a 10-12 km buffer around the project site and are to be considered for assuring a proper Additional Assessment:

- ROSCI0053 Dealul Allah Bair;
- ROSCI0215 Recifii Jurasici Cheia;
- ROSPA0002 Allah Bair – Capidava;
- ROSPA0019 Cheile Dobrogei;
- ROSPA0101 Stepa Saraiu – Horea;
- ROSCI0022 Canaralele Dunarii;
- ROSCI0201 Podisul Nord Dobrogean;
- ROSPA0100 Stepa Casimcea.

Conservation Objective

No Management Plan for the community interest area is in place to date and no published conservation objectives are available.

The generic principles that underlie the directives are the following:

- extent of the habitat on site;
- distribution of the habitat within site;
- structure and function of the habitat;
- processes supporting the habitat;
- distribution of typical species of the habitat;
- viability of typical species as components of the habitat;
- no significant disturbance of typical species of the habitat.

The relevant conservation objectives, from the Standard Forms for SCIs and SPAs, are the durable protection of the wildlife species for which each of the natural protected area was designed. Moreover, the present study seeks for the protection and conservation of integrity of each natural protected area from the project vicinity, through a series of special protection and conservation measures we had developed, appreciating even a slight improvement of the actual conditions in the area of the wind farm location and its neighbourhoods.

The following a**bbreviations** shall be considered for assuring a proper understanding of the Natura 2000 sites charachteristics:

i= individuals

p=pairs

Population: population size and density of species present on site, in relation to the populations present at national level. This standard is need to assess the relative size and density of the population within the site, at national level. It is used a progressive model:

A- 100p >15%

B- 15p >2%

C- 2p > 0%

D- Insignifiant population

Maintenance: the conservation degree of habitat features, important for the listed species:

A-excellent conservation = excellent preserved elements (iI), regardless the classification of the recovery possibility;

B- good conservation = well preserved elements (iII), regardless the classification of the recovery possibility = elements in average or partially degraded conditions (iIII) and easy to restore (iiI)

C- average or reduced conservation = all other combinations.

Isolation: the isolation degree for present population within the site in relation with the species in the natural distribution area:

A- almost isolated population

B- not isolated population, but at the limits of its distribution area

C- not isolated population with a wide area of distribution

Global: global assessment of the site''s value for species conservation

A- Excellent value

B- Good value

C- Considerable value

5.1 ROSCI0053 DEALUL ALLAH BAIR NATURA 2000 SITE

5.1.1 Overview

ROSCI0053 Dealul Allah Bair covers an area of 194 ha.

The minimum distance between Crucea North Wind Farm and Dealul Allah Bair Natura2000 site is 4.7 km.

ROSCI0053 Dealul Allah Bair is particularly important due to the presence of rare, endangered and endemic species of flora. This site has been mentioned in the literature since 1929, sheltering about 30 rare petrophite species, on Pontic, Balkan, Pontic-Balkan and Pontic-Mediterranean origins.

The hill is rich in fossil fauna of the major intervertebrate groups, from protozoa to echinoderms and vertebrats. In addition to geological and geomorphological importance, the site is also important due to its landscape value.

The nature reserve is under anthropogenic pressure especially due to traditional pasturage and unorganized tourism, performed occasionally (e.g.: Christian – orthodox celebration Izvorul Tămăduirii is located at the foothills). However, vulnerability is reduced as the hill is bordered by a forest belt.

Table 5-1 Supporting habitats for the the qualifying interest features

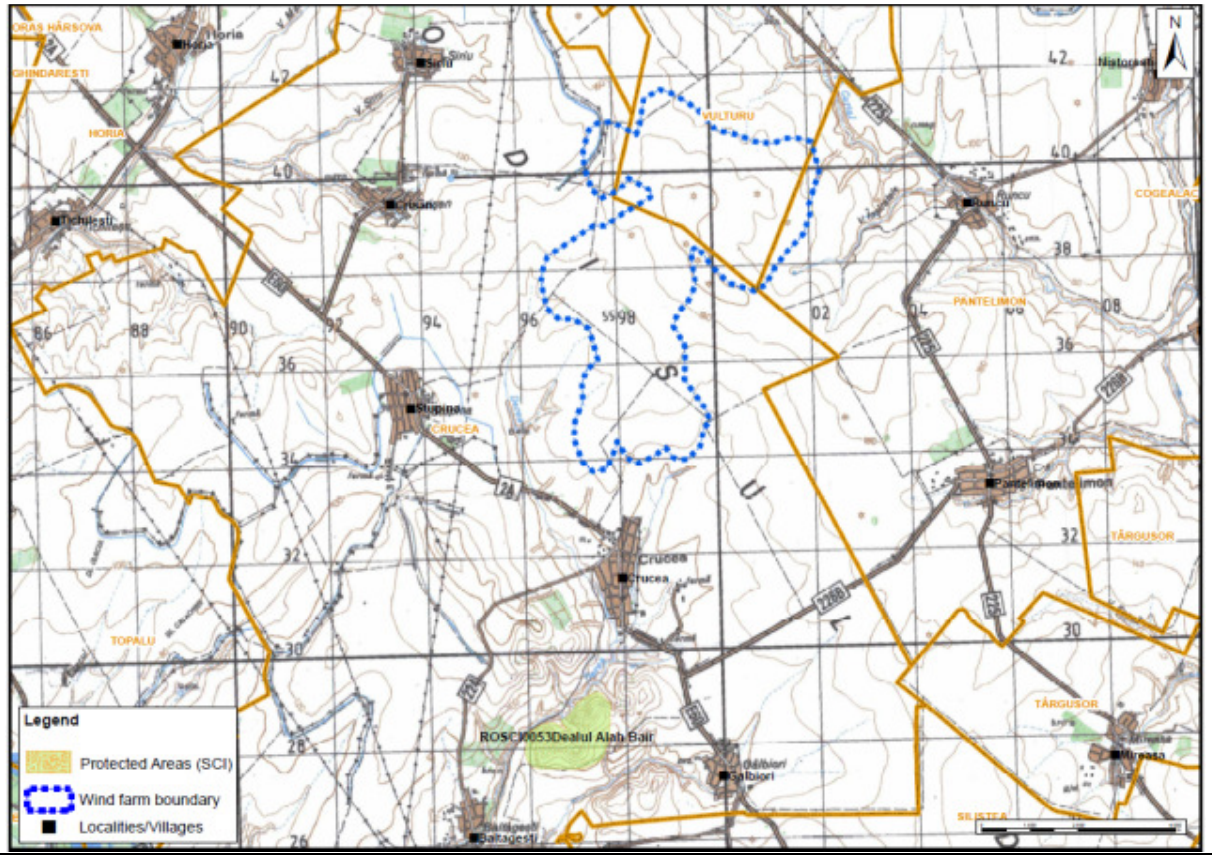
Site description

General characteristics of the site

Code	%	CLC	Habitat class
N14	25	231	Grasslands
N15	3	242, 243	Other arable lands
N19	72	313	Mixed forest

CLC= Corine Land Cover

Figure 5-1 ROSCI0053 Allah Bair layout map



5.1.2 Qualifying Interest Features

Habitats

Table 5-2 *Habitat types within Dealul Allah Bair site and the assessment on habitat status*

Code	Habitat type	%	Reprez.	Rel. area	Conserv.	Global
62C0*	Ponto-sarmatic steppes	50	A	C	A	A

Species

Table 5-3 *Plant species mentioned within Annex II of Council Directive 92/43/CEE*

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
2125	*Potentilla emilii-popii*	R				C	A	A	A
2236	*Campanula romanica*	R				C	A	A	Campanula romanica within Annex II of Council Directive 92/43/CEE Alah Bair Assessment
2093	*Pulsatilla grandis*	R				C	B	C	B

5.2 ROSCI0215 RECIFII JURASICI CHEIA NATURA 2000 SITE

5.2.1 Overview

ROSCI0215 Recifii Jurasici Cheia covers an area of 5.686 ha.

The minimum distance between Crucea North Wind Farm and Recifii Jurasici Cheia Natura2000 site is 6.7 km.

From paleontological point of view, limestone area from Cheile Dobrogei is sheltering the richest fossil point with mezojurasic fauna of the whole Casimcei depression. The site is important not only for geomorphological, paleontological, botanical and landscape features, but also for its fauna, very well represented by reptiles, birds and bats. The perimeter of the site shelters two important speleological and paleontological caves. Studies conducted in Peștera lui Adam, have led to important paleontological and archeological discoveries, ranking the place among the most important caves in Europe.

From paleontological perspective, were observed numerous quaternary species of mammals, 80 Jurassic fossils species were studied and it was also discovered a molar of Homo sapiens fossilis. The cave houses numerous bat species protected at European level including *Pipistrellus nathusii*, found only in this location. Gura Dobrogei Cave Mouth has over 480 feet long, three entrances and two major galleries. Last gallery is characterized by the accumulation of large amounts of guano sunk, representing considerable mounds under the bats colonies roosting in summer the cave ceiling, which gave the name Bat Cave (Peștera liliecilor). Most species are protected and with endangered species status. Vegetation outside the cave and from the cave perimeter is typical for Dobrogean steppe.

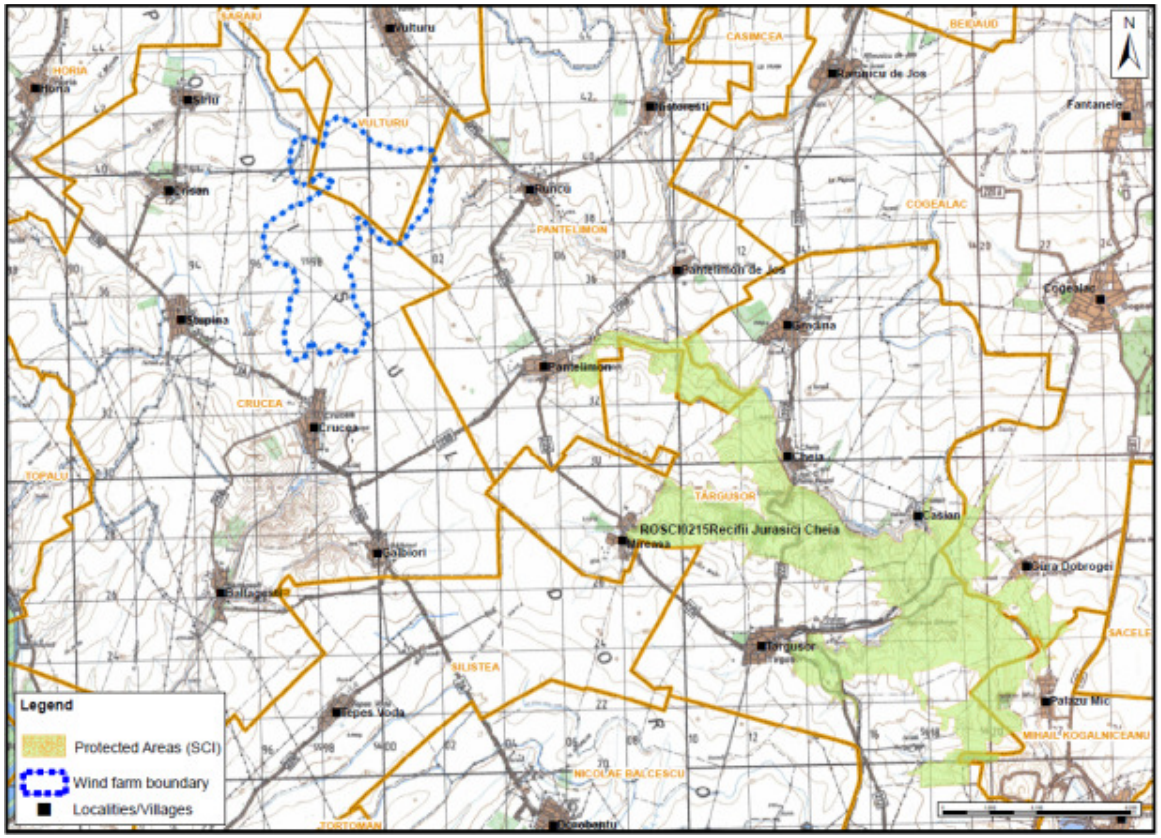
Characteristic of this site is particularly the habitat 62C0*, including numerous associations, such as endemics for Dobrogea (subtype 34.9211 alliance Pimpinello-Thymion zygioidi), both calcareous and siliceous substrate. Here are quotes (Horeanu 1976 - C) the largest grassland steppe from Romania with Paeonia tenuifolia - endangered species of European importance, protected by the Bern Convention – Resolution nr.6/1998).

Another high conservation value habitat is 40C0 *, occupying large areas, the most important being 31.8B731 subtype, represented by rare association *Rhamno catharticae - Jasminietum fruticantis*, identified only in SCI Dumbrăveni – Urluia, Canaraua Fetii – Iortman Forest and Canaralele Dunării.

The site is distinguished also by the presence of rare species of community importance such as *Centara jankae, Campanula novel* and *Moehrigia jankae*.

Reservation is under the custody of Constanta Forests Direction, Hârșova Branch. No Management Plan is available to date. The custodian, Constanta Forests Direction has developed the Regulation for the Natura2000 site.

Figure 5-2 ROSCI0215 Recifii Jurasici Cheia layout map



5.2.2 *Qualifying Interest Features*

Habitats

Table 5-4 Habitat types within Dealul Allah Bair site and the assessment on habitat status

Code	Habitat type	%	Reprez.	Rel. area	Conserv.	Global
40C0*	Ponto-Sarmatic deciduous thickets	5	A	C	A	A
62C0*	Ponto-sarmatic steppes	70	A	B	A	A
91AA	Ponto-sarmatic forest vegetation with fluffy oak	10	B	C	B	B
8310	Caves where public access is prohibited	0,2	B	C	B	B

Species

Table 5-5 Mammal species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1335	*Spermophilus citellus*	P				C	B	C	B
1307	*Myotis blythii*	P	P			C	B	C	B
1304	*Rhinolophus ferrumequinum*	P		>11i	>2i	D			
1321	*Myotis emarginatus*	P				C	B	C	B
1324	*Myotis myotis*	P	R			C	B	C	B
1303	*Rhinolophus hipposideros*	P				C	B	C	B
1302	*Rhinolophus mehelyi*	P				C	B	B	B
1310	*Miniopterus schreibersi*	P	P	>100i		C	C	C	C

Table 5-6 Amphibians and Reptiles species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1220	*Emys orbicularis*	P				C	B	C	B
1279	*Elaphe quatuorlineata*	V				A	B	A	B
1219	*Testudo graeca*	RC				C	B	B	B

Table 5-7 Plant species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
2079	*Moehringia jankae*	V				C	A	A	A
2236	*Campanula romanica*	R				B	A	A	A
2253	*Centaurea jankae*	V				B	B	A	B

5.3 ROSPA0002 ALLAH BAIR – CAPIDAVA NATURA 2000 SITE

5.3.1 Overview

ROSPA0002 Allah Bair - Capidava covers an area of 11,645 ha.

The minimum distance between Crucea North Wind Farm and Allah Bair – Capidava Natura2000 site is 2 km.

The site is located in steppe bioregion, comprising on east the higher part of the Central Dobrogea, represented by Allah Bair Hill (Bălţăgeşti and La Cazemată) and lower areas of the West and South West including Danube small islands from Topalu, Capidava and Danube localities. The relief is broad wavy folds after Sarmatian limestones. The area has an arid climate with high average temperatures (10-11 degrees C), high summer temperatures, low rainfall (around 400mm/an), tropical days and frequent droughts and during winters, frequently is beating chill wind. Mainland area designated as a Special Protection Area comprises a mosaic of habitats dominated by arable and grassland steppe zone which is interposed between deciduous and conifer plantations (*Pinus nigra Austrian*) and blunt forests. The eastern part of the site includes the Danube and islands which are mostly covered by plantations of poplar and willow. On smaller areas, natural meadows with willow and poplar can be observed. Particularly important for nesting, feeding and resting waterfowls are un-vegetated islands appearing on low levels of the Danube.

The site is on high importance for bird species of European conservation interest, specific for agricultural and steppe areas of Dobrogea as: *Anthus campestris, Burhinus oedicnemus, Calandrella brachydactyla, Emberiza calandra hortulana and Melanocorypha*. The site has a great importance for water birds such as *Tadorna ferruginea*, *Phalacrocorax pygmeus*, *Sterna hirundo*, *Chlidonias hybridus, Chlidonias niger*, *Larus minutus*, *Alcedo atthis*. During migration, are recorded large herds of: *Aquila pomarina*, *Ciconia ciconia*, *Ciconia nigra*, *Circus aeruginosus* and *Buteo buteo*.

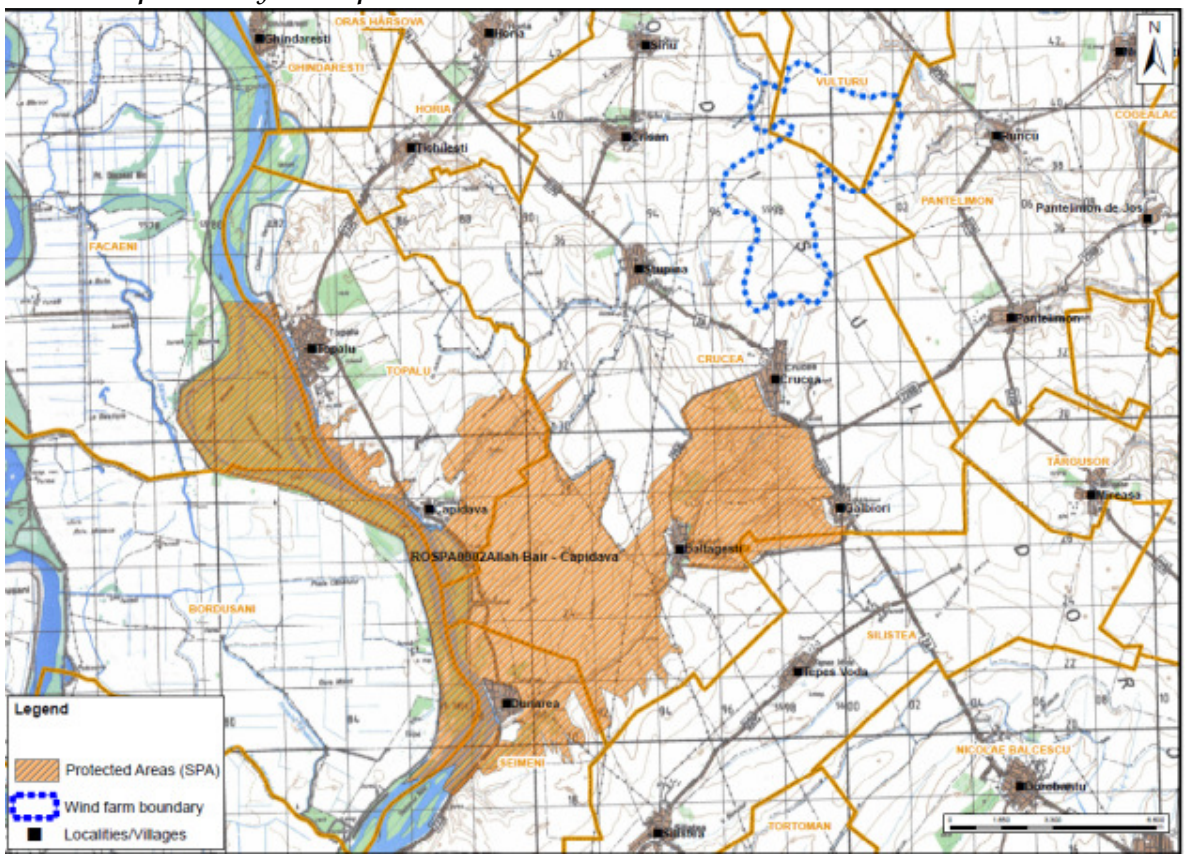
Vulnerability:

- intensification of agriculture activities and changing the lands cultivation methods from traditional to intensive agriculture, with large monocultures and excessive use of chemicals;
- change of semi-natural habitats (meadows, pastures) due to cessation of grazing and mowing;
- poaching;

- draining wetlands;
- destruction of nests, the clutch or offspring;
- disturbance during nesting birds (*Corvus frugilegus* colonies and *Falco vespertinus*);
- electrocution and collision with power lines;
- installation of wind turbines;
- deforestation, razor cuts and forests works as a result of felling large areas.

The reservation is under the custody of Constanta Forests Direction, Hârşova Branch. The Management Plan is currently in the development stage. The custodian has developed the Regulation for the Natura2000 site.

Figure 5-3 ROSPA0002 Allah Bair – Capidava layout map



5.3.2 Qualifying interest features

Species

Table 5-8 Birds species mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A397	*Tadorna ferruginea*		6-8 p			B	B	C	B
A402	*Accipiter brevipes*		3-5 p		>30 i	C	B	C	B
A229	*Alcedo atthis*		70-80 p			C	C	C	C
A133	*Burhinus oedicnemus*		20-30 p			B	B	C	B
A243	*Calandrella brachydactyla*		100-120 p			C	A	C	B
A224	*Caprimulgus europaeus*		110-120 p			C	C	C	B
A083	*Circus macrourus*				15-20 i	C	B	C	A
A231	*Coracias garrulus*		90-100 p			C	A	C	B
A238	*Dendrocopos medius*		15-18 p			D			
A236	*Dryocopus martius*		15-20 p			D			
A321	*Ficedula albicollis*				C	D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A320	*Ficedula parva*				C	D			
A338	*Lanius collurio*		1200-1300 p			D			
A339	*Lanius minor*		120-130 p			C	B	C	A
A177	*Larus minutus*		400-600 i			C	B	C	B
A246	*Lullula arborea*		120-150 p			C	B	C	C
A533	*Oenanthe pleschanka*		12-15 p			C	A	C	B
A234	*Picus canus*		20-30 p			D			
A403	*Buteo rufinus*		2-3p			C	A	C	B
A021	*Botaurus stellaris*			2-5i			D		
A215	*Bubo bubo*	1 p				C	B	C	B
A379	*Emberiza hortulana*		150-200p			C	B	C	B
A073	*Milvus migrans*		0-1p			C	B	C	C
A429	*Dendrocopos syriacus*		15-20p			D			
A097	*Falco vespertinus*		14-22 p			C	B	C	B
A196	*Chlidonias hybridus*				2000-3000 i	C	B	C	B
A393	*Phalacrocorax pygmeus*			420-500i		C	B	C	B

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A031	*Ciconia ciconia*				18000-50000 i	B	B	C	B
A030	*Ciconia nigra*				1500-3000 i	B	B	C	B
A080	*Circaetus gallicus*		1-3p		80-130i	B	B	B	A
A081	*Circus aeruginosus*				680-1780i	D			
A084	*Circus pygargus*				140-220i	C	A	B	A
A089	*Aquila pomarina*				2500-5000i	C	B	C	B
A072	*Pernis apivorus*				340-775 i	D			
A092	*Hieraaetus pennatus*				40-90i	C	B	C	A
A019	*Pelecanus onocrotalus*				300-600 i	C	B	B	B
A255	*Anthus campestris*		800-1200 p			C	B	C	B
A307	*Sylvia nisoria*		40-60 p			C	B	C	C
A242	*Melanocorypha calandra*		500-700p	200-400i		C	A	C	B
A075	*Haliaeetus albicilla*		P	4-8i	4-6i	C	A	B	B
A082	*Circus cyaneus*			10-15i	40-82i	C	B	C	B
A197	*Chlidonias niger*				400-600 i	C	B	C	B
A193	*Sterna hirundo*		P		2000-3000 i	C	B	C	B

Table 5-9 Birds species with regular migration, not mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A244	*Galerida cristata*		120-140 p			C	A	C	B
A247	*Alauda arvensis*		C			D			
A041	*Anser albifrons*			300-400 i		C	B	C	C
A256	*Anthus trivialis*				C	D			
A221	*Asio otus*		C			D			
A366	*Carduelis cannabina*		R		RC	D			
A364	*Carduelis carduelis*		C		RC	D			
A363	*Carduelis chloris*		C		RC	D			
A365	*Carduelis spinus*				RC	D			
A207	*Columba oenas*		RC			D			
A113	*Coturnix coturnix*		>600 p			C	B	C	B
A208	*Columba palumbus*				C	D			
A212	*Cuculus canorus*		RC			D			
A253	*Delichon urbica*		RC			D			
A251	*Hirundo rustica*		C			D			
A340	*Lanius excubitor*			R		D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A230	*Merops apiaster*		C			D			
A383	*Miliaria calandra*		C			D			
A262	*Motacilla alba*		RC			D			
A275	*Saxicola rubetra*				RC	D			
A276	*Saxicola torquata*		RC			D			
A210	*Streptopelia turtur*		RC			D			
A351	*Sturnus vulgaris*		C		C	D			
A311	*Sylvia atricapilla*		RC			D			
A310	*Sylvia borin*		RC			D			
A309	*Sylvia communis*		RC			D			
A286	*Turdus iliacus*				R	D			
A283	*Turdus merula*				C	D			
A285	*Turdus philomelos*				C	D			
A284	*Turdus pilaris*				RC	D			
A287	*Turdus viscivorus*				R	D			
A232	*Upupa epops*		C			D			
A179	*Larus ridibundus*				5000-10000 i	C	A	C	A
A459	*Larus cachinnans*				3000-5000 i	D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A249	*Riparia riparia*		300-500 p			C	B	C	B
A086	*Accipiter nisus*				860-1370 i	D			
A087	*Buteo buteo*				5000-10000 i	C	B	C	B

5.3.3 *Supporting habitats*

The Standard Data Form (SDF) for the site lists the following broad habitat types occurring within the SPA, which provide supporting habitat for the qualifying interest feature for bird species.

Table 5-10 Supporting habitats for the the qualifying interest features

Site description			
Site size – **11.645 ha**			
General characteristics of the site			
Code	**%**	**CLC**	**Habitat class**
N06	8	511, 512	Rivers, lakes
N12	46	211 - 213	Crops (Arable lands)
N14	13	231	Grasslands
N15	6	242, 243	Other arable lands
N16	22	311	Deciduous forests
N19	3	313	Mixed forests
N21	2	221, 222	Vineyards and orchards

CLC=Corine Land Cover

5.4 *ROSPA0019 CHEILE DOBROGEI NATURA2000 SITE*

5.4.1 *Overview*

ROSPA0019 Cheile Dobrogei covers an area of 10,929 ha.

The minimum distance between Crucea North Wind Farm and Cheile Dobrogei Natura2000 site is 2.8 km.

This site supports important protected bird species that include:

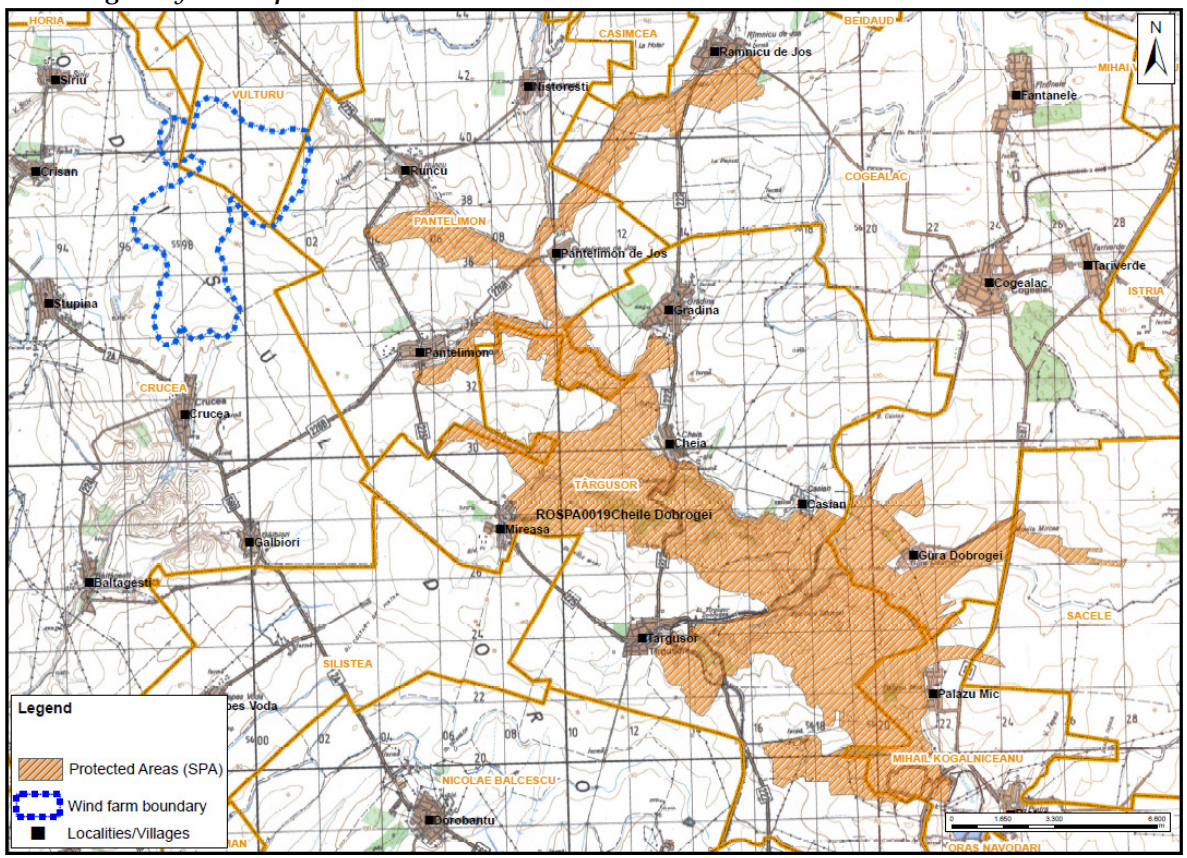
- breeding populations of the following species: *Burhinus oedicnemus, Circaetus gallicus, Circus pygargus, Coracias garullus, Melanocorypha calandra, Calandrella brachydactyla, Anthus campestris*;
- migratory raptors species;
- wintering *Branta ruficollis*.

The site is mainly vulnerable due to unorganized tourism, especially during national holidays. Anthropogenic influence is manifested through the

activities of grazing, hunting / poaching. Moreover, in the immediate vicinity of the area green shale exploitation produces dust and noise pollution.

The site is under the custody of Constanta Forests Directorate. The Management Plan is not available to date. The custodian has developed the Regulation for the Natura2000 site.

Figure 5-4 ROSPA0019 Cheile Dobrogei layout map



5.4.2 *Qualifying interest features*

Species

Table 5-11 Birds species mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A402	*Accipiter brevipes*		7-12 p		30 i	B	A	B	A
A255	*Anthus campestris*		2000-5000 p			C	A	C	B
A396	*Branta ruficollis*				2000 i	B	B	B	B
A215 i	*Bubo bubo*	2				C	B	C	B
A243	*Calandrella brachydactyla*		300-400 p			B	A	C	B
A224	*Caprimulgus europaeus*		60 p			C	B	C	B
A082	*Circus cyaneus*				30-70 i	C	B	C	C
A083	*Circus macrourus*				60-70 i	B	B	C	B
A231	*Coracias garrulus*		70-80 p			C	A	C	B
A238	*Dendrocopos medius*		30 p			C	B	C	C
A236	*Dryocopus martius*		15 p			D			
A379	*Emberiza hortulana*		300-400 p			C	B	C	B

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A098	*Falco columbarius*			12-15 i	12-15 i	C	B	C	B
A103	*Falco peregrinus*				10-12 i	C	B	C	B
A097	*Falco vespertinus*		17-23 p		200-300 i	C	B	C	B
A321	*Ficedula albicollis*				200 i	D			
A320	*Ficedula parva*				1000 i	D			
A135	*Glareola pratincola*				120 i	D			
A127	*Grus grus*				12 i	D			
A075	*Haliaeetus albicilla*				12-14 i	C	B	B	C
A092	*Hieraaetus pennatus*		1-3 p		15-20 i	C	B	C	A
A338	*Lanius collurio*		C			D			
A339	*Lanius minor*		120-130 p			C	B	C	B
A246	*Lullula arborea*		250-300 p			C	A	C	B
A242	*Melanocorypha calandra*		1200-2000 p			C	A	C	B
A077	*Neophron percnopterus*				1 i	C	B	C	B
A533	*Oenanthe pleschanka*		70-80 p			B	A	B	B
A234	*Picus canus*		20-30 p			D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A229	*Alcedo atthis*		R			D			
A404	*Aquila heliaca*				10-10i	B	A	C	B
A089	*Aquila pomarina*		1-1p		200-400i	C	B	C	B
A031	*Ciconia ciconia*				5000-10000i	C	B	C	C
A081	*Circus aeruginosus*				200-300i	C	B	C	C
A084	*Circus pygargus*				120-130i	C	B	C	A
A122	*Crex crex*				P	D			
A511	*Falco cherrug*		2-3i		10-10i	B	A	C	B
A073	*Milvus migrans*		1-1p		80-120i	C	A	B	A
A403	*Buteo rufinus*		10-12p		40-40i	B	A	C	B
A429	*Dendrocopos syriacus*	10-15 p				D			
A072	*Pernis apivorus*		2-4 p		1500-3000 i	C	B	C	C
A080	*Circaetus gallicus*		3-5p		120-130i	C	A	B	A
A133	*Burhinus oedicnemus*		25-35p		90-90i	B	B	C	B

Table 5-12 Birds species with regular migration, not mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A247	*Alauda arvensis*		P			D			
A221	*Asio otus*		C			D			
A113	*Coturnix coturnix*		400 p			C	B	C	B
A212	*Cuculus canorus*		RC			D			
A251	*Hirundo rustica*		C			D			
A340	*Lanius senator*		R			D			
A271	*Luscinia megarhynchos*		RC			D			
A230	*Merops apiaster*		C			D			
A383	*Miliaria calandra*		P			D			
A435	*Oenanthe isabellina*		R			D			
A277	*Oenanthe oenanthe*		RC			D			
A337	*Oriolus oriolus*		P			D			
A273	*Phoenicurus ochruros*		R			D			
A249	*Riparia riparia*		C			D			
A276	*Saxicola torquata*		RC			D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A210	*Streptopelia turtur*		RC			D			
A353	*Sturnus roseus*		RC			D			
A311	*Sylvia atricapilla*		RC			D			
A310	*Sylvia borin*		RC			D			
A309	*Sylvia communis*		RC			D			
A232	*Upupa epops*		C			D			

5.4.3 *Supporting Habitats*

The Standard Data Form (SDF) for the site lists the following broad habitat types occurring within the SPA, which provide supporting habitat for the qualifying interest feature for bird species.

Table 5-13 Supporting habitats for the the qualifying interest features

Site description			
Site size – **10.929 ha**			
General characteristics of the site			
Code	**%**	**CLC**	**Habitat class**
N06	13	321	Natural Grasslands, Steppe
N12	41	211 - 213	Crops (Arable lands)
N14	29	231	Grasslands
N15	10	242, 243	Other arable lands
N16	2	311	Deciduous forests
N23	3	1xx	Other artificial lands (localities, mines..)
N26	2	324	Forests habitats (forest in tranzition)

CLC = Corine Land Cover

5.5 *ROSPA0101 STEPA SARAIU – HOREA NATURA 2000 SITE*

5.5.1 *Overview*

ROSPA0101 Stepa Saraiu- Horea covers an area of 4,186 ha.

The minimum distance between Crucea North Wind Farm and Stepa Saraiu-Horea Natura2000 site is 5.5 km.

The site is important for breeding populations of the following species: *Burhinus oedicnemus, Coracias garrulus, Calandrella brachydactyla, Falco vespertinus, Melanocorypha calandra, Anthus campestris* and *Sylvia nisoria*. The regular nesting of the grey hen (*Circus pygargus*) in perimeter of the site is not yet proven but the adults can be observed annually during in this area, during the breeding period.

During migration, the site is important for the following species: *Burhinus oedicnemus, Pernis apivorus, Milvus migrans, Circaetus gallicus, Circus aeruginosus, Circus cyaneus, Circus macrourus, Circus pygargus, Aquila pomarina, Hieraaetus pennatus* and *Ciconia ciconia*.

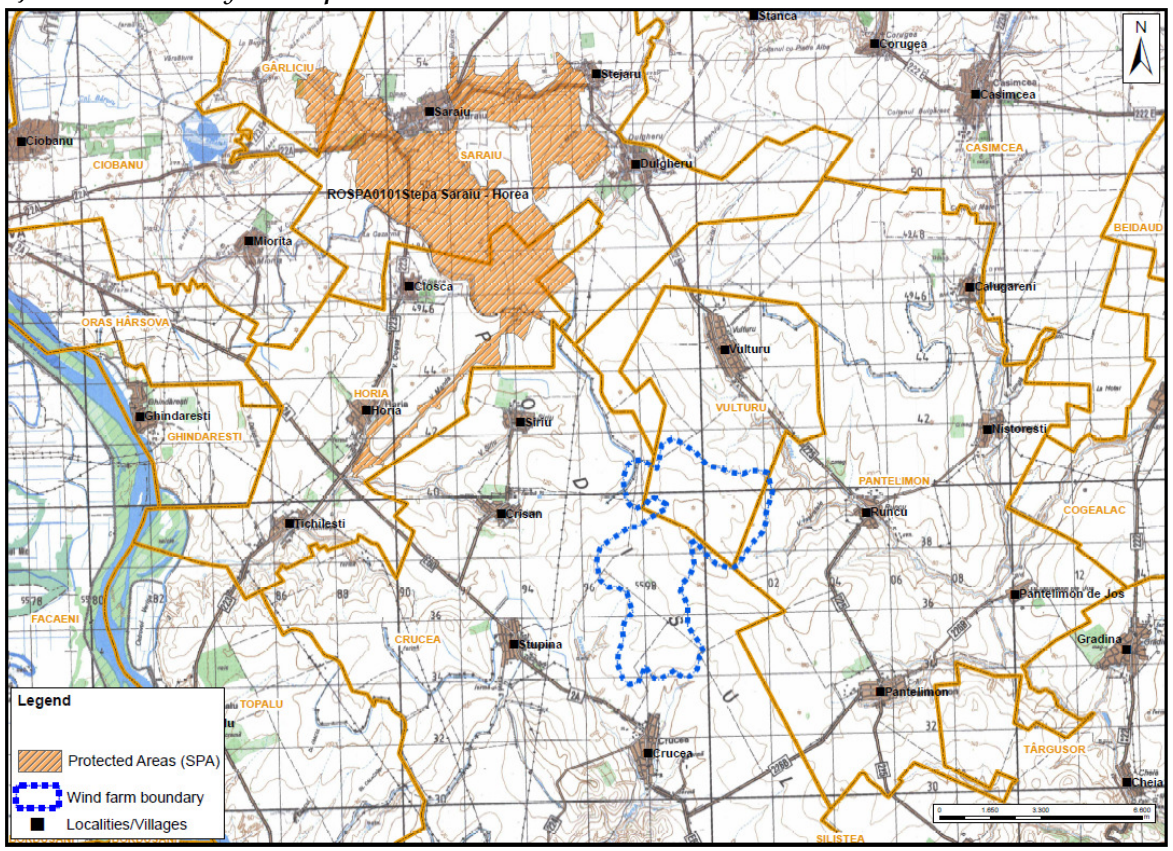
The site is important for wintering for the following species: *Falco columbarius, Circus cyaneus* and *Melanocorypha calandra*.

The body responsible for the site is the Environmental Ministry. No Management Plan is available to date.

Vulnerability

Pasturage represents the main cause for natural steppe habitats degradation in the area. Human inhabitancies and the road network that crosses the site represent negative impact elements.

Figure 5-5 ROSCI0215 Recifii Jurasici Cheia layout map



5.5.2 *Qualifying interest features*

Species

Table 5-14 Birds species mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A402	*Accipiter brevipes*				>30 i	C	B	C	B
A255	*Anthus campestris*		1000-1200 p			C	A	C	B
A089	*Aquila pomarina*				200-400 i	C	B	C	B
A403	*Buteo rufinus*				>40 i	C	A	C	B
A224	*Caprimulgus europaeus*		R			D			
A080	*Circaetus gallicus*				120-130 i	C	A	C	B
A081	*Circus aeruginosus*				200-300 i	C	B	C	C
A083	*Circus macrourus*				60-70 i	B	B	C	B
A231	*Coracias garrulus*		10-20 p			C	A	C	B
A379	*Emberiza hortulana*		10-14 p			D			
A321	*Ficedula albicollis*				R	D			
A320	*Ficedula parva*				R	D			
A075	*Haliaeetus albicilla*				12-14 i	C	B	C	C

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A092	*Hieraaetus pennatus*				15-20 i	C	B	C	A
A338	*Lanius collurio*		C			D			
A073	*Milvus migrans*				80-120 i	B	A	B	B
A072	*Pernis apivorus*				200-300 i	D			
A307	*Sylvia nisoria*		20-30 p			C	B	C	B
A429	*Dendrocopos syriacus*	5-7 p				D			
A097	*Falco vespertinus*		12-15p			C	B	C	B
A511	*Falco cherrug*				1-2i	C	B	C	C
A031	*Ciconia ciconia*				1500-2000i	C	B	C	B
A084	*Circus pygargus*		0-1p		120-130i	B	A	B	A
A098	*Falco columbarius*			12-15i	R	C	B	C	B
A242	*Melanocorypha calandra*		1200-1400p	400-600i		C	B	C	B
A133	*Burhinus oedicnemus*		10-20p		60-100i	B	A	C	B
A082	*Circus cyaneus*			6-10i	30-70i	C	B	C	C
A339	*Lanius minor*		15-30p			D			
A243	*Calandrella*		100-150p			C	B	C	C

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
	brachydactyla								

Table 5-15 Birds species with regular migration, not mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A253	*Delichon urbica*				RC	D			
A096 D	*Falco tinnunculus*	9-10 p				D			
A244	*Galerida cristata*		80-90 p			C	A	C	B
A251	*Hirundo rustica*		C			D			
A340	*Lanius excubitor*			R		D			
A230	*Merops apiaster*		C			D			
A383	*Miliaria calandra*		C			D			
A262	*Motacilla alba*		RC			D			
A260	*Motacilla flava*		C			D			
A435	*Oenanthe isabellina*		R		R	D			
A277	*Oenanthe oenanthe*		RC			D			
A249	*Riparia riparia*		C			D			
A276	*Saxicola torquata*				RC	D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A311	*Sylvia atricapilla*				RC	D			
A310	*Sylvia borin*				RC	D			
A309	*Sylvia communis*				RC	D			
A283	*Turdus merula*				C	D			
A232	*Upupa epops*		RC			D			
A247	*Alauda arvensis*		C			D			
A221	*Asio otus*		R			D			
A087	*Buteo buteo*				>200 i	D			
A366	*Carduelis cannabina*		R		RC	D			
A364	*Carduelis carduelis*		C		RC	D			
A363	*Carduelis chloris*		C		RC	D			
A365	*Carduelis spinus*				RC	D			
A113	*Coturnix coturnix*		RC			C	B	C	B
A208	*Columba palumbus*				RC	D			
A212	*Cuculus canorus*		RC			D			

5.5.3 Supporting Habitats

The Standard Data Form (SDF) for the site lists the following broad habitat types occurring within the SPA, which provide supporting habitat for the qualifying interest feature bird species.

Table 5-16 Supporting habitats for the the qualifying interest features

Site description			
Site size – **4.186 ha**			
General characteristics of the site			
Code	**%**	**CLC**	**Habitat class**
N12	76	211 - 213	Crops (Arable lands)
N14	24	231	Grasslands

CLC = Corine Land Cover

5.6 ROSCI0022 CANARALELE DUNĂRII NATURA 2000 SITE

5.6.1 Overview

ROSCI0022 Canaralele Dunării covers an area of 25,943 ha.

The minimum distance between Crucea North Wind Farm and Canaralele Dunării Natura2000 site is 11.2 km.

The site has a variety of protected habitats, from hydrophilic to the xenophile, including meadows, thickets, forests, etc.

The most representative habitat, for site footprint (30%) and national (11%) is the habitat 92A0 *Salix alba* and *Populus alba* galleries. It includes large areas of trees, excluded from the beginning from forestry interventions, that can be considered as virgin forests (located mainly on the islands), and bushes with century- old trees (especially poplars) on large areas (hundreds of hectares), such as Ostrovul Turcesc.

The second place in importance priority, is occupied by habitat 62C0 * Ponto-Sarmatic Steppes, representing approximately 2.5% of the national habitat, represented in some areas by primary steppes, including the limestone karst rocky steppes, with many threatened species included in the list National Red (Oltean et al., 1999).

The most important of the species of community interest is the Campanula Romantica and the most important nature reserve area of the site is Celea Mare – Valea lui Ene. Among endemic steppe associations is to be underlined the presence of *coenotaxons Sedo hillebrandtii - Polytrichetum piliferous* and *Agropyro brandzae - Thymetum zygioidi*, spread mostly in the north of the site, between Ghindăreşti and Hârşova.

Deciduous Bushes habitat 40C0* Ponto - Sarmatian includes two rare associationsat national level, on high conservation value, respectively *Rhamno catharticae - Jasminietum fruticantis* and *Paliuretum spinae - christi*, endemic for Dobrogea (Sanda, Arcuş, 1999). Although reduced as surfaces, xerothermal forests included in habitats 91I0 * Euro- Siberian steppe vegetation with Quercus sp. , 91 M0, Balkan-Pannonian forests of oak, 91AA * with downy oak forest vegetation, are of particular importance, including in terms of paleoecology, representing the last vestiges of coastal forests that were paths for forestry migration species from the Balkan Peninsula to the North Dobrogea forests (Paşcovschi, 1967). Most of these forests are protected by Pădurea Bratca, Pădurea Cetate andCelea Mare – Valea lui Ene reservations.

Although not a protected habitat, stands of Celtis glabrata (association *Gymnospermio altaicae-Celtetum glabratae*) presents a special scientific importance, being very rare and endemic for Dobrogea.

The site is the main route of plant species migration in general, not just those forests, from Balkan Peninsula to North Dobrogea and the Danube Delta (eg Periploca graeca) being situated on one of the main migration routes for birds, which has been proposed as an SPA. At the same time the site is a vital area for the reproduction and migration of sturgeon and other fish species.

Including the Danube Course on the site is essential for continuity and for transport by river waters of reproductive organs (seeds, sprouts etc.) of the various plant species that favor their spread to northern Dobrogea and the Danube Delta.

Vulnerability:

The site is particularly threatened by:

- Carrying out plantation within habitats 92A0 and 62 CO *, and less withinh 91AA and 40 C0 *, the intensity of this factor being medium.
- Forests exploitation and other forestry work within A0 92 and 91AA habitats, including with invasive alien species or difficult to remove (eg

Eleagnus angustifolia, Robinia pseudacacia), all these interventions being considered at low intensity.

- Danube water pollution, especially with oil (and potentially radioactive or heavy metal) - low intensity.
- Dredging the Danube sectors (eg Cochirleni- Cernavodă) and the potential for performing similar activities in other sectors, followed by sedimentation on secondary channels or on the banks.
- Prospective for installation of wind turbines on the site and in its vicinity.

Reservation is under the custody of Romsilva - Constanta Forests Direction. The Management Plan is not available to date.

Table 5-17 Supporting habitats for the the qualifying interest features

Site description

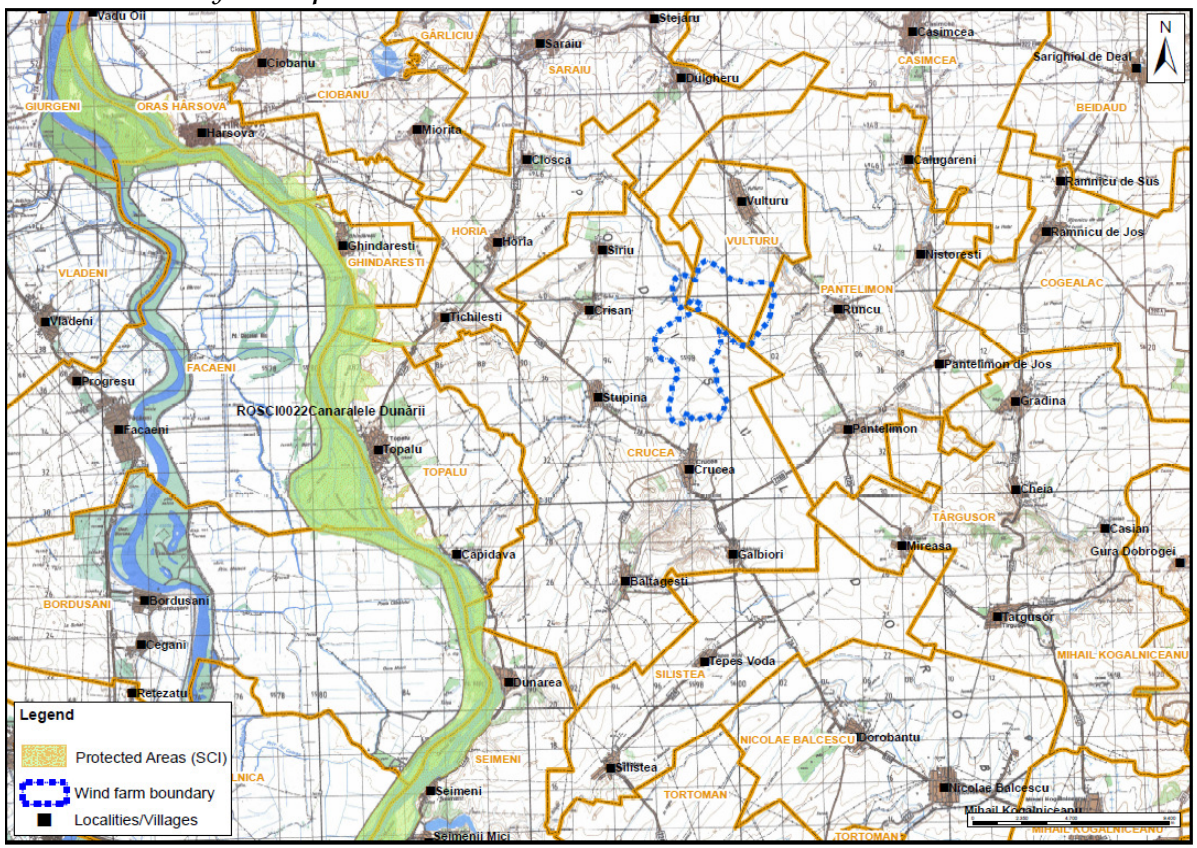
Site size – **25.943 ha**

General characteristics of the site

Code	%	CLC	Habitat class
N06	31	511, 512	Rivers, lakes
N07	5	411, 412	Swamps, peatlands
N12	2	211 - 213	Crops (Arable lands)
N14	2	231	Grasslands
N16	57	311	Deciduous forests
N26	3	324	Forest habitats (forests in tranzition)

CLC = Corine Land Cover

Figure 5-6 ROSCI0022 Canaralele Dunării layout map



5.6.2 *Qualifying Interest Features*

Habitats

Table 5-18 Habitat types within Dealul Allah Bair site and the assessment on habitat status

Code	Habitat type	%	Reprez.	Rel. area	Conserv.	Global
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	0,5	B	C	B	B
3140	Hard oligomesotrophic waters with benthic vegetation of Chara spp.	0,1	B	C	B	B
3270	Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation	1	B	B	B	B
40C0*	Ponto-Sarmatic deciduous thickets	1	B	B	B	B
62C0*	Ponto-Sarmatic steppes	10	B	B	B	B
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	1	B	C	B	B
6510	Lowland hay meadows (Alopecurus pratensis,. Sanguisorba officinalis)	1	B	C	B	B
91I0	Euro-Siberian steppic woods with Quercus spp	0,38	C	C	B	C
91M0	Pannonian-Balkanic turkey oak-sessile oak forests	0,19	B	C	B	C
91AA	Eastern white oak woods	0,76	B	B	B	B
92A0	Salix alba and Populus alba galleries	38	B	B	A	A
92D0	Southern riparian galleries and thickets (Nerio-. Tamaricetea and Securinegion tinctoriae).	0,02	C	C	B	C

Code	Habitat type	%	Reprez.	Rel. area	Conserv.	Global
6440	Alluvial meadows of river valleys of the Cnidion dubii	0,5	B	C	B	B
91F0	Riparian mixed forest of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia along the great rivers (Ulmenion minoris)	1	B	B	B	B
3150	Natural euthrophic lakes with Magnopotamion or Hydrocharition-type vegetation	0,01	B	C	B	B

Species

Table 5-19 Mammals species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1355	*Lutra lutra*	P?				D			

Table 5-20 Amphibians and Reptiles species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1188	*Bombina bombina*	P				B	C	B	C
1220	*Emys orbicularis*	P				C	B	C	B

1219	*Testudo graeca*	P				C	B	C	B
1993	*Triturus dobrogicus*	P				C	B	C	B

Table 5-21 Fishes species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
4125	*Alosa immaculata*	P	R			C	B	B	B
1124	*Gobio albipinnatus*	P				C	B	C	B
1157	*Gymnocephalus schraetzer*	P				B	B	B	B
1145	*Misgurnus fossilis*	P				B	B	C	B
2522	*Pelecus cultratus*	P				B	B	C	B
1134	*Rhodeus sericeus amarus*	P				B	A	C	A
1160	*Zingel streber*	P				B	B	C	B
1159	*Zingel zingel*	P				B	B	C	B
1130	*Aspius aspius*	P				B	B	C	B
2511	*Gobio kessleri*	P				C	B	C	B
4127	*Alosa tanaica*	P	R			C	B	B	B
2555	*Gymnocephalus baloni*	P				B	B	B	B

1149	*Cobitis taenia*	P				C	B	C	B
2484	*Eudontomyzon mariae*	P				C	C	C	C
1146	*Sabanejewia aurata*	P				C	C	C	C

Table 5-22 Invertebrates species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
4056	*Anisus vorticulus*	R				D			

Table 5-23 Plants species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
2079	*Moehringia jankae*	V				B	B	A	B
2236	*Campanula romanica*	R				B	A	A	B

5.7 ROSCI0201 PODISUL NORD DOBROGEAN NATURA2000 SITE

5.7.1 Overview

ROSCI0201 Podişul Nord Dobrogean covers an area of 84.812 ha.

The minimum distance between Crucea North Wind Farm and Podişul Nord Dobrogean Natura2000 site is 10,5 km.

The site is designated primarily for steppic habitat including priority habitats such as 62CO* Ponto-Sarmatian steppes and a particularly rare *Prunetum tenellae association* within Sarmatic 40C0 * Ponto-deciduous thickets. Other key habitats are steppic woodlands.

The site supports 77 plant species on the Romanian red list, of which 5 are European red list species. These include Dobragean endemics such as *Campanula novel*, and *Moehringia jankae*

Vulnerability:

The biggest threats to the species and habitats of the site are represented in descending order:

- Hunting, more than half of the site is included in hunting concessions.
- Decrease in the forest biodiversity, by derivation (due to competition between species of *Quercus* and mixing species) favored by forest management - the most fragile habitats being 91YO and to a lesser extent 91M0.
- Prospects for extending quarries and wind farms - the most fragile/threatened habitat types is the 62C0*.
- Planting steppe habitats - the most fragile / threatened habitat types are the 6290 and less 40DO.
- Building and construction in unincorporated areas of localities - the most fragile / threatened habitat types are the 6290 and less 40DO.

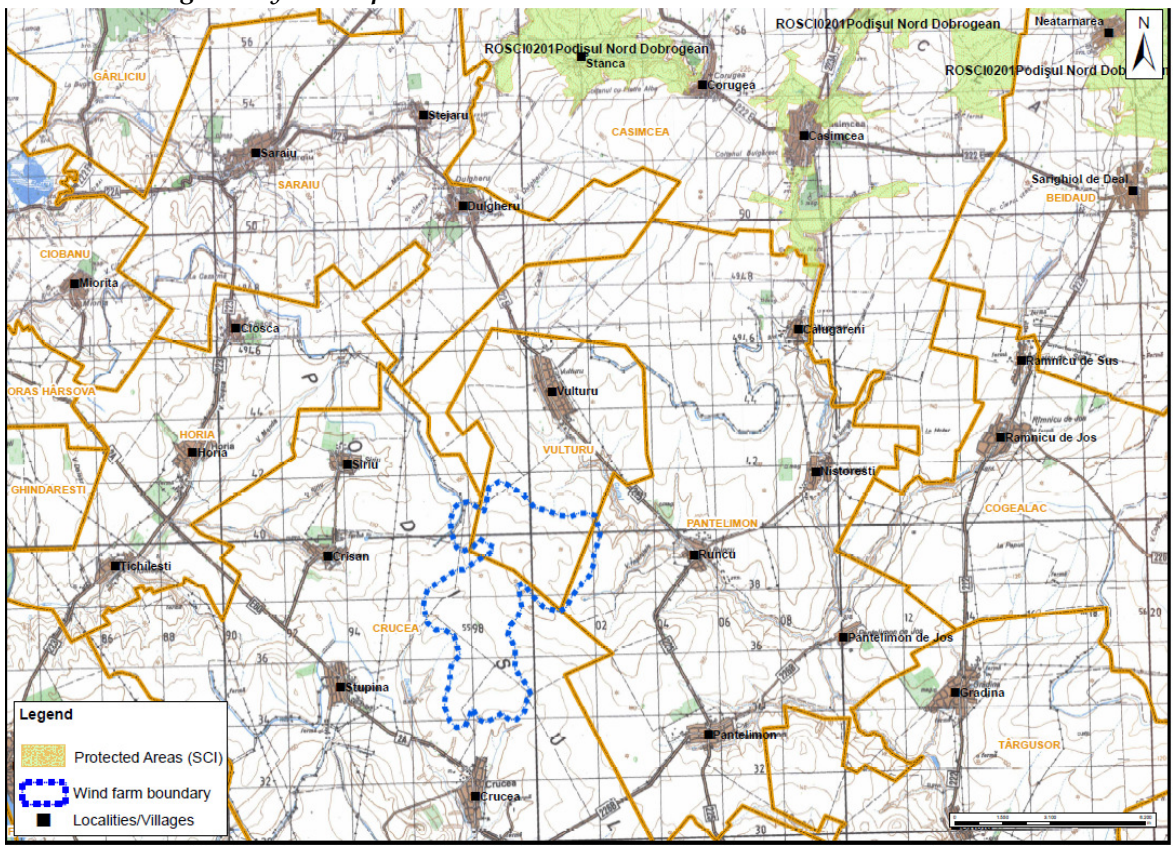
The site is not managed by a custodian. The Management Plan is not available to date.

Table 5-24 Supporting habitats for the the qualifying interest features

Site description			
Site size – **84.812 ha**			
General characteristics of the site			
Code	**%**	**CLC**	**Habitat class**
N09	15	321	Natural Grasslands, Steppe
N12	4	211 - 213	Crops (Arable lands)
N14	10	231	Grasslands
N16	73	311	Deciduous forests
N26	8	324	Forests habitats (forest in tranzition)

CLC= Corine Land Cover

Figure 5-7 ROSCI0201 Podişul Nord Dobrogean layout map



5.7.2 Qualifying interest features

Habitats

Table 5-25 Habitat types within Dealul Allah Bair site and the assessment on habitat status

Code	Habitat type	%	Reprez.	Rel. area	Conserv.	Global
40C0*	Ponto-Sarmatic deciduous thickets	2	A	A	B	B
91X0	Dobrogean beech forests	0,01	B	A	B	B
62C0*	Ponto-Sarmatic steppes	27,87	A	A	B	A
91I0	Euro-Siberian steppic woods with Quercus spp	2,25	A	B	A	A
91M0	Pannonian-Balkanic turkey oak-sessile oak forests	24,7	A	B	B	A
91Y0	Dacian oak & hornbeam forests	23,58	A	B	B	A
91AA	Eastern white oak woods	17,07	A	A	B	A
92A0	Salix alba and Populus alba galleries	0,02	C	C	B	C
8310	Caves not open to the public	0,001	C	C	B	C
8230	Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii	1	B	A	B	B

Species

Table 5-26 Mammal species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1335	*Spermophilus citellus*	RC				A	A	C	A
1304	*Rhinolophus ferrumequinum*	P				C	B	C	B
2609	*Mesocricetus newtoni*	R				A	B	A	B
2633	*Mustela eversmannii*	V				A	B	B	B
2635	*Vormela peregusna*	V				A	B	B	B
2021	*Sicista subtilis*	P				B	B	A	B

Table 5-27 Amphibians and Reptiles species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1219	*Testudo graeca*	RC				A	B	B	A
1188	*Bombina bombina*	P				D			
1279	*Elaphe quatuorlineata*	V				B	B	A	B

Table 5-28 Invertebrates species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
1089	*Morimus funereus*	P				A	B	C	B
1088	*Cerambyx cerdo*	P				B	B	C	B
4011	*Bolbelasmus unicornis*	R				B	B	C	B
1060	*Lycaena dispar*	RC				B	B	C	B
4053	*Paracaloptenus caloptenoides*	R				A	B	B	B

Table 5-29 Plants species mentioned within Annex II of Council Directive 92/43/CEE

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
2236	*Campanula romanica*	R				A	A	A	A
2079	*Moehringia jankae*	V				A	A	A	A
2253	*Centaurea jankae*	P?							
2253	*Centaurea jankae*	P?							
2327	*Himantoglossum caprinum*	R				A	B	C	B
2125	*Potentilla emilii-popii*	P?							
4067	*Echium russicum*	V				C	B	C	B
4097	*Iris aphylla ssp. hungarica*	V				C	B	C	B

Table 5-30 Other important flora and fauna species

Category	Species	Population	Motivation
P	*Achillea clypeolata*	R	A
P	*Agropyron cristatum ssp. brandzae*	P	C
P	*Asparagus verticillatus*	C	A
P	*Astragalus ponticus*	R	A
P	*Celtis glabrata*	V	A
P	*Corydalis solida ssp. slivenensis*	C	A
P	*Crocus flavus*	R	A
P	*Fritillaria orientalis*	V	A
P	*Gagea szovitsii*	R	A
P	*Globularia bisnagarica*	V	A
P	*Gymnospermium altaicum*	R	A
P	*Lactuca viminea*	R	A
P	*Limodorum abortivum*	V	A
P	*Mercurialis ovata*	C	A
P	*Myrrhoides nodosa*	C	A
P	*Neottia nidus-avis*	V	A

P	*Orchis morio*	R	A
P	*Paeonia peregrina*	C	A
P	*Paliurus spina-christi*	V	A
P	*Pimpinella tragium ssp. lithophila*	C	A
P	*Platanthera chlorantha*	R	A
P	*Salvia aethiopis*	R	A
P	*Scorzonera mollis*	R	A
P	*Silene compacta*	R	A
P	*Stachys angustifolia*	R	A
P	*Thymus zygioides*	C	A
P	*Achillea ochroleuca*	R	A
P	*Anacamptis pyramidalis*	R	A
P	*Asphodeline lutea*	V	A
P	*Asyneuma anthericoides*	V	A
P	*Cephalanthera rubra*	R	A
P	*Crocus chrysanthus*	R	A
P	*Dianthus nardiformis*	R	C
P	*Gagea bulbifera*	V	A
P	*Galanthus plicatus*	R	A

P	*Goniolimon collinum*	R	A
P	*Himantoglossum hircinum*	V	A
P	*Lathyrus pannonicus*	R	A
P	*Lunaria annua ssp. pachyrhiza*	V	A
P	*Muscari neglectum*	C	A
P	*Nectaroscordum siculum ssp. bulgaricum*	C	A
P	*Ononis pusilla*	R	A
P	*Ornithogalum amphibolum*	R	A
P	*Paeonia tenuifolia*	V	A
P	*Paronychia cephalotes*	R	A
P	*Piptatherum virescens*	C	A
P	*Rumex tuberosus*	C	A
P	*Satureja coerulea*	R	A
P	*Scutellaria orientalis*	R	A
P	*Spiraea hypericifolia*	R	A
P	*Tanacetum millefolium*	C	A
P	*Veratrum nigrum*	R	A

5.8 ROSPA0100 STEPA CASIMCEA NATURA2000 SITE

5.8.1 Overview

ROSPA0100 Stepa Casimcea covers an area of 22,226 ha.

The minimum distance between Crucea North Wind Farm and Stepa Casimcea Natura2000 site is 10,2 km.

This site houses important protected bird species, as following:

- number of species in Annex 1 of the Birds Directive: 28;
- number of other migratory species listed in the Annexes of the Convention on Migratory Species (Bonn): 37;
- number of globally threatened species: 5.

The site is important for breeding populations of the following species:

- *Coracias garrulous*
- *Falco cherrug*
- *Falco vespertinus*
- *Aquila heliacal*
- *Anthus campestris*
- *Accipiter brevipes*
- *Calandrella brachydactyla*
- *Buteo Rufinus*
- *Milvus migrans*
- *Pernis apivorus*
- *Lanius collurio*
- *Lullula arborea*
- *Oenanthe pleschanka*
- *Lanius minor*
- *Melanocorypha calandra*
- *Burhinus oedicnemus*
- *Circaetus gallicus*

- *Galerida cristata*
- *Aquila pomarina*
- *Dendrocopos syriacus*
- *Emberiza hortulana*

The site is important during migration, for the following species:

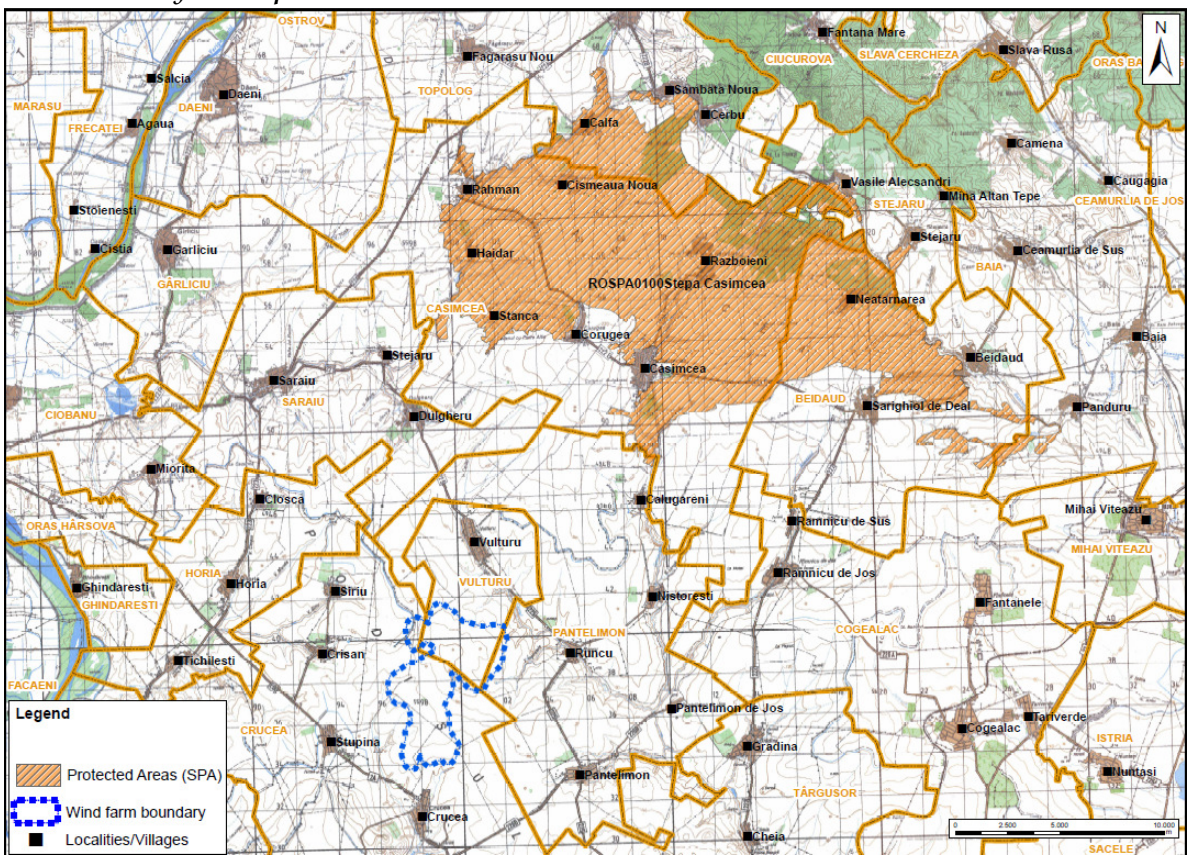
- *Falco vespertinus*
- *Accipiter brevipes*
- *Hieraaetus pennatus*
- *Falco peregrinus*
- *Circus cyaneus*
- *Aquila pomarina*
- *Ficedula albicollis*
- *Circus macrourus*
- *Circus pygargus*

Vulnerability:

The main cause of degradation of natural or semi-natural steppe meadow habitats is the pasture. Human habitation and roads crossing site constitutes also negative elements.

The authority responsible for managing the site is the Environmental Ministry. The Management Plan is not available to date.

Figure 5-8 ROSPA0100 Stepa Casimcea layout map



5.8.2 Qualifying interest features

Species

Table 5-31 Birds species mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A402	*Accipiter brevipes*		*3-4 p*		*30 i*	*C*	*A*	*C*	*B*
A255	*Anthus campestris*		*3600-5000 i*			*C*	*A*	*C*	*B*
A133	*Burhinus oedicnemus*		*45-50 p*			*B*	*B*	*C*	*B*
A243	*Calandrella brachydactyla*		*600-700 p*			*B*	*A*	*C*	*B*
A082	*Circus cyaneus*			*90-100 i*	*150-200 i*	*B*	*B*	*C*	*B*
A083	*Circus macrourus*				*60-70 i*	*B*	*B*	*C*	*B*
A231	*Coracias garrulus*		*60-70 p*			*C*	*A*	*C*	*B*
A379	*Emberiza hortulana*		*10-20 p*			*D*			
A103	*Falco peregrinus*				*4 i*	*D*			
A321	*Ficedula albicollis*				*200 i*	*D*			
A338	*Lanius collurio*		*400-500 p*			*D*			
A339	*Lanius minor*		*210-240 p*			*C*	*B*	*B*	*A*
A246	*Lullula arborea*		*300-350 p*			*C*	*B*	*C*	*C*

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A242	*Melanocorypha calandra*		*220-2500 i*			*C*	*A*	*C*	*B*
A080	*Circaetus gallicus*		*9-10p*		*70-130i*	*B*	*A*	*B*	*A*
A081	*Circus aeruginosus*				*540-1400 i*	*C*	*B*	*C*	*C*
A084	*Circus pygargus*				*155-380i*	*C*	*A*	*C*	*B*
A089	*Aquila pomarina*		*1-1p*		*2800-5500i*	*C*	*B*	*C*	*B*
A092	*Hieraaetus pennatus*				*140-190i*	*C*	*B*	*C*	*A*
A019	*Pelecanus onocrotalus*				*150-300 i*	*C*	*B*	*B*	*B*
A031	*Ciconia ciconia*				*11000-55000 i*	*B*	*B*	*C*	*B*
A030	*Ciconia nigra*				*400-455 i*	*C*	*B*	*C*	*B*
A403	*Buteo rufinus*		*8-14 p*			*B*	*B*	*C*	*B*
A404	*Aquila heliaca*				*2-4i*	*B*	*B*	*B*	*B*
A511	*Falco cherrug*				*4-6i*	*C*	*B*	*C*	*B*
A072	*Pernis apivorus*				*1190-2640 i*	*C*	*B*	*C*	*C*
A533	*Oenanthe pleschanka*				*20-30i*	*D*			
A073	*Milvus migrans*				*20-30i*	*C*	*B*	*C*	*C*
A429	*Dendrocopos*		*20-30p*			*D*			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
	syriacus								
A097	*Falco vespertinus*				*200-300i*	*C*	*B*	*C*	*B*

Table 5-32 Birds species with regular migration, not mentioned within Annex I of Council Directive 2009/147/EC

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A253	*Delichon urbica*				RC	D			
A096 D	*Falco tinnunculus*	9-10 p				D			
A244	*Galerida cristata*		80-90 p			C	A	C	B
A251	*Hirundo rustica*		C			D			
A340	*Lanius excubitor*			R		D			
A230	*Merops apiaster*		C			D			
A383	*Miliaria calandra*		C			D			
A262	*Motacilla alba*		RC			D			
A260	*Motacilla flava*		C			D			
A435	*Oenanthe isabellina*		R		R	D			
A277	*Oenanthe oenanthe*		RC			D			
A247	*Alauda arvensis*		P			D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A221	*Asio otus*		C			D			
A113	*Coturnix coturnix*		600-700 p			C	B	C	B
A208	*Columba palumbus*				P	D			
A212	*Cuculus canorus*		RC			D			
A299	*Hippolais icterina*		R			D			
A252	*Hirundo daurica*		12 p			D			
A251	*Hirundo rustica*		C			D			
A233	*Jynx torquilla*		R			D			
A341	*Lanius senator*		V			D			
A271	*Luscinia megarhynchos*		RC			D			
A230	*Merops apiaster*		C			D			
A383	*Miliaria calandra*		P			D			
A262	*Motacilla alba*		RC			D			
A260	*Motacilla flava*		P			D			
A435	*Oenanthe isabellina*		R			D			
A277	*Oenanthe oenanthe*		RC			D			
A337	*Oriolus oriolus*		P			D			

Code	Species	Resident	Breeding	Wint.	Pass.	Pop.sit.	Conserv.	Isol.	Glob.
A276	*Saxicola torquata*		RC			D			
A210	*Streptopelia turtur*		R			D			
A311	*Sylvia atricapilla*		RC			D			
A310	*Sylvia borin*		RC			D			
A309	*Sylvia communis*		RC			D			
A086	*Accipiter nisus*				1050-1650 i	C	B	C	C
A087	*Buteo buteo*				10000-20000 i	C	B	C	B

5.8.3 Supporting Habitats

The Standard Data Form (SDF) for the site lists the following broad habitat types occurring within the SPA, which provide supporting habitat for the qualifying interest feature bird species.

Table 5-33 Supporting habitats for the the qualifying interest features

Site description			
Site size – **22.226 ha**			
General characteristics of the site			
Code	**%**	**CLC**	**Habitat class**
N09	5	321	Natural Grasslands, Steppe
N12	52	211 - 213	Crops (Arable lands)
N14	19	231	Grasslands
N16	15	311	Deciduous forests
N23	2	1xx	Other artificial lands (localities, mines)
N26	7	324	Forest habitats (forests in transition)

CLC= Corine Land Cover

6 SCREENING FOR LIKELY SIGNIFICANT ADVERSE EFFECTS AND ADVERSE EFFECTS ON SITE INTEGRITY

6.1 POTENTIAL IMPACTS FROM THE PROJECT

Potential impacts arise during construction and operation of the turbines. Indirect effects include increased access to the site through improved road networks, although as the area is subject to repeated agricultural operations background disturbance will already be high. The key impacts are;

During construction:

- direct loss or degredation of habitat and flora species due to land take by wind turbine bases, tracks and other ancillary development;
- indirect impacts including disturbance to fauna and their habitats, generated by construction activities such as noise and vibration, dust, traffic and leaks and spills.

During operation:

- disturbance and displacement from the habitats on the project site as a result of indirect habitat loss or turbine operation, presence of a turbine close to nest or feeding sites;
- barrier effect caused by the location of the turbines on habitual flight routes; and
- death or injury of birds or bats as a result of collision with turbines which may especially be an issue for migratory species.
- disturbance arising from increased access due to improved road network.

6.2 DETERMINING LIKELY SIGNIFICANT EFFECT

6.2.1 *Approach to Determining Likey Significant Effect*

In order to focus the assessment on those species or habitats where there could be a likely significant effect, a screening table approach has been adopted. All of the qualifying interest features of the site included in the Additional Assessment Study are listed out in the following *Tables 6.1 to 6.8* and assessed to determine if there is a pathway for an effect from the Crucea North Wind Farm. Where no pathway or likely significant effect is identified, this is stated in the tables. Where it has been determined that a likely significant effect may occur, that qualifying interest feature is taken forward for further assessment in Section 6.3 to determine if there will be an effect on site integrity.

6.2.2 *Likely Significant Effect Screening Tables*

The following tables set out the initial assessment of whether the project could have a likely significant effect (LSE) on any of the qualifying interest features of the Natura 2000 sites identified in *Chapter 5*.

Table 6-1 Dealul Allah Bair SCI Initial Assessment Table

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
62C0*	Ponto-sarmatic steppes	No. No connectivity	N/A	N/A	N/A	No
2125	*Potentilla emilii-popii*	No. No connectivity	N/A	N/A	N/A	No
2236	*Campanula romantic*	No. No connectivity	N/A	N/A	N/A	No
2093	*Pulsatilla grandis*	No. No connectivity	N/A	N/A	N/A	No

Table 6-2 Recifii Jurasici Cheia SCI

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
40C0*	Ponto-Sarmatic deciduous thickets	No. No connectivity	N/A	N/A	N/A	No
62C0*	Ponto-sarmatic steppes	No. No connectivity	N/A	N/A	N/A	No
91AA	Ponto-sarmatic forest vegetation with fluffy oak	No. No connectivity	N/A	N/A	N/A	No
8310	Caves where public access is prohibited	No. No connectivity	N/A	N/A	N/A	No
1335	*Spermophilus citellus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1307	*Myotis blythii*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1304	*Rhinolophus ferrumequinum*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1321	*Myotis emarginatus*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1324	*Myotis myotis*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
1303	*Rhinolophus hipposideros*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1302	*Rhinolophus mehelyi*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1310	*Miniopterus schreibersi*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
1220	*Emys orbicularis*	No. No connectivity	No. No connectivity	N/A	N/A	No
1279	*Elaphe quatuorlineata*	No. No connectivity	No. No connectivity	N/A	N/A	No
1219	*Testudo graeca*	No. No connectivity	No. No connectivity	N/A	N/A	No
2079	*Moehringia jankae*	No. No connectivity	N/A	N/A	N/A	No
2236	*Campanula romanica*	No. No connectivity	N/A	N/A	N/A	No
2253	*Centaurea jankae*	No. No connectivity	N/A	N/A	N/A	No

Table 6-3 Allah Bair – Capidava SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
Annex I Species						
A397	*Tadorna ferruginea*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No use of site by species recorded	No. No use of site by species recorded	No
A402	*Accipiter brevipes*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A229	*Alcedo atthis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No use of site by species recorded	No. No use of site by species recorded	No
A133	*Burhinus oedicnemus*	Yes potential connectivity	Yes potential connectivity	No. High level nocturnal migrant	No. High level nocturnal migrant	Yes
A243	*Calandrella brachydactyla*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A224	*Caprimulgus europaeus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A083	*Circus macrourus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A231	*Coracias garrulus*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A238	*Dendrocopos medius*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's	No
A236	*Dryocopus martius*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's	No
A321	*Ficedula albicollis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A320	*Ficedula parva*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A338	*Lanius collurio*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A339	*Lanius minor*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A177	*Larus minutus*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A246	*Lullula arborea*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Low level diurnal migrant with minimal collision risk.	No
A533	*Oenanthe pleschanka*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A234	*Picus canus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's.	No
A403	*Buteo rufinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A021	*Botaurus stellaris*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A215	*Bubo bubo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A379	*Emberiza hortulana*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk as high level nocturnal migrant	No
A073	*Milvus migrans*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A429	*Dendrocopos syriacus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's	No
A097	*Falco vespertinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A196	*Chlidonias hybridus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Not recorded on site and unlikely to migrate through site.	No. Not recorded on site and unlikely to migrate through site.	No.

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A393	*Phalacrocorax pygmeus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No low level migrant along watercourses.	No
A031	*Ciconia ciconia*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A030	*Ciconia nigra*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A080	*Circaetus gallicus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A081	*Circus aeruginosus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A084	*Circus pygargus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A089	*Aquila pomarina*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A072	*Pernis apivorus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A092	*Hieraaetus pennatus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A019	*Pelecanus onocrotalus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A255	*Anthus campestris*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A307	*Sylvia nisoria*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A242	*Melanocorypha calandra*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A075	*Haliaeetus albicilla*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A082	*Circus cyaneus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A197	*Chlidonias niger*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Not recorded on site and unlikely to migrate through site.	No. Not recorded on site and unlikely to migrate through site.	No.
A193	*Sterna hirundo*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Not recorded on site and unlikely to migrate through site.	No. Not recorded on site and unlikely to migrate through site.	No.

Regularly Occuring Migratory Species

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A244	*Galerida cristata*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A247	*Alauda arvensis*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A041	*Anser albifrons*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A256	*Anthus trivialis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Low level diurnal migrant with minimal collision risk.	No
A221	*Asio otus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A366	*Carduelis cannabina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A364	*Carduelis carduelis*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A363	*Carduelis chloris*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A365	*Carduelis spinus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A207	*Columba oenas*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A113	*Coturnix coturnix*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A208	*Columba palumbus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A212	*Cuculus canorus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A253	*Delichon urbica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A251	*Hirundo rustica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A340	*Lanius excubitor*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A230	*Merops apiaster*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A383	*Miliaria calandra*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A262	*Motacilla alba*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A275	*Saxicola rubetra*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A276	*Saxicola torquata*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A210	*Streptopelia turtur*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A351	*Sturnus vulgaris*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A311	*Sylvia atricapilla*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A310	*Sylvia borin*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A309	*Sylvia communis*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A286	*Turdus iliacus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A283	*Turdus merula*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A285	*Turdus philomelos*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A284	*Turdus pilaris*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A287	*Turdus viscivorus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A232	*Upupa epops*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A179	*Larus ridibundus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A459	*Larus cachinnans*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A249	*Riparia riparia*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A086	*Accipiter nisus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A087	*Buteo buteo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Table 6-4 Cheile Dobrogei SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
Annex I Species						
A402	*Accipiter brevipes*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A255	*Anthus campestris*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A396	*Branta ruficollis*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A215 i	*Bubo bubo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A243	*Calandrella brachydactyla*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A224	*Caprimulgus europaeus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A082	*Circus cyaneus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A083	*Circus macrourus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A231	*Coracias garrulus*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A238	*Dendrocopos medius*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's	No
A236	*Dryocopus martius*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's	No
A379	*Emberiza hortulana*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk as high level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A098	*Falco columbarius*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A103	*Falco peregrinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A097	*Falco vespertinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A321	*Ficedula albicollis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A320	*Ficedula parva*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A135	*Glareola pratincola*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A127	*Grus grus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A075	*Haliaeetus albicilla*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A092	*Hieraaetus pennatus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A338	*Lanius collurio*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A339	*Lanius minor*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A246	*Lullula arborea*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Low level diurnal migrant with minimal collision risk.	No
A242	*Melanocorypha calandra*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A077	*Neophron percnopterus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A533	*Oenanthe pleschanka*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A234	*Picus canus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident in SPA's.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A229	*Alcedo atthis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No use of site by species recorded	No. No use of site by species recorded	No
A404	*Aquila heliaca*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A089	*Aquila pomarina*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A031	*Ciconia ciconia*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A081	*Circus aeruginosus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A084	*Circus pygargus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A122	*Crex crex*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A511	*Falco cherrug*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A073	*Milvus migrans*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A403	*Buteo rufinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A429	*Dendrocopos syriacus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A072	*Pernis apivorus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A080	*Circaetus gallicus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A133	*Burhinus oedicnemus*	Yes potential connectivity	Yes potential connectivity	No. High level nocturnal migrant	No. High level nocturnal migrant	Yes
Regularly Occuring Migratory Species						
A247	*Alauda arvensis*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A221	*Asio otus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A113	*Coturnix coturnix*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A212	*Cuculus canorus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A251	*Hirundo rustica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A340	*Lanius senator*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A271	*Luscinia megarhynchos*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A230	*Merops apiaster*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A383	*Miliaria calandra*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A435	*Oenanthe isabellina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A277	*Oenanthe oenanthe*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A337	*Oriolus oriolus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A273	*Phoenicurus ochruros*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A249	*Riparia riparia*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A276	*Saxicola torquata*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A210	*Streptopelia turtur*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A353	*Sturnus roseus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A311	*Sylvia atricapilla*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A310	*Sylvia borin*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A309	*Sylvia communis*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A232	*Upupa epops*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Table 6-5 Stepa Saraiu-Horea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
Annex 1 Species						
A402	*Accipiter brevipes*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A255	*Anthus campestris*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A089	*Aquila pomarina*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A403	*Buteo rufinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A224	*Caprimulgus europaeus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A080	*Circaetus gallicus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A081	*Circus aeruginosus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A083	*Circus macrourus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A231	*Coracias garrulus*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A379	*Emberiza hortulana*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk as high level nocturnal migrant	No
A321	*Ficedula albicollis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A320	*Ficedula parva*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A075	*Haliaeetus albicilla*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A092	*Hieraaetus pennatus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A338	*Lanius collurio*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A073	*Milvus migrans*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A072	*Pernis apivorus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A307	*Sylvia nisoria*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A429	*Dendrocopos syriacus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No
A097	*Falco vespertinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A511	*Falco cherrug*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A031	*Ciconia ciconia*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A084	*Circus pygargus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A098	*Falco columbarius*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A242	*Melanocorypha calandra*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A133	*Burhinus oedicnemus*	Yes potential connectivity	Yes potential connectivity	No. High level nocturnal migrant	No. High level nocturnal migrant	Yes
A082	*Circus cyaneus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A339	*Lanius minor*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A243	*Calandrella brachydactyla*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
Regularly Occuring Migratory Species						
A253	*Delichon urbica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A096 D	*Falco tinnunculus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A244	*Galerida cristata*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A251	*Hirundo rustica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A340	*Lanius excubitor*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A230	*Merops apiaster*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A383	*Miliaria calandra*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A262	*Motacilla alba*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A260	*Motacilla flava*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A435	*Oenanthe isabellina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A277	*Oenanthe oenanthe*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A249	*Riparia riparia*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A276	*Saxicola torquata*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A311	*Sylvia atricapilla*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A310	*Sylvia borin*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A309	*Sylvia communis*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A283	*Turdus merula*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A232	*Upupa epops*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A247	*Alauda arvensis*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A221	*Asio otus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A087	*Buteo buteo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A366	*Carduelis cannabina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A364	*Carduelis carduelis*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A363	*Carduelis chloris*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A365	*Carduelis spinus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A113	*Coturnix coturnix*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	**Disturbance During Construction and Operation**	**Barrier Effects to Species Movement**	**Collision Mortality**	
A208	*Columba palumbus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A212	*Cuculus canorus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No

Table 6-6 Canaralele Dunaru SCI

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the IsoÃ «to-Nanojuncetea	No. No connectivity	N/A	N/A	N/A	No
3140	Hard oligomesotrophic waters with benthic vegetation of Chara spp.	No. No connectivity	N/A	N/A	N/A	No
3270	Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation	No. No connectivity	N/A	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
40C0*	Ponto-Sarmatic deciduous thickets	No. No connectivity	N/A	N/A	N/A	No
62C0*	Ponto-Sarmatic steppes	No. No connectivity	N/A	N/A	N/A	No
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	No. No connectivity	N/A	N/A	N/A	No
6510	Lowland hay meadows (Alopecurus pratensis,. Sanguisorba officinalis)	No. No connectivity	N/A	N/A	N/A	No
91I0	Euro-Siberian steppic woods with Quercus spp	No. No connectivity	N/A	N/A	N/A	No
91M0	Pannonian-Balkanic turkey oak-sessile oak forests	No. No connectivity	N/A	N/A	N/A	No
91AA	Eastern white oak woods	No. No connectivity	N/A	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
92A0	Salix alba and Populus alba galleries	No. No connectivity	N/A	N/A	N/A	No
92D0	Southern riparian galleries and thickets (Nerio-. Tamaricetea and Securinegion tinctoriae).	No. No connectivity	N/A	N/A	N/A	No
6440	Alluvial meadows of river valleys of the Cnidion dubii	No. No connectivity	N/A	N/A	N/A	No
91F0	Riparian mixed forest of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia along the great rivers (Ulmenion minoris)	No. No connectivity	N/A	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
3150	Natural euthrophic lakes with Magnopotamion or Hydrocharition-type vegetation	No. No connectivity	N/A	N/A	N/A	No
1188	*Bombina bombina*	No. No connectivity	No. No connectivity	N/A	N/A	No
1220	*Emys orbicularis*	No. No connectivity	No. No connectivity	N/A	N/A	No
1219	*Testudo graeca*	No. No connectivity	No. No connectivity	N/A	N/A	No
1993	*Triturus dobrogicus*	No. No connectivity	No. No connectivity	N/A	N/A	No
4125	*Alosa immaculata*	No. No connectivity	No. No connectivity	N/A	N/A	No
1124	*Gobio albipinnatus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1157	*Gymnocephalus schraetzer*	No. No connectivity	No. No connectivity	N/A	N/A	No
1145	*Misgurnus fossilis*	No. No connectivity	No. No connectivity	N/A	N/A	No
2522	*Pelecus cultratus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1134	*Rhodeus sericeus amarus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1160	*Zingel streber*	No. No connectivity	No. No connectivity	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
1159	*Zingel zingel*	No. No connectivity	No. No connectivity	N/A	N/A	No
1130	*Aspius aspius*	No. No connectivity	No. No connectivity	N/A	N/A	No
2511	*Gobio kessleri*	No. No connectivity	No. No connectivity	N/A	N/A	No
4127	*Alosa tanaica*	No. No connectivity	No. No connectivity	N/A	N/A	No
2555	*Gymnocephalus baloni*	No. No connectivity	No. No connectivity	N/A	N/A	No
1149	*Cobitis taenia*	No. No connectivity	No. No connectivity	N/A	N/A	No
2484	*Eudontomyzon mariae*	No. No connectivity	No. No connectivity	N/A	N/A	No
1146	*Sabanejewia aurata*	No. No connectivity	No. No connectivity	N/A	N/A	No
4056	*Anisus vorticulus*	No. No connectivity	No. No connectivity	N/A	N/A	No
2079	*Moehringia jankae*	No. No connectivity	N/A	N/A	N/A	No
2236	*Campanula romanica*	No. No connectivity	N/A	N/A	N/A	No

Table 6-7 Podisul Nord Dobrogean SCI

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
40C0*	Ponto-Sarmatic deciduous thickets	No. No connectivity	N/A	N/A	N/A	No
91X0	Dobrogean beech forests	No. No connectivity	N/A	N/A	N/A	No
62C0*	Ponto-Sarmatic steppes	No. No connectivity	N/A	N/A	N/A	No
91I0	Euro-Siberian steppic woods with Quercus spp	No. No connectivity	N/A	N/A	N/A	No
91M0	Pannonian-Balkanic turkey oak-sessile oak forests	No. No connectivity	N/A	N/A	N/A	No
91Y0	Dacian oak & hornbeam forests	No. No connectivity	N/A	N/A	N/A	No
91AA	Eastern white oak woods	No. No connectivity	N/A	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
92A0	Salix alba and Populus alba galleries	No. No connectivity	N/A	N/A	N/A	No
8310	Caves not open to the public	No. No connectivity	N/A	N/A	N/A	No
8230	Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii	No. No connectivity	N/A	N/A	N/A	No
1335	*Spermophilus citellus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1304	*Rhinolophus ferrumequinum*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
2609	*Mesocricetus newtoni*	No. No use of site by species recorded	No. No connectivity	No. No use of site by species recorded	No. No use of site by species recorded	No
2633	*Mustela eversmannii*	No. No connectivity	No. No connectivity	N/A	N/A	No
2635	*Vormela peregusna*	No. No connectivity	No. No connectivity	N/A	N/A	No
2021	*Sicista subtilis*	No. No connectivity	No. No connectivity	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
1219	*Testudo graeca*	No. No connectivity	No. No connectivity	N/A	N/A	No
1188	*Bombina bombina*	No. No connectivity	No. No connectivity	N/A	N/A	No
1279	*Elaphe quatuorlineata*	No. No connectivity	No. No connectivity	N/A	N/A	No
1089	*Morimus funereus*	No. No connectivity	No. No connectivity	N/A	N/A	No
1088	*Cerambyx cerdo*	No. No connectivity	No. No connectivity	N/A	N/A	No
4011	*Bolbelasmus unicornis*	No. No connectivity	No. No connectivity	N/A	N/A	No
1060	*Lycaena dispar*	No. No connectivity	No. No connectivity	N/A	N/A	No
4053	*Paracaloptenus caloptenoides*	No. No connectivity	No. No connectivity	N/A	N/A	No
2236	*Campanula romanica*	No. No connectivity	N/A	N/A	N/A	No
2079	*Moehringia jankae*	No. No connectivity	N/A	N/A	N/A	No
2253	*Centaurea jankae*	No. No connectivity	N/A	N/A	N/A	No
2327	*Himantoglossum caprinum*	No. No connectivity	N/A	N/A	N/A	No
2125	*Potentilla emilii-popii*	No. No connectivity	N/A	N/A	N/A	No
4067	*Echium russicum*	No. No connectivity	N/A	N/A	N/A	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
4097	*Iris aphylla ssp. hungarica*	No. No connectivity	N/A	N/A	N/A	No

Table 6-8 Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
Annex I Species						
A402	*Accipiter brevipes*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A255	*Anthus campestris*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A133	*Burhinus oedicnemus*	Yes potential connectivity	Yes potential connectivity	No. High level nocturnal migrant	No. High level nocturnal migrant	Yes
A243	*Calandrella brachydactyla*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A082	*Circus cyaneus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A083	*Circus macrourus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A231	*Coracias garrulus*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A379	*Emberiza hortulana*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk as high level nocturnal migrant	No
A103	*Falco peregrinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A321	*Ficedula albicollis*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. High level nocturnal migrant	No. High level nocturnal migrant	No
A338	*Lanius collurio*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A339	*Lanius minor*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A246	*Lullula arborea*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Low level diurnal migrant with minimal collision risk.	No
A242	*Melanocorypha calandra*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A080	*Circaetus gallicus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A081	*Circus aeruginosus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A084	*Circus pygargus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A089	*Aquila pomarina*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A092	*Hieraaetus pennatus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A019	*Pelecanus onocrotalus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A031	*Ciconia ciconia*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A030	*Ciconia nigra*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A403	*Buteo rufinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A404	*Aquila heliaca*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A511	*Falco cherrug*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A072	*Pernis apivorus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A533	*Oenanthe pleschanka*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A073	*Milvus migrans*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A429	*Dendrocopos syriacus*	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. No suitable habitat on project site.	No. Resident on SPA's	No
A097	*Falco vespertinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Regularly Occuring Migratory Species

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A247	*Alauda arvensis*	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population	No. Present on site but no connectivity to SPA population and minimal collision risk	No
A221	*Asio otus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A113	*Coturnix coturnix*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A208	*Columba palumbus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A212	*Cuculus canorus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A299	*Hippolais icterina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A252	*Hirundo daurica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A251	*Hirundo rustica*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A233	*Jynx torquilla*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A341	*Lanius senator*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A271	*Luscinia megarhynchos*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A230	*Merops apiaster*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A383	*Miliaria calandra*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A262	*Motacilla alba*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A260	*Motacilla flava*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No
A435	*Oenanthe isabellina*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A277	*Oenanthe oenanthe*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A337	*Oriolus oriolus*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant	No
A276	*Saxicola torquata*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A210	*Streptopelia turtur*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. Low level diurnal migrant with minimal collision risk.	No

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality	
A311	*Sylvia atricapilla*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A310	*Sylvia borin*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A309	*Sylvia communis*	No. No connectivity to SPA population	No. No connectivity to SPA population	No. No connectivity to SPA population	No. High level nocturnal migrant with minimal collision risk.	No
A086	*Accipiter nisus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes
A087	*Buteo buteo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes

Twenty nine qualifying interest bird species have been identified as being potentially at risk of a likely significant effect from the windfarm development. These are presented in *Table 6.9* below.

6.3 DETERMINING EFFECTS ON SITE INTEGRITY

No SCI features were taken forward beyond screening for LSE. For SCI Annex I habitats this was because there is no loss of habitat associated with the building of the wind farm and no connectivity through emissions or hydrology, or indirect effects such as increased visitor pressure that would effect the distribution, extent or favourable conservation status of these habitats.

Given the distance of the windfarm from the SCI's many of the Annex II qualifying interest species have little connectivity with the wind farm. Many of the species such as the great Capricorn beetle *Cerambyx cerdo* have very specific habitat requirements such as dependence on old growth wood that are not available within the wind farm area. For others such as European souslik *Spermophilus citellus*, where small populations do exist within the wind farm area, the distance and intensive agricultural nature of the intervening areas between the SCI's and the wind farm mean there is little or no connectivity between these populations.

Some of the SCI's, most notably Recifii Jurasici Cheia SCI, support highly mobile species such as bats. Again however the habitat within the wind farm area is largely unsuitable for these species, and despite repeated bat surveys none of the qualifying species have been found within the wind farm area.

For similar reasons many SPA bird species, most notably those resident within the SPA's, have been screened out at the LSE stage either because the habitats that support them are not available within the wind farm (e.g. woodpeckers) or the SPA populations are too distant from the wind farm to depend on the agricultural habitats present within the wind farm.

A number of small passerine species that are qualifying SPA features are found within the wind farm. Species such as calandra lark for example are widely distributed within the Dobrogean plain and have small territory sizes. Direct connectivity with SPA populations is therefore very low. Impacts on populations within the wind farm are likely to be insignificant as research to date shows little evidence of significant collision mortality[1] or displacement of

[1] See Desholm, M. 2006. Wind farm related mortality among avian migrants– a remote sensing study and model analysis. PhD Thesis. National Environmental Research Institute, Ministry of the Environment, Denmark.

passerines[1]. The one study that indicated displacement effects on a small passerine[2], wheatear *Oenanthe oenanthe*, was undertaken on areas of remote and little disturbed habitat and the authors acknowledged responses may be different in highly disturbed lowland agricultural systems.

[1] Farfán, M. A., et al. "What is the impact of wind farms on birds? A case study in southern Spain." *Biodiversity and Conservation* 18.14 (2009): 3743-3758.

[2] Pearce-Higgins, J.W., Stephen, L., Langston, R.H.W., Bainbridge, I.P. and Bulman, R. 2009. The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology* 46, 1323-1331

Table 6-9 Qualifying Interest Features Taken Forward for Further Assessment

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A402	*Accipiter brevipes*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A133	*Burhinus oedicnemus*	Yes potential connectivity	Yes potential connectivity	No. High level nocturnal migrant	No. High level nocturnal migrant	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A083	*Circus macrourus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A403	*Buteo rufinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A215	*Bubo bubo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA
A073	*Milvus migrans*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A098	*Falco columbarius*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA Stepa Saraiu-Horea SPA
A103	*Falco peregrinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA Stepa Casimcea SPA
A097	*Falco vespertinus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A511	*Falco cherrug*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A096 D	*Falco tinnunculus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Stepa Saraiu-Horea SPA
A031	*Ciconia ciconia*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A030	*Ciconia nigra*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A127	*Grus grus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA
A080	*Circaetus gallicus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A081	*Circus aeruginosus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A084	*Circus pygargus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A404	*Aquila heliaca*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA Stepa Casimcea SPA
A089	*Aquila pomarina*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A072	*Pernis apivorus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A092	*Hieraaetus pennatus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A077	*Neophron percnopterus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A019	*Pelecanus onocrotalus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Stepa Casimcea SPA
A075	*Haliaeetus albicilla*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA
A082	*Circus cyaneus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Cheile Dobrogei SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA

Qualifying Interest Feature Code	Qualifying Interest Feature Name	Impact				LSE so taken forward for further assessment	Qualifying features for the following sites
		Direct Loss of Habitat	Disturbance During Construction and Operation	Barrier Effects to Species Movement	Collision Mortality		
A086	*Accipiter nisus*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Stepa Casimcea SPA
A087	*Buteo buteo*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA Stepa Saraiu-Horea SPA Stepa Casimcea SPA
A041	*Anser albifrons*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Allah Bair – Capidava SPA
A396	*Branta ruficollis*	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes potential connectivity	Yes	Cheile Dobrogei SPA

6.3.1 Species taken forward for Additional Assessment

Following the screening table assessment, LSE was identified for a total of 29 bird species that form part of the qualifying species of the four SPA's identified within the 10km search area. Many of these are qualifying species of more than one SPA. They are listed in *Table 6.9* above.

LSE was determined for many of these species to be principally due to potential collision risk (migratory and/or resident soaring birds such as raptors, cranes, storks and pelicans) and from loss of supporting habitat (stone curlew, winter geese, breeding raptors) through disturbance during construction and displacement during operation.

The purpose of AA is to test if the likelihood of the significant effect is of sufficient probability and intensity to have an affect on the SPA's site integrity (see definition in *Chapter 5)*. As none of the SPA's currently have management plans, conservation objectives are inferred based on the requirement to maintain site integrity. Such conservation objectives are now routinely embedded in the management statements of Natura 2000 sites and require the maintenance of;

- the population of the species as a viable component of the site
- the distribution of the species within the site
- the distribution and extent of the habitats supporting the species
- the structure, function and supporting processes of habitats supporting the species

6.3.2 Assessments of Species where LSE Predicted

Of the 29 species for which LSE was identified, only nine were recorded during the VP surveys during 2013. These were:

- *Falco tinnunculus* (common kestrel)
- *Hieraaetus pennatus* (booted eagle)
- *Buteo ruffinus* (long-legged buzzard)
- *Buteo buteo* (buzzard)
- *Milvas migrans* (black kite)
- *Circus aeruginosus* (marsh harrier)
- *Circus macrourus* (pallid harrier)
- *Ciconia ciconia* (white stork)
- *Falco vespertinus* (red-footed falcon)

Of these nine species, only five were recorded both within the wind farm area and at collision risk height (ie flying through the turbine swept area of the site).

A Collision Risk Model (CRM) has been developed for those species, and is presented in *Annex C*. The findings of the CRM are presented for the relevant species below in *Sections 6.3.3 – 6.3.7*, together with an assessment of the effects on the SPA populations.

For the majority of the other species which have either not been recorded during the 2013 surveys of the site, or have been recorded but not at collision risk height or within the boundary of the site, it is assumed that they do not use the site (either for hunting/foraging or by migrating or commuting through the rotor swept area) and therefore they have not been considered further in the assessment.

Additional species were recorded during the 2008/2009 surveys, however the surveys encompassed a larger area than just the Crucea North Wind Farm site, and the survey results cannot be used to determine the use of the Crucea North Wind Farm site by the species concerned.

The only other species which were taken forward for further assessment were stone curlew *Burhinus oedicnemus*, red-breasted goose *Branta ruficollis* and Greater white-fronted goose *Anser albifrons*. Although not recorded during the 2013 VP surveys these species either occur during winter and autumn migration which were not surveyed during 2013 (*Branta ruficollis* and *Anser albifrons*), or may commute to the use the fields within the wind farm for foraging and may not have been detected by the VP surveys (*Burhinus oedicnemus*).

6.3.3 Kestrel (Falco tinnunculus)

Kestrel is a qualifying interest feature of Stepa Saraiu-Horea SPA which supports a breeding population of 9-10 pairs. During the 2013 breeding bird surveys a single pair was recorded nesting in the vicinity of the south of the Crucean North Wind Farm, and it is likely that observations of birds recorded during the 2013 VP surveys related to these or other locally nesting birds, rather than birds from the Stepa Saraiu-Horea SPA, located 5.5 km to the northwest of the Crucea North Wind Farm site. A maximum count of 6 birds was recorded from the site at VP 3, with a total of 38 contacts across all surveys at all VPs.

The CRM calculated at the most conservative avoidance rate of 95% that one kestrel would be killed every 22.38 years, and at a more realistic avoidance rate of 99% that one kestrel would be killed every 111.91 years (see *Annex C*). Average adult survival for kestrel has been estimated at 0.69 (7), and the Romanian breeding population has been estimated at 10,000 – 14,000 (8) althought the population has shown a decrease in recent years.

Given the low collision mortality predicted by the CRM, the large Romanian population and the presence of the species breeding outside the SPA close to the Crucea North Wind Farm site, it can be concluded that direct collision will not result in any effects on the integrity of the SPA.

Given the distance between the Crucea North Wind Farm site and the location of breeding territories of non SPA birds present so close to the wind farm site, it is considered unlikely that breeding birds from the SPA will forage over the site, and will instead use other suitable foraging habitat elsewhere within or closer to the SPA. As a result no impacts to the integrity of the SPA are predicted from loss of habitat or disturbance during construction and operation.

6.3.4 Common Buzzard (Buteo buteo)

Common buzzard is a qualifying interest feature of Allah Bair – Capidava SPA, Stepa Saraiu-Horea SPA and Stepa Casimcea SPA. The populations for each are shown in *Table 6.10* below.

Table 6-10 Common Buzzard Populations in Nearby SPAs

SPA	Buteo buteo population		
	Breeding	**Wintering**	**Migration**
Allah Bair – Capidava SPA	-	-	5,000 – 10,000i
Stepa Saraiu-Horea SPA	-	-	>200i

(7) Proportion of adult birds which survive each year - BTO Bird Facts accessed 2013 http://blx1.bto.org/birdfacts/results/bob3040.htm

(8) Birds in Europe: population estimates, trends and conservation status (BirdLife International 2004)

SPA	Buteo buteo population		
	Breeding	**Wintering**	**Migration**
Stepa Casimcea SPA	-	-	10,000 – 20,000i

No common buzzards were recorded during the breeding bird surveys undertaken in 2013. During the spring VP surveys, a maximum count of 2 birds was recorded, and a total of 19 contacts were recorded across all VPs.

The CRM calculated at the most conservative avoidance rate that one common buzzard would be killed every 15.48 years, and at a more realistic avoidance rate of 99% that one common buzzard would be killed every 77.44 years (see *Annex C*). Average adult survival for common buzzard has been estimated at 0.9 (9) and the Romanian breeding population has been estimated at 28,000 - 34,000 (10) with far higher numbers passing through Romania on migration on their way to and from breeding sites north and west of Romania.

Given the low collision mortality predicted by the CRM and the large size of the Romanian populations, it is considered unlikely that direct collision will result in any effects on the integrity of the SPA.

Construction and operation of the Crucea North Wind Farm may also result in direct loss of habitat for common buzzard as well as disturbance during construction and operation and barrier effects. However the low number of birds recorded suggests that the site is not important as habitat for common buzzards on migration, and it can be concluded that there will be no effect on site integrity.

(9) BTO Bird Facts accessed 2013 http://blx1.bto.org/birdfacts/results/bob2870.htm

(10) Birds in Europe: population estimates, trends and conservation status (BirdLife International 2004)

6.3.5 *Long-legged Buzzard (Buteo rufinus)*

Long-legged buzzard is a qualifying interest feature of Allah Bair – Capidava SPA, Cheile Dobrogei SPA, Stepa Saraiu-Horea SPA, and Stepa Casimcea SPA. The populations for each are shown in *Table 6.11* below.

Table 6-11 Long-legged Buzzard Populations in Nearby SPAs

SPA	**Buteo rufinus population**		
	Breeding	**Wintering**	**Migration**
Allah Bair – Capidava SPA	2-3p	-	-
Cheile Dobrogei SPA	10-12p		40i
Stepa Saraiu-Horea SPA	-	-	>40i
Stepa Casimcea SPA	8-14p	-	-

Two possible breeding locations for long-legged buzzard were recorded during the 2013 breeding bird surveys. One approximately 3.5 km to the east of the Crucea North Wind Farm site close to the edge of the Cheile Dobrogei SPA, and one approximately 6 km south of the Crucea North Wind Farm site within the Allah Bair – Capidava SPA. The birds recorded at both of these nest locations are likely to form part of the SPA populations.

During the VP surveys only single birds were recorded, with a total of 12 contacts across all VPs.

The CRM calculated at the most conservative avoidance rate of 95% that one long-legged buzzard would be killed every 22.1 years and at a more realistic avoidance rate of 99% that one long-legged buzzard would be killed every 110.48 years (see *Annex C*). Average adult survival for long-legged buzzard has not been estimated but is likely to be similar to common buzzard, at 0.9. The Romanian breeding population is relatively small and has been estimated at 65-110 pairs, with an increasing growth trend(11).

(11) Birds in Europe: population estimates, trends and conservation status (BirdLife International 2004)

Although the SPA breeding populations of long-legged buzzard are relatively small, given the very low collision mortality calculated by the CRM, it is predicted that there will not be any effects on the SPA breeding populations of long-legged buzzard as a result of collision mortality. It is likely that adult birds will produce more than enough young to occupy suitable breeding territories within the SPA with the additional very low level of predicted mortality.

The construction of the Crucea North Wind Farm will result in the loss of some areas of foraging habitat for breeding and potentially for migrating long-legged buzzard. However the area of habitat lost to each turbine is predicted to be approximately 2.6 ha per turbine or 95 ha in total. This level of land take is not predicted to have a significant effect on the available foraging area for long-legged buzzard breeding in nearby SPAs, as there is abundant alternative foraging habitat within and close to the SPAs. As a result no effect on the integrity of any SPAs from loss of habitat or disturbance during construction and operation is predicted.

6.3.6 Black Kite (Milvus migrans)

Black kite is a qualifying interest feature of Allah Bair – Capidava SPA, Cheile Dobrogei SPA, Stepa Saraiu-Horea SPA, and Stepa Casimcea SPA. The populations for each are shown in *Table 6.12* below.

Table 6-12 Black Kite Populations in Nearby SPAs

SPA	Black kite population		
	Breeding	**Wintering**	**Migration**
Allah Bair – Capidava SPA	0-1p	-	-
Cheile Dobrogei SPA	1p	-	80-120i
Stepa Saraiu-Horea SPA	-	-	80-120i
Stepa Casimcea SPA	-	-	20-30i

No black kite nests were recorded during breeding surveys undertaken in 2013, although a single bird was recorded poisoned within the Allah Bair-Capidava SPA. During the VP surveys black kites were only recorded on two occasions, with individual birds recorded on each occasion.

The CRM calculated at the most conservative avoidance rate of 95% that one black kite would be killed every 40.2 years and at a more realistic avoidance rate of 99% that one black kite would be killed every 201.2 years (see *Annex C*).

Average adult survival has not been estimated for black kite but is likely to be similar to that of the closely related red kite which has been estimated at 0.61 [(12)] . The Romanian breeding population is relatively small and has been estimated at 120-160 pairs, with a declining population trend[(13)].

Although the SPA breeding populations of black kite are small, given the very low collision mortality calculated by the CRM, it is predicted that there will not be any effects on the SPA breeding populations of black kite as a result of collision mortality. As with long-legged buzzards It is likely that adult birds will produce more than enough young to occupy suitable breeding territories within the SPA with the additional very low level of predicted mortality.

The construction of the Crucea North Wind Farm will result in the loss of some areas of foraging habitat for breeding and potentially for migrating black kite. However given the very low number of flights recorded during the VP surveys, significant effects from foraging habitat or disturbance during construction and operation are not predicted.

There is the potential for barrier effects on migrating black kite, however the Crucea North Wind Farm site has not been reported to support any important migratory routes in the context of the wider area and is not know to generate important thermals for migratory birds (Wildlife Management 2012). This conclusion is supported by the results of the 2013 VP surveys. As a result no barrier effects are predicted. Overall no effects to the integrity of any of the SPAs are predicted as a result of effects on the qualifying interest features black kite populations.

It should be noted that birds of prey have no avoidance of poisoned bait and that this is likely to have a much greater impact on breeding bird populations than mortality related to wind farms.

(12) BTO Bird Facts accessed 2013 http://blx1.bto.org/birdfacts/results/bob2390.htm

(13) Birds in Europe: population estimates, trends and conservation status (BirdLife International 2004)

6.3.7 *Booted Eagle (Aquila pennata / Hieraaetus pennatus)*

Booted eagle is a qualifying interest feature of Allah Bair – Capidava SPA, Cheile Dobrogei SPA, Stepa Saraiu-Horea SPA, and Stepa Casimcea SPA. The populations for each are shown in *Table 6.13* below.

Table 6-13 Booted Eagle Populations in Nearby SPAs

SPA	Booted eagle population		
	Breeding	**Wintering**	**Migration**
Allah Bair – Capidava SPA	-	-	40-90i
Cheile Dobrogei SPA	1-3p	-	15-20i
Stepa Saraiu-Horea SPA	-	-	15-20i
Stepa Casimcea SPA	-	-	140-190i

A single possible booted eagle nest was recorded during breeding surveys undertaken in 2013 within the Allah Bair-Capidava SPA. During the VP surveys booted eagles were only recorded on three occasions, with individual birds recorded on each occasion.

The CRM calculated at the most conservative avoidance rate of 95% that one booted eagle would be killed every 28.08 years and at a more realistic avoidance rate of 99% that one booted eagle would be killed every 140.41 years (see *Annex C*).

Average adult survival has not been estimated for booted eagle. The Romanian breeding population is relatively small and has been estimated at 80-120 pairs, with a declining population trend(14). During migration far greater numbers pass through Romania from breeding areas to the north.

Although the breeding population for Cheile Dobrogei SPA is small (and the species may also breed in low numbers in Allah-Bair-Capidava SPA) given the very low collision mortality calculated by the CRM, it is predicted that there

(14) Birds in Europe: population estimates, trends and conservation status (BirdLife International 2004)

will not be any significant effects on the SPA breeding populations of booted eagle as a result of collision mortality.

Given the very low numbers of flights recorded within the windfarm site it is not predicted to be likely that loss of habitat or disturbance during construction or operation will affect the booted eagle population such that there will be an effect on the integrity of any SPAs.

There is the potential for barrier effects on migrating booted eagle, however as stated for other species the Crucea North Wind Farm site has not been reported to support any important migratory routes in the context of the wider area and is not know to generate important thermals for migratory birds (Wildlife Management 2012). This conclusion is supported by the results of the 2013 VP surveys. As a result no barrier effects are predicted. Overall no effects to the integrity of any of the SPAs are predicted as a result of effects on the qualifying interest feature booted eagle populations.

6.3.8 Red-breasted Goose (Branta ruficollis)

Red-breasted goose is a qualifying interest feature of Cheile Dobrogei SPA, with a population on passage of 2,000 individuals. No red-breasted geese have been recorded during any of the migration surveys undertaken at the Crucea North Wind Farm site in 2013 or during the passage and winter 2008/2009 surveys of the wider area around Crucea North.

The key wintering and passage locations for red-breasted geese are located on the Romanian coast as illustrated by the sensitivity maps prepared for the Romanian Environment Ministry (see *Figures 4.3 to 4.6).* These maps indicate the key roosts are associated with Lake Sinoe, and that the main feeding areas are all well to the south of the wind farm near Navodari and Cernavodã. Birds occurring on passage at Cheile Dobrogei SPA are likely to move east to the coast rather than west across the Crucea North Wind Farm site.

6.3.9 Greater White-fronted Goose (Anser albifrons)

Greater white-fronted goose is a qualifying interest feature of the Allah Bair – Capidava SPA, with a population over winter of 300-400 individuals. No greater white-fronted geese were recorded during the wintering 2008/2009 surveys of the wider area around Crucea North.

The closely related Greenland race for the greater white-fronted goose have a relatively limited foraging range from roost sites of 5-8km[15]. The closest roost sites are along the Danube along the western edge of the Allah Bair-Capidava SPA, which is over 12km from Crucea North Wind Farm site. Sensitivity mapping does not indicate any feeding areas in proximity to the wind farm.

As a result it is very unlikely that wintering geese from the SPA will forage across the Crucea North Wind Farm site. Therefore there is not predicted to be any effect on site integrity as a result of collision mortality, disturbance during construction and operation, habitat loss or barrier effect.

6.3.10 Stone Curlew (Burhinus oedicnemus)

Stone curlew is a qualifying interest feature of Allah Bair – Capidava SPA, Cheile Dobrogei SPA, Stepa Saraiu-Horea SPA, and Stepa Casimcea SPA. The populations for each are shown in *Table 6.14* below.

Table 6-14 Stone Curlew Populations in Nearby SPAs

SPA	**Booted eagle population**		
	Breeding	**Wintering**	**Migration**
Allah Bair – Capidava SPA	20-30p	-	-
Cheile Dobrogei SPA	25-35p	-	90-90i
Stepa Saraiu-Horea SPA	10-20p	-	60-100i
Stepa Casimcea SPA	45-50p	-	-

No stone curlews were recorded during the breeding surveys in 2013 or during the VP surveys. However stone curlew are know to undertake nocturnal commuting flights from nesting areas to suitable foraging areas which may not have been recorded by VP surveys.

[15] Pendlebury, C., Zisman, S., Walls, R., Sweeney, J., McLoughlin, E., Robinson, C., Turner, L. & Loughrey, J. (2011). Literature review to assess bird species connectivity to Special Protection Areas. *Scottish Natural Heritage Commissioned Report No. 390*

The maximum recorded distances for nocturnal foraging flights for stone curlew are reported to be 3 km [16]. This would mean that birds breeding at any of the SPAs apart from Allah Bair – Capadava are likely to be too far away to forage within the Crucea North Wind Farm (see *Section 5* for distances between SPAs and Crucea North Wind Farm site). Allah Bair – Capidava SPA however lies 2 km to the south of Crucea North Wind Farm and stone curlew breeding close to the norther edge of the SPA could potentially forage within the Crucea North Wind Farm site. However the habitats present on the wind farm site (predominantly sunflower and maize fields) are sub-optimal foraging habitats for stone curlew which prefer steppe and spring sown crop fields. It is considered unlikely therefore that bird would forage on the wind farm site, rather than more optimal habitats within the SPA itself, at lower energetic cost.

As a result no effects on the integrity of any of the SPAs are predicted as a result of effects on stone curlew from habitat loss, collision mortality, disturbance or barrier effect.

6.4 IN-COMBINATION ASSESSMENT

6.4.1 Introduction

Article 6(3) of the Habitats Directive requires that:

'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either alone or in-combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.'

This section sets out the assessment of effects with the Crucea North Wind Farm site in-combination with other plans and projects.

It should be noted from the outset that the assessment of cumulative impacts is hampered by the lack of information available on other projects, although

(16) Green, R. E., Tyler, G. A. and Bowden, C. G. R. (2000), Habitat selection, ranging behaviour and diet of the stone curlew (*Burhinus oedicnemus*) in southern England. Journal of Zoology, 250: 161–183. doi: 10.1111/j.1469-7998.2000.tb01067.x

such difficulties are common throughout the EU, and are not specific to Romania(17).

To assist the analysis of cumulative effects the Local Environmental Agency Constanta provided a list with the locations of Wind Farms Projects within a 10 km radius of the Crucea North Project. All those projects at the agreement and/or permitting stage were included for consideration.

6.4.2 *Description of Projects considered for the scope of the In-Combination assessment*

The Crucea North Wind Farm will consist of 36 turbines covering an area of 22.64 km² of which the operational footprint (i.e. the land required for the turbines and infrastructure) will be 0.95 km² (i.e. approximately 4.19% of the total wind farm area).

Dobrogea has some of the highest wind potential in Europe and consequently there has been a significant interest in wind generating capacity. Within 10 km of the Crucea North Wind, there are 21 proposed wind farms and these are listed in *Table 6.15* and also in *Figure 6.1 Agreement stage* and *Figure 6.2 Projects already constructed in the project vicinity.*

Table 6.15 Wind farms within 10 km of the Crucea North Wind

No.	Location	Name of the developer	No of turbines/ total power (MW)/ distance to the target site
1	Pantelimon*	SC.NEG PROJECT 1 SRL	2 turbines Approx. 3.5 km
2	Mireasa*	SC.ECO POWER WIND.SRL	4 turbines Approx. 9 km
3	Pantelimon*	SC.EOLIAN PROJECT SRL	2 turbines Approx. 8 km

(17) Cooper, L. M & Sheate, W.R. 2002. Cumulative effects assessment: A review of UK environmental impact statements. Environmental Impact Assessment Review Volume 22, Issue 4, August 2002, Pages 415-439

4	Vulturu	SC.ROMWIND.SRL	9 turbines Overlapping
5	Vulturu	SC VULTURU WIND FARM SRL	29 turbines Boundary overlapping
6	Saraiu, Vulturu and Crucea	SC ENERGO WINDPROD SRL	36 turbines Approx. 5 km
7	Saraiu	SC RIG SERVICE SRL	13 turbines Approx. 5 km
8	Saraiu	SC.SARAIU WIND FARM SRL	40 turbines Approx. 7 km
9	Pantelimon	SC VULTURU POWER PARK SRL	38 turbines Approx. 4.5 km
10	Crucea and Pantelimon	SC CRUCEA POWER PARK SRL	40 turbines Boundary overlapping
11	Crucea	SC NEG PROJECT 1 SRL	2 turbines Approx. 3.3 km
12	Pantelimon	SC E-WIND SRL	55 turbines Approx. 3.7 km
13	Pantelimon	SC. GENERAL MASINE BUSSINES DIVISION SRL & ROMWIND SRL	5 turbines Approx. 4.7 km
14	Pantelimon	SC ROMWIND SRL & SC NEG PROJECT TWO	3 turbines Approx. 4.5 km
15	Pantelimon	SC WIND FACTORY SRL	2 turbines Approx. 7.3 km
16	Silistea and Targusor	SC ECO POWER WIND SRL	4 turbines Approx. 9 km
17	Silistea	SC ELCOMEX EOL SRL	22 turbines

			Approx. 8 km
18	Crucea	GENERACION EOLIACA DACIA	47 turbines
			Approx. 1.7 km
19	Crucea	SC.ALPHA EOLICA.SRL	36 turbines
			Boundary overlapping
20	Crucea	SC RAGGIO VERDE SA	11 turbines
			Approx. 8 km
21	Vulturu	SC ROMCONSTRUCT TOP SRL	11 turbines
			Approx. 6 km

Figure 6-1 Map with windfarms passing the Agreement stage permitting process (based on data provided by EPA Constanța)

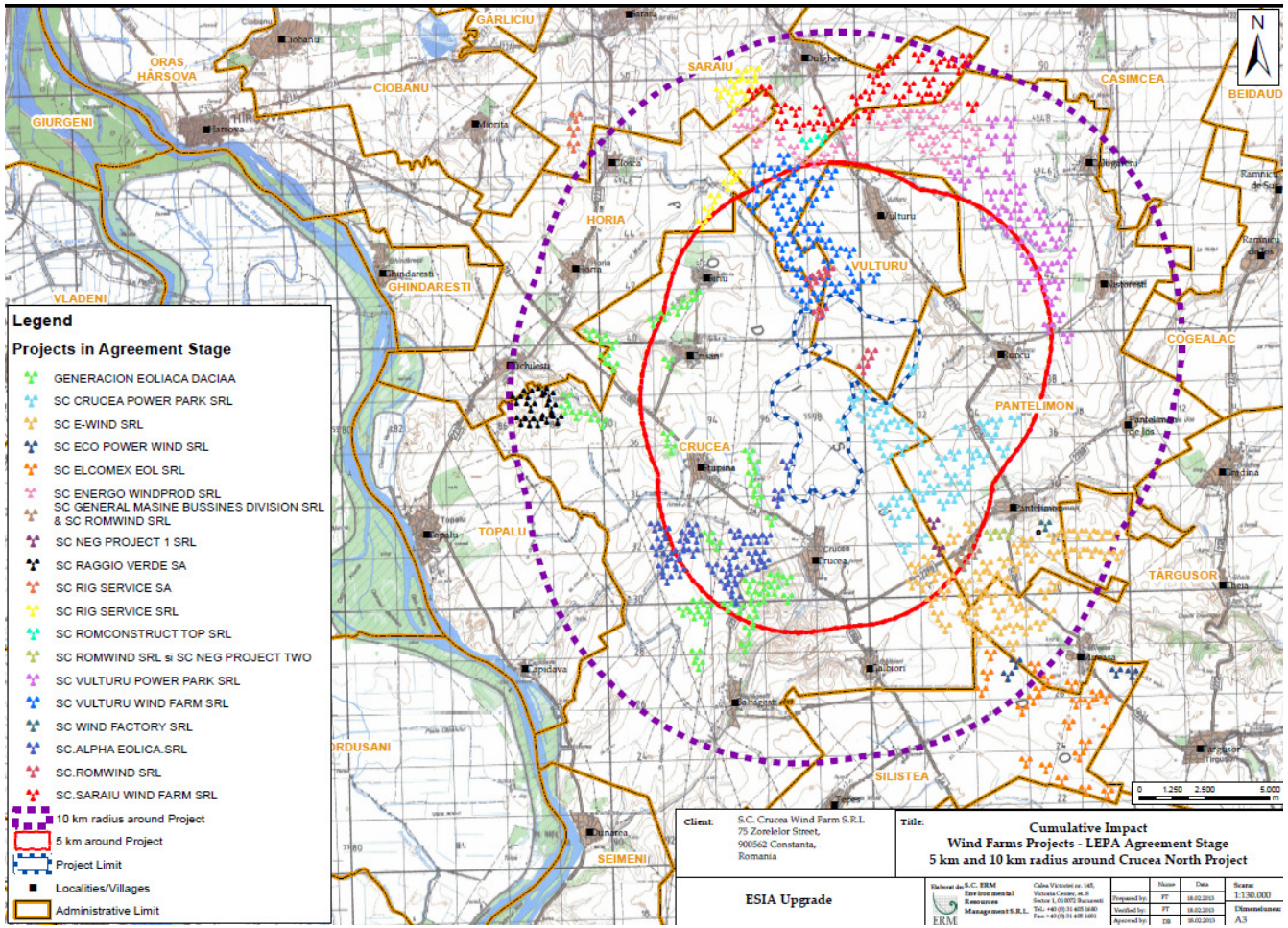
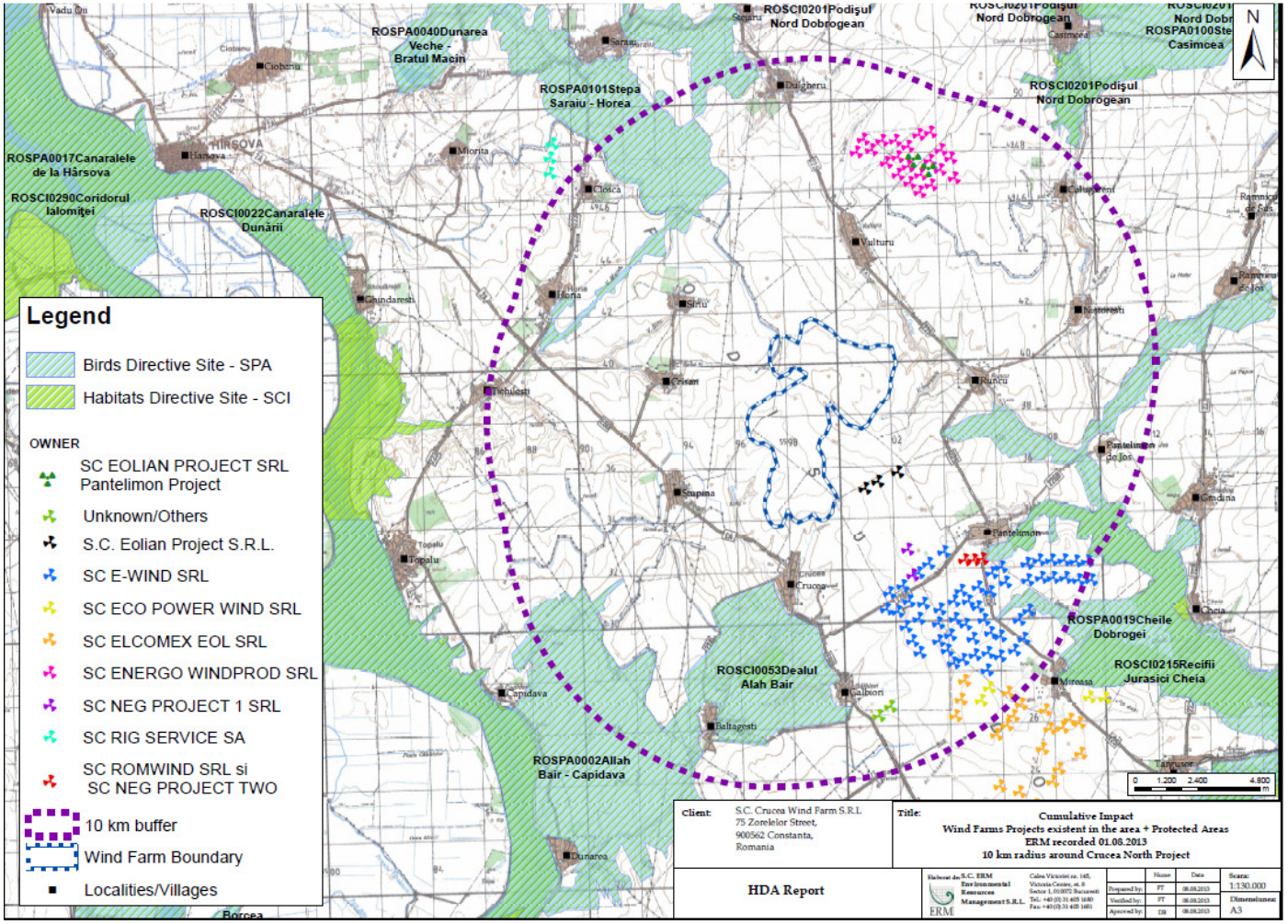


Figure 6-2 Map with windfarms already constructed (based on data from EPA Constanța completed w ith field observations)



Within the 10 km cumulative impact search radius, 21 additional wind farms will add a total of 411 additional turbines. Of these, 10 windfarms are already constructed (in technological tests or in operation) and the rest are in agreement stage, and are currently in the process of construction.

This will mean that within the 562 km^2 of the cumulative impact search area[18] there will be a combined total of 447 turbines (including the 36 turbines associated with the Crucea North project).

6.4.3 Natura 2000 sites considered for the In-Combination Assessment

Chapter 5 outlines the Natura 2000 sites considered in this Additional Assessment Study, and Chapter 6 considered the effects of the Crucea North Wind Farm on them in isolation. Effects of Crucea North Wind Farm in isolation were considered for eight sites:

- ROSCI0053 Dealul Allah Bair;
- ROSCI0215 Recifii Jurasici Cheia
- ROSPA0002 Allah Bair – Capidava
- ROSPA0019 Cheile Dobrogei
- ROSPA0101 Stepa Saraiu – Horea.
- ROSCI0022 Canaralele Dunarii
- ROSCI0201 Podisul Nord Dobrogean
- ROSPA0100 Stepa Casimcea

The screening tables in *Chapter 6* concluded that there was either no connectivity to, or no recorded use of the Crucea North Wind Farm site by any of the qualifying interest features of any of the SCIs. Therefore all of the SCIs have been ruled out of the in-combination assessment.

All of the SPAs support species which have either been recorded within the Crucea North Wind Farm site, or could potentially occur there and so in-combination effects on these sites are considered in this assessment.

[18] The search area is greater than the area represented by a 10km radius circle (314 km^2) as it takes account of the irregular footprint of wind farms, parts of which extend beyond the 10km radius.

6.4.4 Summary of Impacts of Crucea North Wind Farm Site in Isolation

Chapter 6 of the Additional Assessment report found likely significant effects may occur on 29 bird species. However as set out in *Chapter 6*, for 21 of these species the lack of a proven pathway for a significant effect to occur means that it is not considered that there will be any effects to these species. As a result no in-combination effects are possible, and so these species are not considered in this section.

Therefore only in-combination effects for those eight species assessed in more detail for the Crucea North Wind Farm site alone, for which a likely significant effect was possible but which will not result in an effect on site integrity from Crucea North Wind Farm alone, are considered. Those species are:

- common kestrel (*Falco tinnunculus*);
- buzzard (*buteo buteo*);
- long-legged buzzard (*buteo rufinus);*
- black kite (*milvus migrans*);
- booted eagle (*Aquila pennata / Hieraaetus pennatus*);
- red-breasted goose (*Branta ruficollis*);
- greater white-fronted goose (*Anser albifrons*); and
- stone curlew (*Burhinus oedicnemus*).

This approach is supported by some general factors regarding the wind farm sites that suggest that impacts to birds will be limited, not least the fairly uniform terrain and the absence of significant features such as rift valleys and rocky outcrops. The total number and dispersed nature of the various wind farms means the total swept area is small in comparison to the airspace available, and their distribution is such that large gaps of several kilometres exist between them reducing any barrier effect.

Despite the attention given to wind farm related bird kills, the majority of installed wind farm capacity kills relatively few birds (the National Wind Coordinating Committee estimate that wind farms are responsible for 0.01-0.02% of all avian fatalities in the USA) compared to many other anthropogenic activities and structures. There is growing evidence that birds demonstrate high levels of avoidance of turbines(19) (although where avoidance becomes displacement this can be as important an impact as

(19) Whitfield, D.P. & Madders, M. 2006. Deriving collision avoidance rates for red kites Milvus milvus. Natural Research Information Note 3. Natural Research Ltd, Banchory, UK

mortality through collision). Migration altitudes for many birds are well in excess of the height of turbines, and for passerines Newton(20) reviewed a number of radar studies and concluded that birds were flying 1.5-3 km above ground level. Extensive studies of raptors in Israel and the Middle East indicate that flight heights can be as much as 2.5 km above ground level (21).

Work at Cape Kaliakra[22] benefited from access to a large scale independent data set gathered by the BSPB (Bulgarian Society for the Protection of Birds). Despite the large number of migratory birds counted by the BSPB at this site (including 196,771 white stork, 3081 white pelican, 2209 honey buzzard, 343 lesser spotted eagle, 260 pallid harrier) collision risk analysis using the widely employed Band model[23] indicated additional mortality remained well below the significance threshold of 1%. For example even using the worst case scenario BSPB data the % increase in background mortality for white stork was only 0.048% and for honey buzzard was only 0.001%.

More importantly monitoring programmes, including carcass searches have so far indicated actual collisions are significantly less than those predicted. Similar findings in the United Kingdom have led to the avoidance rates for species such as pink-footed goose *Anser brachyrhynchus* being raised to 99%.

Despite the considerable increase in installed wind power in Europe (from 12.9 GW in 2000 to 94 GW in 2011)[24] there is little evidence to date of population declines linked to increased mortality from collisions with turbines. Indeed the white stork population is reported as stable or increasing, as are Icelandic pink-footed goose populations, despite both having a high exposure to increased wind generation capacity.

(20) Newton, I. 2010. Bird Migration. New Naturalist. Collins.

(21) Shirihai, H., Yosef, R., Alon, D., Kirwan, G.M. & Spaar, R. 2000. Raptor Migration in Israel and the Middle East. Tech. Publ. Int. Birding & Res. Centre in Eilat, Israel.

22 RSK Environmental Ltd. 2008. Saint Nikola Kavarna Wind Farm. Supplementary Information Report

23 Band, W., Madders, M., & Whitfield, D.P. 2007. Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G.F.E. & Ferrer,M. (eds.) Birds and Wind Farms: Risk Assessment and Mitigation, pp. 259-275.Quercus, Madrid

24 EWEA 2012. Wind in Power. 2011 European Statistics.

6.4.5 Assessment of In-Combination Effects

6.4.5.1 Common Kestrel (Falco tinnunculus)

During the 2013 surveys of Crucea North a total of 57 common kestrels were recorded, with one breeding pair identified nesting close to the site. During the 2008/2009 surveys of the wider Crucea area, a total of 10 kestrels were recorded in spring and 9 in autumn and a single nest was recorded. Surveys of the Crucea East Wind Farm estimated a population of kestrel within the site of 1-10 individuals (Generacion Eolica Dacia SRL 2011).

The 2008/2009 results from the wider Crucea area and information from Crucea East Wind Farm suggest that the numbers of kestrels which use these sites is relatively low in relation to the numbers recorded at Crucea North. It is reasonable to assume therefore that similar or lower collision mortality rates would apply to other nearby windfarm sites as have been calculated for Crucea North. Given the low collision mortality rates predicted for Crucea North of 0.01 birds per year based on 99% avoidance, even with multiple sites with a similar collision risk, the in-combination collision risk mortality would still be a fraction of 1 bird killed every year. This level of mortality is not considered to be likely to have an effect on the population of kestrel within the Stepa Saraiu – Horea SPA and therefore no effects on integrity are predicted.

6.4.5.2 Common Buzzard (Buteo buteo)

During the 2013 surveys of Crucea North a total of 22 common buzzards were recorded. During the 2008/2009 surveys of the wider Crucea area, a total of 226 buzzards or steppe buzzards (a sub-species of common buzzard) were recorded in spring, 413 were recorded in autumn and 3 were recorded over winter. Surveys of the Crucea East Wind Farm estimated a population of common buzzard within the site of 1-10 individuals (Generacion Eolica Dacia SRL 2011).

The results from other nearby windfarms suggest that common buzzards move through the wider area on migration in higher numbers than those recorded at the Crucea North Wind Farm site. As a result it might be expected that those other windfarms would have a higher collision risk than that calculated for Crucea North. However the results of the spring 2008/2009 surveys suggest that only 19% of all birds recorded were flying at potential collision height, and in autumn 2008/2009, 80% of birds were recorded flying above rotor height. As a result the actual number of birds flying through the rotor swept area is relatively small and the collision rate is likely to be lower than the overall number of birds recorded suggests.

The collision rate for Crucea North was very low (0.01 bird every year based on 99% avoidance), and although an increase in the collision rate at other nearby windfarms is likely, the in-combination collision rate is unlikely to exceed 1 bird per year, and is very unlikely to affect 1% of any of the migratory buzzard populations for which nearby SPAs are designated.

6.4.5.3 Long-legged Buzzard (Buteo rufinus)

During the 2013 surveys of Crucea North a total of 14 long-legged buzzards were recorded. During the 2008/2009 surveys of the wider Crucea area, a total of 6 long-legged buzzards were recorded in spring, 5 were recorded in autumn and 3 were recorded over winter. Surveys of the Crucea East Wind Farm estimated a population of long-legged buzzard within the site of 1-10 individuals (Generacion Eolica Dacia SRL 2011).

As with kestrel, the 2008/2009 results from the wider Crucea area and information from Crucea East Wind Farm suggest that the numbers of Long-legged buzzard which use these sites is relatively low in relation to the numbers recorded at Crucea North. Given the low collision mortality rates predicted for Crucea North of 0.01 birds per year based on 99% avoidance, even with multiple sites with a similar collision risk, the in-combination collision risk mortality would still be a fraction of 1 bird killed every year. This level of mortality is not considered to be likely to have an effect on the breeding or migratory populations of long-legged buzzard within any of the SPAs for which it is a qualifying interest feature and therefore no effects on site integrity are predicted.

6.4.5.4 Black Kite (Milvus migrans)

During the 2013 surveys of Crucea North a total of 2 black kites were recorded. During the 2008/2009 surveys of the wider Crucea area, only 1 black kite was recorded and no black kites were recorded during surveys of the Crucea East Wind Farm (Generacion Eolica Dacia SRL 2011). Given the very low collision rate predicted for Crucea North of 0.005 birds per year based on 99% avoidance, and the very low numbers recorded from surveys of the wider area, it is predicted that the in-combination collision risk is likely to be similar to that calculated for Crucea North, and that there will not be any effect on black kite populations which could affect the integrity of any of the SPAs.

6.4.5.5 Booted Eagle (Aquila pennata / Hieraaetus pennatus)

During the 2013 surveys of Crucea North a total of 3 booted eagles were recorded. During the 2008/2009 surveys of the wider Crucea area a total of 4 booted eagles were recorded during autumn surveys, with none recorded during the spring, summer or winter. No booted eagles were recorded during surveys of the Crucea East Wind Farm (Generacion Eolica Dacia SRL 2011). The collision rate for booted eagle for Crucea North was calculated at 0.01 birds per year based on 99% avoidance.

Not all of the booted eagles recorded during the 2008/2009 surveys will have been recorded within the rotor swept area of a windfarm, and so are unlikely to significantly increase the in-combination collision rate. As with black kite, the very low collision rate for Crucea North together with the very low numbers of booted eagle passing through the wider area mean it is likely that the in-combination collision risk is likely to be similar to that calculated for Crucea North on its own. As a result there are not predicted to be any effects on booted eagle populations which could affect the integrity of any of the SPAs.

6.4.5.6 Red-breasted Goose and Greater White-fronted Goose (Branta ruficollis and Anser albifrons)

No geese have been recorded within any of the project sites for which information has been reviewed despite specific winter surveys and autumn and spring VP watches. This is supported by sensitivity maps that indicate that the main goose foraging and roosting sites are either associated with the Danube or the Lake Sinoe-Razim complex. As a result the likelihood of Crucea North contributing to increased mortality of either species is insignificant.

6.4.5.7 Stone Curlew (Burhinus oedicnemus)

Stone curlew have not been recorded from any of the project sits for which information has been reviewed, and it has been determined that it is very unlikely that they would forage within the Crucea North Wind Farm site because of the distance of the site from the nearest SPA for which they are a qualifying interest features, Allah-Bair Capidava SPA. Given the low likelihood that the species will occur at Crucea North, the likelihood of an affect occurring is considered to be so low that it will not contribute to an in-combination effect.

6.5 *PROPOSED MONITORING MEASURES AND VALIDATION OF PREDICTED IMPACTS DURING MIGRATION*

Monitoring surveys have been undertaken during spring and summer 2013. This Additional Assessment Study of the potential impacts of the Crucea North Wind Farm has been made based on the monitoring data gathered so far, as well as the data previously gathered for the area.

Only the spring and summer 2013 VP data has been used to undertake CRM and so there is currently a gap in the understanding of what collision rates may be during the autumn. However the number of birds recorded during the spring and autumn surveys for the wider Crucea area in 2008/2009 show similar patterns of bird movements both for the species recorded and their abundance during both seasons (see *Annex C*). Autumn migration behaviour recorded by Wildlife Management Consulting SRL indicated that although migratory populations were only slightly more numerous considerably more of the flights (80%) took place above collision risk height. As a result, there is a degree of confidence that the results of the CRM for the spring data will provide a reasonable proxy for collision rates during autumn migration as well.

Never the less, additional monitoring is planned to be undertaken during autumn 2013 to record autumn migration movements through the site. The autumn migration data will be used to validate the current CRM run using the spring and summer 2013 data, and to see if the conclusions drawn using the spring data still hold true for autumn migration. The results of the autumn migration CRM will be reported in an addendum to the Additional AssessmentA report in early 2014.

7 CONCLUSIONS

This Additional Assessment report sets out to assess the potential effects of the Crucea North Wind Farm site on Natura 2000 sites. Based on potential connectivity with the site, an initial screening was undertaken to identify all Natura 2000 site within 10 km of the Crucea North Wind Farm site or overlapping with other Natura 2000 sites within 10km of the Crucea North Wind Farm site for consideration.

For the eight SPA or SCI sites identified, an initial screening of potential pathways of effect ruled out likely significant effects to all of the SCI qualifying interest feature habitats and species. It also ruled out effects to the majority of qualifying interest feature bird species. Of the 29 bird species for which it was concluded that there could be a likely significant effect (LSE) and which were therefore initially screened in for further assessment, only 8 were assessed further. This was either because they were recorded during spring and summer 2013 surveys of the site, or because they could not be ruled out based on the survey date gathered in 2013. None of the other 21 species were recorded during the 2013 surveys within the rotor swept area of the wind farm site.

Five of the species where it was concluded there may be a LSE and which were considered further were raptors (common kestrel, common buzzard, long-legged buzzard, black kite and booted eagle). All of these species were recorded in relatively low numbers within the wind farm boundary during the 2013 surveys. Collision Risk Models (CRM) were developed for all five species to determine if the collision rates associated with the development of the Crucea North Wind Farm site would be likely to result in a decrease in the populations supported by the SPAs and therefore have an effect on the integrity of any of the SPA.

All of the CRMs generated very low collision risks (0.005 – 0.1 birds killed per year based on 99% avoidance (see *Annex X*)). As a result of the low collision risk, as well as the overall low use of the Crucea North Wind Farm site by the SPA populations, and the distance from the SPAs, there were not considered to be any effects on the SPA populations of these species which would result in an effect on the integrity of any of the SPAs.

For the three other species for which it was determined there may be LSE and which were therefore taken forward for further consideration (stone curlew, red-breasted goose and greater white-fronted goose) it was determined that

based on the distance to their supporting SPAs and the habitat present on the Crucea North Wind Farm site, it was very unlikely that the species would occur.

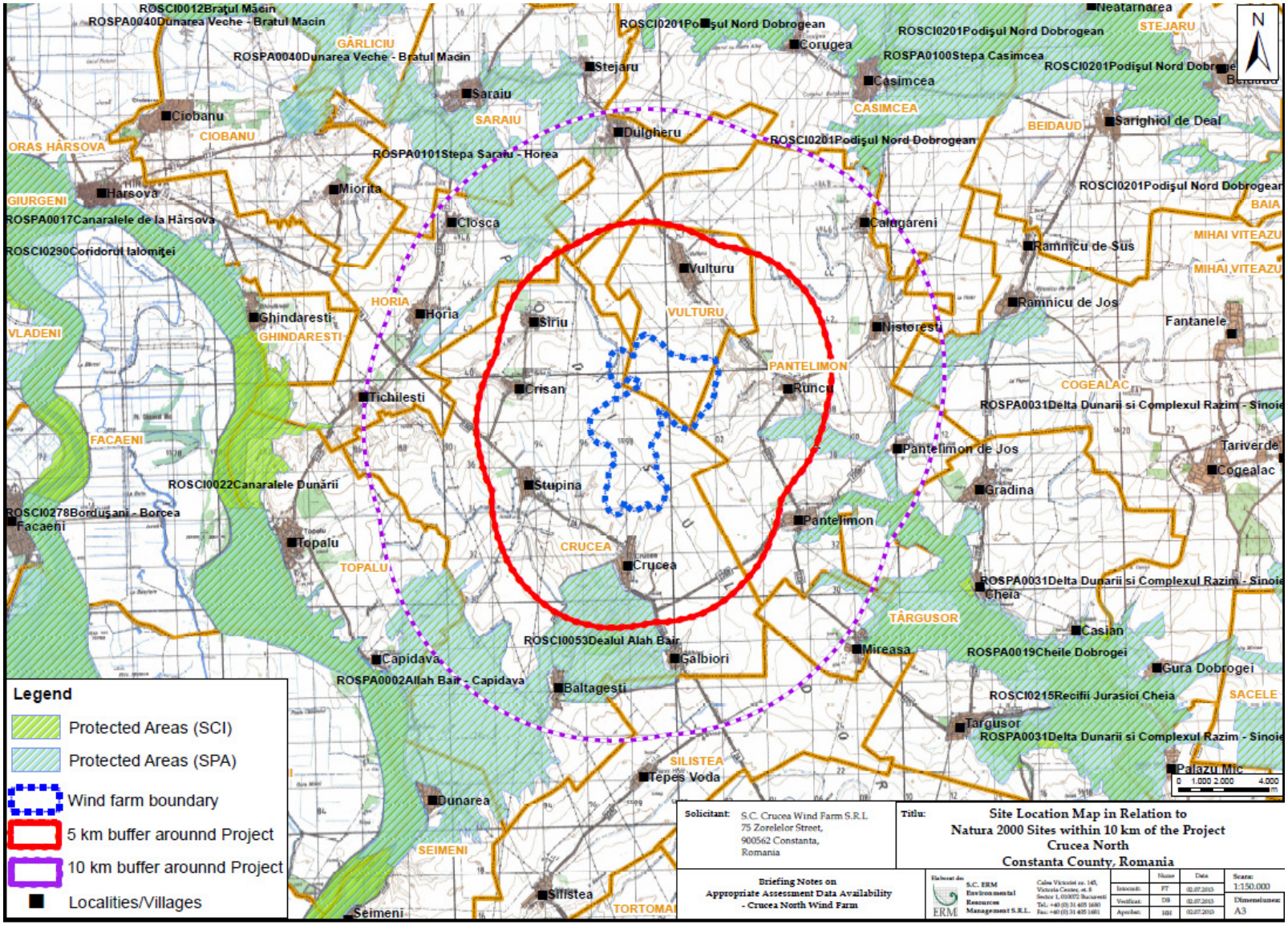
It is proposed that autumn VP monitoring will be undertaken in order to validate the findings of the CRM undertaken using the spring 2013 survey results. This validation exercise will be reported as an addendum to this report in early 2014.

CONTENTS

ANNEXES

ANNEX A

Map of Natura 2000 protected areas, in the vicinity of Crucea North Wind Farm


ROSCI0012Bratul Măcin
ROSPA0040Dunarea Veche - Bratul Macin
GÂRLICIU
ROSPA0040Dunarea Veche - Bratul Macin
ROSCI0201Podişul Nord Dobrogean
Corugea
Stejaru
Saraiu
SARAIU
Ciobanu
CIOBANU
ORAS HÂRSOVA
Dulgheru
ROSPA0101Stepa Saraiu - Horea
Harsova
Miorita
GIURGENI
ROSPA0017Canaralele de la Hârsova
ROSCI0290Coridorul Ialomiţei
Closca
HORIA
Horia
Ghindaresti
GHINDARESTI
VLADENI
Siriu
VULTURU
Vulturu
Tichilesti
FACAENI
Crisan
PANTELIMON
Runcu
ROSCI0022Canaralele Dunării
Stupina
ROSCI0278Borduşani - Borcea
Facaeni
Topalu
TOPALU
CRUCEA
Crucea
ROSCI0053Dealul Alah Bair
Capidava
ROSPA0002Allah Bair - Capidava
Galbiori
Baltagesti
SILISTEA
Tepes Voda
Dunarea
SEIMENI
Seimeni
Silistea
TORTOMAN
Casimcea
CASIMCEA
ROSPA0100Stepa Casimcea
ROSCI0201Podişul Nord Dobrogean
STEJARU
BEIDAUD
Sarighiol de Deal
BAIA
Calugareni
Ramnicu de Sus
MIHAI VITEAZU
Ramnicu de Jos
Nistoresti
Fantanele
COGEALAC
ROSPA0031Delta Dunarii si Complexul Razim - Sinoie
Pantelimon de Jos
Tariverde
Cogealac
Gradina
Pantelimon
Cheia
TÂRGUSOR
Casian
Mireasa
ROSPA0019Cheile Dobrogei
Gura Dobrogei
ROSCI0215Recifii Jurasici Cheia
SACELE
Targusor
Palazu Mic
N
0 1.000 2.000 4.000
Legend
Protected Areas (SCI)
Protected Areas (SPA)
Wind farm boundary
5 km buffer arounnd Project
10 km buffer arounnd Project
Localities/Villages
Solicitant: S.C. Crucea Wind Farm S.R.L. 75 Zorelelor Street, 900562 Constanta, Romania
Titlu: Site Location Map in Relation to Natura 2000 Sites within 10 km of the Project Crucea North Constanta County, Romania
Briefing Notes on Appropriate Assessment Data Availability - Crucea North Wind Farm
Elaborat de: S.C. ERM Environmental Resources Management S.R.L.
Scara: 1:150.000
Dimensiune: A3

ANNEX B

Ecological surveys methodologies for construction period

1 SURVEY METHODS DURING CONSTRUCTION

1.1 BIRDS

Three main effects on birds arising from wind farms are displacement of birds from feeding or breeding areas, direct mortality through collisions, and increased energy expenditure avoiding wind farms during migration (barrier effect, see Drewitt, A.L & Langston, R.H.W. 2006. Assessing the impacts of wind farms on birds. Ibis 148, 29–42). A number of different survey methods are required to provide robust baseline data on resident, breeding, wintering and migratory populations of birds using the wind farm and the relationship with Special Protection Areas (SPA's) bird populations.

Undertaking surveys during construction, when noise, dust, and visual disturbance may arise could have an effect on survey results. However the most disturbing effect in terms of land take, noise and activity levels is road building and this should be completed by April. After that time activity will be focused on discrete and scattered individual turbine locations and therefore be limited in terms of location and extent. Such disturbance does need to be put in the context of the regular agricultural activity that has long been a feature of the site, although noise and visual impacts arising from turbine erection will be higher and birds are less likely to be habituated to it.

If turbine base, tower and connection work is undertaken during the breeding season then attempts to dissuade birds from breeding in and around these areas may be required and some deliberate localized displacement is likely to occur. Such techniques can include strimming vegetation to make it short and unsuitable, using wire or flags to prevent birds landing, regular human disturbance, the use of scaring (e.g scarecrows, gas guns, human activity)

1.1.1 *Breeding Birds*

In order to develop a baseline that can assess these impacts surveys of the distribution and density of nesting birds within the wind farm boundary plus a 500m buffer will be required.

A three visit (middle April-early July period) mapping based survey located on the turbine layout plus 500m buffer is suggested following the methods described in Bibby (*see Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. 2000. Bird Census Techniques (2nd Edition). Academic Press).*

In summary this involves three visits separated by a minimum of 10 days recording bird activity onto a map. Territories are then estimated from the mapping process and both changes in the number and distribution of breeding birds can be assessed.

Surveys should be undertaken between dawn and 12.00 hours (after 12.00 hours bird activity declines significantly). The weather should be suitable, i.e. good visibility, dry and calm (i.e. less than a force 4-5 on the Beaufort scale). Outputs will be visit maps showing the location of each bird on that day. After the three visits individual species maps combining data from the three site visits should be prepared. It would be sensible to prioritise Annex 1 species, Romania Red List species, and any species that form part of the qualifying breeding bird assemblage for the two SPA's within five kilometres of the site (Allah Bair-Capidava & Cheile Dobrogei) for such analysis.

The presence of Annex 1 breeding raptors in the nearby Special Protection Area and/or their listing as qualifying features requires an additional search of all suitable raptor nesting habitat within 5km (the normal range at which displacement effects might occur for larger eagle species such as lesser spotted eagle *Aquila pomarina* or short-toed eagle *Circaetus gallicus*)[25].

Sightings of all raptors should be mapped with particular attention to alarming, displaying or food passing birds (notes should be taken of such activity and detailed in a spreadsheet accompanying the sighting). Any nest sites or territories should be mapped. Experience has shown that the easiest way to record such data is to give each map reference a number and then relate this to information in a spreadsheet. An example is provided in table below:

Table 1-1 Example of data recording

Date	Target Note	Pic ID	Subject	Comment	Notes	Search Area
27/04/2012	1		BZ 2	Agonistic amongst trees	Prob territory	Pitfichie Hill eastwards as far as road
27/04/2012	2		BZ	In tree but no obvious sign of nest, no alarming		Pitfichie Hill eastwards as far as road

(1) Scottish Natural Heritage (November 2005 revised December 2010). Survey Methods for Assessing the Impacts of Onshore Windfarms on Bird Communities

Date	Target Note	Pic ID	Subject	Comment	Notes	Search Area
27/04/2012	3		BZ	2 heard calling	Approx. position	Pitfichie Hill eastwards as far as road
27/04/2012	4	116&117, 118	BZ	Nest. Pair alarming. 118 shows habitat of nest site	Occupied nest	Pitfichie Hill eastwards as far as road
27/04/2012	5	114 & 115		Old nest-close to #4 above		Pitfichie Hill eastwards as far as road
28/04/2012	6	1	?	Pic 1 shows large nest (Scots pine)-no obvious sign of occupation.	Checked again on 20/6/12 and still no sign of use	During BB survey
28/04/2012	7	2	GI	Pic 2 shows area to south where GI heard alarming. Mature Sitka spruce		During BB survey
28/04/2012	8		GI (male)	Flying through turbine area		During BB survey
28/04/2012	9		BZ	Territorial calls and circuits	Prob territory	During BB survey
28/04/2012	10		Large corvid	Not seen clearly		Pitfichie Hill west as far as Menaway & Horsemans Stone

It is often helpful to photograph potential nest sites or suspected nesting areas and again number these so that they can be cross referenced. A GPS coordinate of nest sites, potential nest sites or territorial activity should also be taken and can be added into the spreadsheet. As can be seen from the above table data gathered during the breeding bird (BB) survey can also be cross referenced.

Visits should be undertaken between March-July and sufficient visits to cover the whole 5km^2 area (or rather those areas of suitable habitat within it) are required. The search area does not have to be covered all in one day and it is normal practice to visit different areas once on a rolling programme, only returning to a site previously surveyed if additional information is required

(e.g. if nesting is suspected on an early visit and an additional visit may help to confirm breeding and locate the nest site). Surveys should be undertaken by competent personnel and in accordance with any national legislation regarding disturbance of protected species. Surveys should be sensitive to disturbance and follow guidance where this is available. [26] Outputs will be a map and spreadsheet indicating when and where surveys were undertaken, weather conditions, times and location of all raptor sightings and in particular the location of confirmed, probable or possible nesting areas.

1.1.2 Wintering Populations

The previous EIA and AA studies do not indicate a potential for wintering geese despite European white-fronted geese *Anser albifrons* being a qualifying feature of the Allah Bair-Capidava SPA. Studies of Greenland white-fronted geese[27] indicate winter foraging ranges of 5-8km and given the distance of the Crucea North wind farm from suitable roost sites the assumption that the site is not used by winter wildfowl may be valid. However, confirmation of whether the site is used in winter by SPA populations will be important in providing the information required to determine likely significant adverse effect and impacts on site integrity of the SPA.

Consequently winter walkover surveys to check for the presence of geese within the site should be undertaken. These should be carried out fortnightly and cover the wind farm site plus a 2km buffer. Such surveys can be done on foot and by vehicle and should aim to view all fields within the search area. Searches should either begin at dawn or three hours before dusk so that any flightlines in or out of the site can be identified. All feeding flocks and flights should be recorded on a map showing the site plus 2km boundary. Incidental data on other species can also be collected (i.e. other Annex 1 or Romanian red list species).

These surveys should be undertaken between October and March, although if by the end of December both the VP and walkover data have found no winter use by geese then early termination of the winter walkover surveys should be considered.

---

(2) Hardey, J., Crick, H.Q.P., Wernham, C.W., Riley, H.T., Etheridge, B. & Thompson, D.B.A. 2009. Raptors: a field guide to survey and monitoring. 2nd Edition. The Stationary Office

(3) Scottish Natural Heritage March 2012. Assessing Connectivity with Special Protection Areas (SPAs)

1.1.3 Vantage Point (VP) Surveys

Given the potential year round interest of the site (spring and autumn migration, winter wildfowl and summer breeding raptors) a full year of vantage point surveys to generate data for collision risk modelling is required.

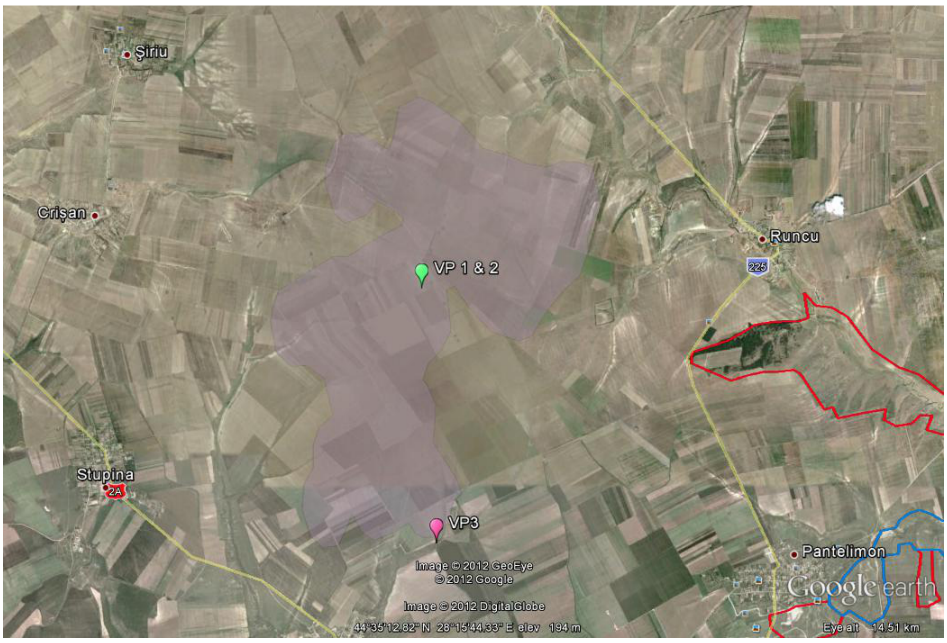
Vantage points should be selected in order to provide sufficient coverage of the proposed wind farm area and selection of vantage points (VP's) and the protocols adopted are derived from published guidance (SNH 2005).

The guidance stipulates that VP's should normally be situated no closer than 200m from the boundary to avoid observer impacts on bird behaviour. Given that construction will be happening during the first year of survey it may be possible to locate observers within the site boundary as they are likely to have limited additional impact. In addition the topography of the site, with the highest point being in the northern centre of the site, provides the most effective view of the surrounding area.

Given the size of the site, the limited access points (currently subject to modification through road construction), and its undulating topography it is likely that 2-3 VP's will be required.

Each VP has an arc of 3-4 km's of acceptable visibility based on 180° view from the VP (any birds beyond this distance can be recorded but cannot be used in collision risk modelling). This is further than the published guidance figure of 2km but reflects the very open nature and topography of the ground, the large area to be covered, and the high likelihood of detecting the target species (primarily migratory soaring birds and raptors). An indicative location for the VP's is presented in *Figure 1* but will be subject to micro-siting based on suitable and safe access, on-going construction and agricultural activities.

Figure 1-1 Indicative VP Locations



The purpose of VP surveys is to obtain sufficient data on the number, height and duration of flights through the proposed wind farm by target species to inform an assessment of impacts. This can be derived both from analysis of movements and modeling of collision risks using the Band collision model[28].

Target species are primarily but not exclusively migratory soaring birds, but will also include resident species of high conservation status (e.g. annex 1 bird directive species, red data listed species of high conservation concern within Romania, and species that are qualifying interests of SPA's within twenty kilometres of the wind farm boundary).

Protocols for recording activity at the VP sites assume that the turbines will be 3 megawatt units with a hub height of 119 metres and rotor length of 55 metres given a maximum height of 174 metres.

Target species entering the wind farm boundary will be tracked and their height estimated at 15 second intervals. Three bands will be used to estimate flight height:

(4) Band, W., Madders, M., & Whitfield, D.P. 2007. Developing field and analytical methods to assess avian collision risk at windfarms. In: de Lucas, M., Janss, G.F.E. & Ferrer, M. (eds.) Birds and Windfarms: Risk Assessment and Mitigation, pp. 259-275.

1. 50 metres or below (this allows for the effect of downdraft and compensates for potential height estimation difficulties over undulating terrain)
2. 50m-175m this is the height at which there is a collision risk with turbine blades.
3. 175m or above. Any birds in this area will be above collision risk height.

A number of landmarks (e.g. telegraph poles or phone masts) should be checked with a laser rangefinder to estimate their height and provide visual context for estimating flight heights.

In addition to mapping and timing of target species flying through the site (focal sampling) regular activity sampling will be undertaken of birds within view of the VP. This allows for recording of small passerine migration and activity on the ground such as feeding geese; although focal sampling will always take recording priority and when numbers of target species flying through the site are high activity sampling will be suspended. VP watches must last no longer than three hours and be separated by a rest period to retain observer acuity

For observing winter wildfowl and breeding raptor use 6 hours per month per VP survey is acceptable. However during spring and autumn migration higher levels of survey are required as migration is episodic and intense and a minimum of 12 hours survey per VP is recommended. *Table 1* below indicates monthly survey effort.

Table 1-2 Number of Hours Observation per VP per Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6	6	12	12	12	6	6	12	12	12	12	6

During migration observations should be spread over the month so that the site is visited at least weekly. Soaring bird activity usually begins between 07.00-08.00[29] and whilst effort should be concentrated during this period surveys should aim to cover other periods of the day as well, in particular

(5) Shirihai, H., Yosef, R., Alon, D., Kirwan, G.M. & Spaar, R. 2000. Raptor Migration in Israel and the Middle East. Tech. Publ. Int. Birding & Res. Centre in Eilat, Israel.

watches ending at dusk should occur at each VP at least once each month as this is a time when birds may attempt to roost in or adjacent to the site.

The equipment required by each surveyor is:

- Maps showing red line boundary and 200m buffer
- Fine Pencil (preferably with an eraser) for marking flights on the map.
- Stopwatch (for timing flights).
- Binoculars and telescope.

On arrival the observer should record weather conditions and visibility and then begin scanning the 180 degree arc from their VP.

When a target species is acquired, identified and counted, once it has entered (or if it is seen already in the site boundary including the 200m buffer) the stopwatch should be started and the time recording started noted. The bird should be followed with binoculars and its flight height (band 1, 2 or 3) recorded at 15 second intervals.[30] Once the target(s) has landed, soared out of sight or left the 200m buffer boundary it should be allocated a sequential number and its flight path recorded in pencil on the map. Once back at the office these flight lines should either be transferred to a fair copy or input directly onto the GIS system. This data can then be used to estimate the potential collision risk for each of the target species using the Band model.

Examples of survey sheets are attached as is a worked example. Codes for recording birds should be consistent between observers and use the first three letter of the genus and first three letters of the species (e.g. Aci nis for Accipiter nisus).

1.2 BATS

The original assessment of bat usage of the site conducted by S.C. Wildlife Management Consulting S.R.L (WMC) indicated very low use of the site with four species of bats recorded involving a total of 18 contacts between May-October, with some increased activity in August & September.

Although the WMC report does not give important information on the locations, date, time and weather conditions of surveys its essential conclusions regarding likely site usage by bats appears to be largely valid.

(6) In practice this is better done either by using a voice recorder or at the end of the flight estimating the time spent at different height bands.

A site walkover in December 2012 confirmed the absence of structures that are suitable for bats. Limited areas of semi natural vegetation, including small defiles leading to quarry areas near Runcu, were identified during the December walkover but overall the general habitat is poor for bats. These conclusions are supported by observations at other wind farms in the region in similar habitat that ERM have been involved in. In addition, whilst bats form part of SCI qualifying features at Recifiji Jurasici this is the only SCI within a 20 km radius that does have bats as a qualifying feature, and the species composition differs significantly from that found during WMC surveys within the North Crucea wind farm.

Additional bat survey work during construction is not therefore required, although post construction monitoring (see below) should include bats in order to verify these assumptions and detect changes in the use of the site by bats.

1.3 ANNEX IV SPECIES

Whilst the WMC report acknowledges issues relating to SPA bird populations and birds occurring on Annex 1 of *Directive 2009/147/EC on the conservation of wild birds* (commonly known as the Birds Directive) it fails to properly alert the client to the environmental constraints that arise from the presence of species listed on Annex IV of the *Conservation of natural habitats and of wild fauna and flora Directive 92/43/EEC* (known as the Habitats Directive).

This provides for strict protection of the species listed on it within the EU. In particular under Article 12 it requires that:

1. Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting:

(a) all forms of deliberate capture or killing of specimens of these species in the wild;

(b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;

(c) deliberate destruction or taking of eggs from the wild;

(d) deterioration or destruction of breeding sites or resting places.

2. For these species, Member States shall prohibit the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild, except for those taken legally before this Directive is implemented.

3. The prohibition referred to in paragraph 1 (a) and (b) and paragraph 2 shall apply to all stages of life of the animals to which this Article applies.

4. Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

For any EIA or Environmental Management and Monitoring Plan to be robust and defensible potential impacts on Annex IV species need to be identified and appropriate mitigation provided. Knowledge of distribution of Annex IV species in relation to project infrastructure is therefore required.

1.3.1 Reptiles and Amphibians

The WMC report identified two Annex IV reptile species (the Balkan wall lizard *Podarcis taurica* and sand lizard *Lacerta agilis)* present within the wind farm. The report also indicated that fire-bellied toad *Bombina bombina* (also Annex IV) was present 'nearby'.

Given this strict protection surveys around the proposed infrastructure layout and turbine sites in areas with suitable habitat should be undertaken between April and September. Observers should move slowly along the site searching 3-4m ahead, paying particular attention to potential basking areas and carefully searching under any natural potential refugia (stones, logs, and discarded sheets). Surveys should take place in warm, dry weather (although immediately after showers would be acceptable) between 08.00-11.00 or 16.00-18.00 to avoid aestivation periods. Any watercourses or ponds should also be visited and watched for up to ten minutes for signs of amphibians or snakes.

All sightings, including sloughed skins, should be mapped using a GPS for greater accuracy and notes taken of any particular habitat associations.

The output would be a species present list and maps showing where each species was found.

1.3.2 Spermophilus Citellus

Despite its abundance in the Dobrogean plain this species is strictly protected under Annex IV (see above) due to significant declines resulting from the conversion of steppe to agriculture. As a consequence any areas of suitable habitat within the site should be checked for the presence of this species with particular attention paid to proposed turbine locations, road infrastructure and any underground cabling. All areas containing burrows should be GPS referenced. This data should be output as a map indicating where the species occurs.

ANNEX C

Collision Risk Calculations

1 COLLISION RISK CALCULATIONS

1.1 INTRODUCTION

The following sections shows examples of the workings of the collision risk methodology used for kestrel, buzzard, long-legged buzzard, booted eagle and black kite. The methods follow the approach by Band et al 2005[31].

As calculations are made on a spreadsheet, but rounded to 2 or 3 decimal places in the text the figures in the text may not exactly equate to the more detailed spreadsheet numbers. However, the spreadsheet figures have been used throughout.

1.2 VANTAGE POINTS

Observations were made from 3 vantage points from March 2013 to July 2013, 12 hours/month from March to May at each VP, and 6 hours in June and July. As observations were only carried out over this time period, the collision risk calculations only refer to this period.

It is normal practice to deliniate the boundaries of the site using a 500m buffer zone round turbine locations. In this case a 3Km radius around the vantage points was used to define the site. As there was a clear view from each VP, the area covered by each VP was 1413.90Ha (π x 32 ÷ 2 x 100), making a total VP area of 4241.7Ha. As there was an overlap of 340Ha between two of the VPs, this made the site area 3901.7Ha.

The flight height risk band was observed as 30 -150m. At 120m this is slightly larger than the blade diameter of roughly 110m, and slightly lower. However, the band size will provide a slightly worse scenario than actual, and it is unlikely that significant birds will have been missed at the greater height, as high flying birds tend to be well above the turbines.

[31] Band W, Madders M & Whitfield D P Developing Field and Analytical Methods to Assess Avian Collision Risk at Wind Farms. In: Janss G, de Lucas M & Ferrer M (eds) Birds and Wind Farms. Lynx edicions, Barcelona.

2 KESTREL (FALCO TINNUNCULUS)

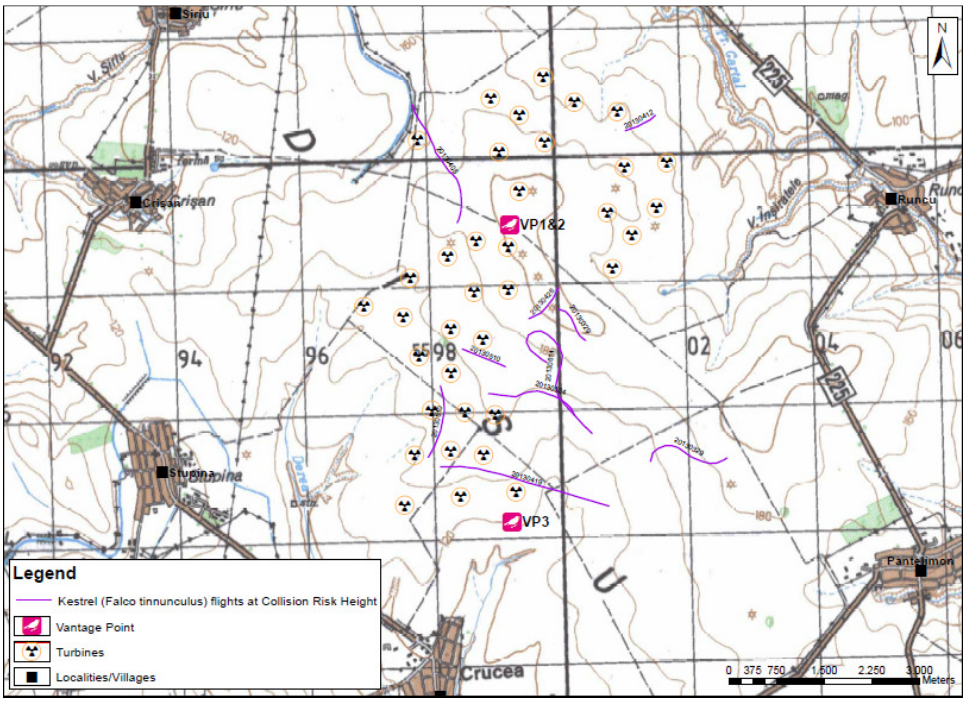
2.1.1 Kestrel Flight Activity

(i) VP	(ii) Visible Area (ha)	(iii) Watch Time Mar – July (hrs)	(iv) Watch Time hahr (ii) x (iii)	(v) Flying Time 30-150m (hrs)	(vi) Flight Time 30-150m per ha/hr (v)/(iv)
1	1413.9	48	67867.2	0	0
2	1413.9	48	67876.2	0.01667(60s)	2.46×10^{-7}
3	1413.9	48	67867.2	0.03333 (120s)	4.91×10^{-7}
		Total	203601.6	0.05 (180s)	
				Overall	2.46×10^{-7}

Rather than take a mean of the flight times/ha/hr , the overall figure is obtained by dividing the total flying time by the total hahr. In this case with identical VP areas this approach will make no difference. Therefore the overall kestrel flight activity was 2.46×10^{-7} hrs/ha/hr, amounting to 9.58×10^{-4}hr/hr over the whole site, taking account of the overlap of the VPs

Kestrels were present on the site throughout the observation period, amounting to 153 days and they were presumed to be able to fly for an average of 14.1 hours daylight per day, a total of 2157.3 hours

Figure 2-1 Kestrel (Falco tinnunculus) flights at Collision Risk Height



Kestrel occupancy (**n**) of the wind farm area is, therefore, estimated to be **2.07** hours per year for the observation period of five months (9.58 x 10^{-4} x 2157.3).

2.1.2 *Number of Transits of Kestrel Through the Rotors*

The size of the flight risk volume (Vw) is 4,682,040,000m^3. This is calculated by multiplying the area of the wind farm by the height over which birds were observed (120m).

The combined volume swept out by the turbine rotors (Vr) is 1,465,961.06m^3. This is calculated by multiplying the number of wind turbines (36) by πr^2 by (d + l), where r is the rotor radius (54.65m), d is the depth of the rotor blade from front to back (4m), and l is the body length of a kestrel (0.34m).

The model assumes that use of the airspace containing the rotors is random.

The bird occupancy of the volume swept by the rotors in seconds (**b**) is:

$$(n \times 3{,}600) \times (Vr/Vw)$$

$$= (2.07 \times 3600) \times (1{,}465{,}961.06/4{,}682{,}040{,}000)$$

= **2.33** bird-secs.

The time taken for a bird to make transit through the rotor and completely clear the rotors (**t**) is (d + l)/v, where d is the depth of the rotor blade from front to back (4), l is the body length for kestrel (0.34m) and v is the speed of the bird through the rotor (10.1ms^{-1}) [32] , = **0.43secs**.

The number of bird transits through the rotors during the five month observational period is **b**/**t** = **5.42**

2.1.3 Estimating Collision Likelihood

The probability of collision depends on the size of the bird (length and wingspan), the breadth and pitch of the turbine blades, the rotation speed of the turbine, and the flight speed of the bird. To facilitate calculation, many simplifications have to be made. The bird is assumed to be of simple cruciform shape, with the wings at the halfway point between nose and tail. The turbine blade is assumed to have a width and a pitch angle (relative to the plane of the turbine), but to have no thickness.

The probability of bird collision for given bird and blade dimensions and speeds is the probability, were the bird placed anywhere at random on the line of flight, of it overlapping with a blade swathe. The calculation derives a probability of collision for a bird at a radius r from the turbine hub, and at a position along a radial line which is at an angle x from the vertical. This probability is then integrated over the entire rotor disc, assuming that the bird transit may be anywhere at random within the area of the rotor disc.

For ease of use the above calculations are laid out on an Excel spreadsheet provided by SNH. As the turbine speed varies with wind speed, an average rotation period of 3.73 seconds has been used. Pitch will also vary with wind speed, but a worst case scenario of 90^{o} has been used. A kestrel is assumed to travel at an average speed of 10.1ms^{-1} and exhibit flapping flight (which was typical of the birds observed during the surveys). The model predicts that an average of 20.6% of kestrel flights through the rotor swept area would result in collisions. The turbines are, however, likely to be static for 20% of the time as the wind speeds are either too low (ie <4ms^{-1}) or too high (>25ms^{-1}). Collision likelihood has, therefore, been multiplied by 0.8 giving a predicted collision rate of **16.48%**.

(32) This is based on information from studies of flight speeds in the USA, and is also consistent with mean of flight speeds recorded within the survey area.

The estimated number of collisions is then calculated by multiplying the number of birds flying through the operating rotors by the probability that a bird is hit whilst flying through the rotors. The number of birds predicted to collide with the operating rotors over the observation period is **0.89** birds per year (5.42 x 16.48%). This assumes no avoiding action is taken by the birds.

In practice, birds are expected to display a high level of awareness of operational turbines. No reliable quantitative data are available to enable avoidance of turbines to be calculated, however studies in the USA have reported rates ranging between 90% and 99% for varying species. Avoidance rates are thought to lie in the upper end of the range (>98%) for many raptor species. Mortalities for kestrel at have been calculated using avoidance rates of 90%, 95%, 98% and 99% to provide an indication of potential risk (see *Table 1.4* below).

Table 2.1.2 Predicted Collision Mortalities for Kestrel March to July

No. of Rotor Transits /Year	**Probability of Collision**	**Predicted Mortalities March to July**				
		No Avoidance	*90% Avoidance*	*95% Avoidance*	*98% Avoidance*	*99% Avoidance*
5.42	16.48%	0.89	0.089	0.04	0.02	0.01

This equates to a loss of a bird every 22.38 years from March to July at 95% avoidance or a bird every 111.91 years at 99% avoidance.

3 BUZZARD (BUTEO BUTEO)

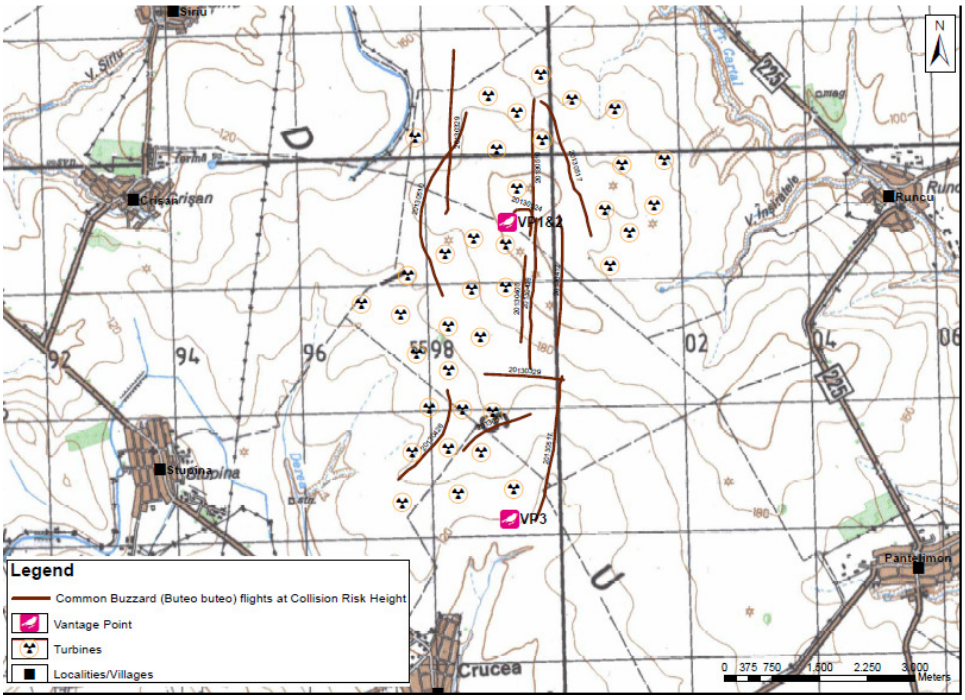
3.1.1 Buzzard Flight Activity

(i) VP	(ii) Visible Area (ha)	(iii) Watch Time Nov – Sept (hrs)	(iv) Watch Time hahr (ii) x (iii)	(v) Flying Time 30-150m (hrs)	(vi) Flight Time 30-150m per ha/hr (v)/(iv)
1	1413.9	48	67867.2	0.025 (90s)	3.68×10^{-7}
2	1413.9	48	67867.2	0.008 (30s)	1.23×10^{-7}
3	1413.9	48	67867.3	0.033 (120s)	4.91×10^{-7}
		Total	203601.6	0.067 (240s)	
				Overall	3.27×10^{-7}

The overall buzzard flight activity was 3.27×10^{-7} hrs/ha/hr, amounting to 1.28×10^{-3} hr/hr over the whole site.

Buzzards were present on the site throughout the observation period, amounting to 153 days and they were presumed to be able to fly for an average of 14.1 hours daylight per day, a total of 2157.3 hours

Figure 3-1 Common Buzzard (Buteo buteo) flights at Collision Risk Height



Buzzard occupancy (**n**) of the wind farm area is, therefore, estimated to be **2.76** hours per year for the observation period (1.28 x 10^{-3} x 2157.3).

3.1.2 *Number of Transits of Buzzard Through the Rotors*

The size of the flight risk volume (Vw) is 4,682,040,000m^3. The combined volume swept out by the turbine rotors (Vr) is 1,533,516.87m^3using a body length for buzzard of 0.54m.

The bird occupancy of the volume swept by the rotors in seconds (**b**) is:

$$(n \times 3{,}600) \times (Vr/Vw)$$

$$= (2.76 \times 3600) \times (1{,}533{,}516.87/4{,}682{,}040{,}000)$$

$$= 3.25 \text{ bird-secs.}$$

The time taken for a bird to make transit through the rotor and completely clear the rotors (**t**) is (d + l)/v, where d is the depth of the rotor blade from

front to back (4), l is the body length for buzzartd (0.54m) and v is the speed of the bird through the rotor (11ms^{-1}) [33] , = **0.41secs**.

The number of bird transits through the rotors per season is **b**/**t** = **7.87**

3.1.3 Estimating Collision Likelihood

Using the SNH spreadsheet, and assuming a buzzard flight speed of 11 m/s, the model predicts that an average of 20.5% of buzzard flights through the rotor swept area would result in collisions. This was reduced to **16.4%** to allow for non operating time.

The number of birds predicted to collide with the operating rotors over the season is **1.29** birds per year (7.87 x 16.4%). This assumes no avoiding action is taken by the birds.

Avoidance rates were calculated as for kestrel. Mortalities were calculated using avoidance rates of 90%, 95%, 98% and 99% to provide an indication of potential risk (see *Table 1.4* below).

Table 3.1.2 Predicted Collision Mortalities for Buzzard

No. of Rotor Transits /Year	**Probability of Collision**	**Predicted Mortalities March to July**				
		No Avoidance	*90% Avoidance*	*95% Avoidance*	*98% Avoidance*	*99% Avoidance*
7.87	16.4%	1.29	0.13	0.06	0.03	0.01

This equates to a loss of a bird every 15.48 years during the observation period at 95% avoidance or a bird every 77.44 years at 99% avoidance.

(33) This is based on information from studies of flight speeds in the USA, and is also consistent with mean of flight speeds recorded within the survey area.

4 LONG-LEGGED BUZZARD (BUTEO RUFINUS)

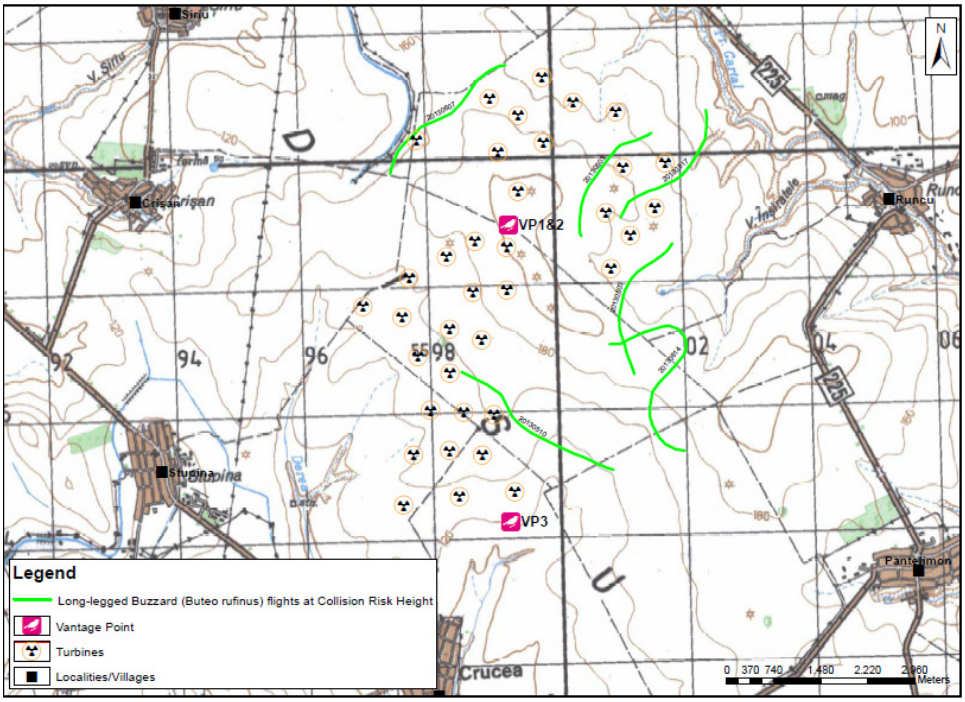
4.1.1 Long-legged Buzzard Flight Activity

(i) VP	(ii) Visible Area (ha)	(iii) Watch Time Nov – Sept (hrs)	(iv) Watch Time hahr (ii) x (iii)	(v) Flying Time 30-150m (hrs)	(vi) Flight Time 30-150m per ha/hr (v)/(iv)
1	1413.9	48	67867.2	0.029 (105s)	4.30×10^{-7}
2	1413.9	48	67867.2	0	0
3	1413.9	48	67867.2	0.016 (60s)	2.46×10^{-7}
		Total	203601.61	0.046 (165)	
				Overall	$2.25\ 10^{-7}$

The overall long-legged buzzard flight activity was 2.25×10^{-7} hrs/ha/hr, amounting to 8.78×10^{-4} hr/hr over the whole site.

Long-legged buzzards were present on the site throughout the observation period, amounting to 153 days and they were presumed to be able to fly for an average of 14.1 hours daylight per day, a total of 2157.3 hours

Figure 4-1 Long-legged Buzzard (Buteo rufinus) flights at Collision Risk Height



Long-legged buzzard occupancy (**n**) of the wind farm area is, therefore, estimated to be **1.89** hours per year for the observation period ($8.78 \times 10^{-4} \times 2157.3$).

4.1.2 *Number of Transits of Long-legged Buzzard Through the Rotors*

The size of the flight risk volume (Vw) is 4,682,040,000m^3. The combined volume swept out by the turbine rotors (Vr) is 1,547,028.04m^{3}using a body length for long-legged buzzard of 0.58m.

The bird occupancy of the volume swept by the rotors in seconds (**b**) is:

$$(\mathbf{n} \times 3{,}600) \times (Vr/Vw)$$

$$= (\mathbf{1.89} \times 3600) \times (1{,}547{,}028.04/4{,}682{,}040{,}000)$$

$$= \mathbf{2.25} \text{ bird-secs.}$$

The time taken for a bird to make transit through the rotor and completely clear the rotors (**t**) is $(d + l)/v$, where d is the depth of the rotor blade from

front to back (4), l is the body length for buzzartd (0.54m) and v is the speed of the bird through the rotor (11ms^{-1}) [34] , = **0.42secs**.

The number of bird transits through the rotors per season is **b**/**t** 5.41

4.1.3 Estimating Collision Likelihood

Using the SNH spreadsheet, and assuming a long-leggeduzzard flight speed of 11 m/s, the model predicts that an average of 20.9% of buzzard flights through the rotor swept area would result in collisions. This was reduced to **16.72%** to allow for non operating time.

The number of birds predicted to collide with the operating rotors over the season is **0.91** birds per year (5.41 x 16.72%). This assumes no avoiding action is taken by the birds.

Avoidance rates were calculated as for kestrel. Mortalities were calculated using avoidance rates of 90%, 95%, 98% and 99% to provide an indication of potential risk (see *Table 1.4* below).

Table 4.1.2 Predicted Collision Mortalities for Long-legged Buzzard

No. of Rotor Transits /Year	**Probability of Collision**	**Predicted Mortalities March to July**				
		No Avoidance	*90% Avoidance*	*95% Avoidance*	*98% Avoidance*	*99% Avoidance*
5.41	16.72%	0.91	0.09	0.05	0.02	0.01

This equates to a loss of a bird every 22.1 years during the observation period at 95% avoidance or a bird every 110.48 years at 99% avoidance.

(34) This is based on information from studies of flight speeds in the USA, and is also consistent with mean of flight speeds recorded within the survey area.

5 BOOTED EAGLE (AQUILA PENNATA / HIERAAETUS PENNATUS)

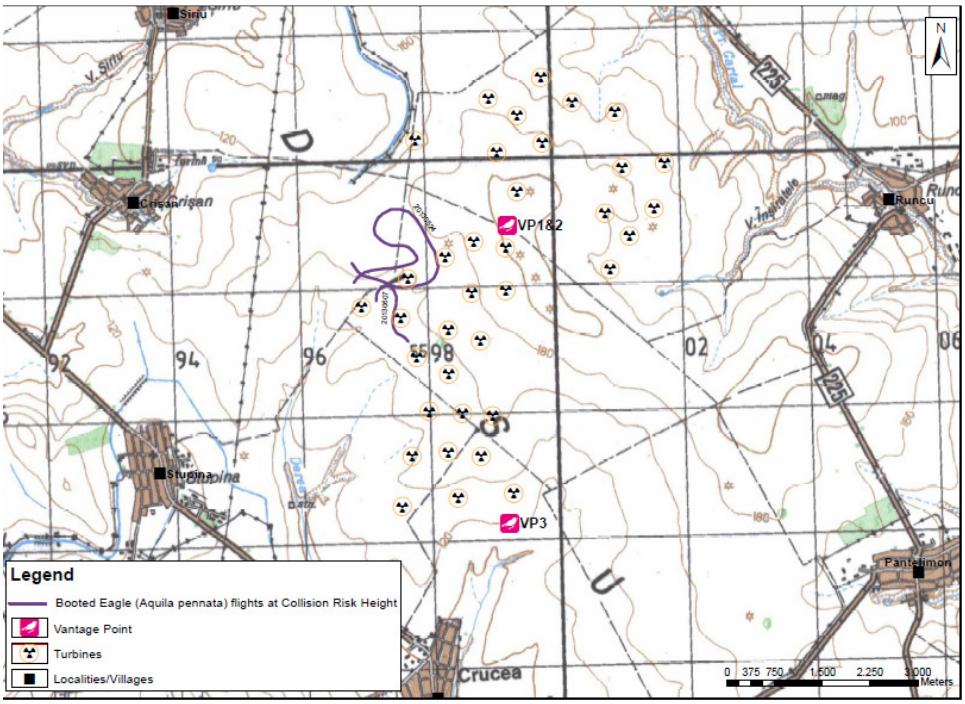
5.1.1 Booted Eagle Flight Activity

(i) VP	(ii) Visible Area (ha)	(iii) Watch Time Nov – Sept (hrs)	(iv) Watch Time hahr (ii) x (iii)	(v) Flying Time 30-150m (hrs)	(vi) Flight Time 30-150m per ha/hr (v)/(iv)
1	1413.9	48	67867.2	0	0
2	1413.9	48	67867.2	0.0375 (135)	5.53×10^{-7}
3	1413.9	48	67867.2	0	0
		Total	203601.6	0.0375 (135s)	
				Overall	1.84×10^{-7}

The overall boted eagle flight activity was 1.84×10^{-7} hrs/ha/hr, amounting to 7.19×10^{-4} hr/hr over the whole site.

Booted eagles were present on the site throughout the observation period, amounting to 153 days and they were presumed to be able to fly for an average of 14.1 hours daylight per day, a total of 2157.3 hours

Figure 5-1 Booted Eagle (Aquila pennata) flights at Collision Risk Height



Booted eagle occupancy (**n**) of the wind farm area is, therefore, estimated to be **1.55** hours per year for the observation period ($7.19 \times 10^{-4} \times 2157.3$).

5.1.2 *Number of Transits of Booted eagles Through the Rotors*

The size of the flight risk volume (Vw) is 4,682,040,000m^3. The combined volume swept out by the turbine rotors (Vr) is 1,516,627.92m^{3}using a body length for booted eagle of 0.49m.

The bird occupancy of the volume swept by the rotors in seconds (**b**) is:

$$(\mathbf{n} \times 3{,}600) \times (Vr/Vw)$$

$$= (\mathbf{1.55} \times 3600) \times (1{,}516{,}627.92/4{,}682{,}040{,}000)$$

$$= \mathbf{1.81} \text{ bird-secs.}$$

The time taken for a bird to make transit through the rotor and completely clear the rotors (**t**) is $(d + l)/v$, where d is the depth of the rotor blade from

front to back (4), l is the body length for booted eagle (0.49m) and v is the speed of the bird through the rotor (11ms^{-1}) [35] , = **0.41secs**.

The number of bird transits through the rotors per season is **b**/**t** = **4.43**

5.1.3 Estimating Collision Likelihood

Using the SNH spreadsheet, and assuming a booted eagle flight speed of 11 m/s, the model predicts that an average of 20.1% of booted eagle flights through the rotor swept area would result in collisions. This was reduced to **16.08%** to allow for non operating time.

The number of birds predicted to collide with the operating rotors over the season is **0.71** birds per year during the observation period (4.43 x 16.08%). This assumes no avoiding action is taken by the birds.

Avoidance rates were calculated as for kestrel. Mortalities were calculated using avoidance rates of 90%, 95%, 98% and 99% to provide an indication of potential risk (see *Table 1.4* below).

Table 5.1.2 Predicted Collision Mortalities for Booted Eagle

No. of Rotor Transits /Year	**Probability of Collision**	**Predicted Mortalities March to July**				
		No Avoidance	*90% Avoidance*	*95% Avoidance*	*98% Avoidance*	*99% Avoidance*
4.43	16.08%	0.71	0.0.08	0.04	0.01	0.01

This equates to a loss of a bird every 28.08 years during the observation period at 95% avoidance or a bird every 140.41 years at 99% avoidance.

(35) This is based on information from studies of flight speeds in the USA, and is also consistent with mean of flight speeds recorded within the survey area.

6 BLACK KITE (MILVUS MIGRANS)

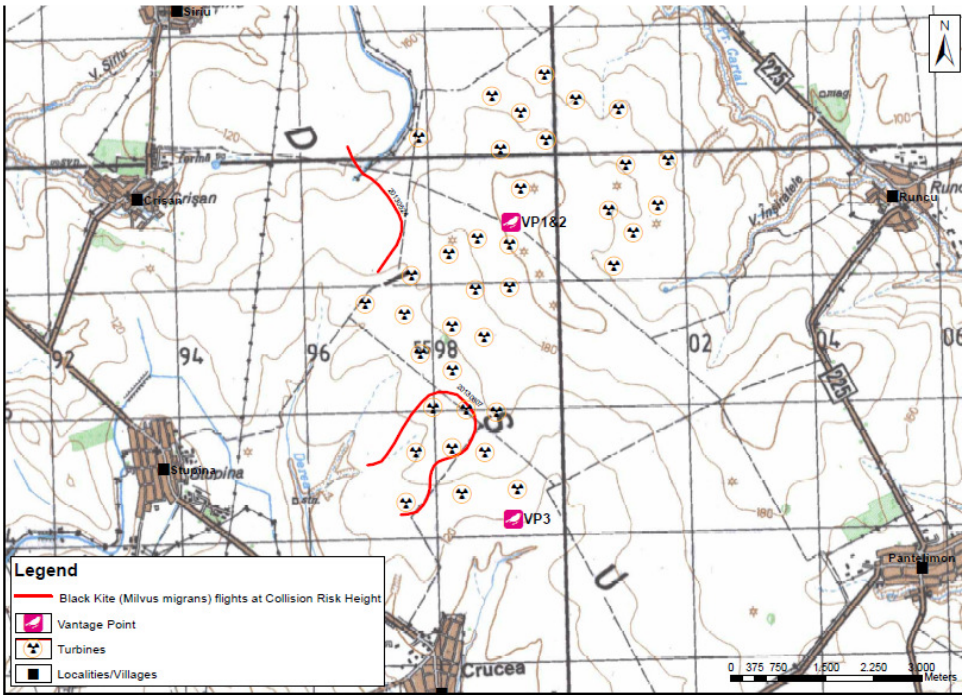
6.1.1 Black Kite Flight Activity

(i) VP	(ii) Visible Area (ha)	(iii) Watch Time Nov – Sept (hrs)	(iv) Watch Time hahr (ii) x (iii)	(v) Flying Time 30-150m (hrs)	(vi) Flight Time 30-150m per ha/hr (v)/(iv)
1	1413.9	48	67867.2	0.0125 (45s)	1.84×10^{-7}
2	1413.9	48	67867.2	0	0
3	1413.9	48	67867.2	0.0125 (45s)	1.84×10^{-7}
		Total	203601.6	0.025 (90s)	
				Overall	1.23×10^{-7}

The overall black kite flight activity was 1.23×10^{-7} hrs/ha/hr, amounting to 4.79×10^{-4} hr/hr over the whole site.

Black kites were present on the site throughout the observation period, amounting to 153 days and they were presumed to be able to fly for an average of 14.1 hours daylight per day, a total of 2157.3 hours

Figure 6-1 Black Kite (Milvus migrans) flights at Collision Risk Height



Black kite occupancy (**n**) of the wind farm area is, therefore, estimated to be **1.03** hours per year during the observation period ($4.79 \times 10^{-4} \times 2157.3$).

6.1.2 *Number of Transits of Black Kite Through the Rotors*

The size of the flight risk volume (Vw) is 4,682,040,000m^3. The combined volume swept out by the turbine rotors (Vr) is 1,547,028.04m^{3}using a body length for black kite of 0.58m.

The bird occupancy of the volume swept by the rotors in seconds (**b**) is:

$$(\mathbf{n} \times 3{,}600) \times (Vr/Vw)$$

$$= (\mathbf{1.03} \times 3600) \times (1{,}547{,}028.04/4{,}682{,}040{,}000)$$

$$= \mathbf{1.23} \text{ bird-secs.}$$

The time taken for a bird to make transit through the rotor and completely clear the rotors (**t**) is $(d + l)/v$, where d is the depth of the rotor blade from

front to back (4), l is the body length for blach kite (0.58m) and v is the speed of the bird through the rotor (11.7ms^{-1}) [36] , = **0.39secs**.

The number of bird transits through the rotors per season is **b**/**t** = **3.14**

6.1.3 Estimating Collision Likelihood

Using the SNH spreadsheet, and assuming a black kite flight speed of 11.7 m/s, the model predicts that an average of 19.8% of black kite flights through the rotor swept area would result in collisions. This was reduced to **15.84%** to allow for non operating time.

The number of birds predicted to collide with the operating rotors over the season is **0.50** birds per year during the observation period (3.14 x 15.84%). This assumes no avoiding action is taken by the birds.

Avoidance rates were calculated as for kestrel. Mortalities were calculated using avoidance rates of 90%, 95%, 98% and 99% to provide an indication of potential risk (see *Table 1.4* below).

Table 6.1.2 Predicted Collision Mortalities for Black Kite

No. of Rotor Transits /Year	**Probability of Collision**	**Predicted Mortalities March to July**				
		No Avoidance	*90% Avoidance*	*95% Avoidance*	*98% Avoidance*	*99% Avoidance*
3.14	15.84%	0.50	0.05	0.02	0.01	0.005

This equates to a loss of a bird every 40.2 years during the observation period at 95% avoidance or a bird every 201.2 years at 99% avoidance.

(36) This is based on information from studies of flight speeds in the USA, and is also consistent with mean of flight speeds recorded within the survey area.

ANNEX D

Summary of the outcomes from the studies pertaining to neighbouring wind farm projects

1 RESULTS FROM THE STUDIES CONSIDERED RELEVANT FOR THE PROJECT AREA

This Annex details the outcomes from the following studies from the project vicinity or considered relevant for the current Additional Assessment Study:

- Appropriate Assessment Report (2011) prepared for Generacion Eolica Dacia SRL (Crucea East wind farm project with a total capacity 100 MW located in the unincorporated area of Crucea commune);
- Environmental Impact Assessment Report (2012) prepared for Raggio Verde S.A. (27.5 MW wind farm located in the unincorporated area of Crucea commune);
- Environmental Impact Assessment Report (2009) prepared for Romwind S.R.L. (7.2 MW wind farm located in the unincorporated area of Vulturu commune).
- "Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development

Appropriate Assessment for Crucea East Wind farm

Based on the conclusions of the Appropriate Assessment performed for Crucea East Wind farm, project developed by Generacion Eolica Dacia SRL, "the population of the birds species found on site and nearby will not be affected" It is estimated that at least the maintaining of its structure and dynamics. The conclusions on the **relevant bird** species are presented in the table below:

Table 1-1 Summary of the birds species observed on Crucea East site and nearby

No.	Scientific name	Common name	Estimates on the number of individuals	Estimates on the populations trends	
				During construction	During operation
1	*Alauda arvensis*	Skylark	30-100	=	=
2	*Anthus campestris*	Tawny pipit	30-100	=	=

No.	Scientific name	Common name	Estimates on the number of individuals	Estimates on the populations trends	
				During construction	During operation
3	*Carduelis carduelis*	Goldfinch	10-30	=	=
4	*Coracias garrulus*	Roller	10-30	=	=
5	*Corvus corone cornix*	Hooded crow	30-100	=	=
6	*Corvus frugilegus*	Rook	100-300	=	=
7	*Corvus monedula*	Jackdaw	30-100	=	=
8	*Falco tinnunculus*	Common kestrel	1-10	<	=
9	*Buteo rufinus*	Long legged buzzard	1-10	<	=
10	*Buteo buteo*	Buzzard	1-10	=	=
11	*Calandrella brachydactyla*	Short-toed lark	30-100	=	=
12	*Galerida cristata*	Crested lark	10-30	=	=
13	*Hirundo rustica*	Barn swallow	10-30	=	=
14	*Lanius collurio*	Red-backed shrike	10-30	<	=
15	*Lanius minor*	Lesser grey shrike	10-30	<	=
16	*Miliaria calandra*	Corn bunting	30-100	=	=
17	*Merops apiaster*	Bee-eater	10-30	=	=
18	*Oenanthe oenanthe*	Northen weatear	10-30	=	=
19	*Passer domesticus*	House sparrow	30-100	=	=
20	*Passer montanus*	Tree sparrow	10-30	=	=
21	*Melanochorypha calandra*	Calandra lark	100-300	=	=
22	*Sturnus vulgaris*	Starling	100-300	=	=
23	*Cuculus canorus*	Cuckoo	1-10	<	=
24	*Glaucidium passerinium*	Pygmy owl	1-10	=	=
25	*Motacilla alba*	White wagtail	10-30	=	=

No.	Scientific name	Common name	Estimates on the number of individuals	Estimates on the populations trends	
				During construction	During operation
26	*Parus major*	Great tit	10-30	=	=
27	*Saxicola rubetra*	Whinchat	30-100	=	=
28	*Ficedula albicollis*	Collared flycatcher	30-100	=	=
29	*Cyrcus pygargus*	Montagu's harrier	1-10	<	=
30	*Phasianus colchicus*	Common pheasant	10-30	<	=
31	*Perdix perdix*	Grey partridge	10-30	<	=
32	*Apus apus*	Common swift	10-30	=	=
33	*Larus cachinans*	Yellow-legged gull	10-30	=	=
34	*Streptopelia decaocto*	Collared dove	10-30	=	=
35	*Streptopelia turtur*	Turtle dove	1-10	=	=
36	*Phylloscopus sp.*	Warblers	10-30	=	=
37	*Parus caeruleus*	Blue tit	1-10	=	=
38	*Turdus merula*	Common blackbird	1-10	=	=
39	*Emberiza hortulana*	Ortolan bunting	30-100	=	=
40	*Upupa epops*	Hoopoe	10-30	=	=
41	*Pica pica*	Magpie	10-30	=	=
42	*Riparia riparia*	Sand martin	30-100	=	=
43	*Dendrocopos syriacus*	Syrian woodpecker	1-10	=	=

"<" = It is estimated a low on this site is guiding individuals to other areas, there is the possibility of slight decreases in their population

"=" The population will continue, as there are additional pressures to influence species ethnology

Breeding birds: Within the wind farm site, there were not found nests belonging to relevant species, as they use the location only for foraging or passage, within local flight paths from the wooden areas (where there are

suitable nesting and resting areas) towards neighbouring areas (arable lands, grasslands).

Regarding the raptors, nests were not observed within the affected areas or nearby.

Amphibians and Reptiles: Along trasects, there were observed the following species: *Podarcis taurica* (Balkan wall lizard), *Lacerta viridis* (Green lizard), *Testudo graeca* (Spur – thighed tortoise), *Coluber* (Dolichophis) *Caspius* (Caspian whip snake).

Mammals: *Lepus europaeus* (European hare), *Apodemus agrarius* (Striped field mouse), *Microtus arvalis* (Common vole), *Talpa europaea* (European mole), V*ulpes vulpes* (Red fox).

EIA Report for Raggio Verde

The Environmental Impact Assessment Report (2012) prepared for Raggio Verde S.A. provides the following relevant information:

Birds: During the surveys from the site and its vicinity, there were observed 41 birds species, listed in the table below:

Table 1-2 Summary of the birds species observed on Raggio Verde wind farm site and nearby

No.	Scientific name	Common name
1	*Alauda arvensis*	Skylark
2	*Anthus campestris*	Tawny pipit
3	*Buteo buteo*	Buzzard
4	*Buteo rufinus*	Long legged buzzard
5	*Circus aeruginosus*	Western Marsh-harrier
6	*Corvus corone cornix*	Hooded crow
7	*Corvus fragilegus*	Rook
8	*Corvus monedula*	Jackdaw
9	*Calandrella brachydactyla*	Short-toed lark
10	*Falco tinnunculus*	Common kestrel
11	*Galerida cristata*	Crested lark
12	*Melanocorypha calandra*	Calandra lark
13	*Oenanthe oenanthe*	Northen weatear
14	*Upupa epops*	Hoopoe

No.	Scientific name	Common name
15	*Pica pica*	Magpie
16	*Passer domesticus*	House sparrow
17	*Passer montanus*	Tree sparrow
18	*Perdix perdix*	Grey partridge
19	*Sturnus vulgaris*	Starling
20	*Lanius collurio*	Red-backed shrike
21	*Coracias garrulus*	European Roller
22	*Merops apiaster*	Bee-eater
23	*Dendrocopos syriacus*	Syrian woodpecker
24	*Carduelis cannabina*	Eurasian Linnet
25	*Carduelis carduelis*	Goldfinch
26	*Parus major*	Great tit
27	*Parus caeruleus*	Blue tit
28	*Phasianus colchicus*	Common pheasant
29	*Riparia riparia*	Sand martin
30	*Saxicola rubetra*	Whinchat
31	*Turdus merula*	Common blackbird
32	*Streptopelia turtur*	Turtle dove
33	*Miliaria calandra*	Corn bunting
34	*Apus apus*	Common swift
35	*Cucus canorus*	Cuckoo
36	*Emberiza hortulana*	Ortolan bunting
37	*Glaucidium passerinum*	Pygmy owl
38	*Athene noctua*	Little Owl
39	*Motacilla alba*	White wagtail
40	*Hirundo rustica*	Barn swallow
41	*Larus cachinans*	Yellow-legged gull

The study does not provide additional information as the observation period, number of specimens per species, nests observed on the site etc.

Amphibians and Reptiles: Along transects, there were observed the following species: *Podarcis taurica* (Balkan wall lizard), *Testudo graeca* (Spur – thighed tortoise).

Mammals: *Lepus europaeus* (European hare), *Apodemus agrarius* (Striped field mouse), *Microtus arvalis* (Common vole), *Talpa europaea* (European mole), *Vulpes vulpes* (Red fox), *Spermophilus Citellus* (European Ground Squirrel), *Capreolus capreolus* (European roe deer).

EIA report for Romwind

The Environmental Impact Assessment Report prepared for Romwind S.R.L. (2009) states that the wind farm impact on the local biodiversity is anticipated to be very low, but biodiversity monitoring surveys should be performed at least in the construction phase and one year after commissioning. No reference on the on field surveys can be found in the EIA Study.

"Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research and Development.

As mentioned in the Study, *"Dobrogea is a region with high biodiversity and at the same time a proper area for wind-resource exploitation. In the last few years there are several projects to establish wind-farm in this area. In order to have an overview on the potential conflict between the nature conservation priorities (taking into account that in the region there are designated large sites as parts of the Natura 2000 European network of protected areas) and the objectives of developers, the central environmental protection authority requested a study focused on provision of scientific background for potential administrative and juridical measures in order to avoid the negative impact of these industrial infrastructures on wild flora and fauna of Dobrogea.*

In the frame of the respective study, there was investigated the current status of the species potentially threatened by the wind-farms and there were provided details for the main criteria for the establishment of sites where wind-mills could be present. The present work includes the most relevant aspects of the final report of the respective study, including the so-called "negative map" of Dobrogea and a proposal for the potential arrangement of wind farms in the central area of the Dobrogean mainland in order to avoid the so-called "barrier effect" of the industrial infrastructures exploiting the wind resource of this region." (Scientific Annals of the Danube Delta Institut, vol. 18, Zsolt Török, co-author of the Study).

In Annex 2 of the Study providing recommendations on the areas in Dobrogea region where the development of wind farms should be restricted due to the presence of soaring birds flight paths (daytime raptors, storks and pelicans), wintering geese and swans" prepared in 2012 for the Romanian Environmental Ministry by the Danube Delta National Institute for Research

and Development), the authors concluded the following: *"For the analyses there were taken into account the field data, information resulted from the investigations carried out since 2008 till the spring of 2012, and details from the scientific publications and various environmental impact studies and reports printed in 2009 – 2012 (most of them based on results of studies performed by various entities in 2008 – 2011 period).*

The present report includes details related to the impact of wind-mills on 47 species (of the belonging to the target groups) recorded in Dobrogea up to now at least one time.

Based on the field observations and on the data gathered during the investigations carried out mainly in 2008 – 2012 period, there were included into the present report recommendations related to the:

- *techniques to perform the visual observations;*
- *necessity to develop investigations specially focused on identifying remnants (corpses) of birds that were victims of collisions with moving or fixed elements of wind-mills or infrastructures annexed to the wind-mills;*
- *remote sensing (with radar, thermal detection equipment, microphones included into the wind-mill elements etc.);*
- *establishment of an expert-core team for periodical analysis and interpretation of the data resulted from monitoring activities carried out in areas with wind-resource exploitation facilities;*
- *criteria for selecting the areas for future wind-farms, providing details on the aspects to be taken into account during the decisional process related to:*
  - *exclusion areas;*
  - *areas where wind-mills represent factors of high risk to birds;*
  - *areas where wind-mills represent factors of moderate risk to birds."*

ERM has offices across the following

countries worldwide

Argentina
Australia
Belgium
Brazil
Canada
China
Colombia
France
Germany
Hong Kong
Hungary
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Korea
Malaysia
Mexico
New Zealand
Panama
Peru
Poland
Portugal
Puerto Rico
Romania
Russia
Singapore
Southern Africa
Spain
Sweden
Taiwan
Thailand
The Netherlands
United Arab Emirates
United Kingdom
United States
Vietnam

ERM's Bucharest Office

145 Calea Victoriei Blvd.,
Victoria Center, 8th floor,
Sector 1, 010072, Bucharest
Romania

T: +40 31 405 1680
F: +40 31 405 1681

www.erm.com