Monitoring the Eurasian Otter (*Lutra lutra*) in the Cross-Border Area of Skadar Lake: Summary of 2024–2025 Field Surveys

Project: Improving the Status of Lutra lutra and Their Habitat in the Cross-Border Area of Skadar Lake National Park

Project partners: Green Home; Protection and Preservation of Natural Environment in Albania; Wildlife Montenegro

September 2025.

Content:

Introduction

This report presents a summary of the data gathered through two monitoring sessions of the Eurasian otter (*Lutra lutra*) conducted during 2024 and 2025 within the project *Improving the Status of Lutra lutra and Their Habitat in the Cross-Border Area of Skadar Lake National Park*. The project was implemented by NGO Green Home in partnership with PPNEA from Albania and WLMNE from Montenegro, covering both sides of Lake Skadar. PPNEA carried out monitoring activities in Albania, while WLMNE conducted fieldwork in Montenegro. The project, implemented from October 2024 to September 2025, aims to contribute to the improvement of the conservation status of the Eurasian otter and its habitat within the cross-border area of Skadar Lake National Park. It seeks to provide more comprehensive data on otter abundance and distribution, support the closure of Montenegro's open case before the Bern Convention Secretariat, and enhance public knowledge and engagement of local communities in protecting and improving the otter's status at the transboundary level. The project was financially supported by the European Union through the BestBelt initiative.

The content of this report represents the results of the monitoring activities conducted by Green Home and its project partners. The views, conclusions, and recommendations presented herein are the sole responsibility of Green Home and the implementing partners and do not reflect the views of the European Union, Best Belt or other funding bodies.

Project area

Lake Characteristics

Skadar/Shkodra Lake, shared by Albania and Montenegro, is the largest freshwater lake in the Balkan Peninsula and Southeastern Europe. Its surface area varies seasonally between approximately 350 km² in summer and up to 550 km² in winter, with around one-third of the lake lying within Albania. Average depths range from 4 to 8 meters, and the total shoreline extends 168 kilometers—57.5 km in Albania and 110.5 km in Montenegro. The lake's complex hydrology is driven by numerous rivers, notably the Morača, and enriched by karstic springs (oka) and underwater springs (vrulje), the deepest of which, Raduš oko, reaches 60 meters and provides vital cold-water refuge.

Protected Status and Habitats

On the Albanian side, Skadar/Shkodra Lake is designated as a Nature Reserve (IUCN Category IV), while in Montenegro it is protected within the category of a National park. Internationally, it is recognized as a Key Biodiversity Area, Important Bird Area (IBA), Emerald Site (ME0000003), and Ramsar Site (ID 1598). The surrounding landscape features a mosaic of reed beds, riparian (alluvial) forests, rocky shores, and alluvial plains that together form critical habitats for species such as the Eurasian otter (*Lutra lutra*). Karstic and submarine springs create cooler summer zones that support diverse fish populations and offer essential refuges for otters during warmer months.

Otter Ecology, Threats, and Monitoring

The lake's sub-Mediterranean climate, extensive shallow shorelines, abundant aquatic vegetation, and plentiful food resources make it an ideal habitat for otters. Despite these favorable conditions, anthropogenic pressures—such as fishing net entanglements, tourism, transportation activities, and fluctuating water levels—pose significant risks, including documented cases of otter mortality and roadkill. In Montenegro, monitoring efforts divide the shoreline into three zones: the dynamic northern marsh, where seasonal water rises drive otters inland in winter and lakeside in summer; the western shore, which offers stable water levels and diverse habitats year-round; and the southern rocky shore, where limited microhabitats prompt otters to shift into vegetated nearshore areas during summer.

Previous data on monitoring of the otter

Early research in Albania established that the Eurasian otter (*Lutra lutra*) is widely distributed across the country's aquatic ecosystems, with particular affinity for rivers and marshes. Surveys from the mid-1980s documented otters relying on dense riparian vegetation both for foraging and shelter. Secure denning sites were found to be critical, with otters using cavities in riverbanks, crevices beneath exposed tree roots, and natural rock shelters to rear their young and avoid disturbance.
When it comes to data regarding the presence of the otter on the Montenegrin part of the lake, monitorings were conducted between 2011 and 2012, with kayak based surveys which confirmed otter presence at numerous bays, river mouths, islands and community-reported sites while in 2013 there was a structured program supported by GIZ in 2013. That year's expanded valley and shoreline surveys validated otters everywhere they checked and led to calls for legal protections, educational signage and remote monitoring tools, while in 2014 there were first otter-crossing signs and the establishment of a national monitoring protocol.

Surveys resumed in 2015– 2016 with habitat mapping, traditional sign searches and the launch of a synchronized boat-based monitoring across Skadar, Ohrid and Prespa. In 2017, teams sampled 51 evenly spaced shoreline sites, producing data for a regional habitat manual, and in 2018 the focus was shifted to public outreach with Montenegro's first World Otter Day. Targeted 2019 fieldwork at key rivers and shores estimated 5–20 otters, and high-water surveys in summer 2020 documented widespread signs pointing to a stable or recovering population.

Methodology

The methodology used for achieving the results included testing of monitoring protocols and previously defined spots in Montenegro and Albania where the presence and distribution of Lutra lutra was monitored.

In Albania, presence and distribution assessments relied on spraint surveys, camera trapping, and spontaneous interviews. During December 2024–January 2025 and March–June 2025, teams of five to six researchers surveyed 38 shoreline stations at 2–4 km intervals. At each station, 200–300 m transects were walked or navigated by boat to record otter spraints, footprints, and feeding remains following standard methods by *Macdonald & Mason (1986)* and *Lenton et al. (1980)*. Summer surveys were prioritized to maximize detection of otter signs and avoid periods of heavy rainfall and high water levels.

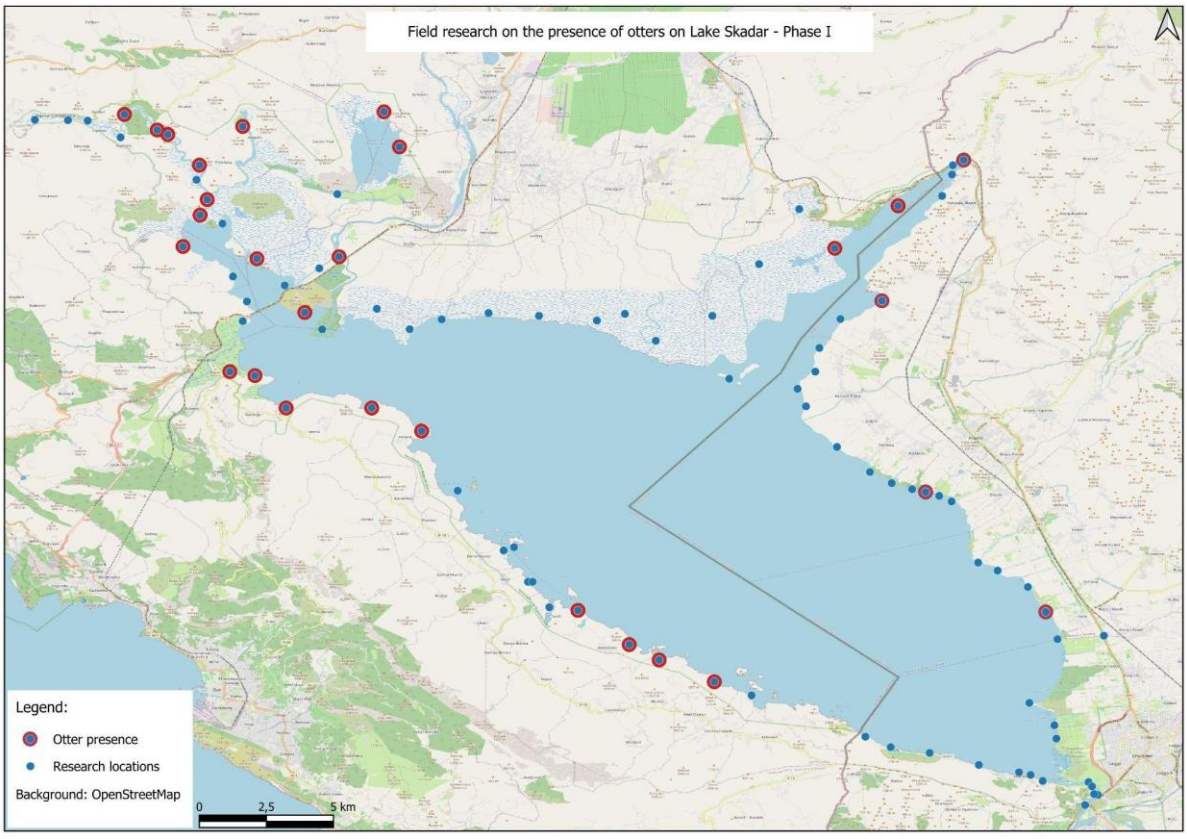
The camera trapping component was designed around two Spypoint FLEX E-36 units and two preselected sites. Installation was postponed due to illegal fishing disturbances, with deployment now scheduled for winter 2025. Simultaneously, approximately 30 unstructured interviews were conducted with fishermen, residents, and park rangers. These 10–15 minute informal conversations captured local ecological knowledge on otter sightings, habitat preferences, perceived threats, and conservation attitudes, with detailed notes taken on the day of each interview.

In Montenegro approach focused on estimating relative otter abundance in the absence of genetic or systematic individual counts. Following *IUCN Otter Specialist Group recommendations*, the number of adult females was calculated by dividing the confirmed shoreline length by a 15 km territory value per female. This figure was doubled to include males and increased by 25% to account for subadults. As a complementary method, teams applied density estimates from *Italian studies*—2.4 otters per 100 km² or 0.16–0.20 individuals per river-kilometer—to cross-validate shoreline-based results. All estimates were restricted to areas with confirmed otter presence to avoid overestimation.

All data collected during the two monitoring sessions were subsequently processed and analyzed to provide a comprehensive overview of otter presence and habitat use across the cross-border area of Skadar Lake. The findings were mapped using Geographic Information System (GIS) techniques, which allowed for the spatial visualization of otter activity at each surveyed location. These GIS maps illustrate the distribution patterns of Lutra lutra, highlighting areas of confirmed presence, potential habitat hotspots, and regions with limited or no detections. By representing the monitoring results spatially, the maps provide an essential tool for identifying priority sites for conservation, optimizing future monitoring efforts, and supporting cross-border management strategies for the protection of otters and their habitats. These maps are presented below within this report.

Results

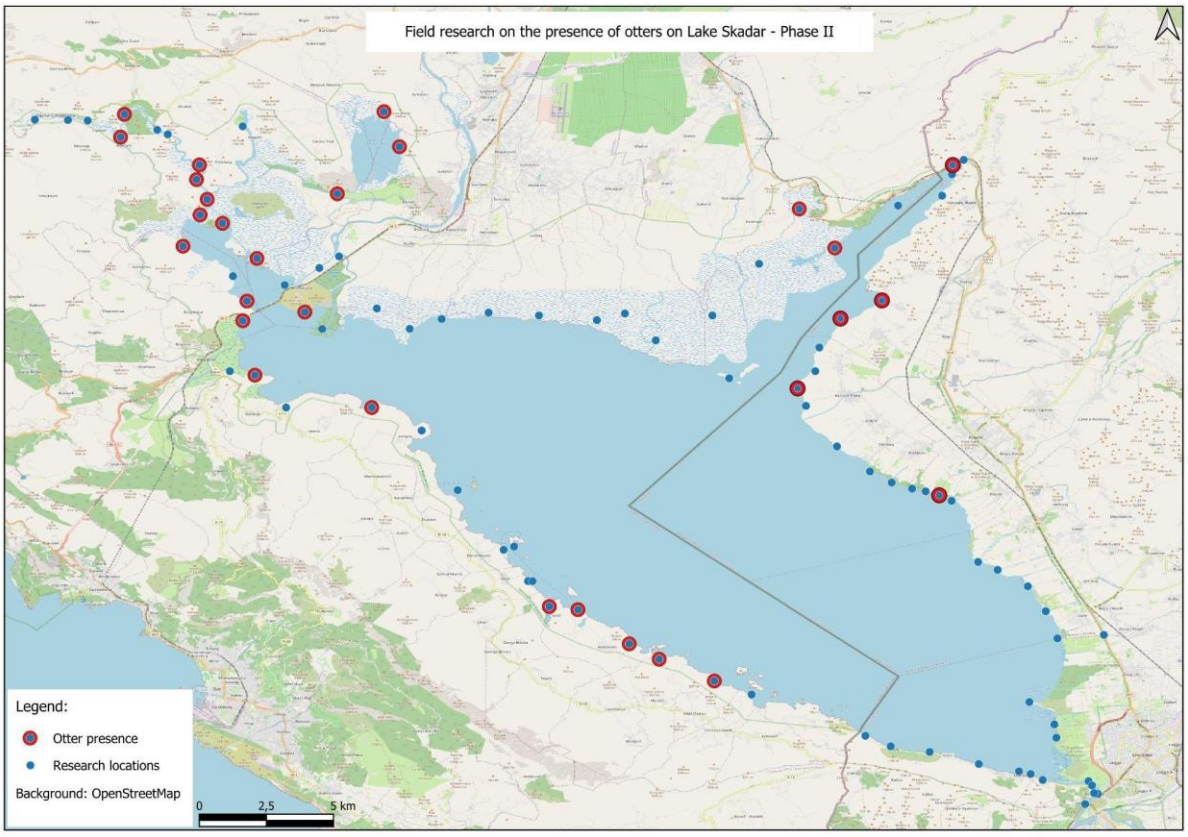
Across both Albania and Montenegro, systematic monitoring of the Eurasian otter (Lutra lutra) was carried out over two field seasons in Albania and during autumn 2024 and spring 2025 in Montenegro, employing consistent methodologies of indirect sign surveys—spraints, tracks, and food remains—to assess distribution and habitat use. In Albania, 38 monitoring stations around Shkodra Lake were surveyed at least once despite weather- and flood-related access limitations. Evidence of otter presence was confirmed at nine stations (23.6 %), all through mainly dry, fragmented spraints (one to four per site) indicative of past rather than recent activity. These signs were confined to the northeastern and central-eastern sectors of the lake, with no detections in the southern or western zones, underscoring a geographically restricted population footprint within the Albanian survey area. The maps presented below show GIS data illustrating the presence of otters at all surveyed locations during both monitoring sessions conducted in Albania and Montenegro.



Map 1: First phase of field research on the presence of otter in Lake Skadar

In Montenegro, seven field days in autumn 2024 covered 55 locations, of which 26 sites yielded positive confirmations of otter presence while 29 produced no signs. Negative results clustered along navigable river routes toward Rijeka Crnojevića and the northern branch of the Morača

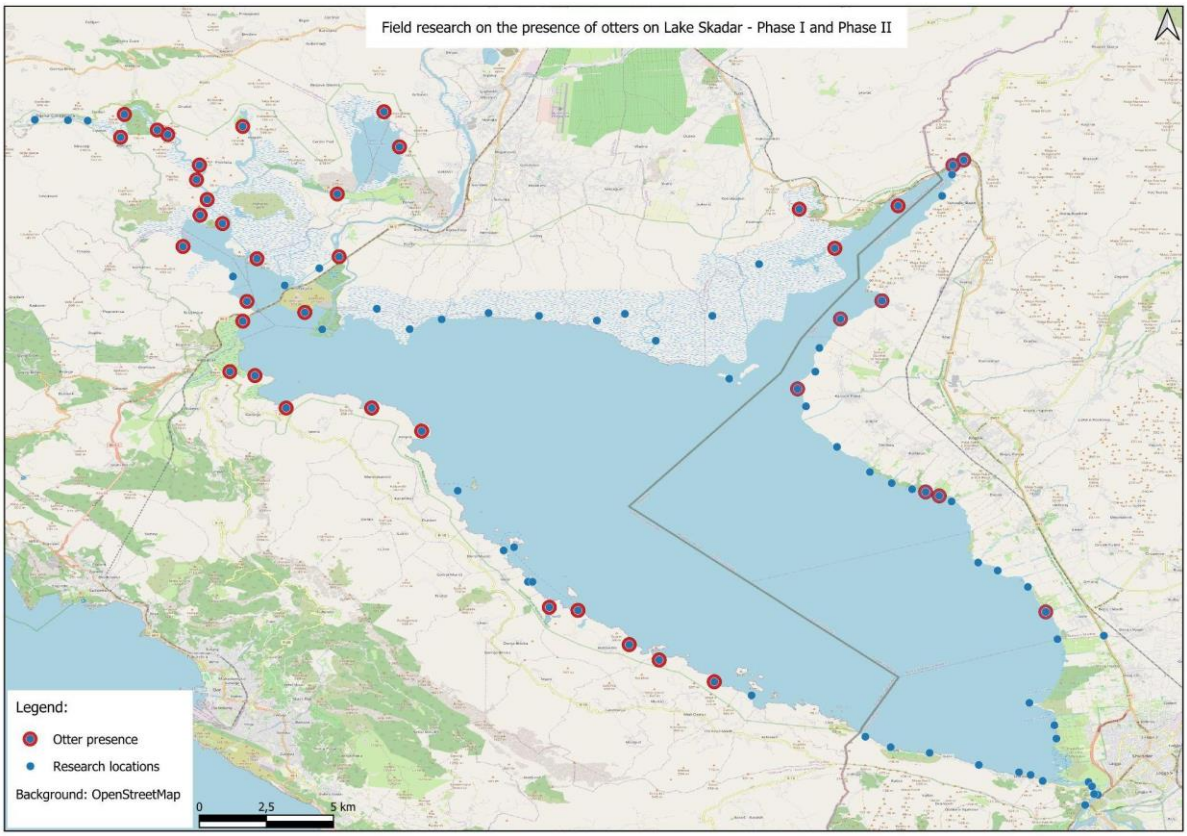
River, near the villages of Ckla and Murići, and in the marshy northern lake margins—areas where habitat structure may conceal otter activity despite its likelihood. On the northern shore only four of fourteen points recorded otter signs, leading to the proposal of a new monitoring station, “Vranjina South,” to capture activity on its rocky shoreline and to replace the consistently unproductive “Delta of River Morača (MN23).” The western shore logged 12 positives out of 21 points, though the “Rijeka Crnojevića” (MN06) and un-coded “Ploča” points were inaccessible; thus, the addition of “Prevlaka 2” is recommended to enhance coverage there. The southern shore recorded ten positives out of 16, but duplicate site identifiers and proximate locations—such as Mačiluka/Pjajce and the overlapping IDs MN45 and MN46 among Bes, Sinori, Besit 1, and Bečka—prompt a suggestion to remove Bes and Beška to streamline the network. These adjustments aim to rectify the protocol’s nominal inventory of 51 sites, which in practice encompassed 55 due to unassigned and duplicated codes.



Map 2: Second phase of field research on the presence of otter in Lake Skadar

Spring monitoring from March through May 2025 repeated the autumn framework across the same 55 locations, yielding 25 positive findings and 30 negatives—results largely mirroring the previous season and suggesting a stable otter presence with seasonal fluctuations. Negative detections remained centred around Ckla, Murići, and the navigable routes of Morača and Rijeka Crnojevića, while dense vegetation on the northern shore limited sign detection at 16

points despite likely otter occupancy in rocky interstices. Eight positives were confirmed on the southern shore out of 14 stations, with two sites excluded for proximity redundancy. On the western shore, 13 points showed activity, but “Rijeka Crnojevića 1” (MN06) continues to pose access challenges and fluctuating water levels, leading to its recommendation for removal from future surveys. Together, these findings delineate key areas of otter concentration—northeastern and central sectors in Albania and specific rocky shorelines in Montenegro—while identifying logistical and methodological refinements for Montenegro’s monitoring network. Proposed additions of “Vranjina South” and “Prevlaka 2,” alongside the removal of consistently unproductive, inaccessible, or redundant points, will optimize future efforts and sharpen our understanding of regional otter dynamics.



Map 3: Combined data from field research on the presence of otter in Lake Skadar

Conclusion

Methodology used in Albania provided direct field evidence and community-sourced insights, while protocol conducted in Montenegro yielded population estimates through habitat-based modeling. To strengthen transboundary conservation, future monitoring should integrate spraint and camera-trap data with shoreline-based abundance models. Expanding camera trap deployment, standardizing transect protocols, and synchronizing survey timing across both countries will harmonize data collection and improve understanding of population dynamics, distribution shifts, and habitat use. The results of the two monitoring cycles in Albania and Montenegro provide valuable insight into the current status and distribution of the Eurasian otter (Lutra lutra) within the Skadar/Shkodra Lake system. Despite certain access limitations and environmental challenges, consistent methodologies enabled reliable cross-border comparison. Findings indicate that otter presence in Albania remains geographically restricted, concentrated in the northeastern and central-eastern sectors of the lake, while in Montenegro the species demonstrates a wider but patchy distribution, with stable occupancy across successive seasons. The proposed optimization of monitoring stations—including the addition of new, strategically located points and the removal of redundant or inaccessible ones—will enhance data accuracy and long-term tracking efficiency. Overall, the surveys confirm that the Skadar Lake region continues to serve as an important habitat for otters, underscoring the need for continued transboundary cooperation, improved data management, and habitat conservation measures.

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Eurasian otter monitoring in Albanian side of Shkodra/Skadar Lake

Technical report

Under "Project: Improving the status of Lutra lutra and their habitat in cross-border area of National Park Skadar Lake" *A1-Monitoring of Lutra lutra in Montenegro and Albania part of Skadar lake.*

Protection and Preservation of Natural Environment in Albania / Birdlife Albania

2025

Eurasian otter monitoring in Albanian side of Shkodra/Skadar Lake

Technical report

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ABOUT THE PROJECT

This technical report was prepared in the framework of "Improving the status of *Lutra lutra* and their habitat in the cross-border area of National Park Skadar Lake" project. Green Home, in partnership with Wildlife Montenegro and PPNEA, through this project aims to enhance otter conservation by gathering comprehensive data on their population. These data will be used to preserve the whole Shkodra Lake and increase awareness of its importance and conservation efforts. In addition, this cross-border initiative has strengthened the collaboration between all stakeholders sharing this ecosystem, NGOs, authorities, and the fisherman community.

Lutra lutra is classified as Near Threatened according to the IUCN Red List. Moreover, this species is listed in Appendices II and IV of the Habitats and Birds Directive. The aquatic habitats of otters are extremely vulnerable to man-made changes. Canalization of rivers, removal of bankside vegetation, dam construction, draining of wetlands, aquaculture activities, and associated man-made impacts on aquatic systems are all unfavorable to otter populations.

Project will take place in the cross-border area of Skadar Lake in the border area of Montenegro and Albania. National Park Skadar Lake in Montenegro and Nature Reserve Skadar Lake in Albania are the targeted area of this project and this area belongs to the European Green Belt area.

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Introduction:

The Eurasian Otter (Lutra lutra), also known as the European Otter, is a semi-aquatic carnivorous mammal that is easily identifiable but rarely observed in the wild (Chanin, 2003). Adults can reach a head-body length of up to 95 cm (excluding the tail), with males weighing as much as 17 kg. The species has dense brown fur, typically lighter and creamy around the throat area. Otters are solitary and territorial animals, using feces (spraints) and glandular secretions for intra-species communication. Furthermore, their diet is typically dominated by fish, followed by amphibians, crustaceans etc. (Kruuk, 2006). These scent markings are often deposited at prominent landscape features such as bridges, estuaries, stones, and other conspicuous sites.

In Albania, the Eurasian Otter is widely distributed and inhabits a variety of aquatic ecosystems, especially rivers and marshes Prigioni et al. (1986). The species relies heavily on riparian vegetation and the availability of secure denning sites, such as cavities in riverbanks, spaces beneath tree roots, or natural shelters among rocks (Mason & Macdonald, 1986).

According to the IUCN Red List for the Mediterranean region, *Lutra lutra* is classified as Near Threatened (IUCN, 2021), while it is listed as Vulnerable on the Albanian Red List (Red List of Albanian Flora and Fauna, 2013). At the European Union level, the species is included in Annexes II and IV of the Habitats Directive (Council Directive 92/43/EEC). In Albania, the Eurasian Otter is a legally protected species under national biodiversity legislation.

In the frame of this transboundary monitoring initiative, PPNEA led the monitoring process in the Albanian part of the Shkodra/Skadar lake, while in collaboration with RAPA Shkoder implemented two surveys, end of 2024 and finalized in early June 2025. The primary objective of this initiative was to gather data on the presence of Eurasian otter and their threats in Shkodra lake. In addition, starting the discussion with partners on planification of conservation actions towards otter preservation in the transboundary level.

Description of the study area

Shkodra/Skadar Lake is the largest freshwater lake in the Balkan Peninsula, shared between Albania and Montenegro. Its surface area fluctuates seasonally from approximately 370 to 530 km², with around one-third situated within Albania (Stumberger et al., 2005). The lake is located in the northwest corner of Albania, within Shkodër County, and is bordered by the city of Shkodër to the north and the Buna River, its only outlet, to the west. The surrounding landscape features a mosaic of habitats including reed beds, riparian forests, rocky shores, and alluvial plains—ecosystems that are essential for supporting *Lutra lutra*.

In addition, Shkodra/Skadar lake is part to the Albania's protected areas network with a status of "Managed Reserve", Category IV – IUCN, Decision Nr. 60, datë 26.1.2022 (changed). Meanwhile in international level this area is recognized as Key Biodiversity Are (KBA) with Site ID 46567 (Skadar Lake - Buna River - Velipoje - Vau i Dejes), Important Bird Area (IBA), Emerald Site with and ID site of ME0000003, and Ramsar Site with a site ID 1598.

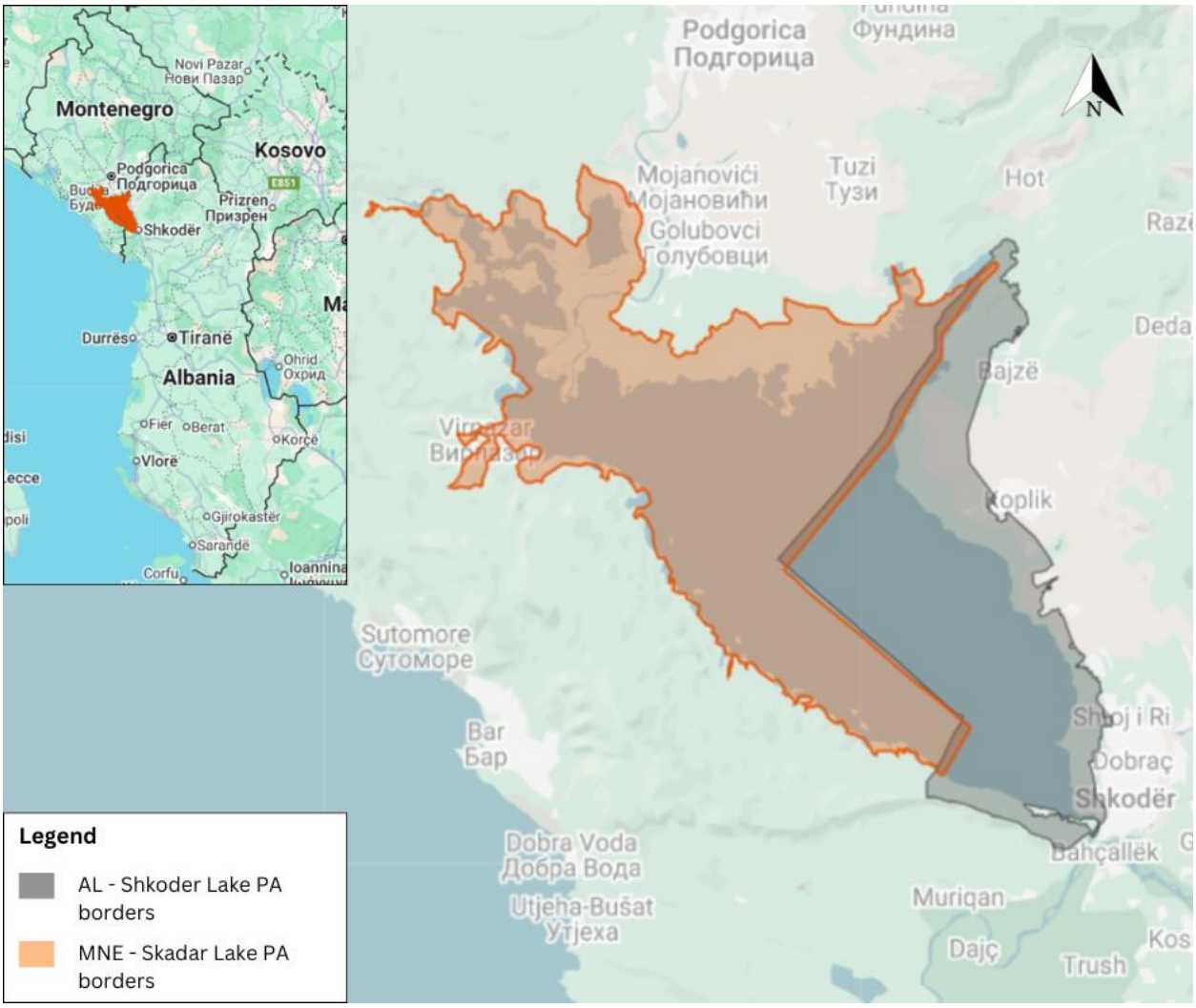

Figure 1. Map of the Shkodra / Skadar lake and protected area borders in AL and MNE.

The transboundary lake has a remarkable species diversity and this thanks to the diverse habitats this lake has. In the Albanian part, the reed beds are dominated by *Phragmites australis*, mixed with *Typha spp*. and sedges (*Carex spp*.) line much of the shoreline and form essential cover for wildlife. The lake's alluvial zones, especially around small streams in central east, where the Perroi I thate, Rrjoll river, Syri Sheganit is found, host seasonally flooded riparian forests composed mainly of white willow (*Salix alba*) and black alder (*Alnus glutinosa*), offering shelter, foraging grounds, and key movement corridors different species, among for otters as well (Stumberger et al., 2005).

Figure 2. Aerial photos of shoreline habitat: a. South-east part of the lake, close to Shkodra city, reedbed dominance; b. central-east with a composition of flooded riparian forests; c. North-east part of the lake with composed habitat of riparian forest, agricultural fields and reedbeds.

Methods

The main aim of this monitoring was to assess the presence and distribution of *Lutra lutra* species in the transboundary Skadar/Shkodra Lake. In transboundary level the work was coordinated with partners of Green Home, and Wildlife Montenegro. Meanwhile, in Albanian part of the lake, PPNEA implemented this study in collaboration with Regional Administration of Protected Area (RAPA Shkoder) and volunteers through three main methods such as: (i) Spraint surveys (ii) camera trap and (iii) sporadic unstructured interviewing.

Otter spraint surveys

(i) Spraint surveys were done by collecting data on otter spraints, which are otter droppings, used as indicators of otter activity and habitat use. Besides the spraints, the monitoring team collected data as well as other signs like footprints and feeding remains along the lake shores. After the preparation phase, done coordination with Green Home and Wildlife Montenegro, and RAPA Shkoder, in Winter (December 2024 – January 2025), the monitoring team, composed by around

5-6 people, collected data in 38 stations in Albanian side of the Shkodra/Skadar lake. These stations are located at a distance of 2 –4 km, between each-other, along the entire shoreline of the lake. The monitoring was implemented in two seasons, while the first was finalized in early spring 2025 (March) and the second finalized in early summer 2025 (June). Due the weather conditions, high water level and the flooded area, in the first monitoring season, for some stations were impossible to be visited, but in general – in both seasons all stations were visited at least once. Summer is the suggested monitoring season of otter due to the high chances of evidences found such as tracks, spraint, food remains etc. Monitoring's during rainy days should be avoided and if it rains and the week after rain stop might be high chances of finding otter signs. At each station, surveys were conducted along a transect with a minimum length of 200-300 meters into any direction, following the standard methods developed by Macdonald & Mason (1986) and Lenton et al. (1980). The monitoring team used the otter protocol (ANNEX I), a form developed by PPNEA in 2017 otter monitoring, in the framework of CSBL project, implemented in ALB-MNE-MK, GIZ supported. Most stations were accessed using boat and off-road vehicles.

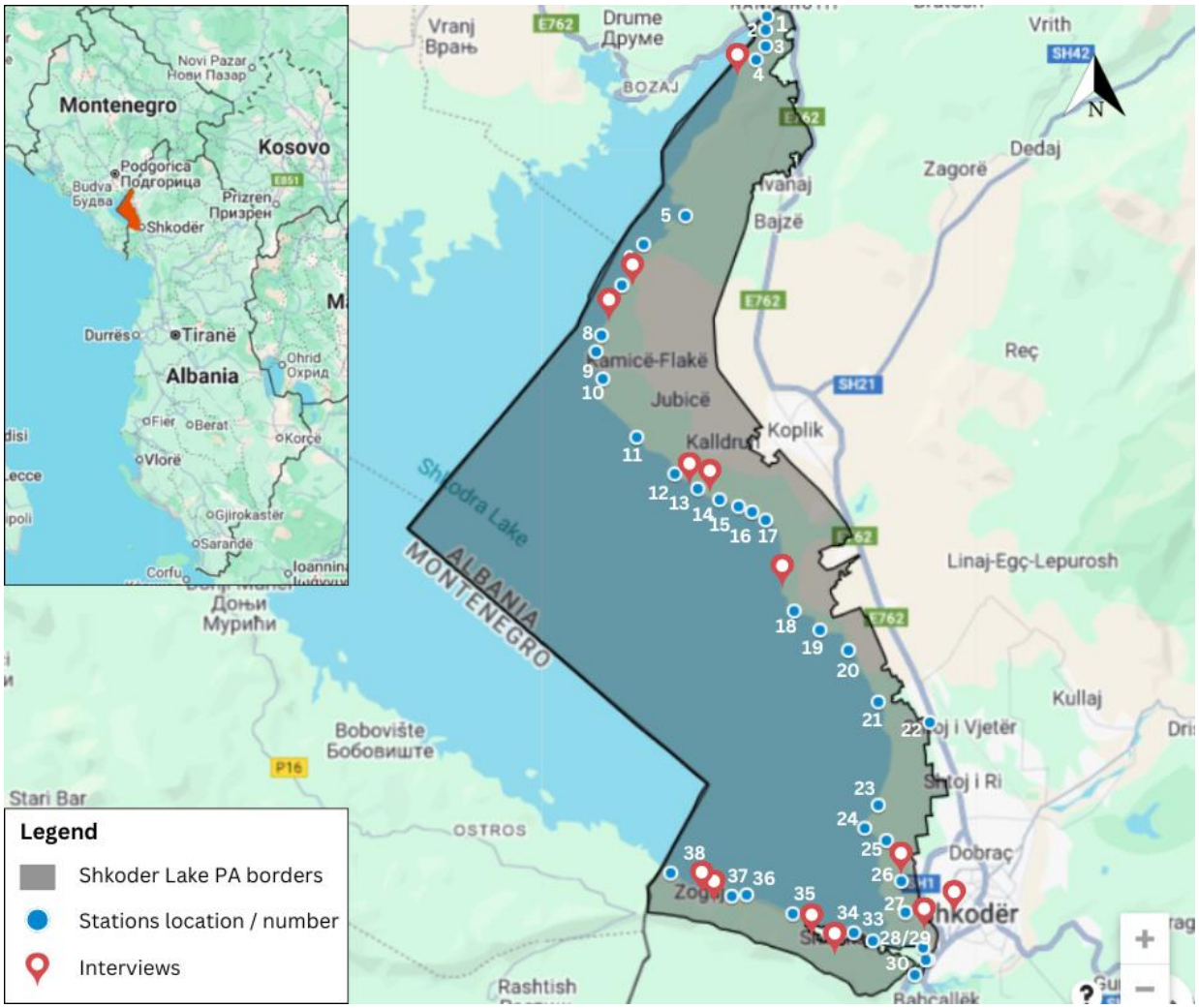

Figure 3. Otter stations monitoring in Albanian Shkodra/Skadar Lake.

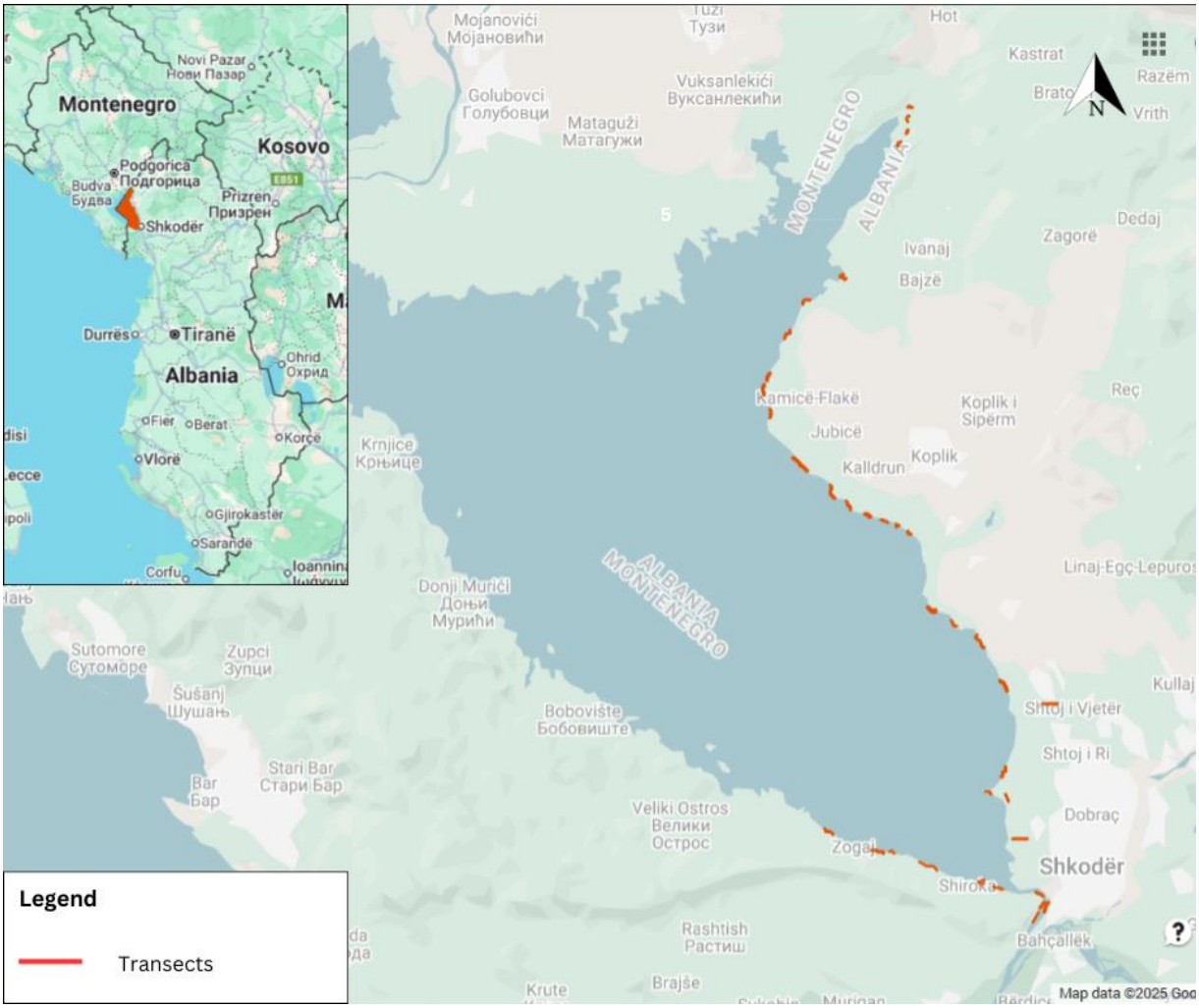

Figure 4.Transects within each otter monitoring station along the shoreline of Shkodra/Skadar Lake.

Figure 5. Otter monitoring station with boat, under Buna bridge (Station nr 30).

Camera trapping

In the framework of this monitoring, camera trap study was planned as well. Two cameras were bought, Spypoint FLEX E-36 | Starter Bunder (NHBS) and prepared for installation. In addition, two potential sites identified and selected. Unfortunately, due to the high disturbance, especially of illegal fishing activity, the monitoring team and RAPA Shkoder hesitated to install along the monitoring seasons. The upcoming winter 2025 (December-January) will be the potential months for the camera trap installation.

Unstructured Interviewing

Unstructured Interviewing or informal conversational interviewing are a form of qualitative research method characterized by its flexibility and lack of a predefined set of questions. Unstructured interviews were conducted to gather local ecological knowledge on otter presence, behavior, potential threats and stakeholder perceptions.

Between Summer 2024 – Summer 2025, informal, free-flowing conversation, in-person interviews were carried out with approximately 30 individuals, including local fishermen (Fig 6), residents, and park rangers which worked or lived in the shores of Shkodra/Skadar Lake. No formal questionnaire was used; instead, open dialogue was encouraged, guided loosely by topics such as otter sightings, habitat preferences, observed threats, and attitudes toward

conservation. Interviews were conducted approximately 10 - 15 minutes each. Detailed notes were taken during and immediately after the conversations.

Figure 6. Meeting (CEPF-114371) with fisherman community in Shiroke & Koplik.

Results

Otter spraint results

A total of 38 monitoring stations were surveyed during both field seasons. Due the weather conditions and the flooded area, for some stations were impossible to be visited in both seasons, but they were visited at least once. Evidence of Eurasian Otter (Lutra lutra) presence was confirmed (Fig. 7), at 9 stations (23.6%), based on indirect signs including spraints, tracks, and food remains (Fig. 8). Spraints were the most commonly encountered sign, from 1 to 4, and were found mostly old ones, not fresh, dry, and either fragmented—indicating presence but not a recent activity. Spatially, otter presence was limited mostly northeastern sectors and partly to the central-eastern part of Shkodra Lake, with no confirmed signs detected in the southern or western zones.

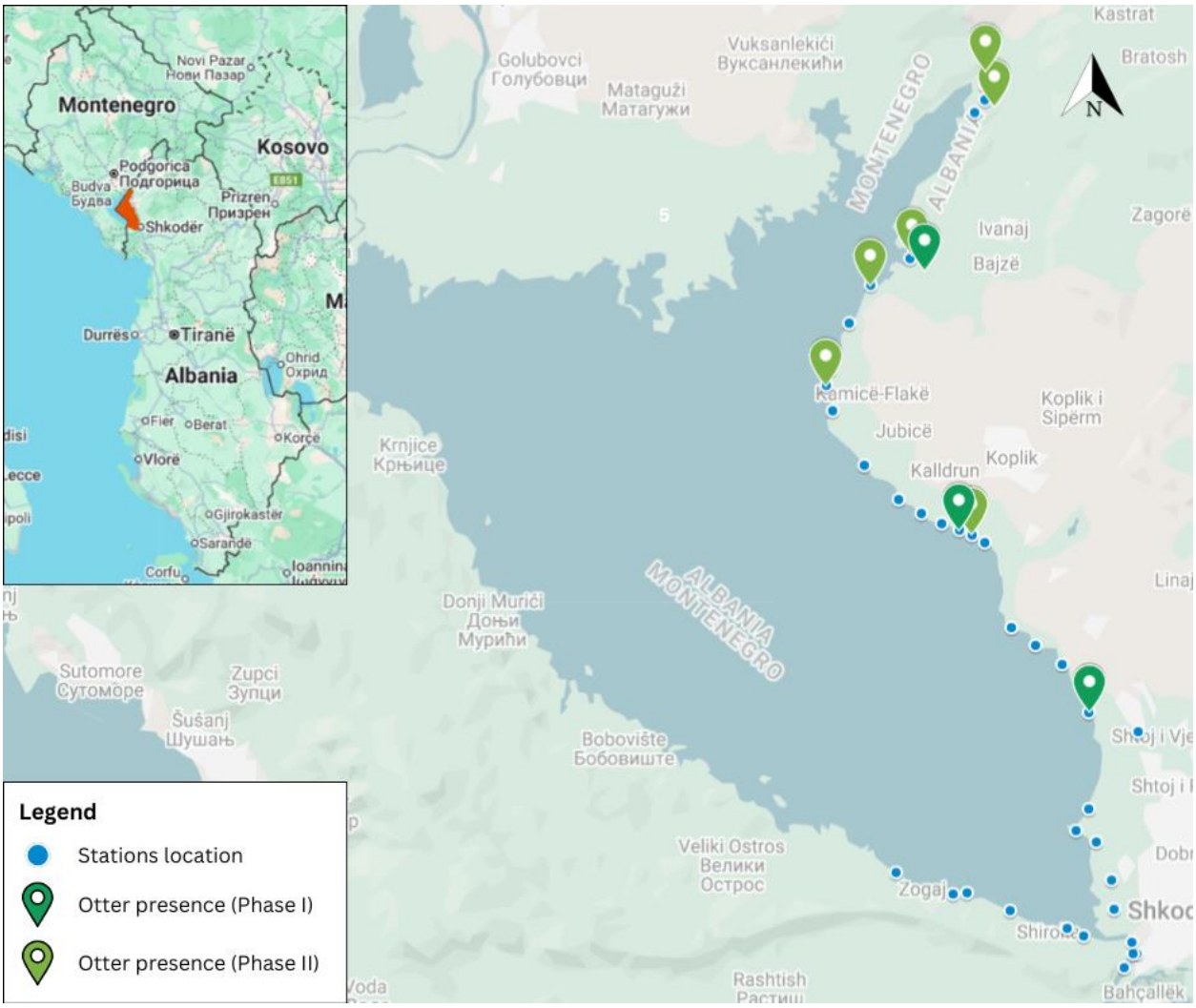

Figure 7. Otter presence confirmed and each monitoring station

Figure 8.Otter spraints found in different stations

Local Knowledge and perceptions of Eurasian Otters

Most respondents, closely related to Shkodra/Skadar Lake, were familiar with the Eurasian Otter and could distinguish it from similar aquatic mammals or small terrestrial mammals. Sightings were most often reported in the morning particularly in quieter areas with no much disturbance. Others identify this species with the name "Vidra", several interviewees associated the species as very sensitive.

Multiple interviewees cited declining fish stocks, pollution, illegal methods of fishing as pressures that may be affecting otters. Some believed that otters can eat a lot of fish but not as much as birds. One fisherman noted "*There have been cases on otter trapped, in the Eel (Anguila anguila) fishing nets in front of Shiroka village*". Moreover, locals consistently identified as river inlets, dense forest area in shore (mangrove forest look like) and reedbeds fit bests for otter presence. This corresponded well with positive results taken from fieldwork in the Northen site of the lake. In addition, it was said that otter could be found also close to touristic areas due to the presence of fish remaining from restaurants, but the project team didn't found otter signs this year.

Potential threats and pressures

Shkodra/Skadar Lake is a highly dynamic and ecologically valuable natural system, but it is increasingly subject to a range of anthropogenic pressures that threaten its ecological integrity—particularly the sensitive riverine, wetland, and coastal habitats critical for species such as the Eurasian Otter (*Lutra lutra*). The major threats, potentially related to otter, identified during this assessment are outlined below:

(i) Habitat Loss, Degradation, and Fragmentation: Rapid tourism development and expanding human settlements have led to significant habitat alteration, especially through infrastructure projects and urbanization. The construction of the Shirokë–Zogaj road (Fig.9) and the new cross-border checkpoint along the southwestern shoreline has notably increased disturbance in previously undisturbed riparian zones. In the central-eastern and northeastern sectors of the lake (notably around Ktosh–Bajzë), new tourism-related facilities have been developed in close proximity to the waterline, contributing to habitat degradation and landscape fragmentation. Additionally, recent amendments to the national Protected Areas Law (*Law No. 21/2024, modifying Law No. 81/2017 "On Protected Areas")* may pose a significant long-term threat by potentially enabling increased shoreline development within protected zones.

(ii) Pollution of Freshwater Ecosystems: Pollution remains one of the most pressing threats to the lake's biodiversity. The discharge of untreated wastewater along various parts (Fig10 c) of the shoreline directly impacts water quality and degrades otter habitat. In addition, the presence of abandoned fishing nets (Fig 10a) throughout the lake poses physical dangers not only to otters but also to fish, birds, and other aquatic wildlife, often leading to entanglement or injury.

(iii) Overfishing and Illegal Fishing Activities: Intensive fishing pressure, including the use of unsustainable and illegal methods (Fig 10d), is a major ecological concern. The increasing number of fishing licenses issued in the area may contribute to overexploitation of fish populations, indirectly impacting otters by reducing their primary food source. Furthermore, illegal fishing

practices such as electrofishing or the use of illegal fishing nets pose a serious threat to both biodiversity and the lake's ecological balance. This combined also with lack of patrolling from relevant institutions.

(iv) Human Disturbance and Recreational Pressure: Growing numbers of tourists (Fig 10b) and recreational visitors—especially those venturing into wilderness areas—have increased disturbance to sensitive habitats. In addition, poaching activity of birds is presence in the lake. This disturbance can disrupt otter behavior, reduce breeding success, and fragment foraging areas.

Figure 9. Construction of the new road 20-40m far from shoreline in Zogaj village.

Figure 10. Threats in Shkodra Lake. a) Abandoned fishing nets; b) New construction at the lake shoreline; c) waste pollution; d) illegal fishing – electrofishing.

Discussions

The results of this monitoring project indicate a vague but confirmed presence of the Eurasian Otter (*Lutra lutra*) in specific sectors of Shkodra Lake. The detection of spraints, and food remains, particularly concentrated mostly in the northeastern parts of the lake. Besides the positive fact this species is present in different parts of the lake, still its presence is vouge and vulnerable. This localization could be an indication possibly constrained by habitat quality and disturbance levels. From the data we notice a diverse spatial distribution of otter signs which may reflect a combination of ecological preferences and anthropogenic pressures. But spraints were old and not fresh, indicating not a recent activity. Moreover, throw-out this study we were focused only the otter presence evidences but a detailed evaluation of the population is needed in transboundary level by relevant authorities. E-DNA analysis could be an alternative as well, to identify otter presence in the lake. Furthermore, if we compare the data collected from the otter study done by PPNEA in 2017 (GIZ (2019) Fig.11, using approximately the same coordinates (depended on the water level), it seems that we have less (approximately 13%) positive presence.

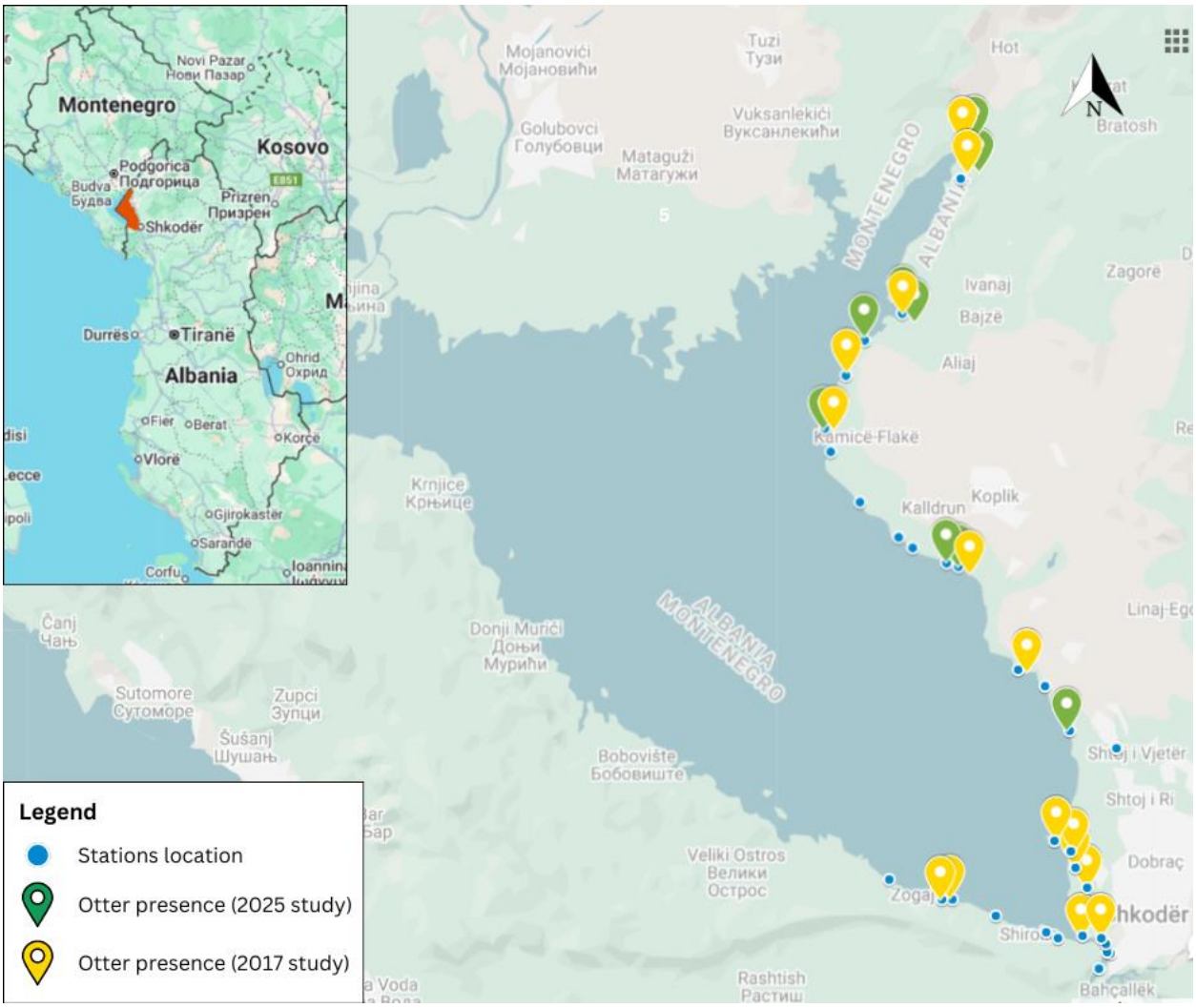

Figure 11 Otter presence in two studies done by PPNEA, 2017 and 2025.

In addition, the data collected align with stakeholder interview data, in which local residents identified small river, stream deltas, and less-disturbed coves as key otter habitats, and expressed concern over increasing human pressures.

While we mention threats, pollution from untreated wastewater and the presence of abandoned fishing gear in many parts of the lake likely compromise habitat quality and prey abundance, particularly in more developed or densely populated zones. Patrolling and advocacy in different levels could improve the situation.

Combined with the threats discussed (habitat degradation, pollution, disturbance, and overfishing), these results highlight the need for targeted conservation measures. These should include stricter regulation of shoreline development, restoration of riparian vegetation, improved wastewater management, and enhanced protection of key habitat zones identified during this survey. Additionally, the ongoing revision of the Protected Areas Law (Law No. 21/2024) should be closely monitored to ensure that it does not weaken conservation safeguards around this ecologically sensitive lake system.

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Annex

Annex I. Otter Protocol

Formular per lunderzen (*Lutra lutra*)

Liqeni: _____ **Data:** _____ **Vrojtuesi:**_____

Nr. i vendodhjes_____ **Emri i vendodhjes:**_____

Koordinatat:

N_____ E_____

Niveli i ujit

☐ shume i larte ☐ i larte ☐ normal ☐ i ulet ☐ shume i ulet

Vegjetacioni i vendodhjes

☐ bimesia mungon ☐ bimesia eshte e pranishme ☐ bimesia eshte e dendur

Perberja e bregut te liqenit

☐ gure ☐ dhe ☐ rere ☐ bar ☐ moçal ☐ kallamishte ☐ strukture betoni

☐ tjeter _____

Prania e shenjave: ☐ po ☐ jo **Foto:** ☐ po ☐ jo

Lloji i shenjave

☐ Jashteqitje e thate dhe fragmentuar Numri_____ Nr. i fotos_____

☐ Jashteqitje e thate dhe e patjetersuar Numri_____ Nr. i fotos_____

☐ Jashteqitje e fresket Numri_____ Nr. i fotos_____

☐ Jashteqitje me mukoze Numri_____ Nr. i fotos_____

☐ Gjurme Numri_____ Nr. i fotos_____

☐ Mbetje ushqimore Numri_____ Nr. i fotos_____

☐ Strofull Numri_____ Nr. i fotos_____

☐ E vrojtuar Numri_____ Nr i fotos_____

☐ Lunderz e vrare Numri_____ Nr. i fotos_____

☐ lunderz e aksidentuar ne rruge ☐ e vrare nga gjuetare

☐ tjeter_____

☐ Te tjera shenja_____

Numri_____Nr. i fotos_____

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Annex II

Lutra lutra monitoring in Albanian Shkodra/Skadar Lake (Phase I)

Shkoder Lake	Date	Observers	Location	Coordinates Lat/lng		Presence (YES/NO)	Type of presence	Comments
Hani Hoti / Police Border	22.03.2025	XX, EQ	S 01-1	42.333624	19.426435	No		Reedbeds / small shore
Vukpalaj-Bajze	22.03.2025	XX, EQ	S 03	42.320147	19.421918	No		shingle, former barn / Present vegetation / Local residents confirmed the presence of the otter in that area. Interview with residents confirmed that the species is present.
Syri I Sheganit	22.03.2025	XX, EQ	S 05	42.273189	19.394435	Yes	Dry spraints and fragmented, 3	Rocky habitat / Existing vegetation cover / Swamp / Locals confirmed the presence of the otter.
Kosan	22.03.2025	XX, EQ	S 06	42.263957	19.376639	No		Marsh, high water level
Lake view villa / Koplik	22.03.2025	XX, EQ	S 15	42.187031,	19.415167	Yes	Dry spraints	Concrete structure, rocky shore / shingle / Existing vegetation cover
Faslia Rest / Koplik	22.03.2025	XX, EQ	Sh 16	42.185179	19.420632	No		Marsh, shingle \ Existing vegetation cover
Shkodër\ Burgaj	22.03.2025	XX, EQ	S 19	42.149684	19.448919	No		Marsh, shingle \ Existing vegetation cover / Concrete structure
Shkodër/Omarai	05.03.2025	IS, XX, FB, EQ, LZ	S 20	42.144127,	19.461335	No	-	Grassland types of vegetation, pollution / poaching
Shkodër/ Grilla(Vrak)	05.03.2025	IS, XX, FB, EQ, LZ	S 21	42.128482	19.473022	Yes	Dry spraints and fragmented	Swamp / Existing vegetation cover / pollution – plastic .
Shkodër/ Vija e vrakes (Ura)	05.03.2025	IS, XX, FB, EQ, LZ	S 22	42.122285	19.494292	No	-	Swamp, Existing vegetation cover / Concrete structure / high pollution

Shkodër/ Kanali(Vija e pompave)	05.03.2025	IS, XX, FB, EQ, LZ	S 23	42.097829	19.474785	No	-	Swamp, reedbeds Existing vegetation cover
Shkodër/ Buna Bridge	05.03.2025	IS, XX, FB, EQ, LZ	S 28	42.050700	19.492105	No	-	Existing vegetation cover / Concrete structure / high pollution.
Shkodër/ Buna Bridge	05.03.2025	IS, XX, FB, EQ, LZ	S 29	42.051067	19.490429	No	-	Swamp, Existing vegetation cover / Concrete structure / high pollution
Shkodër/ Buna Bridge	05.03.2025	IS, XX, FB, EQ, LZ	S 30	42.046026,	19.486316	No	-	Swamp, Existing vegetation cover / Concrete structure
Shkodër/ Kanali (Vija e pompave)	05.03.2025	IS, XX, FB, EQ, LZ	S31	42.054231,	19.489849	No	-	Swamp, Existing vegetation cover
Shkodër/ Varrezat	05.03.2025	IS, XX, FB, EQ, LZ	S 32	42.056894,	19.467388	No	-	Swamp, sand / existing vegetation cover
			S33					
Shkodër/ Shirokë	05.03.2025	IS, XX, FB, EQ, LZ	S 34	42.059563,	19.461739	No	-	rock, sand / existing vegetation cover
Shkodër/ Shirokë	05.03.2025	IS, XX, FB, EQ, LZ	S 35	42.064350,	19.436722	No	-	Rocks / Vegetation missing / Construction work 40 m from the shoreline Shiroke-Zogaj
Shkodër/ Shirokë	05.03.2025	IS, XX, FB, EQ, LZ	S 36	42.069461,	19.414967	No	-	Rocks/ Existing vegetation cover
Shkodër/ Shirokë	5.03.2025	IS, XX, FB, EQ, LZ	S 37	42.070030	19.410035	No	-	Rocks/ Existing vegetation cover
Shkodër/ Zogaj(border)	05.03.2025	IS, XX, FB, EQ, LZ	S 38	42.076869	19.387358	No	-	Rocks/ Existing vegetation cover

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Lutra lutra monitoring in Albanian Shkodra/Skadar Lake (Phase II)

Lake	Date	Observes		Nr of station	Coordinated E/N		Presence of otter	Types of evidence	Comments
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 01	0370394	4688051	No		
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 01/1	0370729	4688248	Yes	Dry spraints and fragmented	Dead egret
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 05	0367015	4682431	Yes	Dry spraints and fragmented	
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 06	0367643	4681551	Yes	Dry spraints and fragmented	
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 06/1	0366053	4680461	No		Golden jackal tracks
Shkodres	18.06.2025	I.Sh/E.Q	F.B.	SH 07	0365261	4679008	No		Golden jackal tracks
Shkodres	**18.06.2025**	I.Sh.	F.B.	SH 09	0364430	4676986	Yes	Dry spraints and fragmented	
Shkodres	18.06.2025	I.Sh.	F.B.	SH 10			No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 11	0365825	4674051	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 12	0367035	4672767	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 13	0367824	4672203	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 14	0368552	4671899	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 15	0369069	4671760	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 16	0369597	4671537	Yes	Dry spraints and fragmented	Illegal fishing,
Shkodres	18.06.2025	I.Sh.	F.B.	SH 17	0370037	4671249	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 18	0370963	4668168	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 19	0371698	4667761	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 20	0372817	4666925	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 21	0373433	4665678	No		
Shkodres	18.06.2025	I.Sh.	F.B.	SH 22	0375588	4664445	No		Dry river. Pollution
Shkodres	**17.06.2025**	I.Sh.	F.B.	SH 23	0373799	4664316	No		Pollution – plastic
Shkodres	17.06.2025	I.Sh.	F.B.	SH 24	0372753	4661137	No		

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Shkodres	17.06.2025	I.Sh.	F.B.	SH 25	0373659	4660001	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 26	0373718	4659334	No		Illegal fishing.
Shkodres	17.06.2025	I.Sh.	F.B.	SH 27					Polution
Shkodres	17.06.2025	I.Sh.	F.B.	SH 28	0375204	4656495	No		Polution
Shkodres	17.06.2025	I.Sh.	F.B.	SH 29	0375077	4656553	No		Polution
Shkodres	17.06.2025	I.Sh.	F.B.	SH 30	0374711	4655998	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 31	0375043	4656906	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 32	0373174	4657237	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 33	0372724	4657543	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 34	0372298	4657687	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 35	0370817	4658072	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 36	0368985	4658711	No		
Shkodres	17.06.2025	I.Sh.	F.B.	SH 37	0367539	4659025	No		Dead carp on the shore
Shkodres	17.06.2025	I.Sh.	F.B.	SH 38	0366606	4659567	No		

FINAL

REPORT FROM THE OTTER MONITORING IN NP SKADAR LAKE (2024-2025), MONTNEGRO

Project name: "Improving the status of *Lutra lutra* and their habitat in cross-border area of National Park Skadar Lake"

Ref. No. ME-24-1068-73

Activity 1.1. Existing monitoring protocols will be tested in previously defined spots in Montenegro and Albania in two monitoring seasons

Prepared by: Stefan Ralević, Irma Muhović & Teodora Tanjević

Date: 20.06.2025.

PURPOSE OF MONITORING OTTER ACTIVITY IN NP SKADAR LAKE (MONTENEGRO)

The monitoring of Eurasian otter (*Lutra lutra*) is being conducted, thanks to the project "Improving the status of Lutra lutra and their habitat in cross-border area of National Park Skadar Lake", implemented by NGOs Green Home, Wildlife Montenegro, and PPNEA, with support from the European Union and in cooperation with the National Parks of Montenegro. The project aims to improve the knowledge, further improvement of protection, and local conservation status of *Lutra lutra* and its vulnerable aquatic habitats in the Skadar Lake area shared by Montenegro and Albania.

Despite being protected under several international agreements, the otter population in this area has suffered due to habitat degradation, illegal activities, and limited monitoring capacities. This monitoring contributes to the collection of scientific data on population presence and trends of presence using a unified methodology from both sides of the lake.

It also supports Montenegro in improving reporting obligations under the Bern Convention, addressing long-standing conservation issues such as the open case regarding commercial development in the National Park Skadar Lake. Ultimately, this effort will help build local and institutional capacities and raise awareness of the importance of otter conservation in the broader context of the EU Green Belt initiative.

MONITORING OF THE EURASIAN OTTER (*LUTRA LUTRA*) IN SKADAR LAKE NATIONAL PARK (2011–2020)

To gain a broader picture of the status of Eurasian otter in Skadar Lake, we prepared an overview of the relevant conservation activities implemented in the area over time.

Before 2011, the presence of the Eurasian otter (*Lutra lutra*) in Skadar Lake National Park was not scientifically confirmed, despite its inclusion in national planning documents and anecdotal reports from locals and rangers. Due to increasing human pressures on aquatic ecosystems and significant hydrological changes in the lake, it became essential to initiate systematic monitoring of this elusive species, assess its status, and develop protective measures.

Figure 1. *Panoramic view of Skadar Lake National Park, potential otter habitat and wetland ecosystem (Northern shore). ©Wildlife Montenegro*

A non-invasive method was selected for otter detection, based on identifying field signs such as spraints, footprints, dens, and other traces along watercourses and lake banks. A public awareness campaign was launched in parallel, involving locals, fishermen, and hunters through questionnaires and interviews to gather traditional ecological knowledge on otter sightings and habitats.

Figure 2. *Mačiluka, monitoring location MN47 (south coast of NP Skadar Lake). ©Wildlife Montenegro*

Research timeline:

2011–2012:
Initial fieldwork was conducted from land (2011) and partially by kayak (2012), allowing access to more remote parts of the lake. Otter presence was confirmed at multiple sites including Debeli Rt, Jovovica Bay, Šišarine Bay, Orahovačko Polje, the Sutorman River, Vranjina Island, the Orahovštica River, Kunježa Bay, Prevlaka, and near the Virpazar canal. Through community-based data collection, additional potential habitats were identified in Dodoši, Karuč, Rijeka Crnojevića, Krnjice, and Zabes.

2013:
Under a GIZ-supported regional biodiversity protection initiative, otter monitoring was expanded to a wider set of habitats: Prevlaka, Kunježa Valley and shore, Debeli Rt, Jovovica Bay, Šišarine Bay, the Orahovštica River valley, Sutorman River tributaries, and Vranjina Island. Otter presence

was confirmed at all surveyed sites. Recommendations were made for legal protection measures (e.g. bans on harmful fishing practices, illegal construction, and hunting), installation of educational signage, and use of remote monitoring tools (camera traps, night-vision devices). Results were published in the Final Report on Flora and Fauna Monitoring in Skadar Lake National Park for 2013.

2014:
No field monitoring was conducted this year; however, mitigation measures were introduced. Two traffic signs warning of otter crossings were installed along the Vranjina–Virpazar road due to frequent roadkill incidents. Additionally, the first official otter monitoring protocol was developed with GIZ support.

2015–2016:
Monitoring continued from land in 2015, with surveys in Poseljani, Rijeka Crnojevića, the Karatuna River, and Žabljak Crnojevića—all confirming otter presence. In 2016, the National Park's management plan emphasized further habitat mapping and conservation measures. Although no field signs were observed during surveys in Raduš, Krnjice, Murići, Lesendro, and the Morača–Vranjina railway embankment, video monitoring conducted in the Pančevo oko nature reserve captured otter activity. That year also marked the beginning of a new regional GIZ project, coordinated by CZIP and partners in Albania and North Macedonia, which implemented the first synchronized boat-based otter monitoring across all three lakes (Skadar, Ohrid, Prespa).

2017:
As part of this regional initiative, 51 monitoring sites were established along the Skadar Lake shoreline at 3–5 km intervals. Otter presence was confirmed at 26 of them. In 7 locations, signs were not observed, while 18 sites were inaccessible due to marshy or overgrown terrain. These findings contributed to a detailed habitat map and were included in the Monitoring Manual for Lake Species and Habitats of the Prespa, Ohrid, and Skadar Lakes.

Figure 3. *The regional team conducts standardized monitoring using boat-based protocols developed with support from GIZ. © Jasna Bošković*

2018:

No field surveys were planned this year. Instead, efforts focused on education and awareness. For the first time in Montenegro, World Otter Day was officially celebrated through public events and workshops for students, highlighting the ecological importance of otter and threats that it encounters.

Figure 4. *The first infographic prepared by Ninoslav Đurović for the World Otter Day celebrated in NP Skadar Lake. © Aktuelno.*

2019:
Targeted monitoring was carried out at selected locations: Obida, the Orahovštica River, Bakine Tigle, Donji Murići, the Biševina River, the lower Crnojevića River, and Debela Glava. Field signs confirmed otter presence at all sites. Based on these observations and spatial distribution, the population was estimated at between 5 and 20 individuals.

2020:
Monitoring was conducted from August through October under favorable conditions—high water levels and reduced aquatic vegetation allowed better access to key habitats, particularly in the northern marshes and southern rocky zones. Otter presence was confirmed at a wide range of sites, with most records coming from the western part of the lake. These findings suggested a stable and possibly recovering population, with active territories and regular movement patterns.

Figure 5. *Typical otter habitat in the western part of Skadar Lake, where highest activity was recorded during the 2020 survey. © Hajdana Ilić Božović*

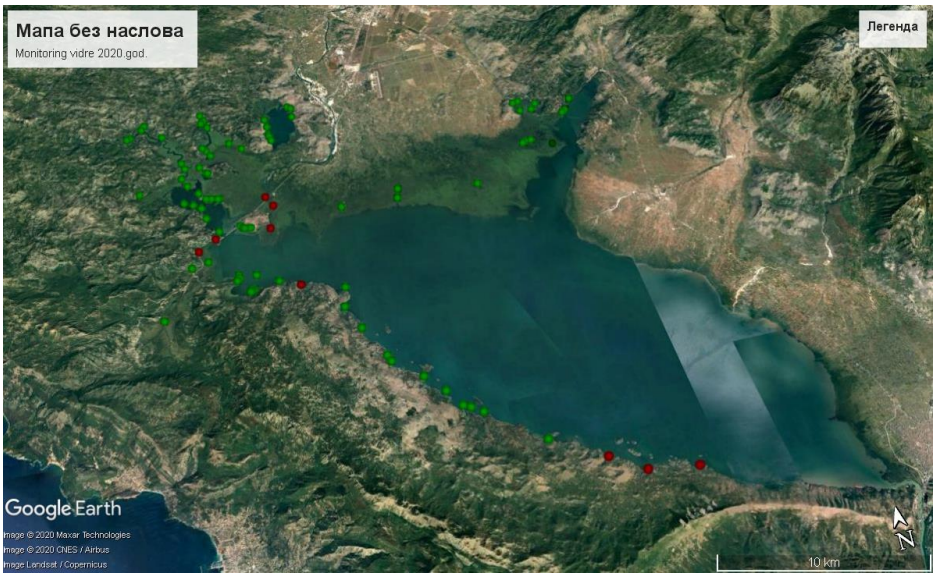


Figure 6. *Monitoring of the Eurasian otter during the period (August – October 2020) © Hajdana Ilić Božović*

CONTINUATION OF OTTER MONITORING ACTIVITIES UNDER THE PROJECT "IMPROVING THE STATUS OF THE OTTER (*LUTRA LUTRA*) AND ITS HABITAT IN THE TRANSBOUNDARY AREA OF SKADAR LAKE NATIONAL PARK," REF. NO. ME-24-1068-73 (2024–2025)

As part of this project, the previously developed joint otter monitoring protocol was tested in the territories of Montenegro and Albania during two field sessions—autumn 2024 and spring 2025—followed the methodology outlined in the *Manual for Monitoring Lake-bound Species and Habitats of Prespa, Ohrid, and Skadar Lakes* (Brix et al., 2019), originally developed with the support of the GIZ through a regional conservation initiative.

The goal of this method is to determine geographic distribution and general population trends.

Otters can be effectively monitored due to their territorial behavior, which includes leaving spraints, footprints, food remains, mucus, and creating dens. Therefore, pre-selected sampling points along water bodies are surveyed. Monitoring was carried out at **55 locations**[1] selected for

[1] While the mentioned methodology identified 51 monitoring locations, a reporting discrepancy occurred in earlier documents due to **duplicate ID numbers** in the location table. This led to an underreported figure of 51 instead of the correct 55. This error does **not affect the accuracy or integrity of the monitoring protocol**, and the correction ensures consistent and reliable data interpretation going forward.

their ecological relevance to otter activity, spaced 2 to 5 kilometers apart, in accordance with the estimated size of otter territories based on maps and existing data.

At each point, a 300-meter transect is searched along the shoreline, in any direction, and the survey ends either upon detection of any sign of otter presence or after the entire transect has been covered. Fieldwork is most effectively conducted by boat, as shoreline access is often difficult and conducting the survey on foot is extremely time-consuming.

Although this method is not suitable for accurate population size estimates—due to overlapping and variable territory sizes, it allows for reliable monitoring of distribution changes and population trends.

Figure 7. *Collaboration between park rangers and biologists during otter monitoring. ©Wildlife Montenegro*

Description of the Study Area

Skadar Lake, located in the Zeta–Skadar basin, is the largest lake in Southeastern Europe, with a length of 50 km and a width of 14 km. Its surface area varies seasonally—from approximately 350 km² in summer to up to 550 km² in winter—while the average depth ranges between 4 and 8 meters. The total shoreline stretches 168 km, of which 57.5 km belongs to Albania and the remaining 110.5 km to Montenegro. Water levels fluctuate between 4.5 and 9.8 meters.

The lake has a complex hydrology, fed by numerous rivers, the most significant of which is the Morača. The total catchment area covers 5,490 km². Skadar Lake is also known for its "oka" (karstic springs) and "vrulje" (underwater springs), which are ecologically important for biodiversity conservation—the deepest, Raduš oko, reaches 60 meters. These colder water zones become crucial summer habitats for fish and otters.

Skadar Lake provides optimal conditions for otter habitation due to its mildly sub-Mediterranean climate, abundance of shallow shorelines and vegetation, and availability of food resources. However, anthropogenic activities such as fishing, tourism, and transportation, as well as water level fluctuations, pose significant threats. Recorded instances of otter mortality include entanglement in fishing nets and roadkill. The data collection protocol applied during the monitoring is provided in Annex 2.

Figure 8. *Area of otter monitoring implementation. © Ilić Božović&Đurović,2017*

The otter surveys were conducted across the entire Montenegrin part of Lake Skadar, which was divided into three main areas:

1. The northern, marshy shoreline of Lake Skadar,
2. The western part of Lake Skadar,
3. The southern, rocky shoreline of Lake Skadar.

In the 2020 report (Ilić Božović, 2020), it was established that the geographical characteristics of shorelines significantly influence otter distribution and monitoring. The northern, marshy shore is highly dynamic due to seasonal water level changes, pushing otters inland during high water periods and closer to the lake in summer. The western part, with more stable water levels and diverse habitats, provides consistent conditions suitable for year-round presence. In contrast, the southern rocky shoreline, though least affected by water fluctuations, offers fewer microhabitats. During summer, when aquatic vegetation expands into the nearshore zone, otters tend to relocate from certain sites that become overgrown.

Recommended Method for Estimating the Relative Abundance of Otters in Skadar Lake

As part of this project, one of our objectives was to provide an estimate of the relative abundance of the Eurasian otter (Lutra lutra) in the Skadar Lake area.

In the absence of genetic data or systematic individual counts, the assessment of relative otter abundance can be conducted using a combination of expert recommendations, developed through personal communication with the IUCN Otter Specialist Group.

One of the most practical methods involves estimating the number of adult females based on the length of suitable shoreline habitat. According to expert guidelines, a **single adult female otter typically occupies around 15 km** of shoreline. Based on the total shoreline length of Skadar Lake where otter presence has been confirmed, the number of females can be calculated. This number is then **doubled** to include males (assuming a 1:1 sex ratio). An additional **25% is added to account for sub-adult individuals**, resulting in an estimate of the total population—excluding pups under one year of age.

In addition to this approach, it is also possible to apply a method used in Italy and other European countries, which is based on otter **density per 10 × 10 km²** grid cell. Studies from Italy have shown an average density of **2.4 otters per 100 km²** in suitable habitats. Furthermore, non-invasive genetic research in Italy has determined that otter density per kilometer of river ranges from **0.16 to 0.20 individuals/km**, depending on food availability and habitat quality (Lerone et al., 2022). This value may serve as an additional parameter for abundance estimation and comparison with results obtained through other methods.

Both methods represent **relatively simple yet indicative approaches** that can aid in understanding the dynamics and status of the otter population in Skadar Lake, especially in the absence of genetic and detailed individual-level data. It is recommended that abundance estimates be made only for shoreline sections and water bodies where otter presence has been confirmed, to avoid overestimating the population.

MONITORING RESULTS (2024-2025)

Autumn Monitoring (October–November 2024)

- A total of 7 field days were conducted, covering 55 locations.
- Otter presence was confirmed at 26 locations, while 29 locations yielded negative results.

Negative findings were mostly recorded along navigable routes toward Rijeka Crnojevića and the northern branch of the Morača River, as well as near the settlements of Ckla and Murići, and in the northern marshy area of the lake, where, due to habitat structure, otter activity is likely but not confirmed.

Figure 9. *Autumn field survey of otter activity presence at Skadar Lake. ©Wildlife Montenegro*

Northern shore

On this shore, there were only 4 positive findings (marked in orange). During the field inspection, we decided to add one more point to this area, named “Vranjina South,” as it represents a rocky lakeshore suitable for otters to mark their territory. Additionally, it serves as a good starting point for monitoring the northern section. We assigned it the code “MN xx.”We propose including this point in the monitoring program and removing the point “Delta of River Morača MN23,” which has never yielded positive results.

Table 1. Data from autumn Norther shore survey

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains
15.10.2024.	Mandića žalica Vranjina	MN20	42.2927	19.1504	/	/	/	/	/
15.10.2024.	River Morača Vranjina	MN21	42.2875	19.1415	/	/	/	/	/
15.10.2024.	Bakine tigle	MN22	42.2927	19.1504	/	1	/	/	/
31.10.2024.	Delta of River Morače	MN23	42.26	19.1428	/	/	/	/	/
01.11.2024.	Vranjina sjever	MN24	42.2798	19.1259	/	/	/	/	/
31.10.2024.	Vranjina jug	MN39	42.26764	19.13493	/	1	/	/	/
31.10.2024.	Debeli vrbiš (Bare)	MN25	42.2693	19.1674	/	/	/	/	/
31.10.2024.	Crnionik	MN26	42.2601	19.1822	/	/	/	/	/
31.10.2024.	Kotobanja	MN27	42.2645	19.1966	/	/	/	/	/
31.10.2024.	Čekarica	MN28	42.2674	19.2177	/	/	/	/	/
31.10.2024.	Gostiljska rijeka	MN29	42.2661	19.2404	/	/	/	/	/
31.10.2024.	Radoslaze	MN30	42.264	19.2665	/	/	/	/	/
31.10.2024.	Sjerave	MN31	42.267	19.2791	/	/	/	/	/
31.10.2024.	Jabuka	MN32	42.2549	19.293	/	/	/	/	/
31.10.2024.	Adžinice	MN33	42.2661	19.3185	/	/	/	/	/
31.10.2024.	Koračica	MN34	42.2378	19.3261	/	/	/	/	/
31.10.2024.	Dališan	MN35	42.2894	19.3395	/	/	/	/	/
31.10.2024.	Podhum (Humsko blato)	MN36	42.3141	19.3576	/	/	/	/	/
31.10.2024.	Stanaj	MN37	42.2965	19.3736	1	1	/	/	/
31.10.2024.	Hotski zaliv	MN38	42.3156	19.4021	1	1	/	/	/
							/	/	/

							/	/	/

Western Shore

In the autumn period, the western shore recorded 12 positive findings (marked in orange) out of 21. The point "Rijeka Crnojevića" (MN06) was not accessible for visitation, nor was the point "Ploča." It was also noted that this point lacks an assigned code.

Furthermore, within this monitoring cycle, we propose adding a new point named "Prevlaka 2."

Table 2. Data from autumn Western shore survey

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains	Dead animal
01.11.2024.	Bobovine (Malo blato)	MN01	42.3579	19.1706	1	1	/	/	/	/
01.11.2024.	Kosmača, Bolje sestre)	MN02	42.3421	19.1776	1	/	/	/	/	/
01.11.2024.	Dodoši (Baze)	MN03	42.3209	19.1496	/	/	/	/	/	/
01.11.2024.	Karuč	MN04	42.3513	19.107	1	1	/	/	/	/
15.10.2024.	Liponjak, Gatići	MN16	42.3076	19.0979	/	/	/	/	/	/
30.10.2024.	Karatuna (Virpazar better name?)	MN17	42.241	19.1012	/	/	/	/	/	1
15.10.2024.	Čakovica	MN19	42.2918	19.1134		1	/	/	/	/
01.11.2024.	Prevlaka 1	MN05	42.3339	19.0875	1	/	/	/	/	/
01.11.2024.	Prevlaka 2	New suggested Location	42.34766	19.07325	2	/	/	/	/	/

01.11.2024.	Rijeka Crnojevića (Not visited, suggested excluding)	MN06	42.3543	19.0134	/	/	/	/	/	/
01.11.2024.	Rijeka Crnojevića	MN07	42.3541	19.0283	/	/	/	/	/	/
01.11.2024.	Šinđon	MN08	42.3539	19.0372	/	/	/	/	/	/
01.11.2024.	Šanik	MN09	42.3464	19.052	/	/	/	/	/	/
01.11.2024.	Lisinj	MN10	42.3567	19.0537	1	1	/	/	/	/
01.11.2024.	Božureva glava	MN11	42.3497	19.0685	1	/	/	/	/	/
01.11.2024.	Ploča (was not possible to enter)	did not have number	42.3273	19.0862						
15.10.2024.	Dujevska glava	MN12	42.3184	19.091	1	1	/	/	/	/
15.10.2024.	cape Dujevska glava	MN13	42.3114	19.0878	/	1	/	/	/	/
15.10.2024.	Kariš, Relja	MN14	42.2973	19.0801	/	/	1	/	/	/
15.10.2024.	Vučka gora	MN15	42.2838	19.1026	/	/	/	/	/	/
01.11.2024.	Pelinovo	MN18	42.2726	19.1089	/	/	/	/	/	/

Southern Shore

On the southern shore, 10 positive sites (marked in orange) were recorded out of 16. However, we identified duplicate IDs assigned to certain locations:

Mačiluka and Pjajce share the same ID (M47).

Bes, Sinori, and Besit 1 share the same ID (MN45).

Bečka and Sinori and Besit share the same ID (MN46).

Due to the proximity of some points, we propose removing the points Bes and Beška from the monitoring program to eliminate redundancy.

As a result, while the monitoring protocol lists 51 points, the actual total is 55 due to these duplications (and not giving ID to the dot "Ploča" from western shore).

Table 3. Data from autumn Southern shore survey 2024

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains	Dead individual
05.11.2024.	Ckla, Gorica Đat	MN51	42.09542	19.33614	/	/	/	/	/	/
05.11.2024.	Cove Šitarit	MN50	42.1015	19.31936	1	2	4	/	1	/
05.11.2024.	Sijerča	MN49	42.11131	19.29454	/	1	/	/	/	/
05.11.2024.	Liman	MN48	42.11822	19.28104	/	1	/	/	/	/
05.11.2024.	Pjajce Gorica	MN47	42.13362	19.25795	/	1	/	/	/	/
05.11.2024.	Sinori i Besit 1 the same as Bes	MN46	42.14648	19.23547	1	/	/	/	/	/
05.11.2024.	Sinori i Besit	MN45	42.16055	19.2245	/	/	/	/	/	/
05.11.2024.	Mačiluka	MN47	42.13503	19.24505	/	/	/	/	/	/
05.11.2024.	Bes(The same as Sinori i	MN46	42.14646	19.23754						/

	Besit) should be excluded									
05.11.2024.	Beška should be excluded	MN45	42.16202	19.22915						/
15.10.2024.	Mala Gorica	MN44	42.18743	19.20383	1	/	/	/	/	/
15.10.2024.	Petrova ponta	MN43	42.21428	19.18759	/	3	/	/	/	/
15.10.2024.	Šale, Raduš i Pristan	MN42	42.22463	19.1651	/	1	/	/	many	/
05.11.2024.	Godinje	MN41	42.22464	19.12655	/	1	/	/	/	/
15.10.2024.	Cove Šišarine	MN40	42.26372	19.10703	/	/	/	/	/	/
15.10.2024.	Obida	MN39	42.23921	19.1125	1	/	/	/	/	/

Spring Monitoring (March–May 2025)

- Monitoring was conducted using the same methodology and within the same project framework.
- Inspection of 55 locations resulted in 25 positive findings, indicating a stable presence of the species compared to the previous season, with possible seasonal variations.
- Negative findings (30) were largely consistent with those from the autumn period, particularly around Ckla, Murići villages, the navigable routes of Morača and the Rijeka Crnojevića rivers.
- The northern side, characterized by dense vegetation, hindered detection of otter presence; however, their presence in this area cannot be excluded.

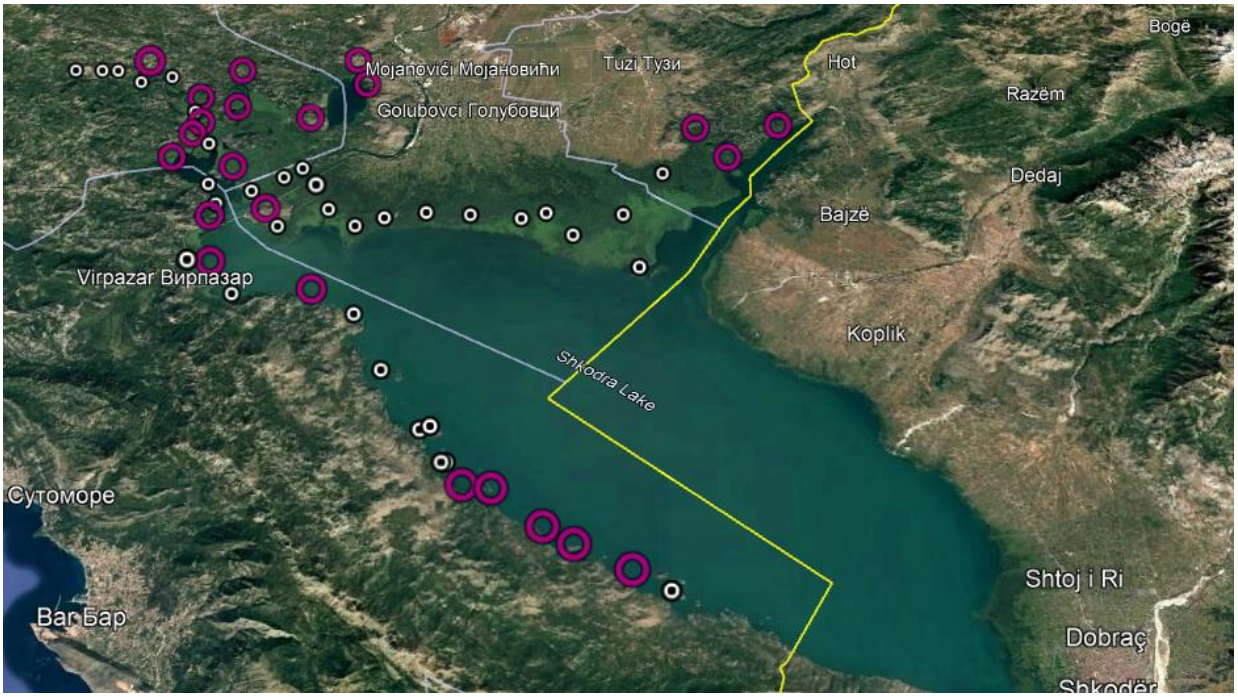


Figure 10. Otter Monitoring – Spring 2025©Wildlife Montenegro

Northern Shore

Due to the exceptionally dense vegetation in the northern part of Lake Skadar, otter activity could not be detected at multiple locations (16). Positive detections were primarily recorded in the rocky sections of the northern shore, where otter presence was more easily observed (4).

Table 4. Data from spring Northern shore survey.

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains
14.04.2025.	Mandića žalica Vranjina	MN20	42.2927	19.1504	/	/	/	/	/
14.04.2025.	River Morača Vranjina	MN21	42.2875	19.1415	/	/	/	/	/
14.04.2025.	Bakine tigle	MN22	42.2927	19.1504	/	/	/	/	/
14.04.2025.	Delta of River Morače	MN23	42.26	19.1428	/	/	/	/	/
14.04.2025.	Vranjina sjever	MN24	42.2798	19.1259	/	/	/	/	/
14.04.2025.	Vranjina jug	MN	42.26764	19.13493	3	/	/	/	/
14.04.2025.	Debeli vrbiš (Bare)	MN25	42.2693	19.1674	/	/	/	/	/
14.04.2025.	Crnionik	MN26	42.2601	19.1822	/	/	/	/	/
14.04.2025.	Kotobanja	MN27	42.2645	19.1966	/	/	/	/	/
14.04.2025.	Čekarica	MN28	42.2674	19.2177	/	/	/	/	/
14.04.2025.	Gostiljska rijeka	MN29	42.2661	19.2404	/	/	/	/	/
14.04.2025.	Radoslaze	MN30	42.264	19.2665	/	/	/	/	/
14.04.2025.	Sjerave	MN31	42.267	19.2791	/	/	/	/	/
14.04.2025.	Jabuka	MN32	42.2549	19.293	/	/	/	/	/
14.04.2025.	Adžinice	MN33	42.2661	19.3185	/	/	/	/	/
14.04.2025.	Koračica	MN34	42.2378	19.3261	/	/	/	/	/
14.04.2025.	Dališan	MN35	42.2894	19.3395	/	/	/	/	/
14.04.2025.	Podhum (Humsko blato)	MN36	42.3141	19.3576	1	/	/	/	/
14.04.2025.	Stanaj	MN37	42.2965	19.3736	1	1	/	/	/
14.04.2025.	Hotski zaliv	MN38	42.3156	19.4021	1	1	/	/	/

Southern Shore

During spring 2025, 8 positive points were recorded out of 14. Two points were excluded from consideration due to their proximity to other points.

Table 5. Data from spring Southern shore survey.

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains	Dead individual
16.04.2025.	Ckla, Gorica Đat	MN51	42.09542	19.33614	/	/	/	/	/	/
16.04.2025.	Cove Šitarit	MN50	42.1015	19.31936		/	2	/	/	/
16.04.2025.	Sijerča	MN49	42.11131	19.29454	/	1	/	/	/	/
16.04.2025.	Liman	MN48	42.11822	19.28104	/	1	/	/	/	/
16.04.2025.	Pjajce Gorica	MN47	42.13362	19.25795	1	/	/	/	/	/
16.04.2025.	Sinori i Besit 1 the same as Bes	MN46	42.14648	19.23547	/	/	/	/	/	/
16.04.2025.	Sinori i Besit	MN45	42.16055	19.2245	/	/	/	/	/	/
16.04.2025.	Mačiluka	MN47	42.13503	19.24505	6	/	/	/	/	/
16.04.2025.	Bes(The same as Sinori i Besit) should be excluded	MN46	42.14646	19.23754						/
16.04.2025.	Beška (island, think to exclude it)	MN45	42.16202	19.22915						/

16.04.2025.	Mala Gorica	MN44	42.18743	19.20383	/	/	/	/	/	/
16.04.2025.	Petrova ponta	MN43	42.21428	19.18759	/	/	/	/	/	/
23.04.2025.	Šale, Raduš i Pristan	MN42	42.22463	19.1651	5	/	/	/	/	/
16.04.2025.	Godinje	MN41	42.22464	19.12655	/	/	/	/	/	/
16.04.2025.	Cove Šišarine (Tankirt)	MN40	42.26372	19.10703	/	/	1	/	/	/
23.04.2025.	Obida	MN39	42.23921	19.1125	2	/	/	/	/	/

Western Shore

During the spring monitoring period, 13 locations showed positive signs of otter activity. The site “Rijeka Crnojevića 1” (MN06) is situated in a narrow section of the river, which is difficult to access. Additionally, frequent water level fluctuations in this area reduce the likelihood of detecting otter signs. Therefore, we recommend excluding this location from future monitoring efforts.

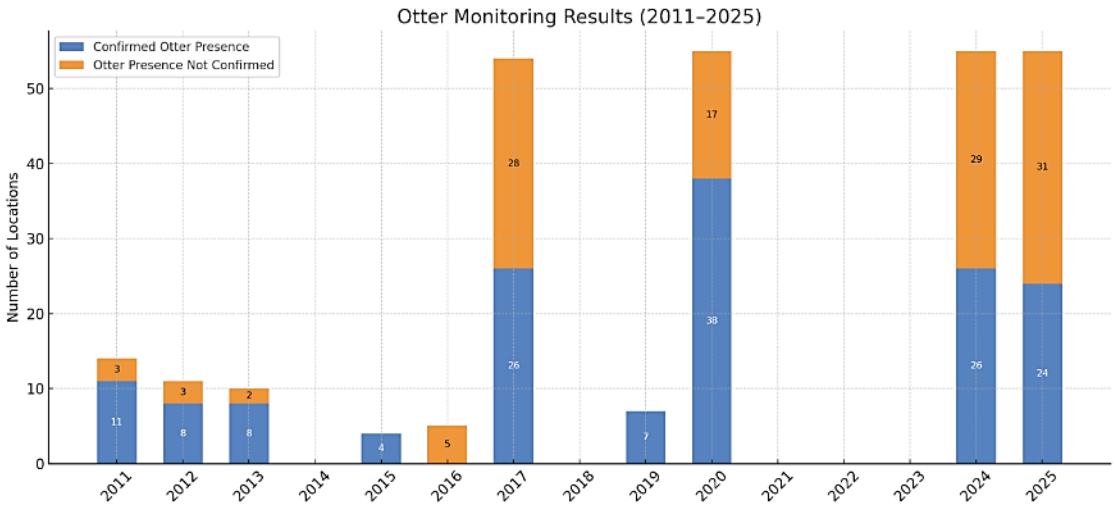
Table 6. Data from spring Western shore survey.

Date	Location	ID	X	Y	Dry fragmented spraint	Dry intact spraint	Fresh spraint	Footprints	Food remains	Dead animal
15.04.2025	Bobovine (Malo blato)	MN01	42.3579	19.1706	4	/	1	/	/	/
15.04.2025	Kosmača, Bolje sestre)	MN02	42.3421	19.1776	1	/	/	/	/	/
15.04.2025	Dodoši (Baze)	MN03	42.3209	19.1496	1	/	1	/	/	/
15.04.2025	Karuč	MN04	42.3513	19.107	/	/	/	/	/	/
15.04.2025	Liponjak, Galići	MN16	42.3076	19.0979	1	/	1	/	/	/

15.04.2025	Karatuna? (Virpazar better name)	MN17	42.241	19.1012	/	/	/	/	/	/
15.04.2025	Čakovica	MN19	42.2918	19.1134	1	/	/	/	/	/
15.04.2025	Prevlaka 1	MN05	42.3339	19.0875	1	/	/	/	/	/
15.04.2025	Prevlaka 2	New sugested Location	42.34766	19.07325	/	/	/	/	/	/
22.04.2025	Rijeka Crnojevića 1 (suggestion to be removed)	MN06	42.3543	19.0134	/	/	/	/	/	/
15.04.2025	Rijeka Crnojevića 2 (suggestion to be removed)	MN07	42.3541	19.0283	/	/	/	/	/	/
22.04.2025	Šinđon	MN08	42.3539	19.0372	/	/	/	/	/	/
15.04.2025	Šanik	MN09	42.3464	19.052	1	/	/	/	/	/
15.04.2025	Lisinj	MN10	42.3567	19.0537	1	/	/	/	/	/
15.04.2025	Božureva glava	MN11	42.3497	19.0685	1	/	/	/	/	/
15.04.2025	Ploča	did not have number	42.3273	19.0862	1	/	/	/	/	/
15.04.2025	Dujevska glava	MN12	42.3184	19.091	4	2	1	/	/	/
15.04.2025	cape Dujevska glava	MN13	42.3114	19.0878	2	/	/	/	/	/
15.04.2025	Kariš, Relja	MN14	42.2973	19.0801	1	/	1	/	/	/
15.04.2025	Vučka gora	MN15	42.2838	19.1026	/	/	/	/	/	/
15.04.2025	Pelinovo	MN18	42.2726	19.1089	1	/	/	/	/	/

Cumulative Overview of Otter Monitoring Activities from 2011 to 2025

To analyze the effectiveness of the joint protocol implementation, data on otter monitoring activities were compiled from numerous reports covering the period from 2011 to 2025. All known data were included, encompassing the most recent sessions from 2024 and 2025. Gaps in the timeline clearly indicate interruptions in regular monitoring, while the years 2017, 2020, 2024, and 2025 demonstrate progress through the application of the joint protocol and expanded field coverage.



Relative Abundance of Otters in Lake Skadar 2024-2025

Based on the methodologies described above and focusing on the Montenegrin side of Lake Skadar—with a shoreline length of 110.5 km or 9 grid squares of 10 x 10 km²—it is estimated that approximately 20 adult otters inhabit this area.

Alternatively, if we divide the 110.5 km shoreline by 15 km—the typical length of shoreline occupied by a single adult female otter—and then double that number to include males (assuming a 1:1 sex ratio), we arrive at a similar estimate. Adding 25% to account for subadults results in a total of approximately 18.4 individuals, which also supports the initial estimate of around 20 otters.

This figure should be considered a preliminary estimate and highlights the need for further validation through genetic studies and additional field research.

Identified pressures and threats to the river otter in Skadar Lake National Park

During the monitoring conducted in 2024 and 2025, numerous pressures negatively impacting the otter population (*Lutra lutra*) were observed in various parts of the lake:

1. **Poisoning**: Cases of poison use, such as strychnine, were recorded at the Karuč site (western shoreline). This practice aims to destroy dens, directly threatening otters and their habitats.
2. **Illegal construction**: On the western shore, especially in the Karuč area, construction of pontoons and fishermen's huts has been observed, disrupting natural habitats and shelters of the otter and interfering with their normal activities.
3. **Use of power generators**: Also, at Karuč (western shoreline) and along the entire northern shore of the lake (pers. Comm, with Belma Šestović, former director of NP Skadar lake) the presence of generators contributes to the overall destruction of biodiversity by electroshocks.
4. **Road mortality**: On the southern shore, along the road section between Vranjina and Virpazar, cases of otter deaths due to traffic accidents have been recorded. Generally, one otter die yearly on this road (per. comm. with associate for mammal conservation Belma Šestović from NPs of Montenegro). In 2023 year, employees in National Park Skadar Lake saves one injured otter. The otter was hit by a car on the road between Vranjina and Virpazar villages. The injured otter was rehabilitated properly and sent back to the lake.

Figure 10. *Injured otter. ©NPCG*

Similar incidents were reported on the northern side of the lake this year, particularly in the area around the northern branch of Morača towards the Vranjina hill.

Figure 11. *Otter roadkill near Vranjina hill (42.2985160, 19.1634770) on 4th June 2025 ©Wildlife Monetenegro*

5. **Drowning in fishing nets**: During the autumn monitoring, a case of an otter drowning in a fishing net was documented, indicating a conflict between fishing activities and the protection of this strictly protected species.
6. **Additional pressures**: Apart from these direct threats, other pressures include the release of hunting dogs around the Murići area on the southern shore, which may disturb otters and disrupt their habitats.

These identified threats are still localized but this requires targeted protection measures, as well as intensified cooperation with local communities and fishermen. Education about the ecological role of the otter in the ecosystem and raising awareness about its protection are crucial for reducing conflicts and preserving this species.

CONCLUSIONS AND RECOMMENDATIONS

The monitoring of Eurasian otter (*Lutra lutra*) presence conducted in 2024 and 2025 in Skadar Lake National Park, Montenegro, indicates that the otter population in the area remains relatively stable, with slight seasonal fluctuations.

It is important to note that earlier reports mistakenly stated that monitoring covered 51 locations, while the actual number was 55. This discrepancy was due to duplicated ID codes for certain sites, which led to the misrepresentation of the total number of sites. This correction is helpful for an accurate and comprehensive interpretation of the long-term monitoring data.

The first joint monitoring protocol was introduced in 2017, when otter presence was recorded at 28 out of 55 sites, representing about 50% positive detections. Monitoring was conducted by boat using a standardized methodology developed under a regional project for Prespa, Ohrid, and Skadar Lakes, supported by the German GIZ organization. By autumn 2020, using the same protocol, otter presence had increased to approximately 69% of sites (38 of 55), indicating successful detection efforts, particularly in the marshy northern parts of the lake.

However, in the autumn season of 2024, otter signs were observed at 26 out of 55 sites (around 47%), and in the spring of 2025, 25 sites were positive (about 45%). This slight decline compared to earlier results may not necessarily reflect anthropogenic pressures or climate impacts but highlights the need for continued monitoring and enhanced conservation measures for the species and its habitats.

A significant advancement was the implementation of monitoring in two distinct seasons (autumn and spring), using a unified and consistent methodology. This allowed for a more accurate assessment of population dynamics and informed better planning of future activities. It is recommended that future monitoring be conducted annually, ideally during the autumn, when young adults are more active and field accessibility, particularly in the northern zones, improved.

Importantly, this is the first time that monitoring in 2024 and 2025 was conducted across two seasons, using a standardized approach. This confirmed the applicability of the current protocol, while also highlighting the need to adjust seasonally, especially considering water level fluctuations. During the fieldwork, certain sites were identified for removal from future cycles, and new suggested locations are provided in the accompanying document (Annex I). These changes are very minor.

Identified pressures on the otter population are localized and include illegal poisoning, unregulated waterfront construction, road kills, drowning in fishing nets, and pronounced climate change effects that alter lake water levels. These threats require urgent attention from

responsible institutions. In particular, the monitoring schedule should be adapted to account for increasingly variable hydrological conditions caused by climate change.

The re-establishment of monitoring in 2024 and 2025 represents a critical step in strengthening the monitoring and conservation system for the otter as an indicator species of habitat quality. Considering that *Lutra lutra* is strictly protected under international conventions, and that Montenegro has been under an active case with the Bern Convention since 2016 due to the absence of an adequate monitoring framework, the following is recommended:

- **Establish a regular, annual monitoring program** during the autumn season preferably due to less vegetation and lower water levels, using an improved and seasonally adjusted protocol.
- **Integrate specific protective measures into the management plans of protected areas**, with a focus on preventing illegal activities and reducing risks to wildlife.
- **Strengthen cooperation with local communities** through education about the ecological importance of otters and strategies to reduce human-wildlife conflict.
- **Expand and deepen regional cooperation with Albania** to support cross-border population conservation.
- **Engage with initiatives such as the EU Green Belt**, which can offer additional visibility and support for biodiversity conservation.

Based on the available data, it can be concluded that Eurasian otter persists in Skadar Lake, but under slightly increasing pressures. Continued monitoring and strategic habitat protection are needed for preserving this species and enhancing the ecological and international standing of this protected area.

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Annex 1

In total for future monitoring **53 sites** were recommended:

Western shore

Location	ID	X	Y
Bobovine (Malo blato)	MN01	42.3579	19.1706
Kosmača, Bolje sestre)	MN02	42.3421	19.1776
Dodoši (Baze)	MN03	42.3209	19.1496
Karuč	MN04	42.3513	19.107
Liponjak, Galići	MN16	42.3076	19.0979
Karatuna? (Virpazar better name)	MN17	42.241	19.1012
Čakovica	MN19	42.2918	19.1134
Prevlaka 1	MN05	42.3339	19.0875
Prevlaka 2	MN06	42.34766	19.07325
Rijeka Crnojevića 2	MN07	42.3541	19.0283
Šinđon	MN08	42.3539	19.0372
Šanik	MN09	42.3464	19.052
Lisinj	MN10	42.3567	19.0537
Božureva glava	MN11	42.3497	19.0685
Ploča	MN53	42.3273	19.0862
Dujevska glava	MN12	42.3184	19.091
cape Dujevska glava	MN13	42.3114	19.0878
Kariš, Relja	MN14	42.2973	19.0801
Vučka gora	MN15	42.2838	19.1026
Pelinovo	MN18	42.2726	19.1089

Norther shoreline

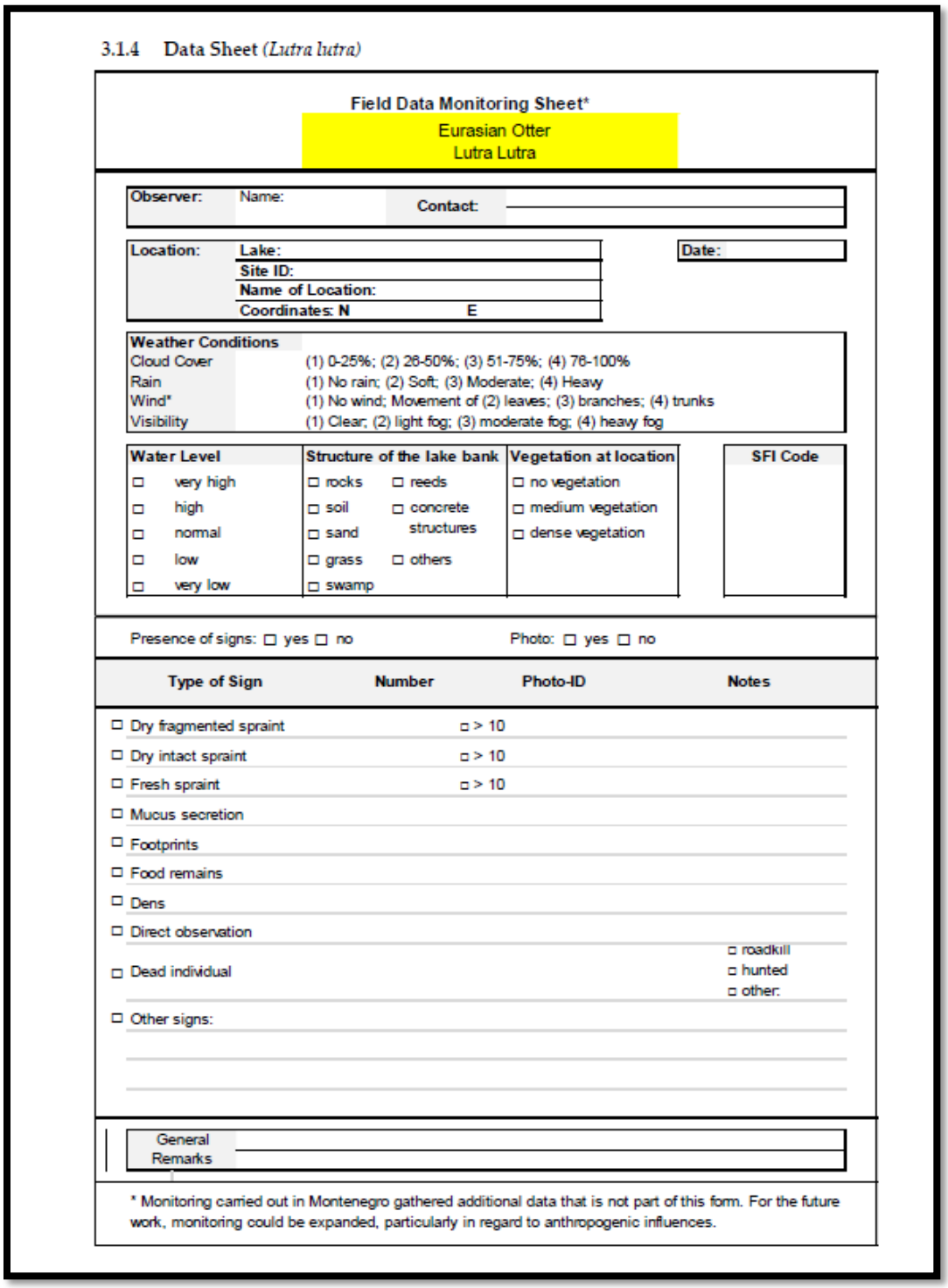
Location	ID	X	Y
Mandića žalica Vranjina	MN20	42.2927	19.1504
River Morača Vranjina	MN21	42.2875	19.1415
Bakine tigle	MN22	42.2927	19.1504
Vranjina sjever	MN24	42.2798	19.1259
Vranjina jug	MN23	42.26764	19.13493
Debeli vrbiš (Bare)	MN25	42.2693	19.1674
Crnionik	MN26	42.2601	19.1822
Kotobanja	MN27	42.2645	19.1966
Čekarica	MN28	42.2674	19.2177
Gostiljska rijeka	MN29	42.2661	19.2404
Radoslaze	MN30	42.264	19.2665
Sjerave	MN31	42.267	19.2791
Jabuka	MN32	42.2549	19.293
Adžinice	MN33	42.2661	19.3185
Koračica	MN34	42.2378	19.3261
Dališan	MN35	42.2894	19.3395
Podhum (Humsko blato)	MN36	42.3141	19.3576
Stanaj	MN37	42.2965	19.3736
Hotski zaliv	MN38	42.3156	19.4021

Southern shoreline

Location	ID	X	Y
Ckla, Gorica Đat	MN51	42.09542	19.33614
Cove Šitarit	MN50	42.1015	19.31936
Sijerča	MN49	42.11131	19.29454
Liman	MN48	42.11822	19.28104
Pjajce Gorica	MN47	42.13362	19.25795
Sinori i Besit	MN46	42.14648	19.23547
Sinori i Besit	MN45	42.16055	19.2245
Mačiluka	MN52	42.13503	19.24505
Mala Gorica	MN44	42.18743	19.20383
Petrova ponta	MN43	42.21428	19.18759
Šale, Raduš i Pristan	MN42	42.22463	19.1651
Godinje	MN41	42.22464	19.12655
Cove Šišarine (Tanki rt)	MN40	42.26372	19.10703
Obida	MN39	42.23921	19.1125

ANNEX II

Monitoring data sheet:



3.1.4 Data Sheet (*Lutra lutra*)

Field Data Monitoring Sheet*

Eurasian Otter
Lutra Lutra

Observer:	Name:	**Contact:**	

Location:	**Lake:**	**Date:**
	Site ID:	
	Name of Location:	
	Coordinates: N E	

Weather Conditions	
Cloud Cover	(1) 0-25%; (2) 26-50%; (3) 51-75%; (4) 76-100%
Rain	(1) No rain; (2) Soft; (3) Moderate; (4) Heavy
Wind*	(1) No wind; Movement of (2) leaves; (3) branches; (4) trunks
Visibility	(1) Clear; (2) light fog; (3) moderate fog; (4) heavy fog

Water Level	**Structure of the lake bank**		**Vegetation at location**	**SFI Code**
☐ very high	☐ rocks	☐ reeds	☐ no vegetation	
☐ high	☐ soil	☐ concrete structures	☐ medium vegetation	
☐ normal	☐ sand		☐ dense vegetation	
☐ low	☐ grass	☐ others		
☐ very low	☐ swamp			

Presence of signs: ☐ yes ☐ no Photo: ☐ yes ☐ no

Type of Sign	Number	Photo-ID	Notes
☐ Dry fragmented spraint	☐ > 10		
☐ Dry intact spraint	☐ > 10		
☐ Fresh spraint	☐ > 10		
☐ Mucus secretion			
☐ Footprints			
☐ Food remains			
☐ Dens			
☐ Direct observation			
☐ Dead individual			☐ roadkill ☐ hunted ☐ other:
☐ Other signs:			

General Remarks

* Monitoring carried out in Montenegro gathered additional data that is not part of this form. For the future work, monitoring could be expanded, particularly in regard to anthropogenic influences.