

# Action plan for improving ecological connectivity in the Pilot Region Croatia–Bosnia and Herzegovina: *Natura 2000* site Lisac-Una National Park, Drvar Municipality

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## 1. Introduction

The project DinAlpConnect is focused on the transboundary ecological connectivity between the Alps and the Dinarides. Both mountain ranges are extremely rich in biodiversity that is threatened by fragmentation and habitat loss. The overall objective is to strengthen transnational and sectoral cooperation to improve ecological connectivity throughout the Dinaric Mountains connecting them with the Alps with the aim of long-term protection of biodiversity in light of the current/future climate changes. Four cross-border areas were selected as the project's pilot regions where achieving the main goal would be planned and implemented over the 10-year period. This Action Plan is made for the cross-border area of *Natura 2000* Lisac–Una National Park and Drvar Municipality in Croatia and Bosnia and Herzegovina. *Natura 2000* site Lisac in central Croatia and Una National Park in western Bosnia and Herzegovina form an area important for protecting endangered *Natura 2000* species and habitats. The Action Plan addresses recognized needs of the Pilot Region and proposes measures to improve ecological connectivity focused on priority species and habitats and agriculture and forestry practices. This Action Plan should further empower local businesses in their efforts to improve local environmental conditions and biodiversity through their regular business operations. This would increase biodiversity and maintain ecological connectivity of the pilot area, ultimately improving the natural resources that underpin the business operations of probiodiversity businesses (PBB). Since nature knows no political or administrative boundaries, achieving the goals outlined in this Action Plan necessitates that residents of the Pilot Region better adapt their living and economy to natural processes and establish successful transborder cooperation, which would facilitate favourable ecological conditions and connectivity on both sides of the border.

## 2. Description of the Pilot Region

The cross-border Pilot Region on the territories of Croatia and Bosnia and Herzegovina (BiH) is an area of exceptional landscape and biological diversity. *Natura 2000* site Lisac in Croatia and Una National Park (Una NP) in BiH form interconnected areas important for protecting endangered *Natura 2000* species and habitats. Lisac is the habitat of the threatened species - the meadow viper (*Vipera ursinii macrops*), while mixed broadleaf and coniferous forests represent the habitat of the brown bear (*Ursus arctos*). Because of similar physiographic and ecological features, both Lisac and Una NP represent a single habitat for brown bears which regularly cross the border on an annual basis. Ensuring and maintaining ecological connectivity in this Pilot Region is therefore vital for the local brown bear population. Lisac is located northeast of the town of Gračac and northwest of Mount Dinara. The area is relatively large (9,200 ha) and consists of several peaks between 1,200 and 1,400 metres above sea level (masl). Peaks are surrounded by valleys, small summit areas, and steep slopes. Relatively flat sections of the highest parts of the relief consist of dry meadows, which have been preserved well due to a scarce road network and few tourists (DinAlpConnect, 2021). Those high-altitude meadows represent usual habitats for *Natura 2000* priority species of the meadow viper. The most suitable habitat conditions are present on Lisac Peak (1,335 masl) (*Natura 2000* Standard Data Form). Just across the border, in the western part of Bosnia and Herzegovina there is Una NP, which lies on 19,800 ha, mainly in Bihać Municipality and partly in Drvar Municipality. The NP's primary purpose has been to preserve the unspoiled Una River and its tributaries Krka and Unac, which flow through the national park. The NP provides habitat for more than 170 different species of plants, some of which are endemic, such as the Una bellflower (*Campanile unensis*) (DinAlpConnect, 2021). Terrestrial habitats in the area of Una NP include meadows, pastures and forests. Forests are the most represented land cover, including climazonal but also extrazonal and azonal forests. Grasslands originate from historical anthropogenic efforts and can be maintained only by continuous indirect (grazing) or direct (mowing) human influence. Slope processes on the large rocky (limestone) hills include rockfalls and the creation of sporadic screes and sandbanks (NP Una, 2022). Due to the natural values of the Pilot Region, including its distinctive environment, landscape, and rich forest and grassland biodiversity, there is an excellent potential for further development of



continental tourism and farming. While collecting the data for the Probiobiodiversity Businesses Database (prior to drafting the Action Plan), about twenty local businesses were identified as being probiodiversity-inclined, i.e. they maintain successful business operations while taking care of biodiversity. While in the Alps, the ecological corridors are needed to bring back the web of life and species that have been extinct, in the Dinarides, those are needed to maintain and preserve still relatively rich biodiversity (DinAlpConnect, 2021). Hence, it is critical for the Pilot Region *Natura 2000* site Lisac-Una NP and Drvar Municipality to be part of the DinAlpConnect project.

The Action Plan covers Gračac and Donji Lapac municipalities in Croatia, and Drvar Municipality and the western part of Bihać Municipality in Bosnia and Herzegovina (corresponding to the territory of Una NP). The coverage of the Action Plan is shown in Figure 1.



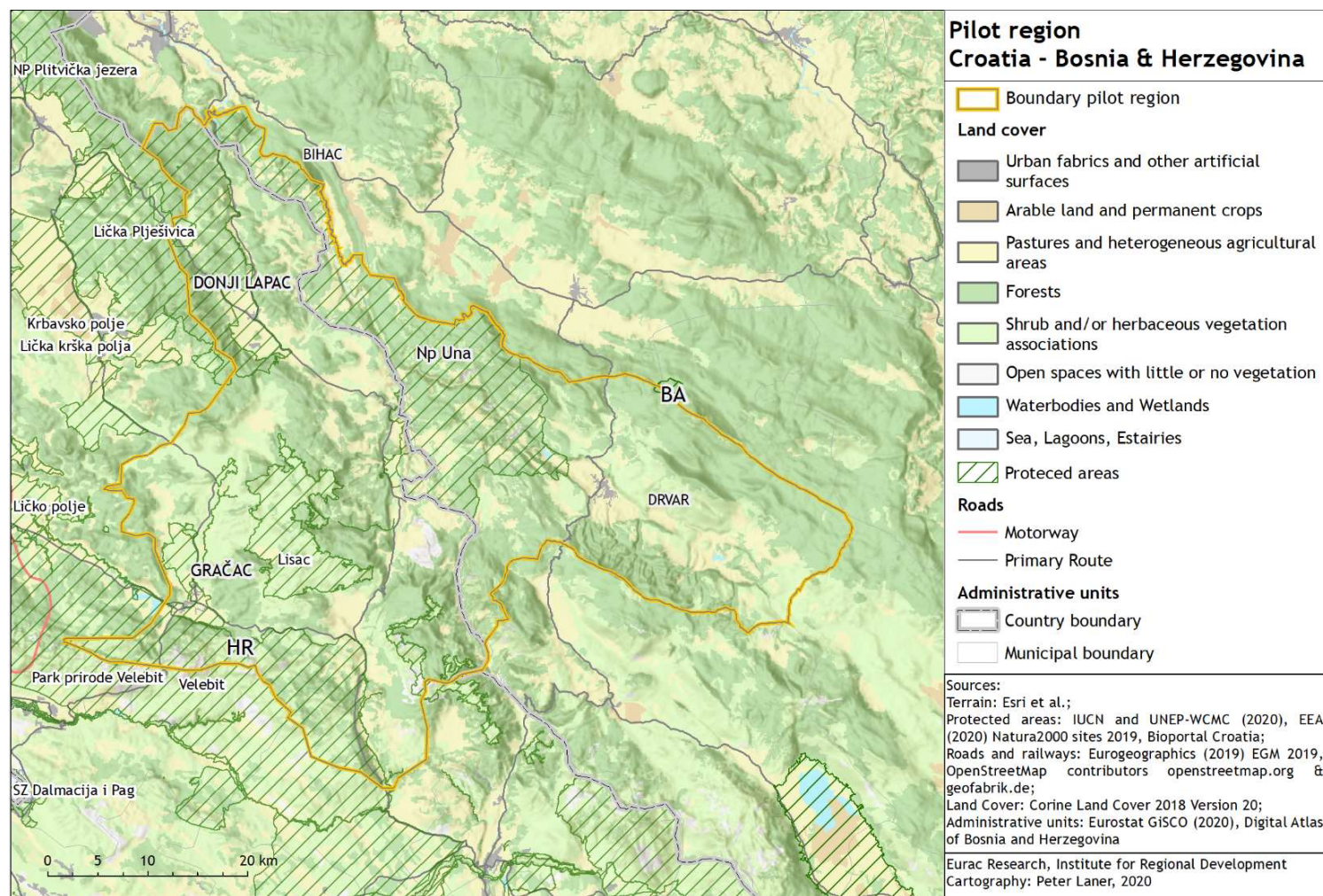


Figure 1: Map of the Pilot Region

Drafting of the Action Plan was preceded by conducting the SWOT analysis. The following pressures (current) and threats (future) relevant to the territory, population and ecosystems of the Pilot Region were recognised:

- depopulation and negative demographic trends,
- illegal landfills,
- no green crossings on the highway corridors through Bosnia and Herzegovina,
- lack of a continuous framework for financing the development potentials in the protected area,
- the continuation of the practice of financing exclusively from projects,
- fragmentation of habitats and migration of organisms due to climate change,
- poor water filtration function of the karst terrain and an increased threat of underground water pollution.

The SWOT analysis workshops show that there are more opportunities and strengths than obstacles and threats, which represents a sound basis for the Action Plan drafting. Also, cross-border cooperation is recognised as an opportunity for seeking common solutions and a step that will ease the implementation and preservation of ecological connectivity. In Croatia, sustainable management of natural resources and environmentally-friendly agriculture represent objectives of the national agricultural policy. However, ecological connectivity is not addressed in legislation related to agriculture. The construction of commercial roads, tycoons (unfair managers of big forests that exploit competition and put pressure on other stakeholders), and pollution pose the most significant pressures on the agricultural sector in the Pilot Region. There is also great pressure from illegal logging, the devastation of the landscape through illegal construction, anthropogenic actions, and economic development activities (relevant only for the Bosnia and Herzegovina side of the Pilot Region). Lack of adequate legislation (e.g., Federal Law on Nature Protection, Law on Forests) in Bosnia and Herzegovina is recognised as one of the weaknesses in the Pilot Region (DinAlpConnect, 2021).



### 3. Action plan for Pilot Region Croatia–Bosnia and Herzegovina: *Natura 2000 site Lisac–Una National Park, Drvar Municipality*

#### 3.1. Vision of the Pilot Region

*“The Pilot Region Croatia–Bosnia and Herzegovina: Natura 2000 site Lisac–Una National Park, Drvar Municipality, is a zone of rich biodiversity and undisturbed ecological connectivity with maintained ecological corridors for large carnivores. People live in harmony with wildlife nurturing sustainable agriculture, forestry, and tourism, and developing cross-border partnerships.”*

### 3.2. Themes and evaluation of themes

Table 1. Themes and evaluation of themes with objectives

Theme A. Stability of populations of protected target species
<p>Meadow vipers inhabit mountain grasslands of the Dinarides and the Sharr Mountains systems. These habitats are part of the ecological network (Natura 2000) and include the following habitat types: 62A0 - Eastern sub-Mediterranean dry grasslands (<i>Scorzonera villosa</i>) and 6170 - Alpine and subalpine calcareous grasslands. Meadow vipers are uniquely adapted to the life in the mountains and usually live in habitats above 1,000 masl. Due to the overgrowth of suitable high mountain grasslands as a result of the disappearance of traditional grazing (primarily sheep breeding), meadow vipers are facing the disappearance of suitable habitats. Recently, human-caused fires have threatened the population of meadow vipers because such fires are more frequent than the natural ones and span over large areas due to advanced natural succession. The damage is both direct (mortality caused by fires) and indirect (due to the lack of locusts to feed the surviving individuals). Further threats include plans for constructing wind farms in some of the habitats of meadow vipers (Lisac, Veliki Urljaj, Visibaba, Poštak, etc.). It can be expected that the illegal disposing of bulky and hazardous waste along the roads could also occur along access roads to wind farms situated in the habitats of meadow vipers (BIOTA, 2022).</p> <p>Brown bears require large areas without obstacles that would impede their movement as well as diverse forms of land covers (forests, floodplain valleys and natural grasslands). Favourable habitats include forests of different</p>

types, where the broadleaved stands are crucial (beech, chestnut, oak). Thickets and meadows are important as they provide bears with shelter and grazing areas. A peaceful habitat is critical in winter for newborn bears in dens. Bears search for food every night, usually in an area of lower altitude and greater openness or closer to people. The average daily movement of bears amounts to about 1.6 km, and the maximum is more than 10 km (Huber et al., 2019). Ecological suitability and habitat connectivity are crucial for the conservation of large carnivores. In more suitable habitats, species easily meet their life requirements, while connectivity enables processes, such as gene flow and demographic connectivity, thus countering the adverse effects of habitat fragmentation. Active and planned wind farms also overlap with some of the areas of very good and good habitat quality for bears, while the actual effects of the wind farms on bears' behaviour, movement and denning ecology have not yet been investigated sufficiently (Reljić et al., 2022).

To preserve species important for the Pilot Region—the brown bear and the meadow viper it is necessary to maintain favourable conditions in their habitats, especially considering the ecological connections within and among those habitats to enable an undisturbed migration. This presumes the prevention of human activities that could affect the life cycles of the species. This was also stressed in the conducted SWOT analysis, which recognised habitat fragmentation and migration of organisms due to climate changes as threats to the ecological values in the Pilot Region. Consequently, the Action Plan proposes the activities that will assist in maintaining ecological corridors and favourable habitat conditions and that will improve human understanding of the needs of brown bears and meadow vipers.

General objective AA

The Pilot Region is an area with maintained and improved ecological corridors for large carnivores.

Specific objective AAA

In the next 10 years, favourable conditions for an undisturbed migration of brown bears through forests and agricultural land are preserved in the Pilot Region.

Specific objective AAB

In the next 10 years, sustainable coexistence between people and large carnivores is achieved in the Pilot Region.

General objective AB

The Pilot Region is an area with maintained and improved grasslands that represent suitable habitats for reptiles.

Specific objective ABA

In the next 10 years, grasslands in the Pilot Region are preserved and provide favourable habitat conditions for

meadow vipers.

## Theme B. Sustainable development and new economic opportunities

The Pilot Region is facing intense depopulation. Both Gračac and Donji Lapac municipalities lost almost a third of their population between 2011 and 2021 (4,690 > 3,229 in Gračac and 2,113 > 1,419 in Donji Lapac) (Census 2021). Data for Drvar Municipality show that the population more than halved between 1991 and 2013 (17,126 > 7,036) (Census 1991, Census 2013). It is therefore vital that this Action Plan presents business opportunities for local people that will reduce the negative demographic trends. The SWOT analysis outlined opportunities for sustainable development based on the richness of natural resources that could underpin economic progress while sustaining rich biodiversity. Inventoried probiodiversity businesses illustrated economic opportunities for making a profit while adhering to the principles of sustainable development and environmental protection. Those businesses belong to the following sectors: forestry, farming, animal husbandry, beekeeping, restaurants, catering and food processing, accommodation and camping, market operators/consolidators, tour operators, education, and recreational activities. While some of those are public institutions (e.g., Hrvatske šume d.o.o. - public enterprise for forest and woodland management in the Republic of Croatia), most are private businesses. With the aim to encourage changes and foster economic opportunities, this Action Plan supports connections between local businesses within the Pilot Region, seeing it as a way to integrate efforts to establish and maintain ecological connectivity in the local economy.



General objective BA

Overtake the emigration trends of the working population from the Pilot Region.

Specific objective BAA

In the next 10 years, there is a proliferation of probiodiversity businesses in the Pilot Region.

Specific objective BAB

Local entrepreneurs and business owners in the Pilot Region are professionally associated, making profitable collaborations that result in an increase in cross-border partnerships between businesses in the next 10 years.

### 3.3. Activities

Table 2. Table with activities, indicators, timeframe and associates Theme A, Specific objective AAA

Theme A Stability of populations of protected target species																
General objective AA																
The Pilot Region is an area with maintained and improved ecological corridors for large carnivores.																
Code of activity	Activity	Indicators	Priority	Timeline of implementation										Associates	Country of implementation*	Financial cost (€)
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10			
Specific objective AAA:																
In the next 10 years, favourable conditions for an undisturbed migration of brown bears through forests and agricultural land are preserved in the Pilot Region.																
Indicators for the specific objective AAA:																
<div>- reduced number of alerts of encounters between large carnivores and humans on agricultural land by 2032 (as reported to the intervention team for large carnivores (BiH) and the bear intervention team (CRO), who keep track of the encounters);</div> <div>- reduced number of encounters between large carnivores and humans by 2032 (monitored through the results of the activity AAB4 Conduct a questionnaire about coexistence between humans and large carnivores).</div>																
AAA1	Promote programme measures***** to obtain funds for protection of agricultural properties from large carnivores	<div>- 100 printed flyers shared among farmers every two years (starting Y2) in the Croatian part of the Pilot Region</div> <div>- 100 digital flyers sent via e-mail to farmers every year in the Croatian part of the Pilot Region</div> <div>- 100 printed flyers shared among farmers every two years (starting Y2 in the</div>	1											Ministry of Construction, Physical Planning and Environmental Protection of the Una-Sana Canton (BiH), Ministry of Construction, Reconstruction, Physical Planning and Environmental Protection of the Canton 10 (BiH), Ministry of Economy and Sustainable Development (CRO), Ministry of	CRO/BiH	<div>-60 for flyers /posters design</div> <div>-0.07 per printed flyer</div> <div>-8 per printed poster</div>

		<p>BiH part of the Pilot Region</p> <ul style="list-style-type: none"> <li>- 100 digital flyers sent via e-mail to farmers every year in the BiH part of the Pilot Region</li> <li>- 10 posters displayed in public places every two years in the Croatian part of the Pilot Region</li> <li>- 10 posters displayed in public places every two years in the BiH part of the Pilot Region</li> </ul>														<p>Agriculture (CRO), Agency for Payments in Agriculture, Fisheries and Rural Development (CRO) municipal offices*****, NGOs, Agency for Rural Development of Zadar County</p>		
AAA2	Install information boards on the hiking trails	<ul style="list-style-type: none"> <li>- 4 information boards installed in the Croatian part of the Pilot Region over the 10 years</li> <li>- 4 information boards installed in the BiH part of the Pilot Region over the 10 years</li> </ul>	1													<p>Hrvatske šume d.o.o.** (forest office Gračac), Unsko-sanske šume d.o.o. Bosanska Krupa (forest office Bihać) ***, Hercegbosanske šume d.o.o. Kupres (forest office Drvar)****, Natura Jadara*****, Public Institution for the Management of Protected Natural Values in Lika-Senj County, Una National Park</p>	CRO/BiH	-700 per information board
<p>* country where the activity will be implemented, ** public enterprise for forest and woodland management in the Republic of Croatia</p> <p>*** public enterprise for management of state forests and forest land in the territory of the Una-Sana Canton (BiH)</p> <p>**** public enterprise for management of state forests and forest land in the territory of Drvar Municipality (BiH)</p> <p>***** public institution for management of protected areas in Zadar County</p> <p>*****example of the relevant programme measure in Croatia <i>Sub-measure 4.4.</i> (<a href="https://ruralnirazvoj.hr/mjera/m4/">https://ruralnirazvoj.hr/mjera/m4/</a>)</p> <p>*****municipal offices: Drvar Municipality (BiH), City of Bihać (BiH), Gračac Municipality (CRO), Donji Lapac Municipality (CRO)</p>																		

Table 3. Table with activities, indicators, timeframe and associates Theme A, Specific objective AAB

Theme A Stability of populations of protected target species																	
General objective AA																	
The Pilot Region is an area with maintained and improved ecological corridors for large carnivores.																	
Code of activity	Activity	Indicators	Priority	Timeline of implementation										Associates	Country of implementation*	Financial cost (€)	
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10				
Specific objective AAB:																	
In the next 10 years, sustainable coexistence between people and large carnivores is achieved in the Pilot Region.																	
Indicators for the specific objective AAB:																	
- reduced number of alerts of encounters between large carnivores and humans by 2032 (as reported to the intervention team for large carnivores (BiH) and the bear intervention team (CRO), who keep track of the encounters);																	
- reduced number of encounters between large carnivores and humans by 2032 (monitored through the results of the activity AAB4 Conduct a questionnaire about coexistence between humans and large carnivores).																	
AAB1	Inform residents about the coexistence with large carnivores	- 50 printed flyers per year disseminated among local people - 50 digital flyers per year sent via e-mail to local people - 10 posters per year displayed in public places - already made relevant materials used**	2											NGOs, agricultural advisory services****, development agencies*****, municipal offices*****, Natura Jadera***, Velebit Nature Park, Public Institution for the Management of Protected Natural Values in Lika-Senj County, Una National Park	CRO/BiH	-60 for flyers /posters design -0.07 per printed leaflet -8 per printed poster	
AAB2	Organise workshops for farmers about the	- 1 educational workshop for farmers held each year in the Croatian part of the	1											NGOs, Ministry of Construction, Physical	CRO/BiH	-1000 per event	

	prevention of and compensation for the damage caused by large carnivores	<p>Pilot Region</p> <ul style="list-style-type: none"> <li>- 1 educational workshop for farmers held each year in the BiH part of the Pilot Region</li> <li>- at least 60 local farmers participated in workshops until 2032</li> </ul>											Planning and Environmental Protection of the Una-Sana Canton (BiH), Ministry of Construction, Reconstruction, Physical Planning and Environmental Protection of the Canton 10 (BiH), intervention team for large carnivores (BiH), bear intervention team (CRO), agricultural advisory services****, development agencies*****, municipal offices*****, LAG Lika, Natura Jadera***		
AAB3	Inform farmers of the benefits of obtaining the “Bear Friendly” label („Medvjedu prijateljski” oznaka)	<ul style="list-style-type: none"> <li>- educational seminar for farmers held every 2 years (starting Y3) in the BiH part of the Pilot Region</li> <li>- educational seminar for farmers held every 2 years (starting Y3) in the Croatian part of the Pilot Region</li> </ul>	2										WWF Adria, Carnivora Magna, NGOs	CRO/BiH	-1000 per seminar
AAB4	Conduct a questionnaire regarding the state of coexistence between humans and large carnivores	<ul style="list-style-type: none"> <li>- 2 questionnaires (in Y1 and Y10) in the Croatian part of the Pilot Region conducted to collect data about encounters between humans and large carnivores</li> <li>- 2 questionnaires (in Y1 and</li> </ul>	1										NGOs, Natura Jadera***, Velebit Nature Park, Public Institution for the Management of Protected Natural Values in Lika-Senj County, Una National Park, external experts	CRO/BiH	-5000 for hiring external experts to conduct and analyse questionna



[illegible]

\* country where the activity will be implemented

\*\* <https://dinalpbear.eu/download/documentation>; [https://lifeprogramhrvatska.hr/wp-content/uploads/2017/10/Letci\\_LIFE-DINALP-BEAR.pdf](https://lifeprogramhrvatska.hr/wp-content/uploads/2017/10/Letci_LIFE-DINALP-BEAR.pdf)

\*\*\* public institution for management of protected areas in Zadar County

\*\*\*\* agricultural advisory services: federal Agricultural Advisory Service (BiH), cantonal Agricultural Advisory services - Canton 10, Una-Sana Canton (BiH), Directorate for Professional Support to the Development of Agriculture and Fisheries (CRO)

\*\*\*\*\*development agencies: Development Agency of Gračac Municipality (CRO), Development Agency of Lika-Senj County (CRO), Accredited Regional Development Agency of Northwest Bosnia and Herzegovina (BiH)

\*\*\*\*\*municipal offices: Drvar Municipality (BiH), City of Bihać (BiH), Gračac Municipality (CRO), Donji Lapac Municipality (CRO)

Table 4. Table with activities, indicators, timeframe and associates Theme A, Specific objective ABA

Theme A Stability of populations of protected target species																
General objective AB																
The Pilot Region is an area with maintained and improved grasslands that represent suitable habitats for reptiles.																
Code of activity	Activity	Indicators	Priority	Timeline of implementation										Associates	Country of implementation*	Financial cost (€)
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10			
Specific objective ABA:																
In the next 10 years, grasslands in the Pilot Region are preserved and provide favourable habitat conditions for meadow vipers.																
Indicator for the specific objective ABA:																
- reduced number of fire alerts in the Pilot Region by 2032;																
- increased number of cleaned illegal landfills in the Pilot Region by 2032;																
- well-preserved grassland habitats in the Pilot Region in 2032 (determined based on the results of the activity ABA4 Carry out monitoring of grassland habitats, with particular focus on rare, endemic and endangered species).																
ABA1	Inform residents about the impact of fires on wildlife and the environment and how to avoid them	<ul style="list-style-type: none"><li>- 100 printed flyers shared among residents every two years</li><li>- 100 digital flyers sent via e-mail to residents every year</li><li>- 10 posters displayed in public places every two years</li></ul>	1											NGOs, Federal Ministry of Agriculture, water and forestry (BiH), Ministry of Construction, Physical Planning and Environmental Protection of the Una-Sana Canton (BiH), Ministry of Construction, Reconstruction, Physical Planning and Environmental Protection of the Canton 10 (BiH), Ministry of Economy and Sustainable Development (CRO).	CRO/BiH	<ul style="list-style-type: none"><li>-60 for flyers /posters design</li><li>-0.07 per printed flyer</li><li>-8 per printed poster</li></ul>

												municipal offices**, Natura Jadera***, Velebit Nature Park, Public Institution for the Management of Protected Natural Values in Lika-Senj County, Una National Park, fire brigades*****		
ABA2	Inform residents about the possibilities of reporting illegal waste dumping	<ul style="list-style-type: none"> <li>- 50 printed flyers shared among residents in the BiH part of the Pilot Region every two years</li> <li>- 50 printed flyers shared among residents in the Croatian part of the Pilot Region every two years</li> <li>- 50 digital flyers sent via e-mail to residents in the BiH part of the Pilot Region every year</li> <li>- 50 digital flyers sent via e-mail to residents in the Croatian part of the Pilot Region every year</li> <li>- posters displayed in 10 public places in the BiH part of the Pilot Region every year</li> <li>- posters displayed in 10 public places in the Croatian part of the Pilot Region every year</li> </ul>	2									NGOs, Ministry of Construction, Physical Planning and Environmental Protection of the Una-Sana Canton (BiH), Ministry of Construction, Reconstruction, Physical Planning and Environmental Protection of the Canton 10 (BiH), Ministry of Economy and Sustainable Development (Croatia), Unsko-sanske šume d.o.o., Bosanska Krupa (forest office Bihać)****, Hercegbosanske šume d.o.o. Kupres (forest office Drvar)****, municipal offices**, utility companies*****	CRO/BiH	<ul style="list-style-type: none"> <li>-60 for flyers /posters design</li> <li>-0.07 per printed leaflet</li> <li>-8 per printed poster</li> </ul>
ABA3	Organise litter and	- 1 clean-up event held in the	2									NGOs,	CRO/BiH	-1000 per

	mismanaged waste clean-up events	BiH part of the Pilot Region every year - 1 clean-up event held in the Croatian part of the Pilot Region every year												utility companies*****, municipal offices**		event
ABA4	Carry out monitoring of grassland habitats, with particular focus on rare, endemic and endangered species	- every year (starting Y2) 5 locations monitored in the Croatian part of the Pilot Region (Lisac) - every year (starting Y2) 5 locations monitored in the BiH part of the Pilot Region (Una National Park) - 3 consolidated reports on the state and quality of monitored grassland habitats (in Y2, Y5, and Y10)	3											NGOs, Natura Jadera***, Una National Park, external experts	CRO/BiH	-3000 for the research

\*country where the activity will be implemented

\*\* municipal offices: Drvar Municipality (BiH), City of Bihać (BiH), Gračac Municipality (CRO), Donji Lapac Municipality (CRO)

\*\*\* public institution for management of protected areas in Zadar County

\*\*\*\* public enterprise for management of state forests and forest land in the territory of the Una-Sana Canton (BiH)

\*\*\*\*\* public enterprise for management of state forests and forest land in the territory of Drvar Municipality (BiH)

\*\*\*\*\* utility companies: Gračac Čistoća d.o.o. (CRO), Komunalac Gospić d.o.o. (BiH), Public Utility Company Komrad d.o.o. Bihać (BiH), Public Company Komunalac Drvar d.o.o. (BiH)

\*\*\*\*\* fire brigades: public fire brigade of the city of Gračac (CRO), volunteer fire brigade DVD Gračac (CRO), volunteer fire brigade DVD Donji Lapac (CRO), Bihać Fire Brigade (BiH)

Table 5. Table with activities, indicators, timeframe and associates Theme B, Specific objective BAA

Theme B Sustainable development and new economic opportunities																	
General objective BA																	
Overturn the emigration trends of the working population from the Pilot Region.																	
Code of activity	Activity	Indicators	Priority	Timeline of implementation										Associates	Country of implementation*	Financial cost (€)	
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10				
Specific objective BAA:																	
In the next 10 years, there is a proliferation of probiodiversity businesses in the Pilot Region.																	
Indicator for the specific objective BAA:																	
- increased number of PBBs by 2032 (measured by the results of the activity BAA3 Maintain an inventory of PBBs through the ProBiodiversity Business Database).																	
BAA1	Translate documents that provide guidelines for transformation into a probiodiversity business and disseminate them to business owners	<ul style="list-style-type: none"><li>- 1 document translated to the native languages in Y2</li><li>- 10 printed booklets disseminated among farmers in the Croatian part of the Pilot Region each year (starting G2)</li><li>- 10 printed booklets disseminated among farmers in the BiH part of the Pilot Region each year (starting G2)</li><li>- 100 digital booklets sent via e-mail to the farmers in the Pilot Region</li></ul>	1											development agencies**, agricultural advisory services***, NGOs, LAG Lika	CRO/BiH	-6 per standard page (1,500 characters) -0.07 per page of a printed booklet	



BAA2	In accordance with announced public tenders, educate farmers about eligible activities that improve environmental conditions on their agricultural holdings and preparing successful tender applications	<ul style="list-style-type: none"> <li>- 1 workshop held each year in the Croatian part of the Pilot Region</li> <li>- 1 workshop held each year in the BiH part of the Pilot Region</li> <li>- at least 50 local farmers participated in workshops by 2032</li> </ul>	1												agricultural advisory services***, development agencies, LAG Lika, NGOs	CRO/BiH	-1000 per event
BAA3	Maintain an inventory of PBBs through the ProBiodiversity Business Database	<ul style="list-style-type: none"> <li>- ProBiodiversity Business Database updated in Y5 and in Y10</li> <li>- at least 40 new PBBs added to the database by 2032</li> </ul>	1												NGO Dinarica, Natura Jadera****, external experts	CRO/BiH	-5000 for hiring external experts to add data to the database

\* country where the activity will be implemented

\*\* development agencies: Development Agency of Gračac Municipality (CRO), Development Agency of Lika-Senj County (CRO), Accredited Regional Development Agency of Northwest Bosnia and Herzegovina (BiH)

\*\*\* agricultural advisory services: federal Agricultural Advisory Service (BiH), cantonal Agricultural Advisory services - Canton 10, Una-Sana Canton (BiH), Directorate for Professional Support to the Development of Agriculture and Fisheries (CRO)

\*\*\*\* public institution for management of protected areas in Zadar County

Table 6. Table with activities, indicators, timeframe and associates Theme A, Specific objective BAB

Theme B Sustainable development and new economic opportunities																
General objective BA																
Overturn the emigration trends of the working population from the Pilot Region.																
Code of activity	Activity	Indicators	Priority	Timeline of implementation										Associates	Country of implementation*	Financial cost (€)
				Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10			
Specific objective BAB:																
Local entrepreneurs and business owners in the Pilot Region are professionally associated, making profitable collaborations that result in an increase in cross-border partnerships between businesses in the next 10 years.																
Indicator for the specific objective BAB:																
- increased number of cross-border partnerships by 2032;																
- cross-border association consists of at least 10 members from the Croatian and the Bosnian and Herzegovinian part of the Pilot Region																
BAB1	Establish a cross-border association of businesses to encourage cross-border collaboration	<ul style="list-style-type: none"><li>- a cross-border association of businesses with members from the Croatian part and the BiH part of the Pilot Region established in Y2</li><li>- at least 5 meetings of the association held in the Croatian part of the Pilot Region by 2032</li><li>- at least 5 meetings of the association held in the BiH part of the Pilot Region by 2032</li><li>- at least 10 businesses from</li></ul>	1											development agencies**, LAG Lika, NGOs	CRO/BiH	-1000 per meeting

		the Pilot Region became members of the association by 2032															
<p>* country where the activity will be implemented</p> <p>** development agencies: Development Agency of Gračac Municipality (CRO), Development Agency of Lika-Senj County (CRO), Accredited Regional Development Agency of Northwest Bosnia and Herzegovina (BiH)</p>																	

### 3.4. Risks, assumptions and mitigation measures

Table 7. Possible risks, impacts on the implementation of the Action Plan and mitigation measures

Risk	The likelihood that the risk will occur	Impact of the risk on the implementation of the Action Plan	Mitigation measures
insufficient funds	medium	high	obtain funds from the EU and national funds and projects (e.g., Interreg)
the disparity in implementation rates between the two sides (Croatia/ Bosnia and Herzegovina)	low	high	continuous communication and harmonisation in the implementation of each activity
external circumstances impeding the planned implementation timeline (e.g., epidemic)	low	medium	adjust the timeline to facilitate the plan implementation
institutional changes	low	medium	tasks are transferred to other relevant institutions; collaboration of multiple institutions

## 4. Literature

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## 5. Appendices

**Appendix 1:** Pilot Region ID Card

**Appendix 2:** List of important stakeholders in the Pilot Region

**Appendix 3:** List of pro-biodiversity businesses in the Pilot Region

**Appendix 4:** SWOT analysis report

**Appendix 5:** Short description of GIS analysis of ecological connectivity in the Pilot Region including a map