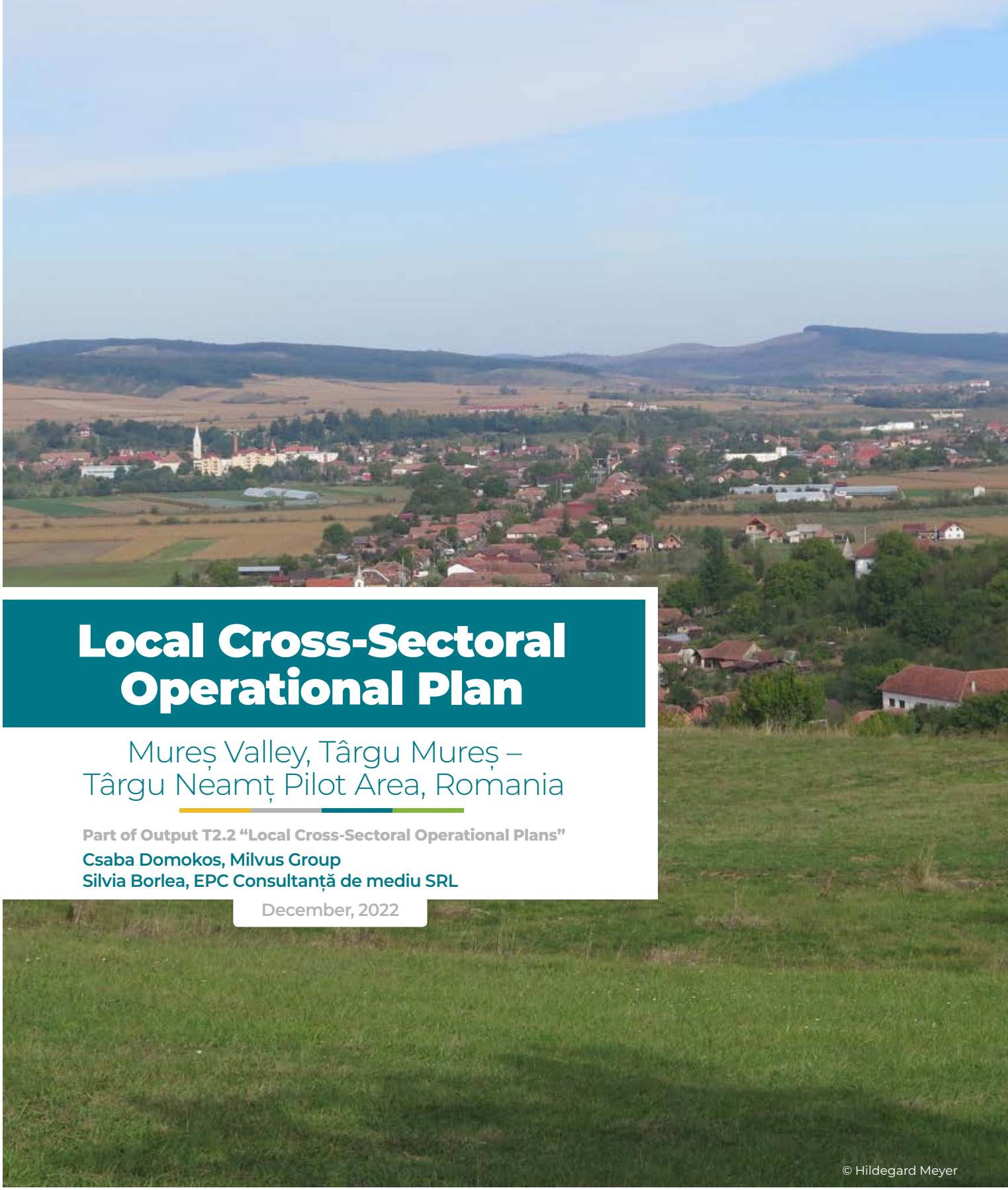

Local Cross-Sectoral Operational Plan

Mureș Valley, Târgu Mureș – Târgu Neamț Pilot Area, Romania

Part of Output T2.2 "Local Cross-Sectoral Operational Plans"

Csaba Domokos, Milvus Group
Silvia Borlea, EPC Consultanță de mediu SRL

December, 2022

Interreg
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Danube Transnational Programme
SaveGREEN

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Authors:
Csaba Domokos, Milvus Group; Silvia Borlea, EPC Consultanta de mediu

Layout and graphic design:
Alex Spineanu (Graphic designer, Romania)

Proofreading:
Private Language School BS SCHOOL, Ondrej Straka, BSBA

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Local Cross-Sectoral Operation Plan

Mureș Valley, Târgu Mureș – Târgu Neamț Pilot Area, Romania

Part of Output T2.2 "Local Cross-Sectoral Operational Plans"

SaveGREEN "Safeguarding the functionality of transnationally important ecological corridors in the Danube basin"

Danube Transnational Programme, DTP3-314-2.3

December 2022

About SaveGREEN

The SaveGREEN project, funded by the Interreg Danube Transnational Programme is focused on the identification, collection, and promotion of the best solutions for safeguarding ecological corridors in the Carpathians and further mountain ranges in the Danube region. Currently, ecological corridors in the region are under threat due to the lack of adequate planning of economic development initiatives. Therefore, basing its work on integrated planning, SaveGREEN will monitor the impact of mitigation measures in 8 pilot areas and derive proper recommendations for follow-up actions and policy design.

www.interreg-danube.eu/savegreen

CSOP Mureș Valley, Târgu Mureș – Târgu Neamț Pilot Area, Romania

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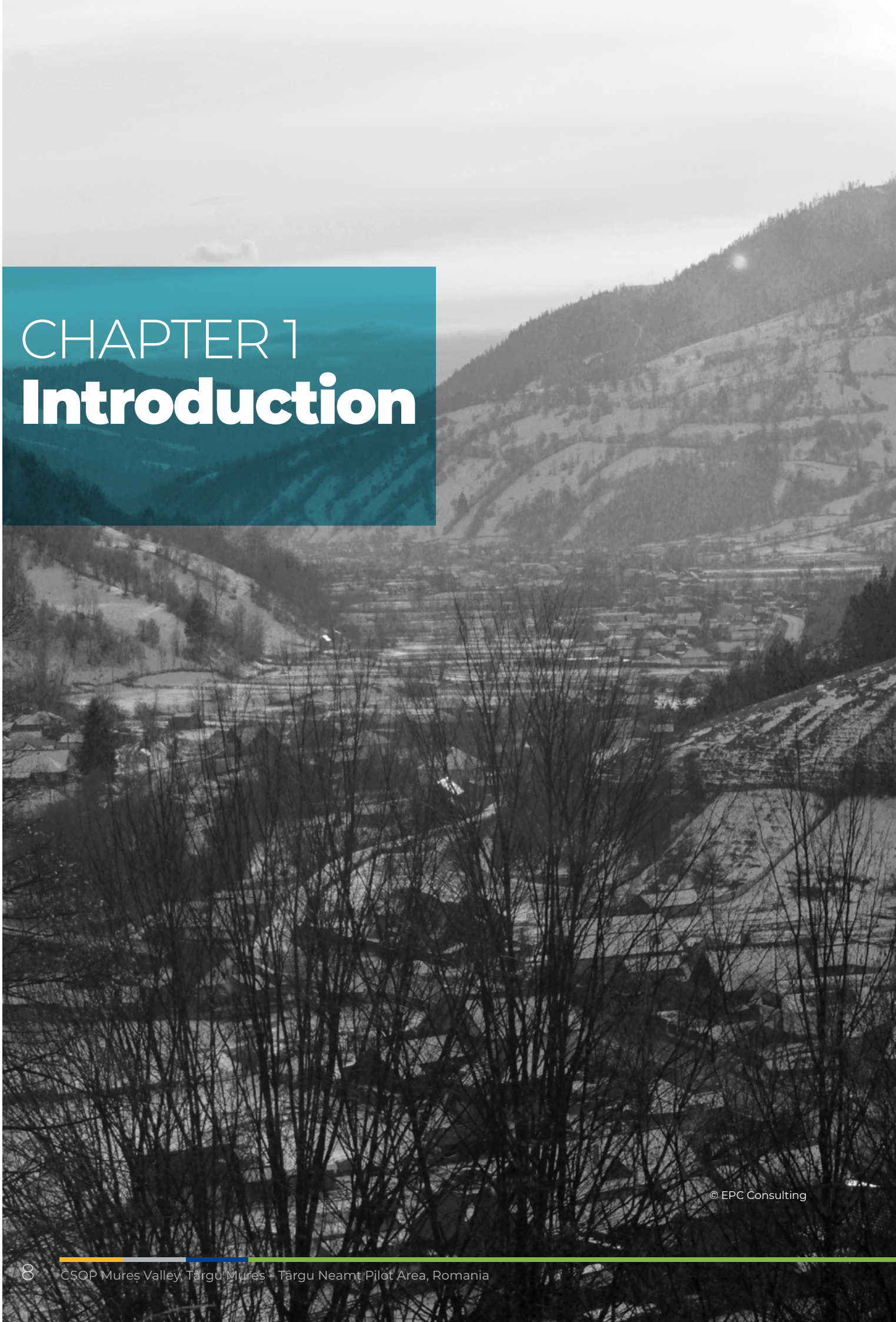
CHAPTER 1
Introduction



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The main objective of the SaveGREEN project was to develop specific solutions to preserve, improve or restore the functionality of the key ecological corridors in the Carpathian, Alpine and Bulgarian mountain valleys, where human activities as well as critical points for wildlife migration accumulate and thus conflicts are at their highest.

As the proposed approach is to foster cross-sectoral and transnational cooperation and building of knowhow for integrated planning at landscape level, general pressures or threats to consider when landscape connectivity is of concern was coupled with connectivity-specific objectives.

By screening each sector of interest, we highlighted the potential sectoral impacts – an important reference for managers to investigate the present or potential problems that need to be addressed by targeted measures. At pilot area level, the local experts worked with stakeholders to identify and prioritize these problems and propose measures to overcome them through specific actions, while monitoring the other project pilot areas and keeping constant collaboration with project partners and external experts.

This common logical framework that facilitates the logical path from pressures/threats to particular actions forms the structure of the Cross Sectoral Operational Plans (CSOPs) which represents the original response of SaveGREEN to threats to connectivity and the basis for implementation of practical measures in the 8 pilot areas of the project.

Working directly with stakeholder groups in the pilot areas and involving them

Tirgu Mures - Tirgu Neamt Pilot Area © Hildegard Meyer

actively, in a participatory manner, in the development of the CSOPs of the pilot areas should create long-lasting ownership of the plans and ease the future implementation.

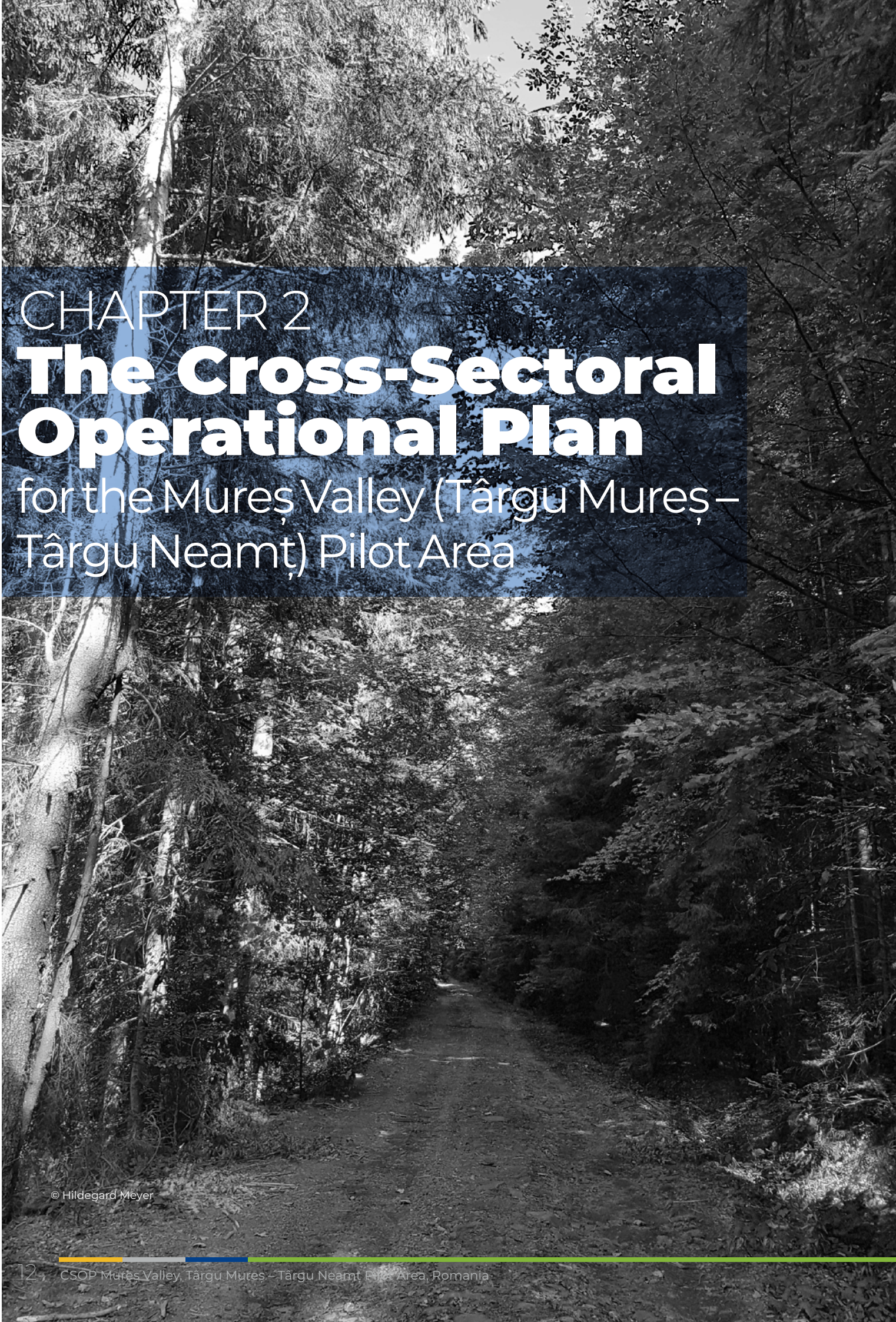
The CSOPs are addressing the complex issue of landscape connectivity and should be considering medium to long-term effort. While some of the actions have been (partially) implemented during the SaveGREEN project, most of them still need to be implemented. Moreover, constant assessment and adaptation of actions is needed to respond to the dynamic of the multitude of factors impacting the landscapes, as well as to the capacity, resources, and the available know-how of the stakeholders.

SaveGREEN proposed the CSOPs as an informal tool to foster inter-sectoral cooperation and synchronized specific actions at landscape level. Working directly with stakeholder groups in the pilot areas and involving them actively, in a participatory manner, in the development of the CSOPs of the pilot areas should create long-lasting ownership of the plans and ease the future implementation, irrespective of the formal agreements.

At the same time, the logical framework of the CSOPs will ensure easy integration within the local/regional sectoral (management) plans while ensuring synergy between them, which is significantly lacked at present. Basically, by filtering CSOPs by any of the sectors of interest, one will gain access to a sectoral action plan for connectivity. Naturally, whenever the case, the measures of the CSOPs could be taken on board by the management plans of protected areas.

By identifying the specific problems and needed actions on the ground, CSOPs are a valuable instrument to pinpoint the potential gaps and shortcomings at legislative and funding capacity levels, which should represent a basis to adaptation at national or European levels.

Paired with the Multi-sectoral online datasets for the pilot areas, with the On-line library of multi-sectoral solutions for ensuring the functionality of ecological corridors and with the Handbook, we hope that the CSOPs will become a significant resource for replication and adaptation in the Danube Region and beyond, whenever the scope is to safeguard the connectivity at landscape level.



CHAPTER 2
The Cross-Sectoral Operational Plan
for the Mureș Valley (Târgu Mureș – Târgu Neamț) Pilot Area

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2.1 Description of the Mureș Valley (Târgu Mureș – Târgu Neamț) Pilot Area

The Pilot Area is located along the Târgu Mureș – Târgu Neamț section (213 km long) of the future A8 (Târgu Mureș-Iași-Ungheni) motorway. This stretch of the future motorway will link two major historical Romanian regions: Transylvania in the west and Moldova in the east. In accordance with this, the Pilot Area incorporates significant areas of land from both regions, more precisely from the Mureș, Harghita and Neamț counties.

The Pilot Area encompasses a section of the whole width of the Romanian Eastern Carpathians, as well as their foothills, both to the west and to the east. It incorporates a wide variety of habitat types and various land use options, according to which it can be divided into distinct sections, as follows:

- From Târgu Mureș to Sovata: Cultural hilly landscape, a mosaic of forests, pastures and hay fields at higher altitudes and small-scale farming at lower altitudes.
- From Sovata to Borzonț: Natural mountainous landscape, dominated by forests, occasionally interspersed with pastures.
- From Borzonț to Ditrău: Part of the Giurgeu Basin, cultural flatland, mostly used for farming, with small incursions of shrubland.
- From Ditrău to Vânători Neamț: Mostly natural landscape, encompassing

mountains and foothills, mainly forested, interspersed with pastures and hay fields.

» From Vânători Neamț to Moțca: Cultural landscape, comprising mostly arable land and settlements.

The figure below indicates the Pilot area.

As one of the wildest and most important areas for biodiversity conservation in the Carpathians, the Târgu Mureș – Târgu Neamț area harbours a large number of priority large mammal species, such as *Ursus arctos* and *Canis lupus*. The Târgu Mureș – Târgu Neamț area has been identified as an important core area for all large carnivores (bear, wolf and lynx), according to the BioREGIO project.

The area is well known as a corridor between the northern part of the Romanian Carpathians (continuing further in Ukraine) and the higher Southern Carpathians, both very important habitats for large mammals.

The level of wilderness and the density of Natura 2000 sites in this area allow for of a high level of biodiversity, including the existence of a large number of bird species.

The high density of river network in the area contributes to the existence of important blue

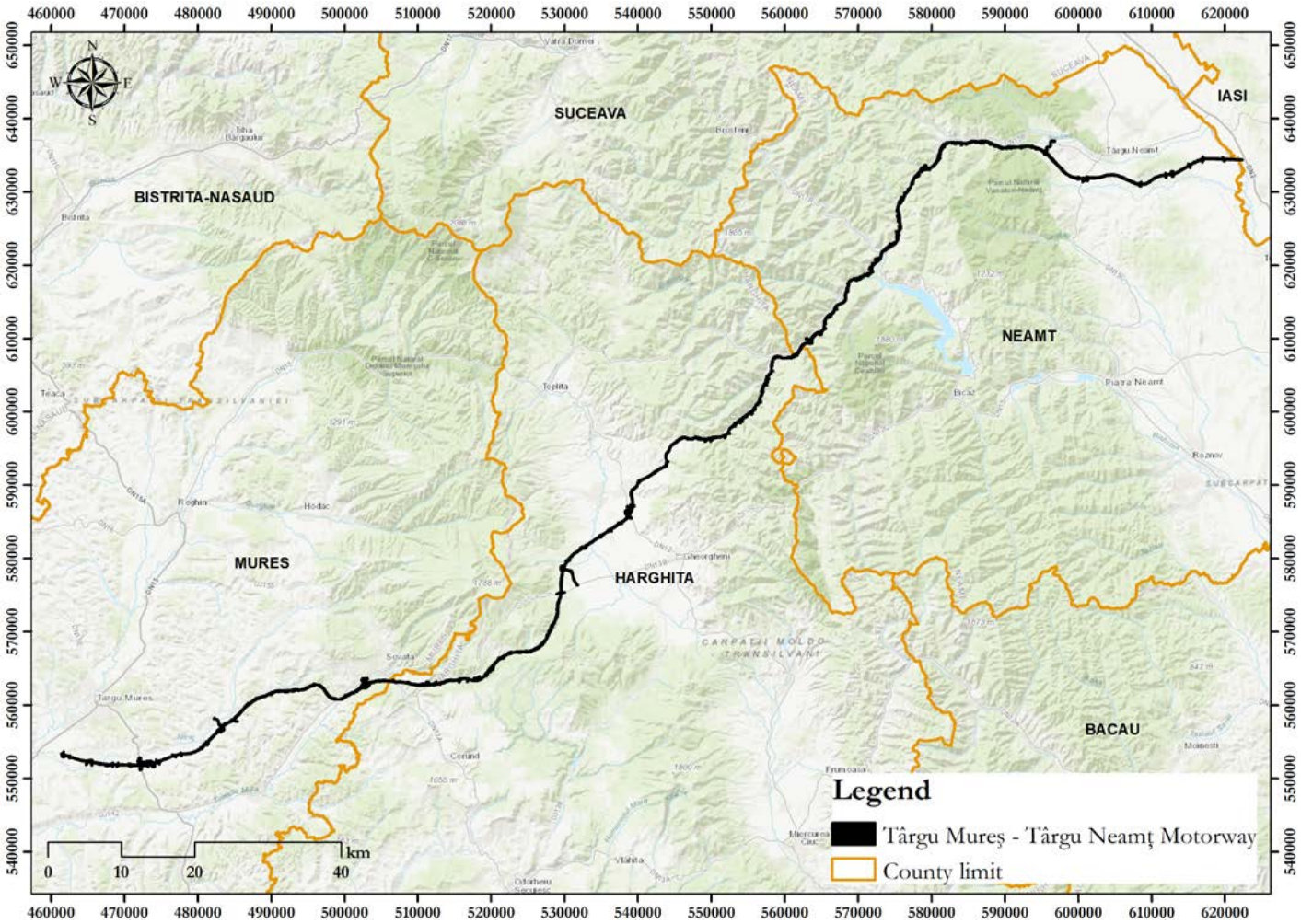

Figure 1 The location of the Târgu Mureș – Târgu Neamț motorway

corridors, most of them very important for such species as the European otter;

In the Târgu Mureș – Târgu Neamț area, there are several Natural Protected Areas of Community Interest, both SCI and SPA. A list and a map of these areas are presented below.

The planned development of a motorway in the area between Târgu Mureș – Târgu Neamț, if implemented without adequate impact avoidance and mitigation measures, threatens the biodiversity of these highly important areas, and could contribute significantly to the interruption of connectivity between different areas of the Carpathians.

The area has been analysed in the TRANSGREEN project, with a Catalogue of Measures being proposed through that project. This provides a basis for development of a more applicable package of measures for the proposed motorway, which can ensure the appropriate integration of the scheduled infrastructure with specific ecological requirements of the area.

The proposed motorway intersects or is located in the vicinity of several Natura 2000 sites. They are presented in the table below.

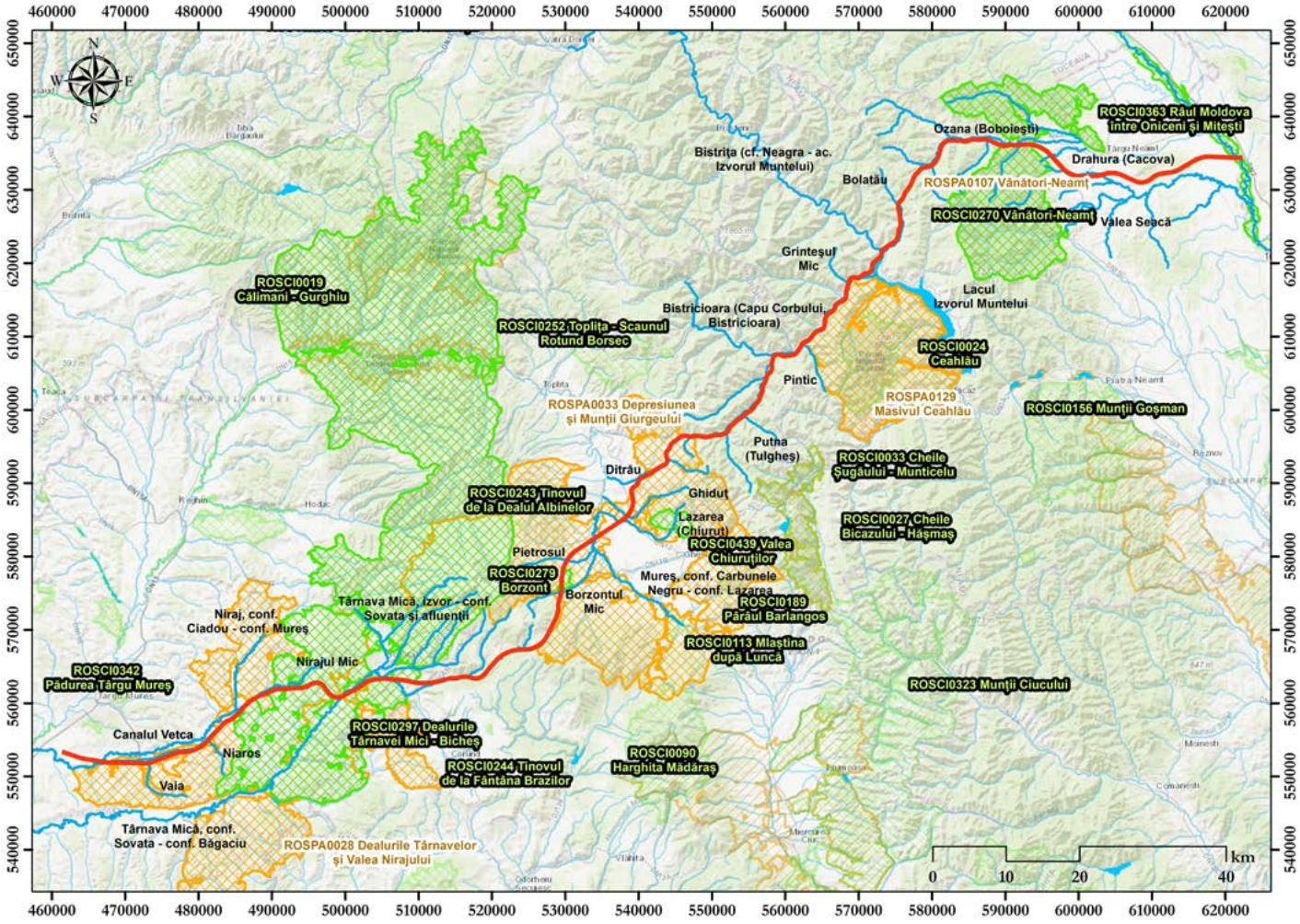

Figure 2 Natura 2000 sites in the Târgu Mureș – Târgu Neamț Pilot Area

Table 1 Natura 2000 sites potentially affected by the Târgu Mureș - Târgu Neamț motorway

Name and Code of Natura 2000 site	Location in relation to the Târgu Mureș - Târgu Neamț motorway
ROSAC0297 Dealurile Târnavei Mici - Bicheș	Intersected
ROSPA0028 Dealurile Târnavelor și Valea Nirajului	Intersected
ROSAC0279 Borzonț	Intersected
ROSPA0033 Depresiunea și Munții Giurgeului	Intersected
ROSAC0270 Vânători - Neamț	Intersected
ROSPA0107 Vânători - Neamț	Intersected
ROSAC0363 Râul Moldova între Oniceni și Mitești	Intersected
ROSPA0129 Masivul Ceahlău	Intersected
ROSAC0384 Râul Târnava Mică	In the vicinity
ROSAC0243 Tinovul de la Dealul Albinelor	In the vicinity
ROSCI0019 Călimani - Gurghiu	In the vicinity
ROSAC0024 Ceahlău	In the vicinity
ROSAC0244 Tinovul de la Fântâna Brazilor	In the vicinity
ROSAC0027 Cheile Bicazului - Hășmaș	In the vicinity
ROSPA0018 Cheile Bicazului - Hășmaș	In the vicinity
ROSCI0439 Valea Chiuruților	In the vicinity
ROSAC0367 Râul Mureș între Morești și Ogra	In the vicinity
ROSAC0342 Pădurea Târgu Mureș	In the vicinity

On its entire length, the Târgu Mureș – Târgu Neamț section of the planned A8 motorway will (often closely) run parallel with the existing transport infrastructure, namely a number of county-level and national roads. This section of the planned motorway will intersect high-value natural and semi-natural habitats. However, in a number of locations, these habitats and the species they house are already threatened by fragmentation due to the existing lower-class roads and adjacent developments, perhaps most importantly the localities situated along them. Consequently, there is a high probability that without proper fragmentation mitigation measures, the future highway will significantly increase the barrier effects of the already existing infrastructure. This poses two main challenges that are somewhat distinct but also interdependent:

- to minimise the potential fragmentation effects of the planned A8 highway
- to maintain or even improve the current levels of permeability as the minimum, with regard to the existing infrastructure adjacent to the planned A8 highway

The general **Objectives** set to address the threats are:

1.1 Ensure support-data for new infrastructure projects

1.2 Support the SEA/EIA/AA processes and procedures with the relevant data and examples of good-practice

1.3 Support the design and implementation with examples of good-practice

2.1 Ensure the functionality of planned underpasses

2.2 Ensure the functionality of planned overpasses

2.3 Assign legal status and develop coherent regulations for future wildlife passages

3.1 Ensure ecological connectivity at landscape level in the area of the Târgu Mureș – Târgu Neamț proposed highway

These objectives, together with their proposed measures, actions and further notes are presented in the tables below. The objectives, problems and actions are also presented in detail below the table.

This table represents the most important component of the Cross – Sectoral Operational Plan as it highlights the necessary actions which can be implemented at national, regional and local levels to ensure the fulfilment of the Objectives set above.

Objective 1.1 Ensure supporting data for new infrastructure projects

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 1.1.1: Short time periods and budget constraints often obstruct the preparation of comprehensive, in-depth impact assessments, based on realistic field data.	**M1.1.1** Obligatory minimum time for field observations	a. Incorporate local knowledge, or locally existing, preferably long-term data sets (if available); b. Identify gaps within the existing data sets and focus fieldwork on them; c. Focus field observations to key umbrella species important for the area;	Data can be obtained from research, NGOs or authorities.
Problem 1.1.2: Fieldwork is done with insufficient equipment and leads to very basic results (e.g. a list of species without any other data)	**M.1.1.2** Requirements regarding the qualifications and equipment of fieldwork experts	a. Require experts to be included in the National Registry for Biodiversity Monitoring; b. Require the use of specialised equipment in the monitoring process (including specific recording sheets);	The necessary qualifications and equipment should be demonstrated on the basis of documents.
Problem 1.1.3: The collected data is inadequate for applying the impact assessment methodologies	**M.1.1.3** Clear requirements on the types of data required from the field based on the specific assessments needed	a. Ensure that the data collected is in accordance with the requirements for the impact assessment; b. Complete the missing data with precautionary estimates based on the existing data or other case studies.	The data collected from the field should indicate the frequency and direction of movement, species density, existing pressures, etc. It should allow for the correct application of impact assessment methodologies.v

Objective 1.2 Support the SEA/EIA/AA processes and procedures with relevant data and examples of good-practice

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 1.2.1: The elaborated SEA/EIA/AA are not based on specific guidelines for road infrastructure	**M1.2.1** Inclusion of requirements for the studies developed in different procedures to comply with specific guidelines	a. Change of the legal requirements for SEA/AA/EIA b. Provide training of environmental and transport authorities c. Provide training for relevant experts through courses for registered experts	-
Problem 1.2.2 The elaborated SEA/EIA/AA do not correctly assess cumulative impacts and landscape level impacts	**M1.2.2** Inclusion of clear methodologies in the guidelines for a correct assessment of the cumulative and landscape level impacts	a. Include specific description of methodologies for assessing the cumulative and landscape level impacts; b. Provide case study examples on cumulative assessment and landscape level impact assessment; c. Include cumulative assessments and landscape level impact assessments in training courses, especially for environmental authorities;	-
Problem 1.2.3: The SEA/EIA/AA do not take into consideration ecological corridors	**M1.2.3** Include specific requirements for SEA/EIA/AA to analyse ecological corridors in the context of impact assessment.	a. Include requirements for analysis of ecological corridors in the SEA/EIA/AA legislation; b. Include aspects related to connectivity assessment in training courses;	-

Objective 1.3 Support the design and implementation with examples of good-practice

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 1.3.1: Project designers do not have the know-how for implementation of the best practice measures.	**M1.3.1** Require project designers to develop the skills necessary for inclusion of best practice measures in projects.	a. Provide materials and examples for the proposed measures, based on case studies; b. Assist project designers by continuous feedback on the designed measures; c. Include best practice examples for measures in developed training for SEA/EIA/AA.	-
Problem 1.3.2: Impossibility in implementing some of the impact avoidance and mitigation measures when designing the project or during construction.	**M1.3.2** Identification of alternatives for the measures which cannot be implemented.	a. Discussions with project designers on the reasons why the proposed measures cannot be implemented; b. Identification of alternative solutions which allow for the avoidance/mitigation of the assessed impacts in a similar way to the original measures; c. Highlight risks of improper measures, while including the financial standpoint; d. Include requirements for a reassessment (in a revised EIA/AA) of the potential impacts, in the context of the modified measures; e. Request some support from NGOs and other environmental stakeholders in order to assist the designer in identifying alternatives to the modified measures, if absolutely necessary.	-
Problem 1.3.3: Monitoring is done superficially and does not indicate the functionality of proposed measures.	**M1.3.3** Online release of monitoring reports for the project and free access for the public.	a. Request for approval from the competent authorities for free online release of the monitoring reports elaborated for the projects; b. Analyse the published reports and identify situations in which the monitoring has been done inadequately for indicating the functionality of impact avoidance and mitigation measures; c. Offer feedback to the competent authorities and project beneficiary on any inconsistencies observed in the monitoring reports that should be rectified.	-

Objective 2.1 Ensure the functionality of planned underpasses

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 2.1.1: The designed sizes and characteristics of objects (culverts, bridges, viaducts) that can effectively function as underpasses for wildlife species are often changed (usually reduced) after tendering in order to minimise building costs. As a result, in reality, the fragmentation impact may be higher compared to the initial assessment based on the original design plans.	**2.1.1** Comply with the technical specifications of underpasses (and overpasses) from the original design plans and include the functional ones in the environmental permits as wildlife structures	a. Abandon build & design approach in favour of producing detailed final technical plans that will be followed by contractors and monitored by environmental authorities; b. Include all connectivity-relevant objects into the environmental permits, with their required size characteristics; c. Specify this requirement within the EIA/AA procedures; d. Classify underpasses according to suitability to be used by different species-groups; e. Design and develop an overall monitoring plan for infrastructure which will include object-based monitoring protocols, specifying this requirement within the EIA/AA procedures; f. Include the monitoring plan within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș (the Standard Data Form [SDF] of this PA explicitly mentions the planned A8 highway as a threat) and ROSAC0279 Borzont; g. If the revision of the Environmental Permit is necessary due to changes in overpasses and underpasses (locations, sizes), require that the authority ensure maintenance of functionality of structures.	-
Problem 2.1.2: There is little experience in Romania in adjusting constructive details of objects in order to make them functional/increase their functionality for wildlife.	**2.1.2** Adjust technical specifications to increase IO in critical locations / avoid structural barriers on or close to objects not designed primarily for wildlife passage, mitigate other sources of disturbance	a. Develop guidelines on functionality for underpasses; b. Develop an intervention programme (linked with the monitoring programme) aiming to maintain the functionality of underpasses; include the measure within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș and ROSAC0279 Borzont; c. Document the impact as part of the object-based monitoring, included in the overall infrastructure monitoring programme.	-
Problem 2.1.3: There is little experience in Romania in integrating wildlife underpasses in the landscape, in order to increase their functionality for wildlife.	**2.1.3** Landscaping of underpasses	a. Develop guidelines on landscaping and build capacity through know-how exchange; b. Include landscaping into EIA/AA procedures and environmental permits, inclusively as compensatory measures; c. Include the measure within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș and ROSAC0279 Borzont.	-

Objective 2.2 Ensure the functionality of planned overpasses

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 2.2.1: A number of tunnels planned on the future A8 highway are unidirectional, which means they cannot function as overpasses for wildlife species	**2.2.1** Replace unidirectional tunnels with 'conventional', bidirectional ones	a. Highlight the benefits of conventional, bidirectional tunnels as mitigation measures in the national guidelines; b. Facilitate joint/integrated funding from the Green Infrastructure – a related funding line for costly mitigation measures (tunnels, green bridges); c. Monitor the implementation of tunnel solutions.	-
Problem 2.2.2: During the construction phase, the functionality of the corridor may be significantly impacted	**2.2.2** Maintain the permeability of the terrain on top of tunnels during their construction	a. Develop guidelines on maintaining the permeability of tunnel tops during construction and build the expert capacity through know-how exchange; b. Include specific requests (based on guidelines) concerning the permeability of tunnel tops into the EIA/AA procedures and environmental permits; c. Include the permeability of tunnel tops as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Biches; d. Include the monitoring of connectivity-relevant features as part of the tunnel tops management; e. Ensure the maintenance of requirements through inclusion of specific measures in the project's Environmental Management Plan (to be applied during construction).	-
Problem 2.2.3: There is no plan for managing the surfaces of the green bridges' (including tunnel-tops) surfaces in order to maximise their functionality for wildlife	**2.2.3** Manage green bridges' (including tunnel-tops) surfaces in order to maximise their functionality for wildlife	a. Clarify the legal status of the land plots; b. Develop guidelines on the management of green bridges and tunnel tops and build the expert capacity through know-how exchange; c. Include the green bridges' and tunnels' top-area management into the EIA/AA procedures and environmental permits; d. Include the green bridges' and tunnels' top-area management and monitoring as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Biches; e. Develop procedures/legislation related to human access to the green bridges and enforce inclusive regulations as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Biches; f. Develop pilot-projects focusing on specific management/ maintenance and monitoring on green bridges and tunnel-tops on the A8 highway as crucial elements of the Green Infrastructure, in order to maximise their functionality and to expand local experience.	-

Objective 2.2 continued:

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 2.2.4: There are no plans set for integrating the surface of the green bridges' surface (including tunnel-tops) within the surrounding landscape.	**2.2.4** Landscaping of highway green bridges & tunnels	a. Develop guidelines on landscaping and build the expert capacity through know-how exchange; b. Include landscaping into the EIA/AA procedures and environmental permits, inclusively as compensatory measures; c. Include landscaping as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Biches; d. Develop pilot-projects focusing on specific management/ restoration of Green Infrastructure to maximise the functionality of green bridges on the A8 highway through landscaping, including long-term lease/acquiring land for conservation; e. Involve relevant stakeholders and their internal regulations (forestry managers, wildlife managers, land owners, local councils, etc.) in the management of green bridge surfaces.	

Objective 2.3 Assign legal status and develop coherent regulations for wildlife passages

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 2.3.1: Wildlife passages have no legal protection status and do not benefit from being actively monitored and from enforced regulations, which can be detrimental to their efficiency and general functioning.	**2.3.1.1** Include important crossing structures – both under- and overpasses (tunnels, green bridges, bridges, viaducts, and other large underpasses) in cadastral plans	a. Map Green Infrastructure elements and assess them in relation with land-use categories; b. Implement other projects aiming at harmonisation of Green Infrastructure with land-use plans.	-
	2.3.1.2 Include important crossing structures - both under and overpasses (tunnels, green bridges, bridges, viaducts, and other large underpasses) and important permeable sectors of linear features into the Natura 2000 management plans with assigned measures for the land management, usage regulations and monitoring.	a. Develop guidelines and implement the Natura 2000 sites' specific conservation measures and regulations in order to maintain/enhance functionality; b. Integrate conservation measures and regulations into the updated Natura 2000 management plans; c. Develop projects to implement measures, regulations and monitoring in the Natura 2000 sites; d. Produce the EIA/AA set of procedures and measures for Natura 2000 sites related to permeability.	-

Objective 3.1. Ensure landscape level ecological connectivity in the area of the Târgu Mureș – Târgu Neamț proposed highway

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 3.1.1: The planned A8 motorway will often run parallel the existing county and national roads. In numerous locations, these lower-class roads are already impermeable to wildlife species, mostly due to the localities and other permanent or temporary barriers situated along them. Without ensuring the permeability of these lower-class roads as well, there is a significant risk of a cumulative barrier effect created by the future highway, in conjunction with the smaller roads.	**3.1.1.1** Maintain the permeability of DN13 (E60) for wildlife species between the localities of Găiești and Bălăușeri	a. Prevent further expansion of localities (Găiești and Bălăușeri) towards each other along this section of the national road; b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots;	This section of the national road DN13 lies to the south from the planned A8 highway's westernmost section and threatens east-west connectivity across a crucial ecological corridor spanning westwards from the Eastern Carpathians (Gurghiu Mountains). Due to high traffic intensity, this section already represents a hotspot for traffic encounters with wildlife species. With the construction of the A8 highway, traffic levels are expected to further increase, to the point when this road section will constitute an absolute barrier for wildlife.
	3.1.1.2 Maintain the permeability of DJ135 for wildlife species between the localities of Măgherani and Sărățeni	c. Prevent further expansion of localities (Măgherani and Sărățeni) towards each other along this section of the county road; d. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the county road, as well as further fencing of land plots; e. Include the measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș.	This section of the county road DJ135 basically parallels the planned A8 highway across the boundary between the Nirajul Mic and Târnava Mică river watersheds. Both the existing county road and the planned highway intersect high-value natural and semi-natural habitats and a crucial ecological corridor, linking the Eastern Carpathians (Gurghiu Mountains) to their western foothills. Ensuring the permeability of the planned highway in this area is pointless, unless the county road is also permeable.
	3.1.1.3 Maintain the permeability of DN13A for wildlife species between the localities of Sângeorgiu de Pădure and Praid	a. Prevent further expansion of localities towards each other along this section of the national road; b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots; c. Include the measures within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș.	While in this area the future A8 highway threatens the east-west connectivity (between the Eastern Carpathians [Gurghiu Mountains] and their western foothills), the nearby DN13A threatens north-south connectivity across the Eastern Carpathians' western foothills. The villages along the mentioned section of DN13A continuously expand towards each other and currently there are only narrow functional ecological corridors left in between the villages, and even these are gradually shrinking.

Objective 3.1 continued:

(potential) Problems	Proposed Measures	Proposed Actions	Notes
	3.1.1.4 Maintain the permeability of DJ127 for wildlife species between the localities of Ditrău and Hagota and Hagota and Recea, respectively (even if the road is rehabilitated)	a. Prevent further expansion of settlements (Ditrău and Hagota, and Hagota and Recea, respectively) towards each other along this section of the county road; b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the county road, as well as further fencing of land plots.	Between Ditrău in the west and Lake Bicaz in the East, the planned A8 highway will parallel DJ127 between the localities of Ditrău and Tulgheș, and DN15 between Tulgheș and Lake Bicaz. Starting with Recea in the west and all the way to Lake Bicaz in the east, both existing roads have contiguous localities situated alongside of them, making these sections already impermeable for wildlife species. The only sections still permeable for wildlife are situated along DJ127, between Ditrău and Hagota, and between Hagota and Recea, respectively. Ensuring the permeability of the planned A8 highway in this area is pointless if the county road is not maintained permeable as well.
	3.1.1.5 Maintain the permeability of DN15B for wildlife species between the localities of Petru Vodă and Pluton	a. Prevent further expansion of localities (Petru Vodă and Pluton) towards each other along this section of the national road; b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots.	This section of the national road basically parallels the future A8 highway. Between Lake Bicaz in the west and Târgu Neamț in the east, this section is the only one still permeable for wildlife species – otherwise, there are in effect contiguous localities situated along DN15B. Ensuring the permeability of the future highway in this area is pointless if the national road is not kept permeable as well.

Objective 3.1 continued:

(potential) Problems	Proposed Measures	Proposed Actions	Notes
Problem 3.1.2: The two green bridges that are to be built on the Westernmost section of the planned A8 highway will act as the only, and thus crucial, crossing points on a future highway section that will otherwise be basically impermeable for large and mid-sized mammals. While these dedicated structures should theoretically ensure the permeability of this section, their functionality could still be severely hindered/reduced by inadequate development or land management in their wider surroundings.	**3.1.2.1** Ensure the functionality of green bridges Gălățeni and Bolintineni	a. Do not divert from the locations and technical characteristics of the green bridges and from the recommendations issued for the management of their immediate surroundings, as specified in the Environmental Permit. b. In the case of the future green bridge Gălățeni (km 12+500), in order to ensure its functionality: prevent the expansion of surrounding localities (Murgești, Păsăreni, Roteni and Gălățeni) towards each other and prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) in the area enclosed by the above-mentioned localities, as well as further fencing of land plots (even with temporary electric fences). c. In the case of the future green bridge Bolintineni (km 16+100), in order to ensure its functionality: prevent the expansion of surrounding localities (Bolinitineni, Gălățeni, Sânvăsii and Troița) towards each other and prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) in the area enclosed by the above-mentioned localities, as well as further fencing of land plots (even with temporary electric fences). d. In reality, the two green bridges will act as bottlenecks in the landscape, concentrating wildlife movement. Hunters should not capitalize on this predictability of wildlife movement within the area: hunting in these areas and the deliberate feeding of wildlife for harvesting purposes should be forbidden in the surroundings of both structures. In the case of the green bridge Gălățeni, this exclusion zone should encompass the area enclosed by the localities of Murgești, Păsăreni, Roteni and Gălățeni, while in the case of the green bridge Bolintineni, the area enclosed by the localities of Bolinitineni, Gălățeni, Sânvăsii and Troița.	The Environmental Permit issued for the westermost section of the planned A8 highway (Târgu Mureș[Crăciunești]-Miercurea Nirajului) in October 2022 makes mandatory the construction of two green bridges across the future highway (at km 12+500, respectively at km 16+100).

Objective 1.1 Ensure supporting data for new infrastructure projects

1.1.1 Short time periods and budget constraints often obstruct the preparation of comprehensive, in-depth impact assessments, based on realistic field data

Problems:
Often, due to improper planning, there is not enough time in the development of a project for adequate collection of field data. This can lead to a set of data which is insufficient and does not properly represent the project area. If this occurs, it is recommended to focus the field observations only on the missing components in the already existing data or umbrella species which are of particular importance to the area.

Existing resources:
Research institutions, local NGOs, environmental authorities (such as protected area managers).

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Incorporate local knowledge, or locally existing, preferably long-term data sets (if available);

b. Identify gaps in the existing data and focus fieldwork on them;

c. Focus field observations on key umbrella species important for the area;

1.1.2 Fieldwork is done with insufficient equipment and leads to very basic results (e.g. a list of species without any other data)

Problems:
The data which are usually collected by experts in Romania are limited to lists of species identified in the field. This is often insufficient for applying quantification methods during the EIA process or for establishing specific impact avoidance and mitigation measures. The data from the field are often not collected during a long time period, and cannot indicate natural variations in the ecosystem. There is also a risk that the contracted experts are not using the appropriate methodologies or equipment for data collection.

Existing resources:
The National Registry of qualified experts for Biodiversity Monitoring, the Institute of Biology Guidelines for the collection of data from fieldwork.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Require experts to be included in the National Registry for Biodiversity Monitoring;

b. Require the use of specialised equipment in the monitoring process;

1.1.3 The collected data is inadequate for applying impact assessment methodologies

Problems:
In order to correctly develop an EIA or an AA, it is necessary to quantify the potential impacts a project might have. For applying the methodologies necessary for quantifications, data from the field should be used. The data should cover the specific requirements and allow for the assessment of impacts.

Existing resources:
European level guidelines on EIA and AA, SaveGREEN Toolkit on SEA and EIA.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Ensure that the data collected are in accordance with the requirements for impact assessment;

b. Complete the missing data with precautionary estimates based on the existing data or other case studies.

Objective 1.2 Support the SEA/EIA/AA processes and procedures with relevant data and examples of good-practice

1.2.1 The elaborated SEA/EIA/AA are not based on specific guidelines for road infrastructure

Problems:
In the procedures developed in Romania, it has been observed that usually, they do not take into consideration the requirements of specific guidelines on the topic. Although there are the EU level guidelines, as well as independently created guidelines on road infrastructure, the assessments elaborated for projects in Romania rarely consider their requirements.

Existing resources:
EU Guidelines, TRANSGREEN Guidelines, ConnectGREEN guidelines, and other documents.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Change of the legal requirements for SEA/AA/EIA

b. Provide training of environmental and transport authorities

c. Provide training for relevant experts, through courses for registered experts

1.2.2 The elaborated SEA/EIA/AA do not correctly assess cumulative impacts and landscape level impacts

Problems:
Although there is a requirement both at European and national levels, regarding the assessment of impacts in a cumulative manner, this is usually either misunderstood by the author, or not analysed adequately by the environmental authorities. Landscape level assessments are also not common in the EIA process.

Existing resources:
SaveGREEN Toolkit for SEA/EIA, EU Guidelines, TRANSGREEN Guidelines, ConnectGREEN guidelines.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Include specific description of methodologies for assessing cumulative and landscape level impacts;

b. Provide case study examples on cumulative assessment and landscape level impact assessment;

c. Include cumulative assessments and landscape level impact assessments in training courses, especially for environmental authorities.

1.2.3 The SEA/EIA/AA do not take into consideration ecological corridors

Problems:
In the process of elaborating the SEA/EIA/AA for transport infrastructure, ecological corridors are usually not included in the assessment. This is due to the lack of designation of ecological corridors in Romania and because ecological corridors are not under protection by any piece of legislation. Likewise, environmental authorities usually lack rigidity in their analysis of the SEA/EIA/AA on the topic of ecological corridors and connectivity.

Existing resources:
SaveGREEN Toolkit for SEA/EIA, ConnectGREEN guidelines and project results, COREHABS project results, TRANSGREEN Guidelines.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Include requirements for analysis of ecological corridors in the SEA/EIA/AA legislation;

b. Include aspects related to connectivity assessment in training courses.

Objective 1.3 Support the design and implementation with examples of good practice

1.3.1 Project designers do not have the know-how for implementation of best practice measures

Problems:
It has been observed that in Romania, project designers are usually unable to design the impact avoidance and mitigation measures proposed for the project. They are unaware of the technical details needed to consider to make the measures functional and, without feedback, design structures which might only have limited functionality.

Existing resources:
SaveGREEN Handbook of best practices, TRANSGREEN Guidelines, ConnectGREEN guidelines, other technical documents.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Provide materials and examples for the proposed measures, based on case studies;

b. Assist project designers by continuous feedback on the designed measures;

c. Include best practice examples for measures in developed training for SEA/EIA/AA.

1.3.2 Impossibility in implementing some of the impact avoidance and mitigation measures when designing the project or during construction

Problems:
There are situations in the process of project designing where impact avoidance and mitigation measures proposed, in the feasibility study stage for instance, need to be removed or significantly reduced during the project design process, due to new technical data from the project site. There are also situations, in which, measures are changed, adapted, or removed for cost-cutting purposes during the project design process or during the construction stage. This represents a problem, especially where the changes are considered to be small, and the full EIA/AA is not requested by the environmental authorities.

Existing resources:
SaveGREEN Handbook of best practices, TRANSGREEN Guidelines, ConnectGREEN guidelines, other documents.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Discussions with project designers on the reasons why the proposed measures cannot be implemented;

b. Identification of alternative solutions which allow for the avoidance/mitigation of the assessed impacts in a similar way to the original measures;

c. Highlight risks of improper measures; the financial standpoint included;

d. Include requirements for a reassessment (in a revised EIA/AA version) of the potential impacts, in the context of the modified measures;

e. Request some support from NGOs and other environmental stakeholders in order

to assist the designer in identifying alternatives to the modified measures, if absolutely necessary.

1.3.3 Monitoring is done superficially and does not indicate functionality of proposed measures

Problems:
Usually the monitoring done during construction and operation for infrastructure projects does not focus on the impact avoidance and mitigation measures proposed for the project, but rather only seeks the presence of certain habitats or species within an area. It is uncommon for underpasses or overpasses to be monitored from a functional viewpoint, for instance, and usually there aren't monitoring requirements for noise or light intensity levels in areas considered sensitive for the target species.

Existing resources:
SaveGREEN monitoring methodologies, SaveGREEN Toolkit for SEA/EIA, TRANSGREEN Guidelines, ConnectGREEN guidelines, other documents.

Priority areas:
Proposed ecoducts, tunnels, large bridges/ viaducts, Bucin valley.

Proposed actions:
a. Request for approval from the competent authorities for free online release of the monitoring reports elaborated for the projects;

b. Analyse the published reports and identify situations in which the monitoring is not done adequately to indicate the functionality of impact avoidance and mitigation measures;

c. Offer feedback to the competent authorities and project beneficiary on any inconsistencies observed in the monitoring reports that should be rectified.

Objective 2.1 Ensure the functionality of planned underpasses

2.1.1 Comply with technical specifications of underpasses (and overpasses) from the original design plans and include the functional ones in the environmental permits as wildlife structures

Problems:
The designed sizes and characteristics of objects (culverts, bridges, and viaducts) that can effectively function as underpasses for wildlife species are often changed (usually reduced) after tendering in order to minimise building costs. As a result, in reality, the fragmentation impact may be higher compared to the initial assessment based on the original design plans.

Existing resources:
SaveGREEN Toolkit for SEA/EIA (methodology for assessment of infrastructure permeability, TRANSGREEN guidelines.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Abandon build & design approach in favour of producing detailed final technical plans that will be followed by contractors and monitored by environmental authorities;

b. Include all connectivity-relevant objects into the environmental permits, with their required size characteristics;

c. Specify this requirement within the EIA/AA procedures;

d. Classify underpasses according to suitability to be used by different species-groups;

e. Design and develop an overall monitoring plan for infrastructure which will include object-based monitoring protocols, specifying this requirement within the EIA/AA procedures;

f. Include the monitoring plan within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș (the Standard Data Form [SDF] of this PA explicitly mentions the planned A8 highway as a threat) and ROSAC0279 Borzont;

g. If the revision of Environmental Permit is necessary due to changes in overpasses and underpasses, require the steps of a relevant authority body to ensure the maintenance of functionality of structures.

2.1.2 Adjust technical specifications in order to increase the IO in critical locations; avoid structural barriers on or close to objects not designed primarily for wildlife passage; mitigate other sources of disturbance

Problems:
There is little experience in Romania in adjusting constructive details of objects in order to make them functional/increase their functionality for wildlife.

Additionally, the functionality of motorway objects is often reduced/eliminated, either permanently or at least seasonally, by nearby permanent (fences, houses) or temporary (for example, shepherd camps) structures, or by disturbance, such as artificial lighting and/or noise pollution.

Existing resources:
SaveGREEN Toolkit for SEA/EIA (methodology for assessment of infrastructure permeability, TRANSGREEN guidelines.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Develop guidelines on the functionality for underpasses;

b. Develop an intervention programme (linked with the monitoring programme) aiming to maintain the functionality of underpasses; include the measure within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș and ROSAC0279 Borzont;

c. Document the impact as part of the object-based monitoring that is included in the overall infrastructure monitoring programme.

2.1.3 Landscaping of underpasses

Problems
There is little experience in Romania in integrating wildlife underpasses into the landscape, in order to increase their functionality for wildlife.

Although this is a matter of case-by-case approach, there is a need for guidelines, training and experience exchanges on how to maximise the functionality of underpasses through design, construction and sensitive land management.

Existing resources
SaveGREEN Toolkit for SEA/EIA (methodology for assessment of infrastructure permeability, SaveGREEN Handbook of best practices, TRANSGREEN guidelines.

Priority areas
The whole length of the planned A8 highway.

Proposed actions
a. Develop guidelines on landscaping and build capacity through know-how exchange;

b. Include landscaping into the EIA/AA procedures and environmental permits, inclusively as compensatory measures;

c. Include the measure within the Natura 2000 management plans of ROSAC0297 Dealurile Târnavei Mici – Bicheș and ROSAC0279 Borzont.

Objective 2.2 Ensure the functionality of planned overpasses

2.2.1 A number of tunnels planned on the future A8 highway are unidirectional,

which means they cannot function as overpasses for wildlife species

Problems:
A number of tunnels planned on the future A8 highway are unidirectional, which means they cannot function as overpasses for wildlife species. As the project is already in its final feasibility study stage, ecological connectivity in this tunnel area can only be re-established during a subsequent defragmentation project or through a significant change to the project in the design stage.

Existing resources:
Motorway feasibility study, ecological connectivity guidelines.

Priority areas:
The whole length of the planned A8 highway (to our best knowledge, according to the latest technical plan of the planned highway available to us, there are a total of 21 unidirectional tunnels planned in the Târgu Mureș – Târgu Neamț section).

Proposed actions:
a. Highlight the benefits of conventional, bidirectional tunnels as mitigation measures in the national guidelines;

b. Facilitate joint/integrated funding from the Green Infrastructure – a related funding line for costly mitigation measures (tunnels, green bridges);

c. Monitor the implementation of tunnel solutions.

2.2.2 During the construction phase, the functionality of the corridor may be significantly impacted

Problems
During the construction phase, the functionality of the corridor may be significantly impacted.

Existing resources
SaveGREEN monitoring methodology, monitoring requirements of the motorway project.

Priority areas
The whole length of the planned A8 highway, with a particular focus on the 2 tunnels planned in between km 35+710 and 36+450, or potentially between km 38+980 and 39+310. Whereas in other locations the planned tunnels usually occupy only a small percentage of the total width of the ecological corridors, in these two locations, work on the tunnels (including access to the locations) will most likely render the ecological corridor dysfunctional on its entire width. Thus, it would be particularly important to maintain the permeability of at least the terrain on top of these tunnels during their construction.

Proposed actions
a. Develop guidelines on maintaining the permeability of tunnel tops during construction and build the expert capacity through know-how exchange;

b. Include specific requests (based on guidelines) concerning the permeability of tunnel tops into the EIA/AA procedures and environmental permits;

c. Include the permeability of tunnel tops as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Biches;

d. Include the monitoring of connectivity-relevant features as part of the tunnel tops management;

e. Ensure the maintenance of requirements through inclusion of specific measures in the project's Environmental Management Plan (to be applied during construction).

2.2.3 There is no plan for managing the surfaces of the green bridges' (including tunnel-tops) in order to maximise their functionality for wildlife

Problems
For the Târgu Mureș – Târgu Neamț motorway, a series of ecoducts, overpasses and tunnels are proposed. However, there is no plan for

managing the surfaces of the green bridges' (including tunnel-tops) in order to maximise their functionality for wildlife.

Existing resources
SaveGREEN monitoring methodology, monitoring requirements of the motorway project.

Priority areas
The whole length of the planned A8 highway.

Proposed actions
a. Clarify the legal status of the land plots;

b. Develop guidelines on management of the green bridges and tunnel tops and build the expert capacity through know-how exchange;

c. Include the green bridges' and tunnels' top-area management into the EIA/AA procedures and environmental permits;

d. Include the green bridges' and tunnels' top-area management and monitoring as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș;

e. Develop procedures/legislation related to the human access to the green bridges and enforce regulations, inclusively as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș;

f. Develop pilot-projects focusing on particular management/maintenance and monitoring on green bridges and tunnels on the A8 highway as crucial elements of the Green Infrastructure, in order to maximise their functionality and expand the local experience.

2.2.4 There are no plans elaborated to integrate the surface of the green bridges' (including tunnel-tops) surface within the surrounding landscape

Problems:
There are no plans set for integrating the surface of the green bridges' (including tunnel-tops) surface within the surrounding landscape. It has been proposed so as to allow for landscaping of highway green bridges & tunnels.

Existing resources:
SaveGREEN Toolkit for the SEA/EIA,
SaveGREEN Handbook of best practices.
SaveGREEN monitoring methodology, monitoring requirements of the motorway project.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Develop guidelines on landscaping and build the expert capacity through know-how exchange;

b. Include landscaping into the EIA/AA procedures and environmental permits, inclusively as compensatory measures;

c. Include landscaping as a measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș;

d. Develop pilot-projects focusing on particular management/restoration processes of Green Infrastructure to maximise the functionality of green bridges on the A8 highway through landscaping, including long-term lease/ acquiring land for conservation;

e. Involve relevant stakeholders and their internal regulations (forestry managers, wildlife managers, land owners, local councils, etc.) in the management of green bridge surfaces.

Objective 2.3 Assign a legal status and develop coherent regulations for wildlife passages

2.3.1 Wildlife passages have no legal protection status and do not benefit from being actively monitored or from

enforced regulations, which can be detrimental to their efficiency and general functioning.

2.3.1.1 Include important crossing structures – both under- and overpasses (tunnels, green bridges, bridges, viaducts, other large underpasses) in cadastral plans

Problems:
Wildlife passages have no legal protection status and do not benefit from being actively monitored or from enforced regulations, which can be detrimental to their efficiency and general functioning.

Existing resources:
SaveGREEN Toolkit for SEA/EIA, SaveGREEN Handbook of best practices, TRANSGREEN guidelines, Project design results.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Map Green Infrastructure elements and assess them in relation to land-use categories;

b. Implement other projects aiming at harmonisation of Green Infrastructure with land-use plans.

2.3.1.2 Include important crossing structures – both under and overpasses (tunnels, green bridges, bridges, viaducts, other large underpasses) and important permeable sectors of linear features into the Natura 2000 management plans with assigned measures for the land management, usage regulations and monitoring

Problems:
Wildlife passages have no legal protection status and do not benefit from being actively monitored or from enforced regulations, which can be detrimental to their efficiency and general functioning.

Existing resources:
Natura 2000 Management plans.

Priority areas:
The whole length of the planned A8 highway.

Proposed actions:
a. Develop guidelines and implement the Natura 2000 sites' specific conservation measures and regulations in order to maintain/enhance functionality;

b. Integrate conservation measures and regulations into the updated Natura 2000 management plans;

c. Develop projects to implement measures, regulations and monitoring within the Natura 2000 sites;

d. Produce the EIA/AA set of procedures and measures for Natura 2000 sites related to permeability.

Objective 3.1 Ensure the landscape level ecological connectivity in the area of the Târgu Mureș – Târgu Neamț proposed highway

3.1.1.1 Maintain the permeability of DN13 (E60) for wildlife species between the localities of Găiești and Bălăușeri

Problems:
This section of the national road DN13 lies to the south of the planned A8 highway's westernmost section and threatens the east-west connectivity across a crucial ecological corridor spanning westwards from the Eastern Carpathians (Gurghiu Mountains). Due to high traffic intensity, this section already represents a hotspot for traffic encounters with wildlife species. With the building of the A8 highway, traffic levels are expected to further increase, to the point when this road section will constitute an absolute barrier for wildlife.

Figure 3 DN13 (E60; Găiești-Bălăușeri section, in light yellow) and the route of the planned A8 highway (in red).

Existing resources:
Brown bear GPS telemetry data (Milvus Group), ROad.kill application data (https://road-kill-registration.green-web.eu/?lang=en).

Priority areas:
The whole length of DN13 (E60) in the Găiești-Bălăușeri section.

Proposed actions:
a. Prevent the further expansion of localities (Găiești and Bălăușeri) towards each other along this section of the national road;

b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots;

3.1.1.2 Maintain the permeability of DJ135 for wildlife species between the localities of Măgherani and Sărățeni

Problems:
This section of the county road DJ135 basically runs parallel to the planned A8 highway across the limit between the Nirajul Mic and Târnava Mică rivers' watersheds. Both the existing county road and the planned highway intersect high-value natural and semi-natural habitats and a crucial ecological corridor, linking the Eastern Carpathians (Gurghiu Mountains) to their western foothills. Ensuring the permeability of the planned highway in this area is pointless, unless the county road is also permeable.

The permeability of DJ135 in this section is already partially compromised by a number of factors: shepherd camps (both permanent and temporary), fenced in private lands (orchards and pastures) and an expanding roadside restaurant (which was built as a temporary structure, but is in fact permanent).

Existing resources:
For data on the ecological importance of the area, please consult: Domokos, C., Sos, T. (2019): Catalogue of Measures. Târgu Mureș – Iași Pilot area (Romania). Danube Transnational Programme TRANSGREEN Project, Part of Output 4.1, Association Milvus Group, Romania.

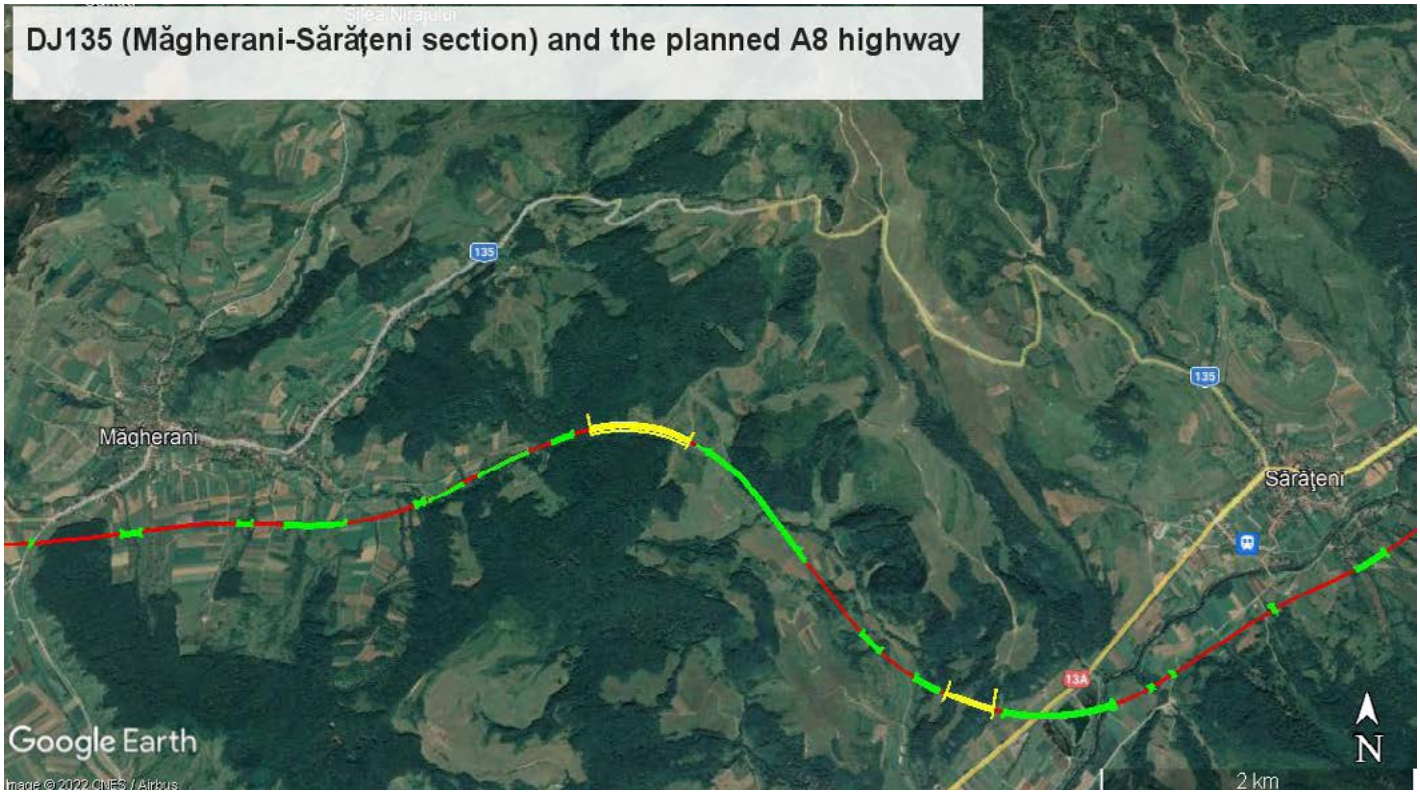

Figure 4 DJ135 (Măgherani-Sărățeni section, in light yellow) and the route of the planned A8 highway (in red, with planned overpasses [tunnels] marked in yellow and planned underpasses [bridges, viaducts] marked in green).

Priority areas:
The whole length of DJ135 in the Măgherani-Sărățeni section.

Proposed actions:
c. Prevent further expansion of localities (Măgherani and Sărățeni) towards each other along this section of the county road

d. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the county road, as well as further fencing of land plots

e. Include the measure within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș

3.1.1.3 Maintain the permeability of DN13A for wildlife species between the localities of Sângeorgiu de Pădure and Praid

Problems
While in this area the future A8 highway threatens the east-west connectivity (between the Eastern Carpathians [Gurghiu Mountains] and their western foothills), the nearby DN13A threatens north-south connectivity across the Eastern Carpathians' western foothills. The villages along the mentioned section of DN13A continuously expand towards each other and currently, there are only narrow functional ecological corridors left in between the villages, and even these are gradually shrinking. For example, the corridor between Trei Sate and Ghindari has already been gradually built in, to the point of losing its function.

Existing resources
Brown bear GPS telemetry data (Milvus Group). For additional data on the ecological importance of the area located in between DN13A and the planned A8 highway, please consult: Faure, U., Domokos, C., Leriche, A., & Cristescu, B. (2020). Brown bear den characteristics and selection in eastern Transylvania, Romania. Journal of Mammalogy, 101(4), 1177-1188.

Management Plan for ROSAC0297 Dealurile Târnavei Mici – Bicheș.

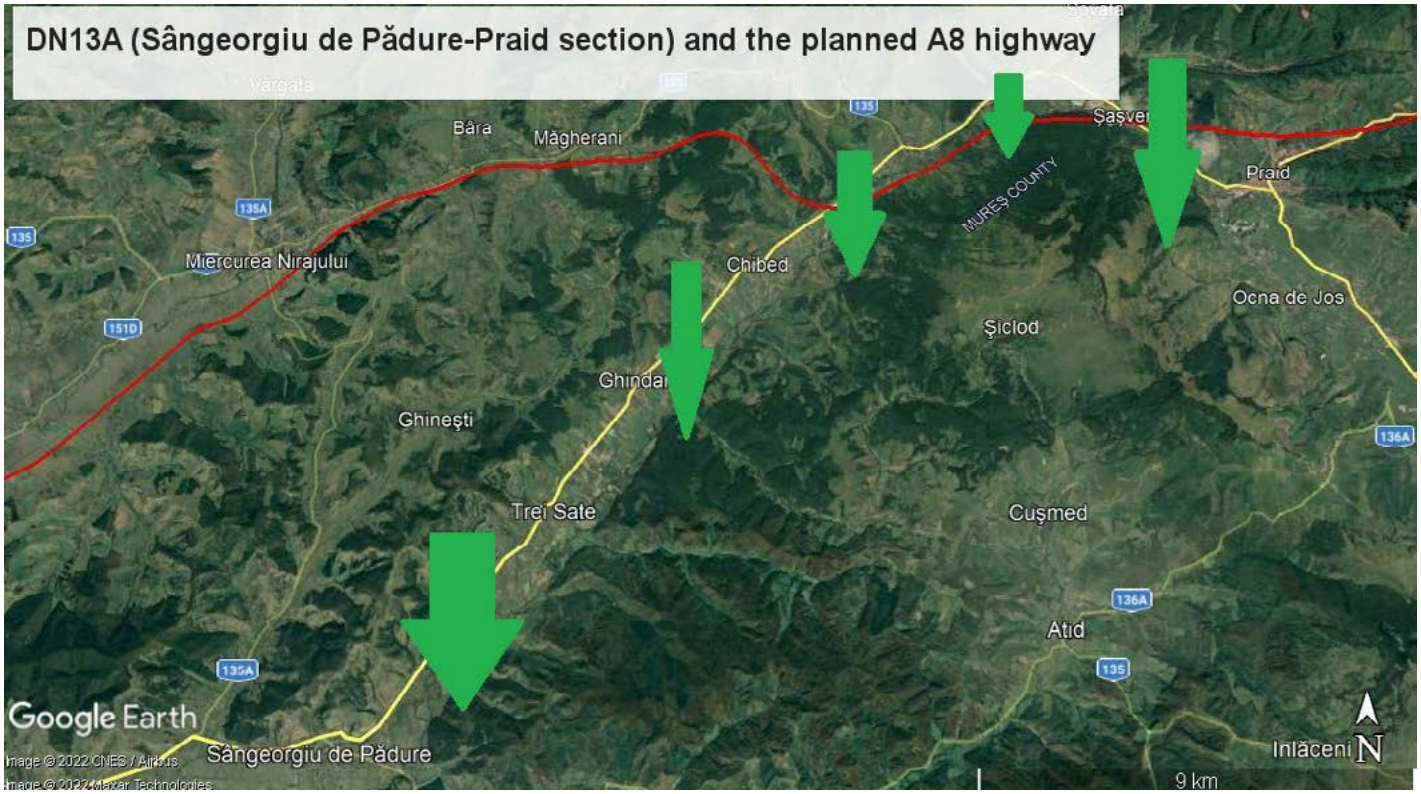

Figure 5 DN13A (Sângeorgiu de Pădure-Praid section, in yellow) and the route of the planned A8 highway (in red). The villages along the mentioned section of DN13A continuously expand towards each other and currently, there are only narrow functional ecological corridors (indicated by green arrows) left in between the villages.

Priority areas
The whole length of DN13A in the Sângeorgiu de Pădure-Praid section.

Proposed actions
a. Prevent further expansion of localities towards each other along this section of the national road;

b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots;

c. Include the measures within the Natura 2000 management plan of ROSAC0297 Dealurile Târnavei Mici – Bicheș.

3.1.1.4 Maintain the permeability of DJ127 for wildlife species between the localities of Ditrău and Hagota, and Hagota and Recea, respectively (even if the road has been rehabilitated)

Problems
Between Ditrău in the west and Lake Bicaz in the east, the planned A8 highway will parallel DJ127 between the localities of Ditrău and Tulgheș, and DN15 between Tulgheș and Lake Bicaz. Starting with Recea in the west and all the way to Lake Bicaz in the east, both the existing roads have contiguous localities situated alongside of them, making these sections already impermeable for wildlife species. The only sections still permeable for wildlife are situated along DJ127, between Ditrău and Hagota, and between Hagota and Recea, respectively. Ensuring the permeability of the planned A8 highway in this area is pointless if the county road is not maintained permeable as well.

Currently, the county road is in a bad condition, on most of its length. However, after its rehabilitation/modernization, it can be expected that traffic intensity will increase significantly.

Existing resources:
Brown bear hair trapping – genetic – data

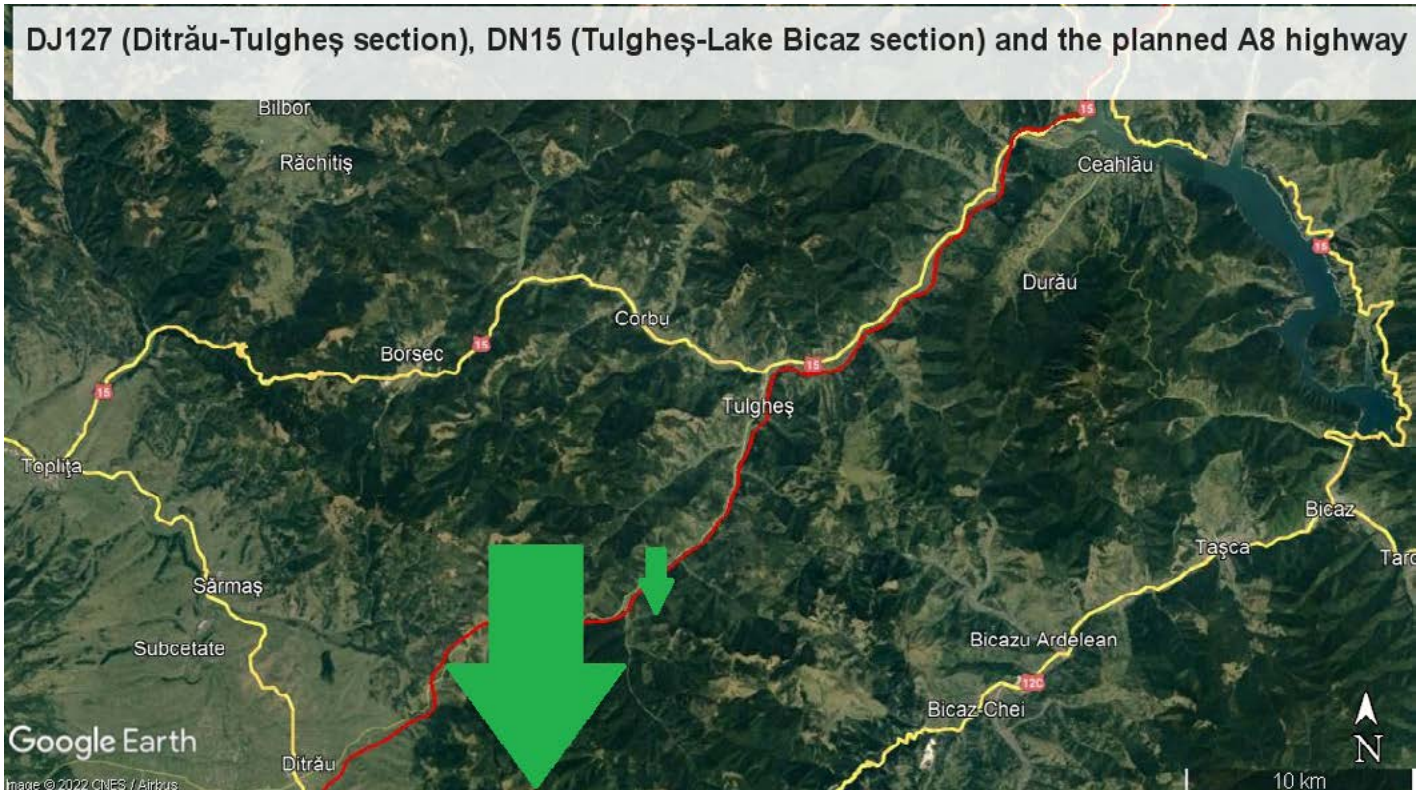

Figure 6 DJ127 (Ditrău-Tulgheș section, in light yellow), DN15 (Tulgheș-Lake Bicaz section, in yellow) and the route of the planned A8 highway (in red). East of Recea, both the existing roads have contiguous localities situated alongside of them, making these sections already impermeable for wildlife species. The only sections still permeable for wildlife are situated along DJ127, between Ditrău and Hagota, and between Hagota and Recea, respectively (indicated by green arrows).

(Milvus Group), to be presented through a peer-reviewed article currently under preparation.

Priority areas:
DJ127, Ditrău-Hagota and Hagota-Recea sections.

Proposed actions:
a. Prevent further expansion of localities (Ditrău and Hagota, and Hagota and Recea, respectively) towards each other along this section of the county road;

b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the county road, as well as further fencing of land plots.

3.1.1.5 Maintain the permeability of DN15B for wildlife species between the localities of Petru Vodă and Pluton

Problems:
This section of the national road basically runs parallel to the future A8 highway. Between Lake Bicaz in the west and Târgu Neamț in the east, the only section still permeable for wildlife species is the one between Petru Vodă and Pluton – otherwise, there are in effect contiguous localities situated along DN15B. Ensuring the permeability of the future highway in this area is pointless if the national road is not permeable as well.

Existing resources:
During three consecutive surveys using brown bear hair traps (in 2014, 2017 & 2020), Milvus Group did not manage to confirm the bear presence in the area, while the habitat looks suitable for both large carnivore and large ungulate species. The reasons are probably complex, including both widespread poaching and the already existing habitat fragmentation. The latter is likely caused by both habitat fragmentation in the north-south direction (localities and DN15B) and

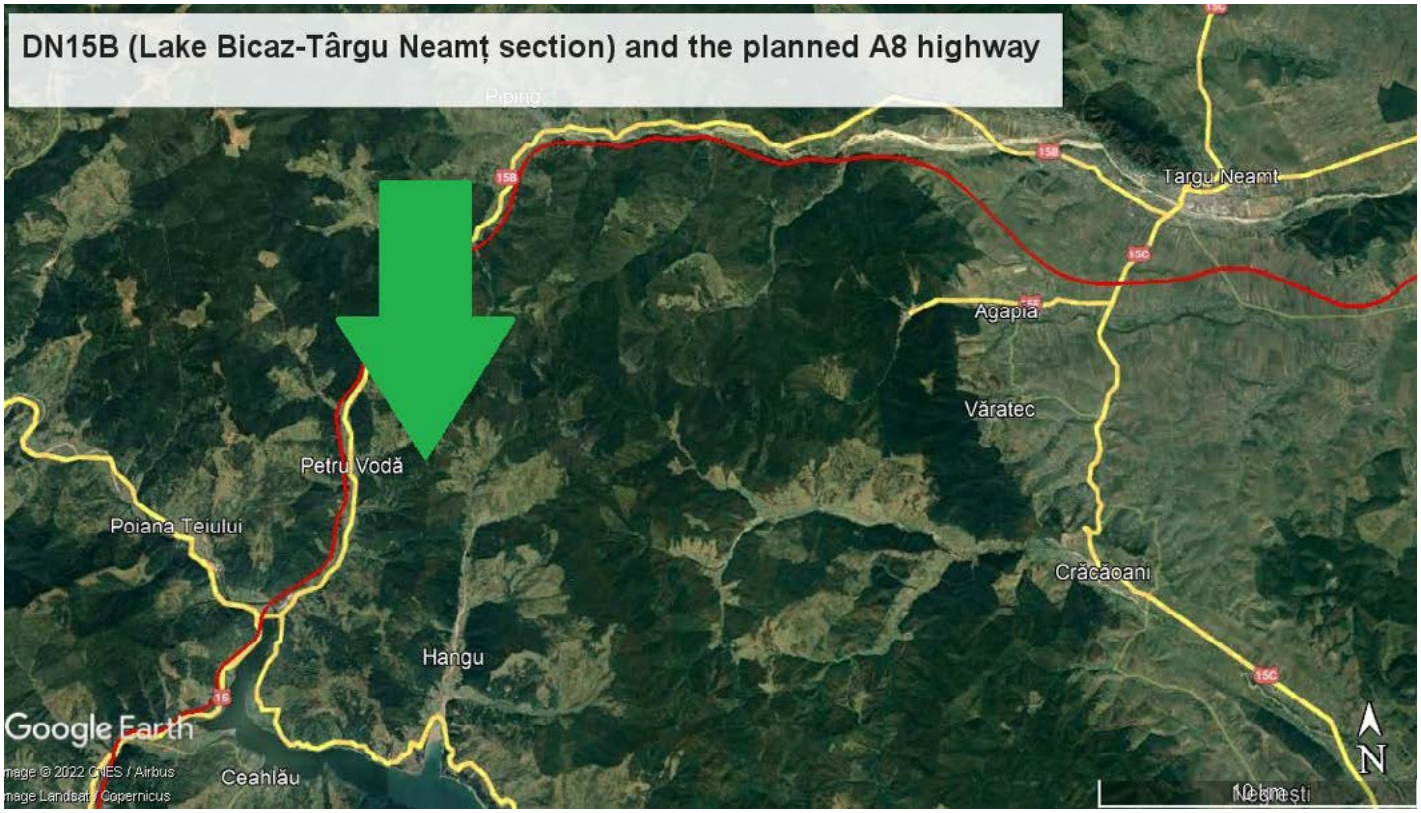

Figure 7 DN15B (Lake Bicaz-Târgu Neamț section, in yellow) and the route of the planned A8 highway (in red). The only section of DN15B still permeable for wildlife in this area is the one between Petru Vodă and Pluton (indicated by a green arrow); otherwise, there are in effect contiguous localities situated along the national road

in the east-west direction (localities, DN15, DN17B and Lake Bicaz).

Priority areas:
DN15B, Petru Vodă-Pluton section.

Proposed actions:
a. Prevent further expansion of localities (Petru Vodă and Pluton) towards each other along this section of the national road;

b. Prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) along this section of the national road, as well as further fencing of land plots.

3.1.2.1 Ensure the functionality of green bridges Gălățeni and Bolintineni

Problems
The two green bridges that are to be built on the westernmost section of the planned A8 highway will act as the only, and thus crucial, crossing points on a future highway section that will otherwise be basically impermeable for large and mid-sized mammals.
While these dedicated structures should ensure the permeability of this section in theory, their functionality could still be severely hindered/reduced by inadequate development or land management in their wider surroundings.

Existing resources
The Environmental Permit issued for the westermost section of the planned A8 highway (Târgu Mureș [Crăciunești] – Miercurea Nirajului) in October 2022 (http://www.anpm.ro/documents/24337/76417526/ACORD+DE+MEDIU+nr.+2+din+17.10.2022_CNAIR+SA+-+autostrada+Tg+Mures+-+Miercurea+Nirajului.pdf/ef9bab04-74c9-48fd-b0fc-dd95b253ff45)

Priority areas:
The wider surroundings of the two green bridges (please see also below).

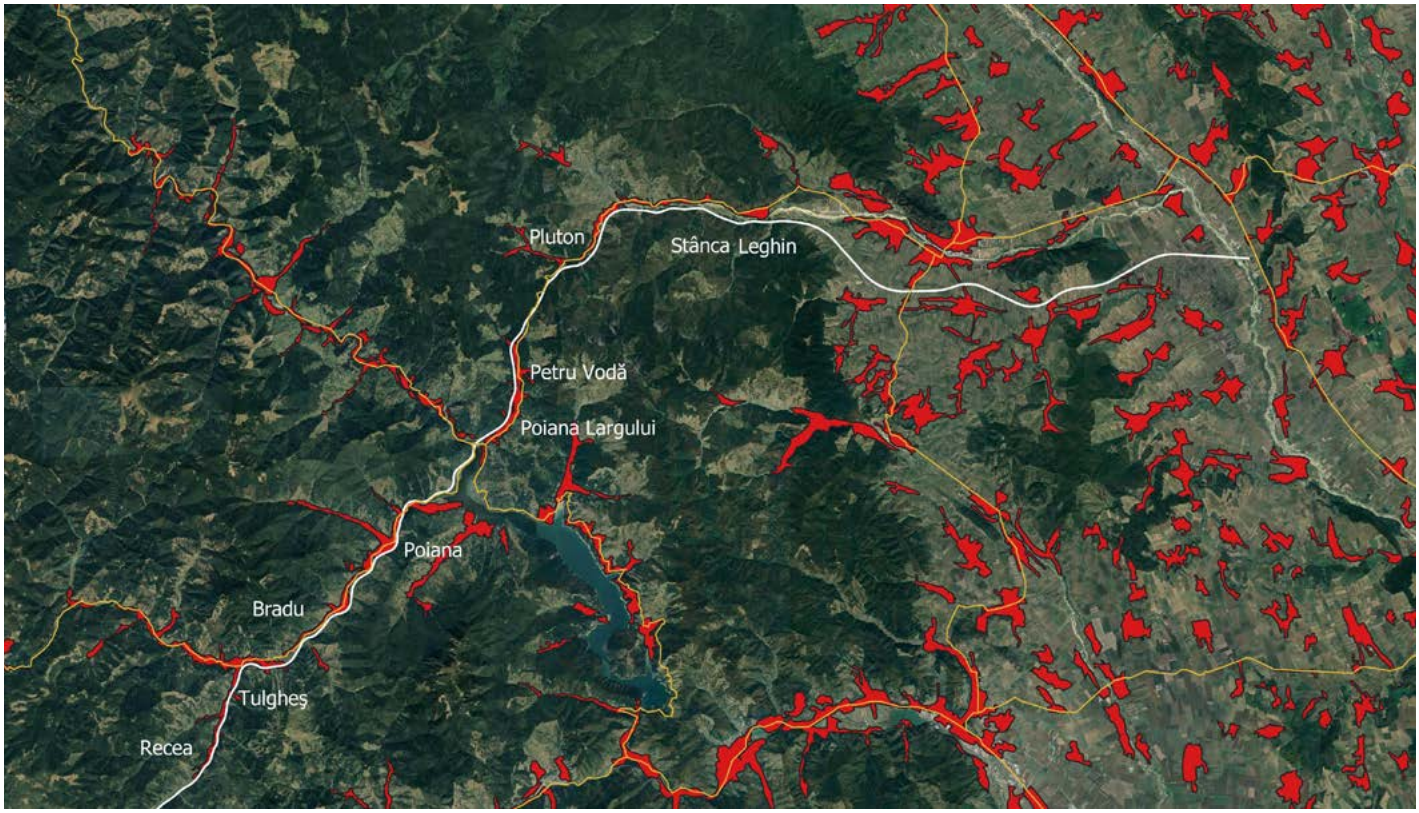

Figure 8 The existing national roads in the area (in yellow), localities (in red – based on the discontinuous urban fabric layer from Corine Land Cover) and the route of the planned A8 highway (in white). The only section of DN15B still permeable for wildlife in this area is the one between Petru Vodă and Pluton; otherwise, there are in effect contiguous localities situated along the national road.

Proposed actions:

a. Do not divert from the locations and technical characteristics of the green bridges and from the recommendations issued for the management of their immediate surroundings, as specified in the Environmental Permit.

b. In the case of the future green bridge Gălățeni (km 12+500), in order to ensure its functionality: prevent the expansion of surrounding localities (Murgești, Păsăreni, Roteni and Gălățeni) towards each other and prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) in the area enclosed by the above-mentioned localities, as well as further fencing of land plots (even with temporary electric fences).

c. In the case of the future green bridge Bolintineni (km 16+100), in order to ensure its functionality: prevent the expansion of surrounding localities (Bolinitineni, Gălățeni, Sânvăsii and Troița) towards each other and prevent the construction of structures, even of temporary character (e.g., even houses with no permanent foundation) in the area enclosed by the above-mentioned localities, as well as further fencing of land plots (even with temporary electric fences).

d. In reality, the two green bridges will act as bottlenecks in the landscape, concentrating wildlife movements. Hunters should not capitalize on this predictability of wildlife movement within the area: hunting in these areas and the deliberate feeding of wildlife for harvesting purposes should be forbidden in the surroundings of both structures. In the case of the green bridge Gălățeni, this exclusion zone should encompass the area enclosed by the localities of Murgești, Păsăreni, Roteni and Gălățeni, while in the case of the green bridge Bolintineni, the area enclosed by the localities of Bolinitineni, Gălățeni, Sânvăsii and Troița.

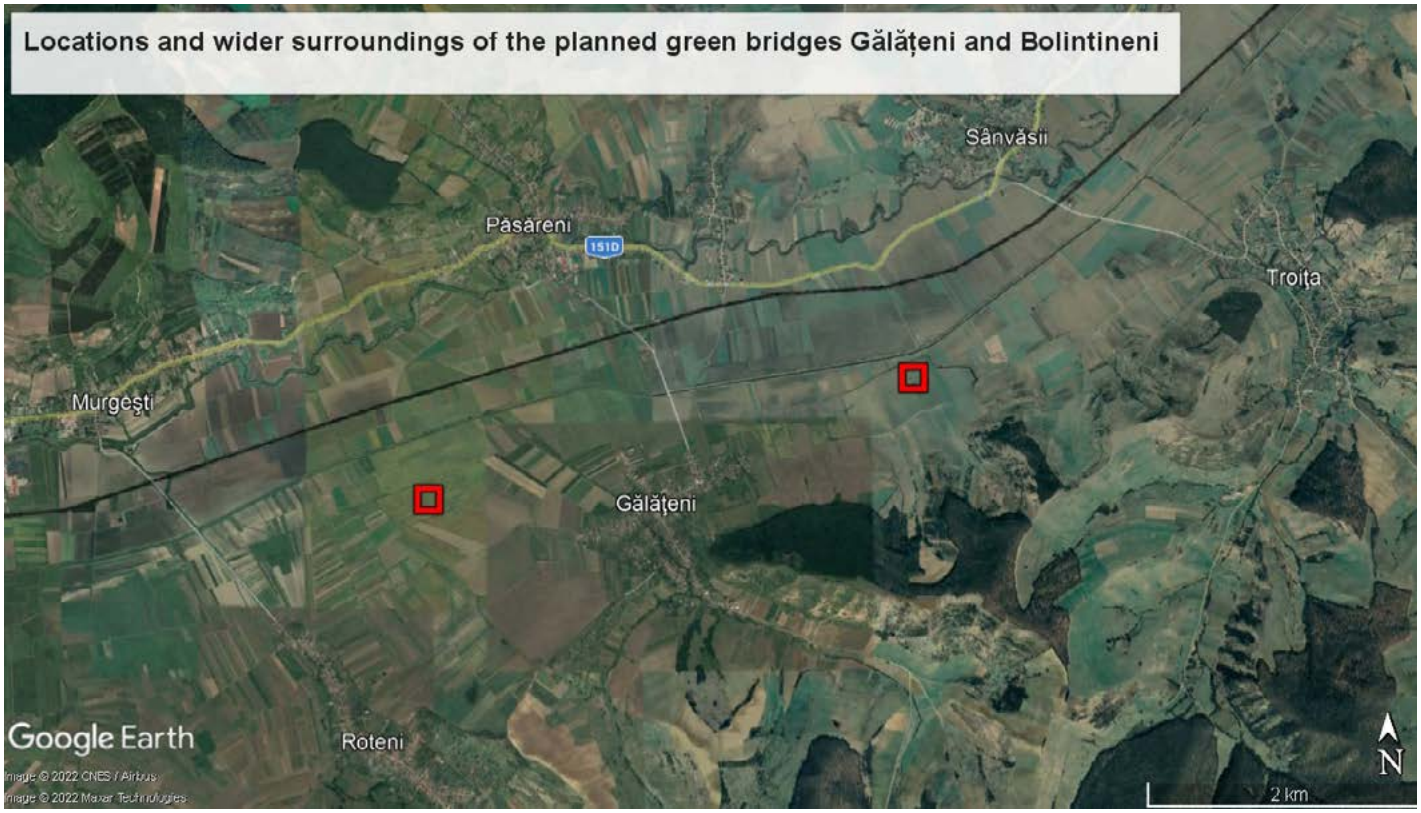

Figure 9 Locations and wider surroundings of the planned green bridges Gălățeni (red square, on the left) and Bolintineni (red square, on the right) on the future A8 highway

2.2 Pilot Area Stakeholders

The main stakeholders from the pilot area were identified in the deliverable *D.T2.1.1 Stakeholder analysis of the Târgu Mureș – Târgu Neamț pilot area,* elaborated at the beginning of the project. In this report, the following stakeholders were identified as having the highest relevance within the pilot area:

- **For policy and strategy:**
  - Ministry of Transport;
  - European Commission;
  - Local councils;
  - Local environmental agencies.

- **For financing:**
  - European Commission;
  - Ministry of Transport;
  - County councils;
  - Regional/Local Development Agencies;
  - Local councils;

- **For planning and environmental impact assessment:**
  - JASPERS;
  - National Road company;
  - National and Local Environmental Protection Agencies;
  - National Agency for Protected Areas (and local branches);
  - National water management authorities;
  - Consultants;

- **For consultation within the environmental procedures**
  - JASPERS;
  - NGOs;
  - Hunters and game managers;
  - Local experts and researchers;
  - Forest managers in the area;
  - Water management authorities;

- Farmers' associations, stockbreeders;
- Local councils;
- Tourism managers;

- **For implementation and management:**
  - National Road company (and local branches);
  - Construction companies & connected stakeholders (providers, waste managers, etc.);
  - Monitoring experts;
  - Forest and game managers;
  - Environmental consultants;

- **For education, awareness and communication:**
  - NGOs;
  - Universities;
  - Research institutions;
  - Local press;
  - Local politicians.

2.3 Achievements, conclusions & lessons learnt in the pilot area

The development of the present CSOP was done in line with the environmental studies for the proposed Târgu Mureș – Târgu Neamț motorway. This allowed for a close cooperation between the environmental impact assessment team and local stakeholders, such as NGOs.

The main achievements related to the CSOP and the EIA processes for this motorway were the following:

- Identification and assessment of potential cumulative impacts, including impacts related to the existing infrastructure. Following this assessment, several defragmentation measures were proposed;

- Grounding the impact avoidance and mitigation measures in scientific long-term monitoring data, through collaborations with local experts;

- Through the CSOP's actions, the functionality of the proposed measures, such as ecoducts, can be ensured in the future (e.g., by not allowing further urbanisation in areas close to ecoducts);

- The main stakeholders in the area were identified, and some of them were included in the consultations done within the EIA process;

- The CSOP allows for a more structured approach to be followed in the future, during the construction and operation of the new motorway;

Overall, the elaboration of the CSOP and its related activities allowed for a more thorough and complete impact assessment, especially in the case of biodiversity and ecological connectivity. It also allowed proposing more specific impact avoidance and mitigation measures, grounded in the long-term monitoring data, which will enable a higher likelihood that the measures will be used by the specific fauna from the area.

CHAPTER 3
Annexes

Annex 1
Local monitoring plan

Annex 2
List of stakeholders

Annex 3
GIS project at https://metadata.savegreen.at

Annex 4
Glossary

Annex 5
Sectoral impacts and general threats or pressures to connectivity

Annex 6
Overall collection of problems & measures

Annex 7
Library of resources at the Carpathian Countries Integrated Biodiversity Information System: https://ccibis.org/data-catalogue/

PILOT AREAS:

Austria

1 Kobernausser forest

2 Pöttsching (Alpine-Carpathian Corridor)

Czech Republic/Slovakia

3 Beskydy-Kysuce CZ-SK cross-border area

Hungary/Slovakia

4 Novohrad-Nógrád SK-HU cross-border area

Ukraine

5 Zakarpattia region

Romania

6 Mureș valley (Arad-Deva)

7 Mureș Valley (Târgu Mureș – Târgu Neamț)

Bulgaria

8 Rila-Verila-Kraishte corridor

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Project partners:

Austria: WWF Central and Eastern Europe (Lead Partner), Environment Agency Austria

Bulgaria: Black Sea NGO Network, Bulgarian Biodiversity Foundation

Czech Republic: Friends of the Earth Czech Republic – Carnivore Conservation Programme, Transport Research Centre Czech Republic

Hungary: CEEweb for Biodiversity, Hungarian University for Agriculture and Life Sciencis

Romania: Zarand Association, EPC Environmental Consultancy Ltd., WWF Romania

Slovakia: Slovak University of Technology in Bratislava – SPECTRA Centre of Excellence of EU

Associated Strategic Partners:

Austria: Ministry for Climate Action, Environment, Energy, Mobility, Innovation, and Technology

Bulgaria: Ministry of Agriculture, Food and Forestry – Executive Forest Agency, Southwestern State Enterprise SE – Blagoevgrad

Czech Republic: Ministry of the Environment, Nature Conservation Agency

France: Infrastructure and Ecology Network Europe (IENE)

Germany: Bavarian State Ministry of the Environment and Consumer Protection

Greece: Egnatia ODOS S.A.

Hungary: Natinoal Infrastructure Developing Private Company Ltd. (NIF Ltd.), Ministry of Agriculture, Danube-Ipoly National Park Directorate

Romania: Ministry of Environment, Waters and Forests, Ministry of Public Works, Development and Administration, Ministry of Transport, Infrastructure and Communications

Slovakia: State Nature Conservancy, Ministry of Environment, Ministry of Transport and Construction, National Motorway Company

Ukraine: M.P. Shulgin State Road Research Institute State Enterprise – DerzhdorNDI SE, Department of Ecology and Nature Resources of Zakarpattia Oblast Administration

SaveGREEN "Safeguarding the functionality of transnationally important ecological corridors in the Danube basin"

DTP3-314-2.3, July 2020 – December 2022

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