Project: Working towards transboundary conservation of Prespa region by common actions raised by PrespaNet partners

Camera-trapping study in the Prespa region in 2019

– Interim report –

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Introduction

The project "Strengthening NGO-led Conservation in the Transboundary Prespa Basin" aims to implement joint, transboundary activities for integral protection of the Prespa basin. These actions are grouped into three pillars:

1. **Strengthening NGO-led conservation** through concrete conservation projects in North Macedonia and Albania;
2. **Engagement and exchanging experience** between the leading NGOs and between the NGOs and the local population;
3. **From knowledge to application – transboundary collaboration in action** is the third pillar of the project aiming to establish better monitoring and research in the area for successful biodiversity conservation in the long run.

The third pillar aims to strengthen the capacities of the leading NGOs and local partners for implementation of transboundary conservation actions for large carnivores in Prespa region. The need for reliable studies of large carnivores at transboundary level was identified in the Transboundary Strategic Framework for Conservation in the Prespa Basin[1]. Such studies are important in order to fill gaps in the knowledge of these species and identify potential threats and conflicts, which will be used afterwards in the process of planning and implementing effective transboundary conservation and management measures for the species in near future.

The following actions (components) are foreseen within this pillar:

1) Short-term study on large carnivores using camera-traps;

2) Short-term study on damage caused by large carnivores and wild boar;

3) Measures and pilot actions to mitigate large carnivore depredation.

Within the first action, it is foreseen to implement a three-year study on large carnivores on a trilateral level using camera traps and collection of brown bear scat samples. Data collected from the study will improve the knowledge about large carnivores in Prespa region and will be used as a scientific basis for proper conservation actions and to establish strong basis for future conservation actions to preserve these vulnerable large mammals. Moreover, these data and the data from the second action will be used in defining and implementing pilot actions in Greece in order to provide a secure basis for large carnivore conservation across the basin as part of the third action of this pillar.

This interim report summarizes the results and the achievements from the second camera-trapping study conducted in all three parts of Prespa region in 2019. It gives additional data

[1] Transboundary Strategic Framework for Conservation in the Prespa Basin (TSF) was developed by the Strategic Platform for NGOs in Prespa, which consists of the three PrespaNet partners (SPP, MES and PPNEA) and the international NGOs EuroNatur, the Frankfurt Zoological Society, KORA, Plantlife and the SAVE Foundation. The TSF provides a framework for the NGOs to jointly and separately implement activities that take full account of the transboundary context, complement conservation efforts in the wider region, work toward shared goals, have the support of global players, are suitable and attractive to donors, and do not compete against each other for resources.

on the status and distribution of the large carnivores and other species and large carnivore prey in Prespa region, as well as summarizes the involvement of the local partners in the monitoring activities.

Aim of the camera-trapping study

Same as in 2018, the aim of the camera-trapping study in 2019 was to provide more data on the presence of large carnivores (brown bear, wolf, golden jackal and possibly Balkan lynx), as well as information on bear reproduction and number of wolf packs present in Prespa region. Moreover, the study also provided data on other species and large carnivore prey, and gave an indication of the distribution of large mammal species in Prespa region.

The study also enhanced capacities of the local partners in implementing monitoring activities using camera-trapping methodology, strengthen transboundary co-operation in the field of large mammal research and more closely engaging the local community in the monitoring activities.

Study area

Prespa is a transboundary basin in South Eastern Europe shared by Albania, Greece and North Macedonia. It is a high-altitude basin which includes two interlinked lakes, Great and Lesser Prespa, and the surrounding mountains.

In both Albania and Greece, the entirety of Prespa is designated as a National Park. On the Macedonian side, the mountain ranges of Galichica and Pelister are designated as National Parks, while the wetlands of Ezerani in the north of Prespa have been declared a Nature Park and the waters of Great Prespa Lake are designated a Monument of Nature. The biodiversity of Prespa is exceptionally rich in relation to its size, and includes many endemic taxa, as well as species and habitats of conservation interest. From a phytogeographic perspective, Prespa can be classified in the Balkan sub-zone of the Sub-Mediterranean vegetation zone. The areas with aquatic vegetation have particular conservation importance. The successive zones from the lakeshore to the watershed line on the mountains are forest formations, sub-alpine vegetation of dwarf shrubs and alpine meadows, with forests being comprised of lowland woodland vegetation, deciduous oak forests, beech forests, and mixed beech-fir forests. Concerning the fauna, there are many rare and endemic subspecies registered, as well as many species of conservation concern, such: brown bear, wolf, chamois, otter, and possibly Balkan lynx.

Methodology

In the last two decades, camera-trapping has been used as the most common method for monitoring of wild animals (Breitenmoser et al. 2006; O'connel et al. 2011; Rovero and Zimmermann 2016). Camera-trapping is the use of automatically triggered cameras that take photos/videos of animals passing in front of them. This non-invasive method is a good tool to confirm the presence/absence of a given species in a given area, especially rare and elusive

ones, and to make a quantitative assessment of the population of species where an individual is readily discernible, as with spotted cats. If conducted over a few consecutive years, this method may provide data on population trends, breeding, prey availability, information on occupancy, etc (Rovero and Zimmermann 2016). For the purpose of the survey, two models of digital cameras were used: Cuddeback C123 and Cuddeback X-Change colour model 1279.

Same as in 2018, we used a semi-deterministic approach for the deployment of the camera traps (Breitenmoser et al. 2006). Using ArcMap GIS software, we prepared a 2.5 x 2.5 km grid map of the Prespa region to select the appropriate grid cells for setting camera traps. We excluded all cells with unsuitable habitats for large carnivores (populated places, water bodies, elevation above 1700 m), and selected a minimum of 10 grid cells for camera deployment in the Greek part and 20 grid cells in the Macedonian part. In the Albanian part, 10 suitable locations were selected for the camera traps deployments. In each selected cell/location, we deployed only one camera trap at the most promising site along forest roads, hiking paths or game trails (Fig. 1). We used rangers' or local people's knowledge and our experience for selection of the most suitable sites for setting the cameras. The cameras stayed in the field for minimum 45 camera-trapping nights. Due to 4 camera-trap losses in 2018, it was decided that the study in the Macedonian part will be conducted during spring when the hunting season is closed. In the other two parts it was conducted during autumn. In the Macedonian part of Prespa the cameras were functional in the period from 08th May when first cameras were installed until 11th July 2019, when the last cameras were removed from the field. In the Greek part the operation period of the cameras was 03rd October 2019, when the first cameras were installed, to 29th January 2020, adding an additional 2 months of data to the agreed period (the Greek team noted the benefit of having winter data during the first year of camera trapping, when two cameras were unable to be retrieved on time due to weather conditions and provided interesting data on animal movements during this period). In the Albanian part cameras were active during the period from 24th – 12th of December 2019 with effort of 79 camera days each.

In Macedonian and Greek part, the cameras were checked every 10 days for their functionality, photo transfer and battery check/replacement. In the Albanian part, the cameras were checked once in a month since it was implemented the opportunistic camera trapping survey. In all three parts, camera trap deployment and regular checks were done together with rangers from the existing protected areas in Prespa and other trained volunteers (local people, students, etc.).

Additionally, data on large carnivore presence were obtained from camera traps installed in Pelister NP in the frame of the project "*Support for better management of natural resources in the National Park Pelister*" implemented by CeProSARD in cooperation with the park. In total, 10 camera-traps were installed, three of which were on the side of Prespa, in the vicinity of v.Brajchino (Fig. 2).

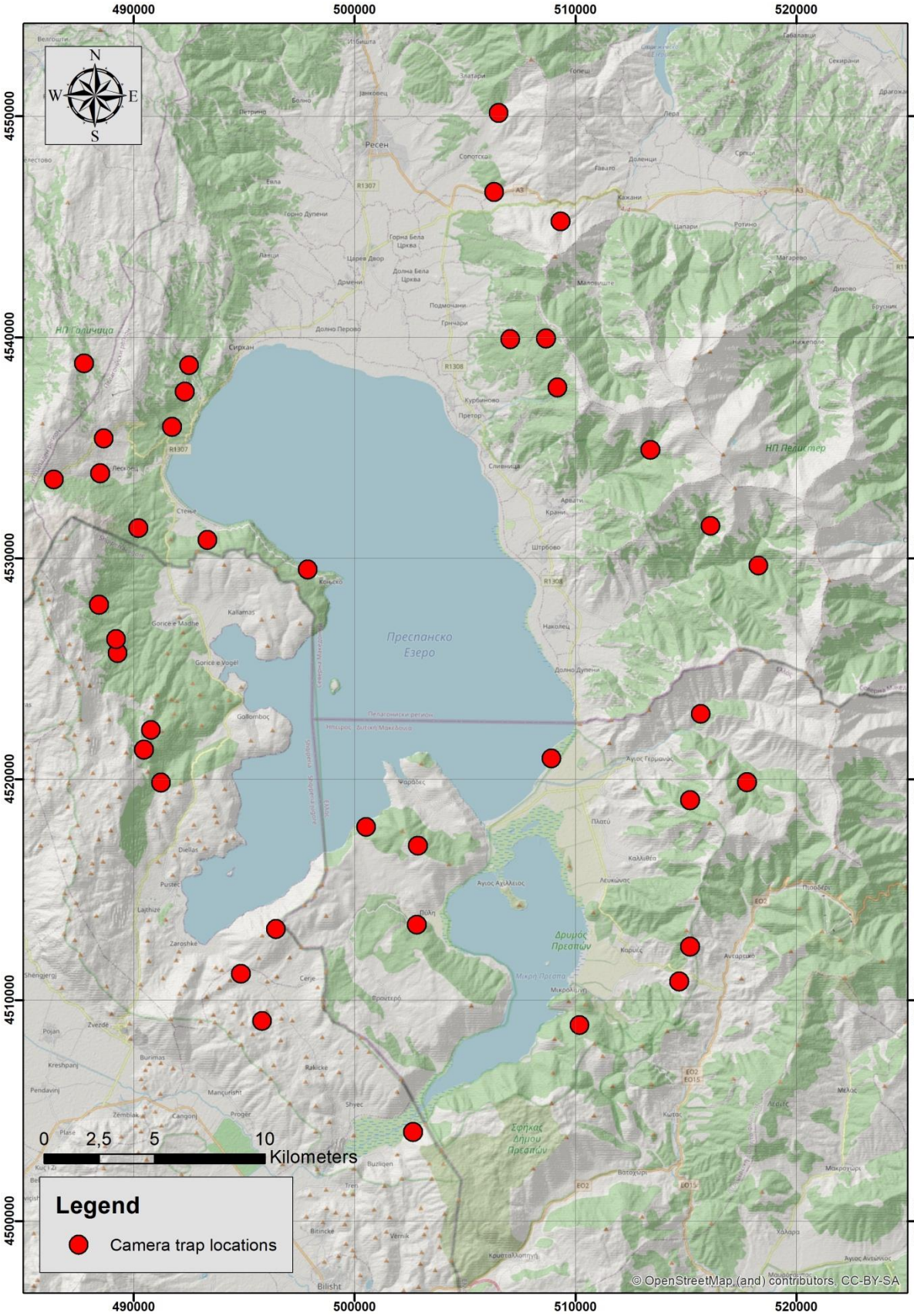

Figure 1. Locations of all camera traps in Prespa region in 2019.

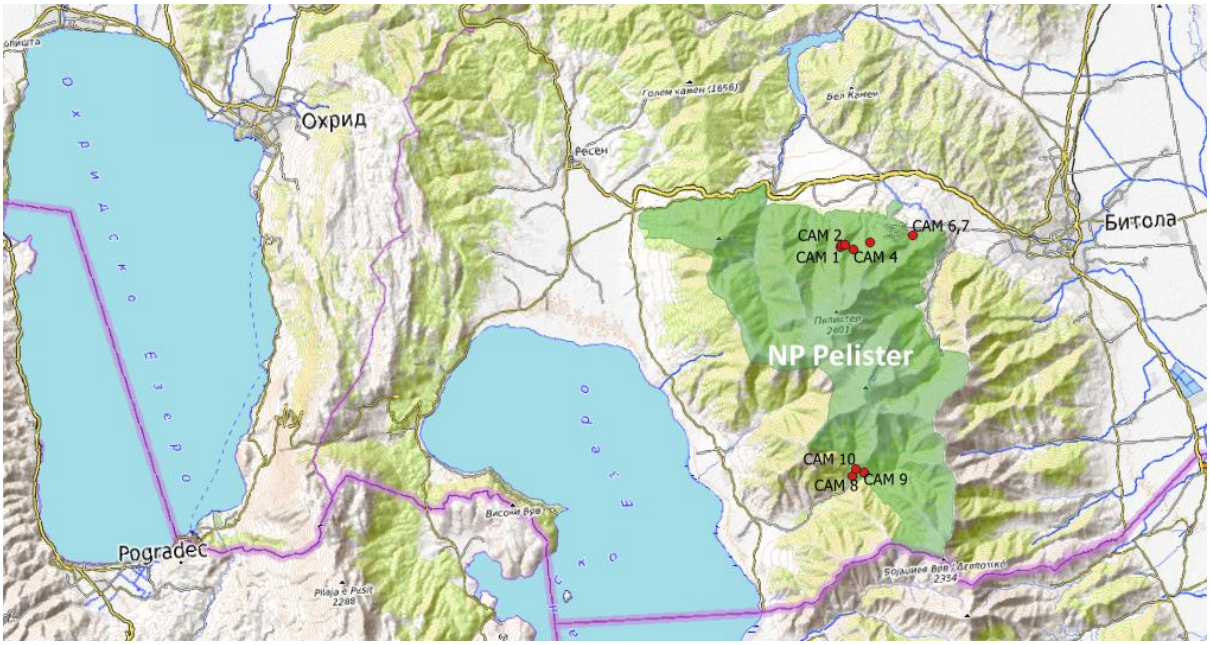

Figure 2. Locations of all camera traps in Pelister NP set within the project "Support for better management of natural resources in the National Park Pelister".

Trainings on camera-trapping method

As mentioned before, one of the main objectives of this pillar component is to raise the capacities of the local partners in specific monitoring methods. Thus, we continued the cooperation with the local partners and organized additional trainings for camera-trapping methodology prior to the implementation of the study.

North Macedonia

At the beginning of the study, MES started cooperation with the hunting association "Prespa" from Resen. Hunters from this association, together with two park rangers from Galichica NP and two park rangers form Pelister NP actively participated in the study. They helped with their experience in selecting suitable sites, and participated in deployment, regular checking and removal of the camera traps.

Albania

In 2018, PPNEA have conducted a set of trainings on large carnivore monitoring methods with RAPA Korça and few students from "Fan S. Noli" University in Korça. **Extensive Camera Trapping** and **brown bear scat collection** were two methods which were carried out in separated theoretical and practical sessions of the training. While during 2019, PPNEA has conducted regular meetings with the staff of RAPA Korça and inviting them on setting and checking camera traps process. The new involved volunteers in the expeditions for the camera traps deployment and regular checks were trained on the field by the experts.

Greece

The SPP held a small event for the volunteers who have been assisting both with bear scat collection and also with the camera trap study in February 2019 (Fig.3). The event was held in order to show all the volunteers the preliminary results of the first season of camera-trapping and gave the SPP a chance to increase volunteer interest and engage in team-building with the volunteers as a group. The event was well-attended and a discussion was also held on the activities to be carried out in 2019.

In preparation for the second year of the camera-trapping study the SPP also held a training session with its volunteers and the national park wardens in early October (Fig. 4), prior to the start of the second session, in which the methodology was reviewed and the volunteers sorted into five teams, each led by a member of SPP staff. Volunteers were offered the opportunity to change groups from the previous year, and the installation of cameras was planned with each group, and installed by the start of the study period on 15th October, with the first checks being carried out 10 days later.

Figure 3 (left) & 4 (right): *Volunteers at the event held by the SPP in February 2019 to present the best images from the study in 2018 and discuss the forthcoming second year of camera trapping*

Results and conclusions

The semi-intensive camera-trapping study in Prespa region in 2019 resulted with 1,221 photos of 10 different mammal species. The results for each part of Prespa are presented separately in the text below.

North Macedonia

The camera-trapping study resulted in 416 photos of 9 different large mammal species. The most abundant mammal was red fox with 125 photos, followed by roe deer – 102, wild boar – 62, brown hare – 32, badger – 30, brown bear – 22, beech marten – 20, wildcat – 17 and wolf – 6 photos. We did not get any pictures of lynx or golden jackal. Brown bear proved to be a common species on the Macedonian side of Prespa, pictured at 11 camera-trap sites

(55% of all trap locations; Fig. 5). Wolf once again appeared to be less abundant, pictured only at five camera-trap sites (Fig. 6). All of the registered wolves were single individuals.

The results of the camera-trapping indicated a good presence of roe deer and wild boar in the Macedonian part of Prespa. Brown hare seems to be a less abundant prey species compared to roe deer and wild boar and was mostly photographed on the side of Pelister NP. Compared to 2018, no chamois photo was taken, which indicates that it is a very rare species in the area.

During the study, one camera-trap was stolen in Pelister NP.

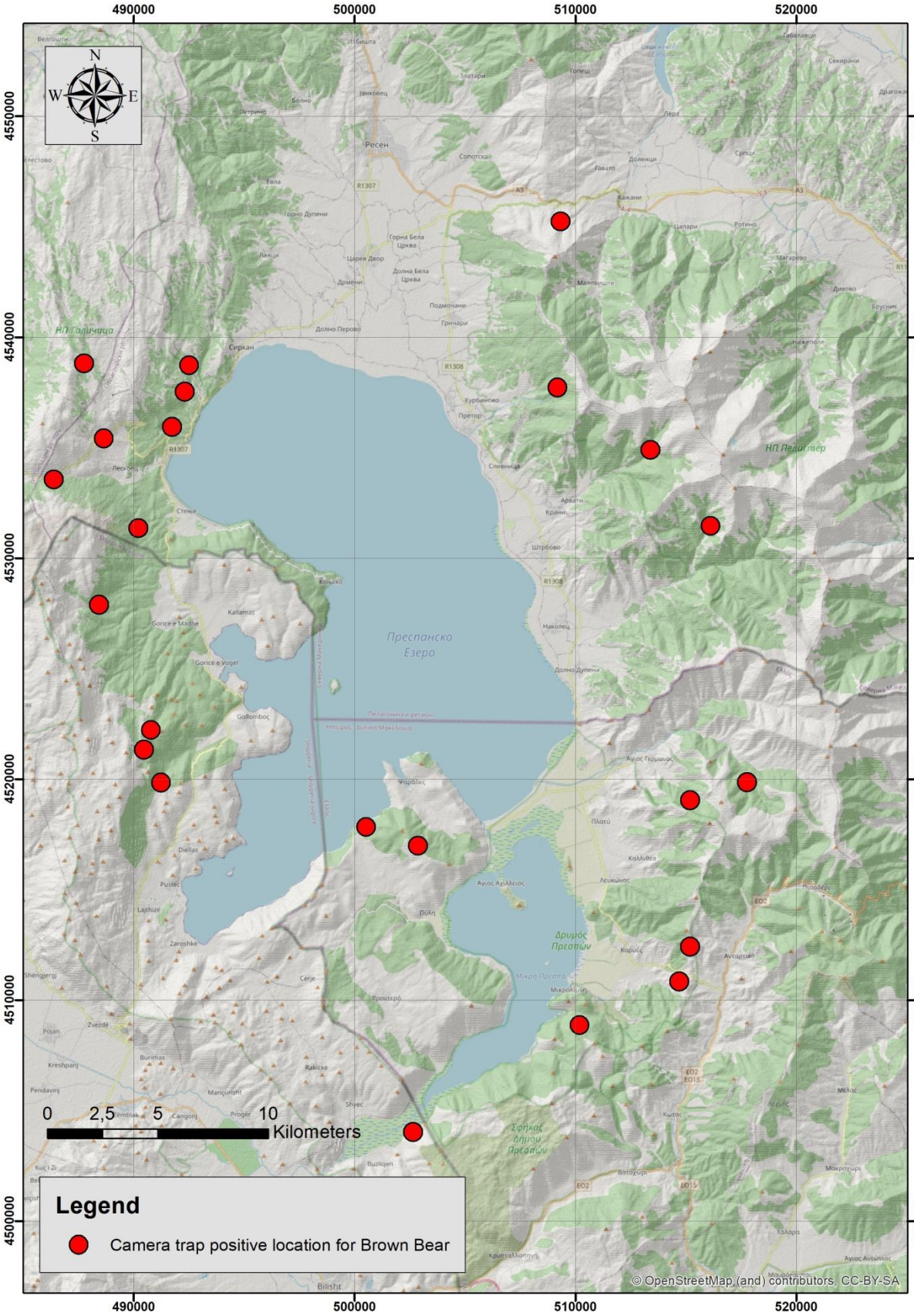

Figure 5. Locations in Prespa region where brown bear was photographed using camera traps.

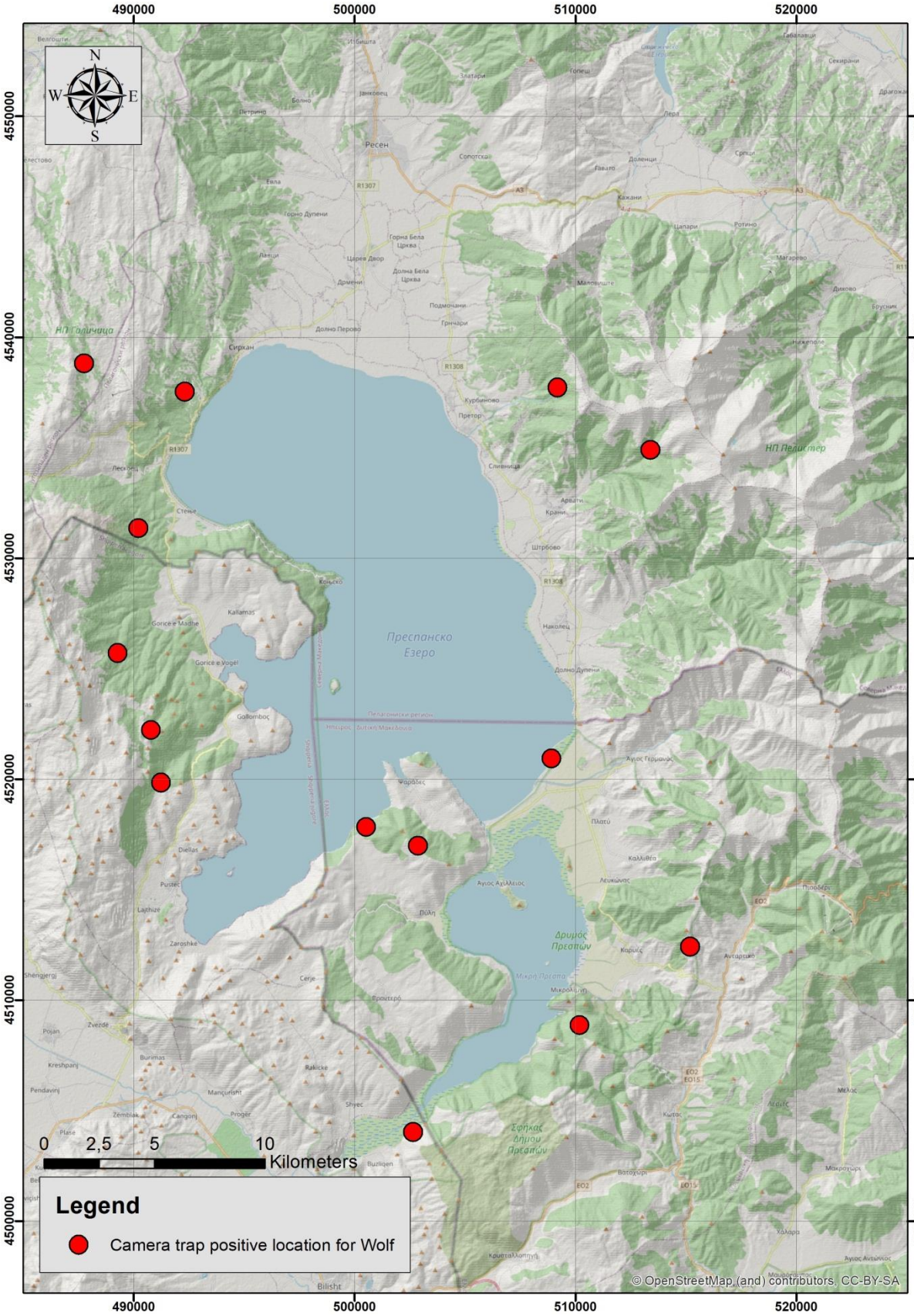

Figure 6. Locations in Prespa region where wolf was photographed using camera traps.

The three cameras installed in the vicinity of v.Brajchino resulted with 11 bear and 2 wolf photos (Fig.7). One of the bear photos was a mother with two cubs, which proved the reproduction of bears in this part of Prespa. Same as in 2018, a wolf pack of at least 2-3 individuals was registered in this area.

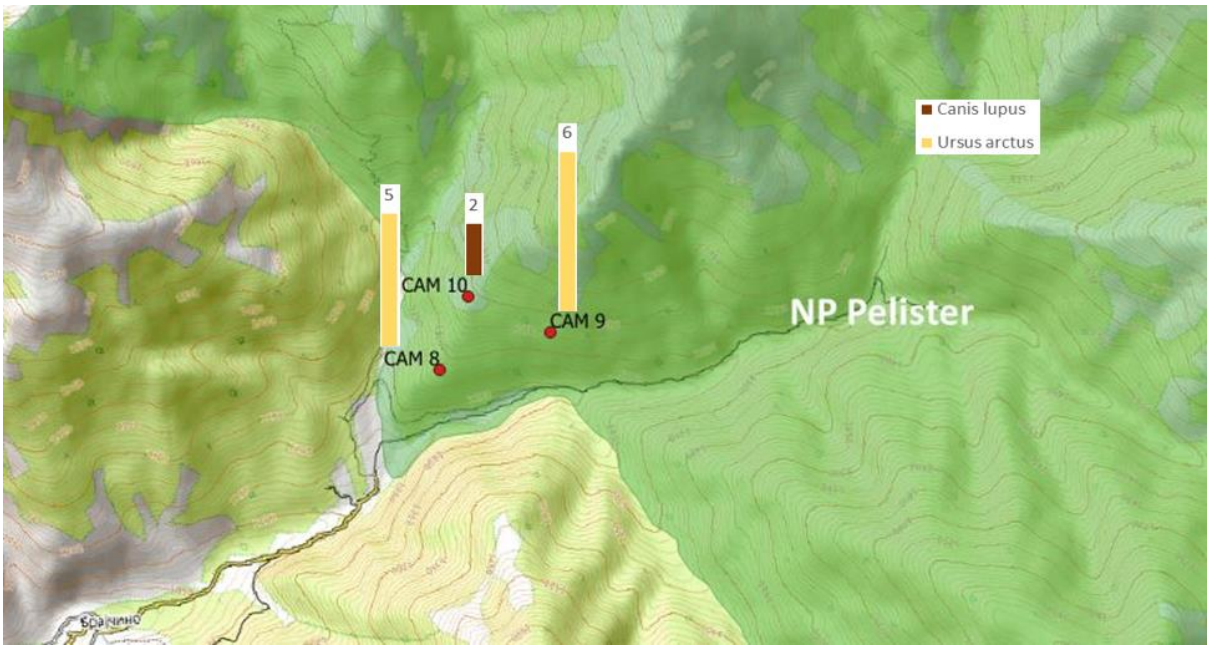

Figure 7. Locations and number of bear and wolf photos per site in the area of v.Brajchino.

Albania

The Camera traps took 338 photos of 10 different large mammal species. Similarly to Macedonia, the most abundant mammal was red fox, with 122 photos, followed by wild boar – 50, badger – 49, beech marten – 28, brown hare – 27, wildcat – 24, wolf – 17, brown bear – 14, roe deer – 6 and otter – 1 photo. No lynx or golden jackal individual was pictured. Brown bear was pictured at five camera-trap sites (Fig. 5), suggesting that brown bear is a common species, at least in the northern part of Albanian Prespa, in the area of Goricë e Madhe and Pustec. Wolf presence was also registered at five camera-trap sites (Fig. 6) and the species is probably common in the same areas as the brown bear. The results indicate that there is evidence for bear reproduction, but there is not such a proof for the wolf. Even though the wolf presence was proven based on the pictures captured from the camera traps, it is difficult to estimate or indicate the presence of the wolf pack in the area.

Moreover, the prey of large carnivores such as brown hare and wild boar had a good presence in the area, whereas roe deer appeared to be less abundant of all ungulates. No chamois individuals were pictured in the Albanian part of Prespa. In addition to these, what is important to be mentioned is that, a Eurasian otter individual was photographed by camera trap (AL 7) in an unusual habitat in a dry and rocky terrain with altitude of 1232m above sea level and 5 km far from the lake.

The area was also occupied by human activity (poaching and illegal logging; Fig.6 & 7), which have a negative impact on large carnivore habitats. Beside this, fortunately no camera traps were stolen or damaged in the field.

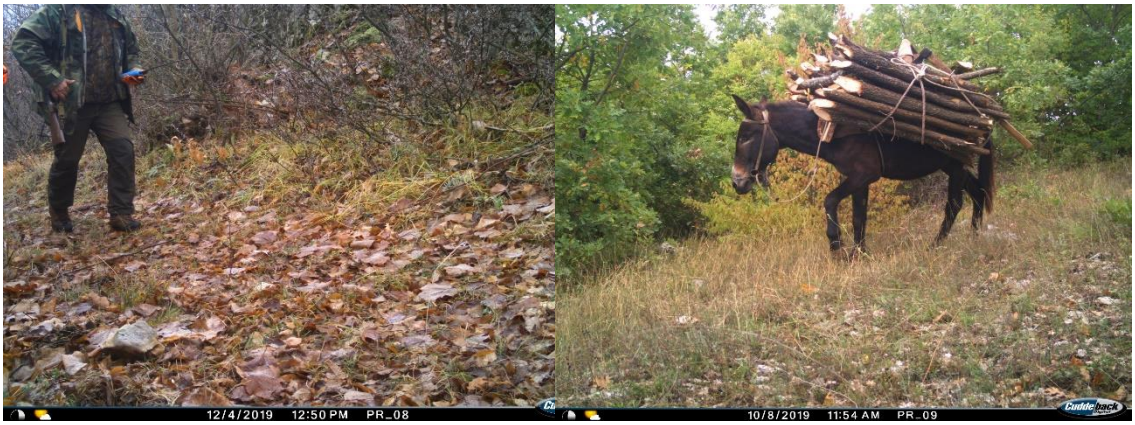

Figure 8 & 9. Human activity (poaching and logging) in Albanian part of Prespa

Greece

The camera-trapping study resulted with 467 photos of 9 different large mammal species. The most abundant mammal was wild boar with 236 photos, followed by roe deer – 125, brown bear – 50, red fox – 12, wildcat – 10, beech marten – 9, brown hare – 8, wolf – 7 and badger – 1 photo. No lynx or golden jackal picture was taken. Brown bear is a common species in the area, pictured at seven sites (Fig. 5). Moreover, bear reproduction was confirmed at two camera trap sites (in the areas of Potistra and Vrodero-Psarades). Wolf presence was registered at five camera trap sites (Fig. 6). Compared to 2018, wolf presence was also recorded in the western part of Greek Prespa. No wolf packs were registered. Roe deer and wild boar have a good presence in the area and were pictured at most of the sites. Brown hare is a less abundant prey species, and no chamois individuals were pictured in the Greek part of Prespa. Surprisingly, we obtained fewer photos from red fox, badger and brown hare compared to 2018 survey.

During the camera-trapping survey, no camera trap was stolen or damaged.

Conclusion

In general, the results of the camera-trapping study conducted in 2019 showed that:

- Brown bear is a common species in all three parts of Prespa and it is reproducing successfully in the area;

- Wolf is a less abundant species, with the possible presence of five wolf packs in the area;
- No lynx and golden jackal presence was registered;
- Roe deer and wild boar are very common prey species in the area, whereas brown hare is a less abundant species.
- Chamois is very rare in the area and was not photographed during 2019.
- Red fox, badger and brown hare appeared to be less abundant on the Greek side of Prespa, compared to the results from 2018.
- Eurasian otter was photographed in an unusual habitat and in order to understand more about this case, more data on habitat correlates on otter in this area are needed.

References

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Appendices

Appendix I. List of all camera trap sites in Prespa region in 2019, their locations and bear and wolf registrations.

Site №	Name of site	UTM E	UTM N	Brown bear	Wolf
MK1	Karaula	40,92844	20,92098		
MK2	Kiralishta	40,95559	20,86316		
MK3	Prechna Planina	40,93317	20,88381	+	+
MK4	Kalugjerica Konjsko	41,00030	20,85442	+	+
MK5	Slavkova Cheshma	40,99966	20,9111	+	
MK6	Volkolegalo	40,96986	20,86508	+	
MK7	Kostobachilo	40,98898	20,90858	+	+
MK8	Pirgot Sirhan	40,91651	20,97495		
MK9	Volchji Dol	40,97466	20,90172	+	
MK10	Oteshevo	40,95306	20,83816	+	
MK11	Gjavato	41,10264	21,07786		
MK12	Kozjak	40,93407	21,19155	+	
MK13	Rajca	41,01029	21,08407		
MK14	Slivnica	40,91777	21,21731		
MK15	Bichkijata Krani	41,07044	21,07532		
MK16	Drmishar Brajchino	41,14275	21,04571		
MK17	Sliva Brajchino	40,99070	21,10925	+	+
MK18	Kurbinovo	41,01061	21,10311		
MK19	Nabljuduvachnica	40,96509	21,15919	+	+
MK20	Dolno Dupeni	41,05828	21,11113	+	
AL1	Gorice e Madhe village	40,88241	20,87281		+
AL2	Gorice e Madhe village	40,90210	20,86264	+	
AL3	Gorice e Madhe village	40,88802	20,87197		
AL4	Kallamas village	40,68708	21,03135	+	+
AL5	Prespa NP office	40,85098	20,89076	+	+
AL6	Lajthiza village	40,84303	20,88693	+	
AL7	Golloboç valley	40,82960	20,89617	+	+
AL8	Cerie village	40,76982	20,95790		
AL9	Cerie	40,75150	20,93901		
AL10	Rakicka village	40,73231	20,95062		
GR1	Paralimnio	40,83933	21,10585		+
GR2	Siroka	40,85733	21,18612		
GR3	Jovanitsa	40,82949	21,21087	+	
GR4	Potistra	40,82232	21,18020	+	
GR5	Karies	40,76260	21,18003	+	+
GR6	Pervali	40,74845	21,17423	+	
GR7	Sfika	40,73053	21,12086	+	+
GR8	Vrondero-Psarades	40,81146	21,00630	+	+
GR9	Devas	40,80371	21,03408	+	+
GR10	Dhaseri	40,77150	21,03344		

Appendix II. Photos of all nine mammal species registered in the Macedonian part of Prespa.

Appendix III. Photos of all nine mammal species registered in the Greek part of Prespa.

1/10/2020 5:38 AM 16304

1/21/2020 2:44 PM 16299

12/16/2019 8:37 PM 16299

1/15/2020 8:23 PM 16299

11/10/2019 6:53 PM 16307

11/22/2019 5:26 AM 16304

12/16/2019 5:24 AM 16299

Appendix IV. Photos of all nine mammal species registered in the Albanian part of Prespa.

11/29/2019 7:48 PM PR_04

11/24/2019 10:59 PM PR_01

12/5/2019 10:31 PM PR_03

11/6/2019 5:47 AM PR_07