Consulting Services for Post-Construction Avian & Bat Monitoring for the Wind Park Bogdanci (BMZ NO. 2009 66 390)

1st PROGRESS REPORT

22nd February, 2018

geonatura

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PROJECT	CONSULTANCY SERVICES FOR POST-CONSTRUCTION AVIAN & BAT MONITORING FOR THE WIND PARK BOGDANCI (BMZ NO. 2009 66 390)
DOCUMENT	**1st PROGRESS REPORT**
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1 Introduction

According to the Contract "CONSULTANCY SERVICES FOR POST-CONSTRUCTION AVIAN & BAT MONITORING FOR THE WIND PARK BOGDANCI (BMZ NO. 2009 66 390)", Progress Reports are to be submitted every 4 months and contain information about program progress. They shall summarize main activities, the progress achieved during the reporting period, main problems encountered and the envisaged solutions to overcome the problems, the financial status of the programme etc.

This Progress Reports represents the period from 27th October 2017 until 21st February 2018.

2 Period of the fieldwork investigation: October 2017 – February 2018

As planned by the Contract, bat and bird research teams conducted their first fieldworks. The timing of all activities which were carried out during the Project is presented in the Table 1. In December 2017 the advance payment has been made (20%).

Table 1 *Activities in period of investigation from October 2017 to February 2018*

Date	Activity
12.-17.12.2017	*Preliminary fieldwork with ultrasound detector installation at wind turbines and Inception meeting*
14.-19.01.2018	*Bats fieldwork*
12-.16.02.2018	*Birds fieldwork*

3 Time schedule – work done

The first part of the Project has the biggest amount of preparation works and administration, which includes mobilization and different kind of project administration. Also, preliminary fieldwork (with purpose of ultrasound detectors installation and Inception meeting at WF Bogdanci) and fieldworks for bats and birds were conducted. The Inception report has been submitted and accepted by Employer and KfW. The projected activities which have been accomplished in the last period are listed in Table 2.

Table 2 *Conducted project activities in period from October 2017 to February 2018 (from the Inception report)*

ACTIVITIES		2017			2018	
		Oct	Nov	Dec	Jan	Feb
1. PREPARATORY ACTIVITES						
Review of the existing Project area maps, documentation, literature and existing data on bird and bat fauna, habitats and vegetation in the surrounding area						
Development of a post-construction monitoring programme						
Designing and setting up digital database						
Preparation of ultrasound detectors, microphones and power supply (bat survey)						
2. COLLECTION OF FIELDWORK DATA						
	Preliminary fieldwork					
Bats	Setting up / adjusting ultrasound detectors at wind turbines					
Bats	Continuous bat activity monitoring at nacelle height using stationary bat detectors at optimally 7 wind turbines with monthly check-ups and collection of SDHC Memory cards					
Bats	Bat roost surveys					
Bats	Baseline study - Bat roost surveys					
Birds	Observation sites watch for migratory birds- constructed and planned WF					
Birds	Area search - constructed and planned WF					
3. PROCESSING AND ANALYSIS OF COLLECTED DATA						
Bats	Echolocation/sound analysis for continuous bat activity monitoring at nacelle height (species composition, bat activity index)					
Bats	GIS analysis of collected data					
Bats	Baseline study - GIS analysis of collected data					
Birds	GIS, statistics and ecological analysis of collected data – for constructed WF Bogdanci					
Birds	GIS, statistics and ecological analysis of collected data – for future extension (planned WF)					

4 Fieldwork methodology and other important information

Before conducting fieldwork research, a review of the existing literature on bat and bird surveys on the Project area was made. Also, using GIS and available spatial data (habitats, digital elevation model, etc.), terrain analysis and determination of potential species were conducted. Preparatory activities included survey design (number of stationary points on which to set up ultrasound detectors), setting up locations for Observation sites (OS) for bird migration monitoring, designing, as well as setting up, the digital database for all data collected during the survey.

Bats

As planned, the ultrasound detectors were installed at seven wind turbine nacelles (W01, W04, W07, W10, W12, W14, W16) in the period from 12th to 15th December 2017 (Figure 5). Due to very extreme weather conditions at the wind farm location in December, the grids of the nacelles, at which microphones were fixed, broke and microphone cables were damaged. For this reason, a total of five ultrasound detectors (W04, W07, W10, W12, W14) were out of function since 28th December 2017 until the next fieldwork. In the period from 14th to 18th January 2018 damaged parts were replaced and the structure at all seven turbines were consolidated to avoid this kind of situation in the future (Figure 1, Figure 2). All parts of the equipment for bat activity monitoring (ultrasound detectors, microphone and power cables, microphones)

were checked, recorded data was collected and ultrasound detectors were set up to carry on with the bat activity monitoring.

Figure 1 *Picture of the microphone at WF Bogdanci taken from inside of the nacelle (photo: G. Rnjak)*

Figure 2 *Picture of the microphone at the nacelle at WF Bogdanci taken from the ground (photo: G. Rnjak)*

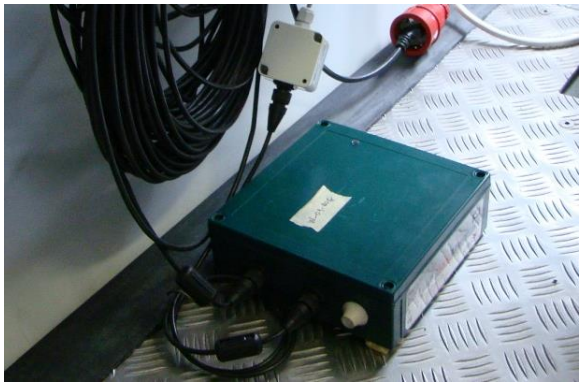

Figure 3 *SM2BAT+ in the nacelle at WF Bogdanci (photo: G: Rnjak)*

Figure 4 *Investigation of potential roosts at WF Bogdanci (photo: G. Rnjak)*

Bat surveys in December 2017 and January 2018 also included reconnaissance and identification of potentially significant bat roosts, as well as setting up a route of the linear transect which will be used for monthly bat activity monitoring using manual ultrasound detectors from March 2018. The position of the linear transect at the location of the future extension - 6 turbines is presented in Figure 5. All collected data was validated, processed in GIS and stored in the digital database.

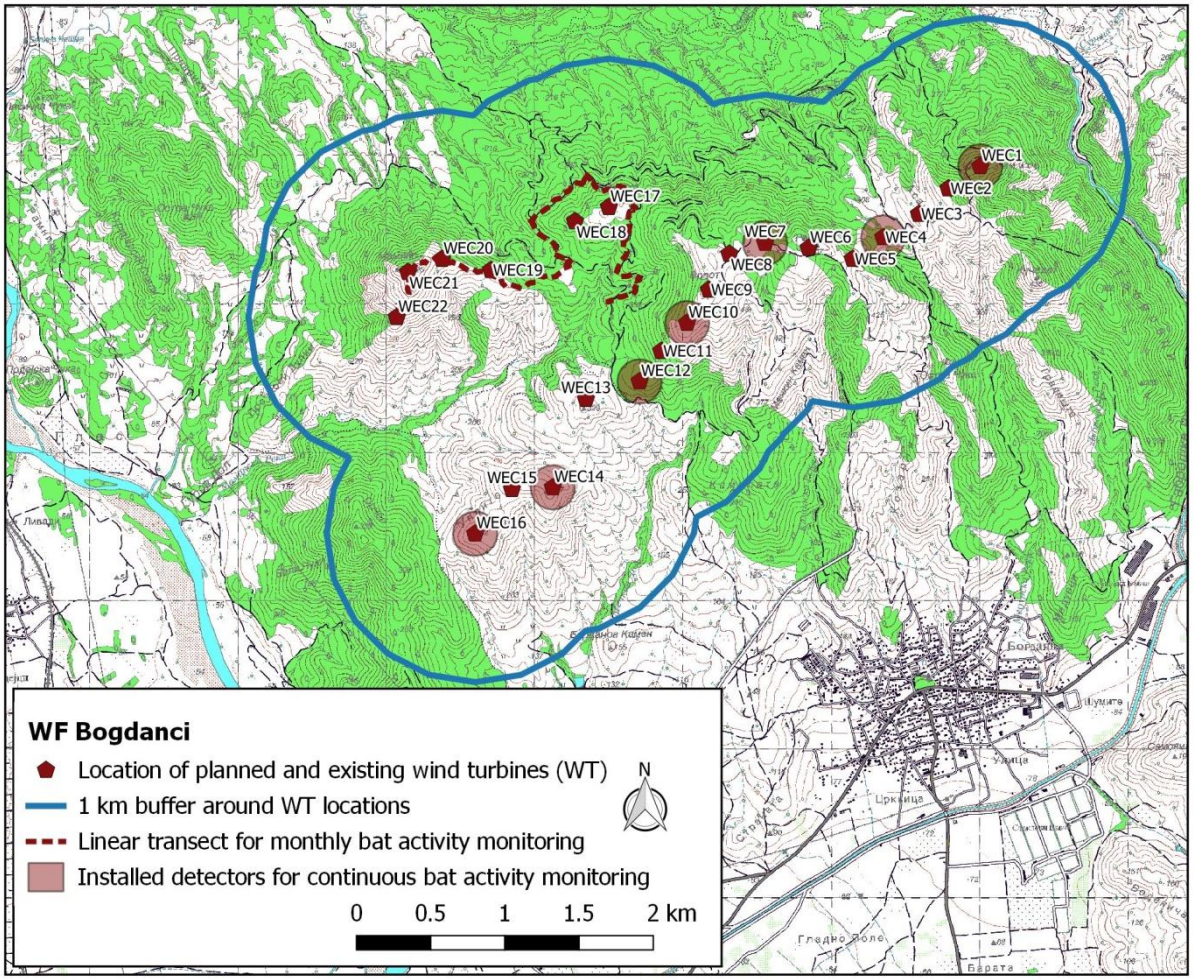

Figure 5 *Location of liner transect for monthly bat activity monitoring at planned WF extension and location of installed detectors for continuous bat activity monitoring at turbine nacelles*

Birds

During the preliminary fieldwork (12th December 2017) our bird team members have examined Project area in search for appropriate locations for Observation sites (OS). During the fieldwork in February (12th to 16th), this method was used for monitoring of the migrating birds and their corridors. According to the Inception report, two OS were planned for constructed wind farm, and one OS for the future extension. Since migration is expected mainly from south, positions of the OS were selected in a way to provide the best view over the entire south - east - west area of the constructed WF and future extension (Figure 6). Also, area search was conducted. As expected for this period of year and winter conditions, bird activity was very low at both Project sites (constructed WF and future location). All collected data was validated, processed in GIS and stored in the digital database.

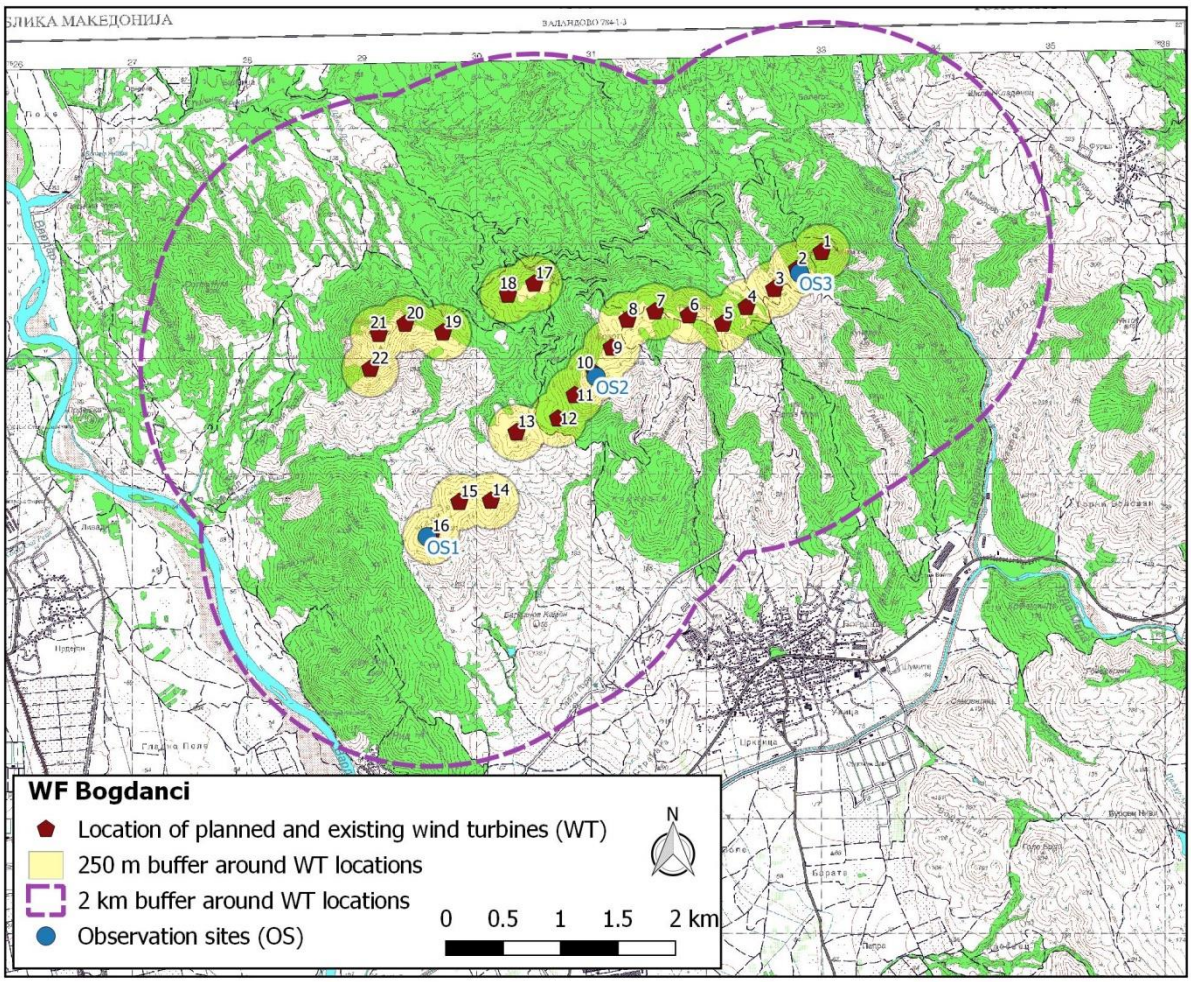

Figure 6 *Location of Observation sites (OS) at WF Bogdanci*

5 Potential problems or deviations from the Working Programme

Due to very extreme weather conditions at the wind farm location in December 2017, microphone cables (part of ultrasound detectors for bat activity monitoring) were damaged. They were replaced in January 2018. Since the winter season is not expected time for bat activity, the time gaps in continuous bat detector monitoring will not have significant effects on the overall results and conclusions.

Other problems or deviations from the Project time schedule did not occur.

6 Conclusion

First part of the Project included the preparation works and administration, preliminary fieldwork and fieldworks for birds and bats, according to the Project time schedule. The Inception report has been submitted and accepted by Employer and KfW. During preliminary fieldwork 7 bat detectors were installed at turbine nacelles, and the Inception meeting with the Employer took place at WF Bogdanci.

Due to very extreme weather conditions at the wind farm location in December 2017 microphone cables (part of ultrasound detectors for bat activity monitoring) were damaged. They were replaced in January 2018. Since the winter season is not expected time for bat activity, the time gaps in continuous bat detector monitoring will not have significant effects on overall results and conclusions.

During their fieldwork in December 2017 and January 2018, bat research team started with reconnaissance and identification of potentially significant bat roosts. Also, a route for the linear transect was set up, which will be used for monthly bat activity monitoring using manual ultrasound detectors from March 2018. Bird research team conducted regular fieldwork, according to the Project time schedule. During the preliminary fieldwork (December 2017) the bird team have determined appropriate locations for Observation sites (OS). During the fieldwork in February 2018, this method was used for monitoring of the migrating birds and their corridors. Also, area search was conducted.

Next Progress Report will present the development of the Project in the next 4 months period, and will be submitted in June 2018.

7 Project progress bar

Post-construction time progress bar

Baseline study time-progress bar