



**PRIORITISED ACTION FRAMEWORK (PAF)
FOR NATURA 2000 in the Republic of Croatia**

pursuant to Article 8 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive)

for the *Multiannual Financial Framework* period 2021 – 2027

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A. Introduction

A.1 General introduction

Priority Action Framework for the ecological network of the Republic of Croatia which is adopted pursuant to Article 204, paragraph 1 of the Nature Protection Act (Official Gazette 80/13, 15/18, 14/19 and 127/19) (hereinafter Nature Protection Act) is also the Priority Action Framework (hereinafter: PAF) of the Republic of Croatia for the Natura 2000 network in accordance with Article 8 of Council Directive 92/43 / EEC of 21 May 1992 on the conservation of natural habitats and of wildlife and flora (OJ L 206, 22.7.1992), as last amended by Council Directive 2013/17 / EU of 13 May 2013 adapting certain directives in the field of the environment, by reason of the accession of the Republic of Croatia (OJ L 158, 10th June 2013) (hereinafter: the Habitats Directive).

The financing program for the Natura 2000 of the Republic of Croatia is adopted on the format prescribed by the European Commission (hereinafter: the EC), entitled "Prioritized Action Framework (PAF) for the Natura 2000 in the Republic of Croatia in accordance with Article 8 of the Directive Council 92/43/ EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) to be included in the multiannual financial framework for the period 2021-2027".

PAFs are strategic multiannual planning tools, aimed at providing a comprehensive overview of the measures that are needed to implement the European Union (hereinafter: EU) wide Natura 2000 network and its associated green infrastructure, specifying the financing needs for these measures and linking them to the corresponding EU funding programmes. In line with the objectives of the EU Habitats Directive¹ on which the Natura 2000 network is based, the measures to be identified in the PAFs shall mainly be designed "*to maintain and restore, at a favourable conservation status, natural habitats and species of EU importance, whilst taking account of economic, social and cultural requirements and regional and local characteristics*".

The legal basis for the PAF is Article 8 (1) of the Habitats Directive², which requires Member States to send, as appropriate, to the Commission their estimates relating to the EU co-financing which they consider necessary in order to meet their following obligations in relation to Natura 2000:

- *to establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans,*
- *to establish appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.*

¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01992L0043-20130701>

² Article 8 (1): "In parallel with their proposals for sites eligible for designation as special areas of conservation, hosting priority natural habitat types and/or priority species, the Member States shall send, as appropriate, to the Commission their estimates relating to the Community co- financing which they consider necessary to allow them to meet their obligations pursuant to Article 6 (1)."

PAO shall therefore focus on the identification of those financing needs and priorities that are directly linked to the specific conservation measures established for Natura 2000 sites, in view of achieving the site-level conservation objectives for those species and habitat types for which the sites have been designated (as required by Article 6(1) of the Habitats Directive). Given that the Natura 2000 network also includes the Special Protection Areas (SPAs) designated pursuant to the Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version) (OJ L 20, 26th January 2010), adapting by reason of the accession of the Republic of Croatia by Directive 2013/17/EU from 13th May 2013 on the adaptation of certain directives in the field of environment due to the accession of the Republic of Croatia (OJ L 158, 10th June 2013) (hereinafter: Birds Directive)³, the financing needs and priority measures associated with bird species in SPAs are therefore also considered here.

Member States are invited to also present in their PAFs additional measures and their financing needs related to wider green infrastructure areas⁴. Such green infrastructure measures are to be included in the PAF where they contribute to the ecological coherence of the Natura 2000 network, including in a cross-border context, and to the objective of maintaining or restoring favourable conservation status of the targeted species and habitats.

In its Special Report N° 1/2017 on Natura 2000⁵ the European Court of Auditors concluded that the first completed PAFs (for the MFF period 2014-2020) did not present a reliable picture of the actual costs of the Natura 2000 network. The report therefore highlighted the need for updating the PAF format and providing further guidance for improving the quality of information that Member States provide in their PAFs. The commitment to this process EC showed in the EU Action plan for nature, people and the economy⁶, with a view to ensuring that Member States provide more reliable and harmonised estimates of their financing needs for Natura 2000.

In its Conclusions on the EU Action Plan for nature, people and the economy⁷, the Council of the European Union recognises the need for further improve multiannual financial planning for investments in nature and agrees that there is a need to update and improve the PAFs. The importance of better forecasting the financing needs for Natura 2000 ahead of the next EU Multiannual Financial Framework is also recognised in a resolution by the European Parliament⁸.

³ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147>

⁴ Green infrastructure is defined as 'a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services'.

⁵ Special Report No 1/2017: More efforts needed to implement the Natura 2000 network to its full potential <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=40768>

⁶ COM(2017) 198 final: An Action Plan for nature, people and the economy http://ec.europa.eu/environment/nature/legislation/fitness_check/action_plan/communication_en.pdf

⁷ <http://www.consilium.europa.eu/en/press/press-releases/2017/06/19/conclusions-eu-action-plan-nature/>

⁸ European Parliament resolution of 15 November 2017 on an Action Plan for nature, people and the economy (2017/2819(RSP)) <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P8-TA-2017-0441>

A.2 Structure of the current PAF format

The current PAF format is designed to provide reliable information about the priority Natura 2000-related financing needs to the EC, with a view to their incorporation in the relevant EU funding instruments under the next Multiannual Financial Framework (hereinafter: MFF) 2021-2027. To this aim, the PAF requires a level of breakdown of financing needs that would allow for an effective allocation of the Natura 2000 funding under the relevant EU funds for the MFF 2021-2027. With a view to that goal, the PAF also takes into consideration the experience that EU Member States and regions have gained so far with the MFF 2014-2020.

An essential component of the current PAF format is the required breakdown of the Natura 2000- and green infrastructure-related conservation and restoration measures per broad ecosystem category. The proposed ecosystem typology of 8 classes is very largely based on the MAES typology, which was established as a conceptual basis for an EU wide ecosystem assessment⁹. A comprehensive database allocating individual species and habitat types of EU importance to the MAES ecosystems is available for download from the European Environment Agency website¹⁰. It is recommended that the allocation of measures and costs to ecosystem types should largely follow this typology.

The presentation of priority measures and costs of the current PAF requires a distinction between running costs and one-off expenditure. Whereas running costs are typically associated with recurring measures that need to be continued in the long term (f. ex. staff costs for site management, annual payments to farmers for agri-environmental measures on grasslands, etc.), one-off expenditures are typically related to non-recurring actions such as habitat restoration projects, large infrastructural investments, purchase of durable goods, etc. The correct allocation of costs to either category ("running" versus "one-off") will be highly relevant for a correct allocation of measures under different EU funds.

Finally, priority measures under this PAF will not only contribute to the specific objectives of the Birds Directive and Habitats Directive, but will also provide important socio-economic and ecosystem service benefits to the society. Examples of benefits may include climate mitigation and adaptation, or other ecosystem services such as those related to tourism and culture. The Commission has already provided an overview of ecosystem services benefits related to Natura 2000.¹¹

This aspect should be emphasized where possible, with a view to promote and communicate the wide societal benefits of funding nature and biodiversity.

A.3 Introduction to the specific PAF of the Republic of Croatia

This PAF applies to the entire territory of the Republic of Croatia, including the territorial sea and internal waters as well as the area of the sea beyond them, which is under the jurisdiction of the Republic of Croatia.

⁹ <https://biodiversity.europa.eu/maes>

¹⁰ Linkages of species and habitat types to MAES ecosystems <https://www.eea.europa.eu/data-and-maps/data/linkages-of-species-and-habitat#tab-european-data>

¹¹ <http://ec.europa.eu/environment/nature/natura2000/financing/>

The management of sites of ecological network pursuant to the Nature Protection Act is the responsibility of public institutions for management of national or nature parks and public institutions for management of other protected areas and/or other protected parts of nature (hereinafter: PIs). The Regulation on the Ecological Network and the Jurisdiction of Public Institutions for Management of Sites of Ecological Network (OG 80/19) establishes the jurisdiction of public institutions to manage sites of ecological network and adopt relevant management plans.

The basic way to manage a site of ecological network is to implement conservation measures for target species and habitat types. Conservation measures are integrated into ecological network management plans as well as sectoral plans. For the purpose of managing the sites of ecological network, the Ordinance on Conservation Objectives and Basic Measures for Conservation of Birds in Sites of the Ecological Network (OG 25/20 and 38/20 - correction) was adopted, while the ordinance defining the conservation objectives and measures for other species and habitat types for individual sites of the ecological network is in development.

The Nature Protection Act allows for management plans for forest and forest land to be considered as ecological network management plans if they contain mandatory elements of the management plan (analysis of the status of target species and habitat types of ecological network sites, management objectives and conservation of target species and habitat types, conservation measures prescribed by the ordinances, activities to achieve the goals and plan performance indicators).

The PAF preparation was carried out as part of a project funded under the Operational Program Competitiveness and Cohesion 2014-2020. (hereinafter: OPCC) - *Development of the Natura 2000 Management Framework* (KK.06.5.2.03.0001), in collaboration between the Ministry of Economy and Sustainable Development (hereinafter: MESD) and consultants engaged through the project. First draft of the PAF was developed and submitted to the Commission in January 2020. Afterwards, PAF was supplemented and revised in the light of stakeholder consultations held in period September - November during 2020 and based on the Commission's comments. The final version of the PAF is expected to be approved in 2022 by the Government of the Republic of Croatia as the Ecological Network Financing Program in accordance with Article 204 (a) of the Nature Protection Act.

For the purpose of drafting the first version of the PAF for the Republic of Croatia, five working meetings were held in October and November 2019 with the following stakeholders: government bodies responsible for the implementation of EU funds; PI's for the management of national and nature parks; PI's for the management of protected areas at the level of counties/cities/municipalities; NGOs; and the Ministry of Physical Planning, Construction and State Assets¹² (theme: green infrastructure). Relevant consumption data for the period of 2014-2020 were collected as well as data on funding needs for the period of 2021-2027. Several internal meetings were also held between the MESD¹³ and consultants engaged on the project to define the project implementation methodology and to agree on priority conservation measures to be incorporated into the PAF.

¹² Pursuant to the Act on the Organization and Scope of State Administration Bodies (OG 85/20), which entered into force on 23 July 2020. The Ministry of Physical Planning, Construction and State Assets took over the Ministry of Construction and Physical Planning

¹³ Pursuant to the Act on the Organization and Scope of State Administration Bodies (OG 85/20), which entered into force on 23 July 2020. MESD took over the Ministry of Environment and Energy

The first version of the PAF was presented and discussed with stakeholders at regional sectoral workshops during September and October 2020, as well as at additional meetings with representatives of the agriculture and forestry sectors, following the incorporation of EC comments. Stakeholders' comments and suggestions were collected at the meetings, and proposals for amendments to the first draft were submitted in writing, primarily from the forestry and agriculture sector and NGOs.

An overview of activities related to green infrastructure and biodiversity in the Republic of Croatia is presented in the text "Green infrastructure in Croatia" within the Biodiversity Information System for Europe (BISE)¹⁴. Given the broad scope of the definition of green infrastructure and having in mind the guidance that "green infrastructure measures are to be included in the PAF where they contribute to the ecological coherence of the Natura 2000 network, including in a cross-border context, and to the objective of maintaining or restoring favourable conservation status of the targeted species and habitats"(Subchapter A.1.), it is agreed that for the purposes of this PAF, the term "green infrastructure" includes the following areas outside the Natura 2000 network:

- areas of habitat types and habitats of species protected by the Birds and Habitats Directives (habitats and species of EU interest);
- protected areas pursuant to the Nature Protection Act;
- high nature value (HNV) grasslands, defined as agricultural land with a high proportion of semi-natural or natural vegetation, important for conservation of species and habitat types endangered in national and EU level¹⁵ .e. selected natural and semi-natural meadows, pastures and karst pastures registered in LPIS¹⁶;
- landscape features on agricultural land or on its border (group of trees, single trees, trees in a line, hedges, ponds, ditches, dry stonewalls)¹⁷;
- rivers and streams, lakes, ponds and wetlands, canals and oxbows as well as the parts of the sea (blue infrastructure), where they contribute to the ecological connectivity of the Natura 2000 network, including in a cross-border context, and to the objectives of maintaining or restoring favorable conservation status of targeted species and habitat types;
- wildlife crossings (green bridges)¹⁸;
- green infrastructure in urban areas, where it is designed and implemented in such a way as to contribute to the greatest possible extent to the conservation of habitat types and species of Community interest.

¹⁴ https://biodiversity.europa.eu/countries_old/gj/croatia

¹⁵ <https://ruralnirazvoj.hr/travnjaci-velikih-prirodnih-vrijednosti-u-republici-hrvatskoj/>

¹⁶ Ordinance on Implementation of Direct Support to Agriculture and of IACS Rural Development Measures for 2020 (OG 22/20 and 57/20)

¹⁷ Ordinance on the Land Parcel Identification System (OG 54/19, 126/19 and 147/20)

¹⁸ Ordinance on Wildlife Crossings (OG 5/07)

B. Summary of priority financing needs for the period 2021-2027

		Priority financing needs 2021-2027	
		Annual running costs (EUR / year)	One-off / project costs (EUR / year)
1.	Horizontal measures and administrative costs related to Natura 2000		
1.1.	Site designation and management planning		15 562 805
1.2.	Site administration and communication with stakeholders	13 110 000	3 714 290
1.3.	Monitoring and reporting	3 713 480	248 600
1.4.	Remaining knowledge gaps and research needs		2 271 390
1.5.	Natura 2000-related communication and awareness raising measures, education and visitor access	428 550	12 017 146
	Sub-total	17 252 030	33 814 231
2.a	Natura 2000 site-related maintenance and restoration measures for species and habitats	Annual running costs (EUR / year)	One-off / project costs (EUR / year)
2.1.a	Marine and coastal waters	-	2 936 572
2.2.a	Heathlands and shrubs		20 000
2.3.a	Bogs, mires, fens and other wetlands	90 200	300 000
2.4.a	Grasslands	25 835 600	500 900
2.5.a	Other agroecosystems (incl. croplands)	3 253 000	11 500
2.6.a	Woodlands and forests	32 200 000	20 500 000
2.7.a	Rocky habitats, dunes & sparsely vegetated lands	50 000	200 000
2.8.a	Freshwater habitats (rivers and lakes)		15 322 857
2.9.a	Others		160 000
	Sub-total	61 428 800	39 951 829
2.b	Additional "Green infrastructure" measures beyond Natura 2000 (further improving coherence of the Natura 2000 network, including in a cross-border context)	Annual running costs (EUR / year)	One-off / project costs (EUR / year)
2.1.b	Marine and coastal waters	-	395 000
2.2.b	Heathlands and shrubs	-	-
2.3.b	Bogs, mires, fens and other wetlands	-	-
2.4.b	Grasslands	25 088 280	214 290
2.5.b	Other agroecosystems (incl. croplands)	1 566 500	11 500
2.6.b	Woodlands and forests	13 050 000	300 000
2.7.b	Rocky habitats, dunes & sparsely vegetated lands	-	-
2.8.b	Freshwater habitats (rivers and lakes)	-	393 000
2.9.b	Others (caves, etc.)	-	22 730 000
	Sub-total	39 704 780	24 043 790

3. Additional species-specific measures not related to specific ecosystems or habitats	Annual running costs (EUR / year)	One-off / project costs (EUR / year)
3.1 Species-specific measures and programmes not covered elsewhere	1 329 840	5 470 710
3.2. Prevention, mitigation or compensation of damage caused by protected species	3 580 000	376 100
Sub-total	4 909 840	5 846 810
Annual total	123 295 450	103 656 660
Total	226 952 110	
Total (2021-2027)	588 664 770	

PROVISIONAL TRANSLATION

C. Current state of the Natura 2000 network

C.1. Statistical data for Natura 2000 network area

The Ecological Network of the Republic of Croatia, designated by the Regulation on the Ecological Network (OG 124/13) and amended by the Regulation amending the Regulation on the Ecological Network (OG 105/15), represents the sites of the ecological network of the European Union Natura 2000. In 2019 the Regulation on the Ecological Network and the Jurisdiction of Public Institutions Managing the Sites of Ecological Network (OG 80/19) was adopted and the previous Regulation on the Ecological Network (OG 124/13 and 105/15) ceased to have effect on the day of its entry into force.

The Ecological Network of the Republic of Croatia (Natura 2000 network) is composed of Special Protection Areas (SPA)¹⁹, Sites of Community Importance (SCI)²⁰, proposed Sites of Community Interest - (pSCI)²¹ and Special Areas of Conservation (SAC)²².

The ecological network, although supplemented in 2019, is still considered incomplete since additional research on insufficiently known species and evaluation of the data collected is needed to address the remaining scientific reserves established during the 2014 Biogeographic Seminar for the Republic of Croatia - mainly related to the mapping of marine habitat types (1120* Posidonia beds and 1170 Reefs) and species (*Tursiops truncatus* and *Caretta caretta*) as well as to possible proposals of new SPAs for marine birds.

Name of region	Natura 2000 area data per EU Member State (in km ²)						Proportion (in %) of the land area covered by:		
	Terrestrial			Marine			SCI	SPA	N2K
	SCI	SPA	N2K	SCI	SPA	N2K			
Region A									
Region B									
Region C									
etc.									
Total	16 076	17 085	20 755	4871	1056	5174	28.41	30.19	36.67

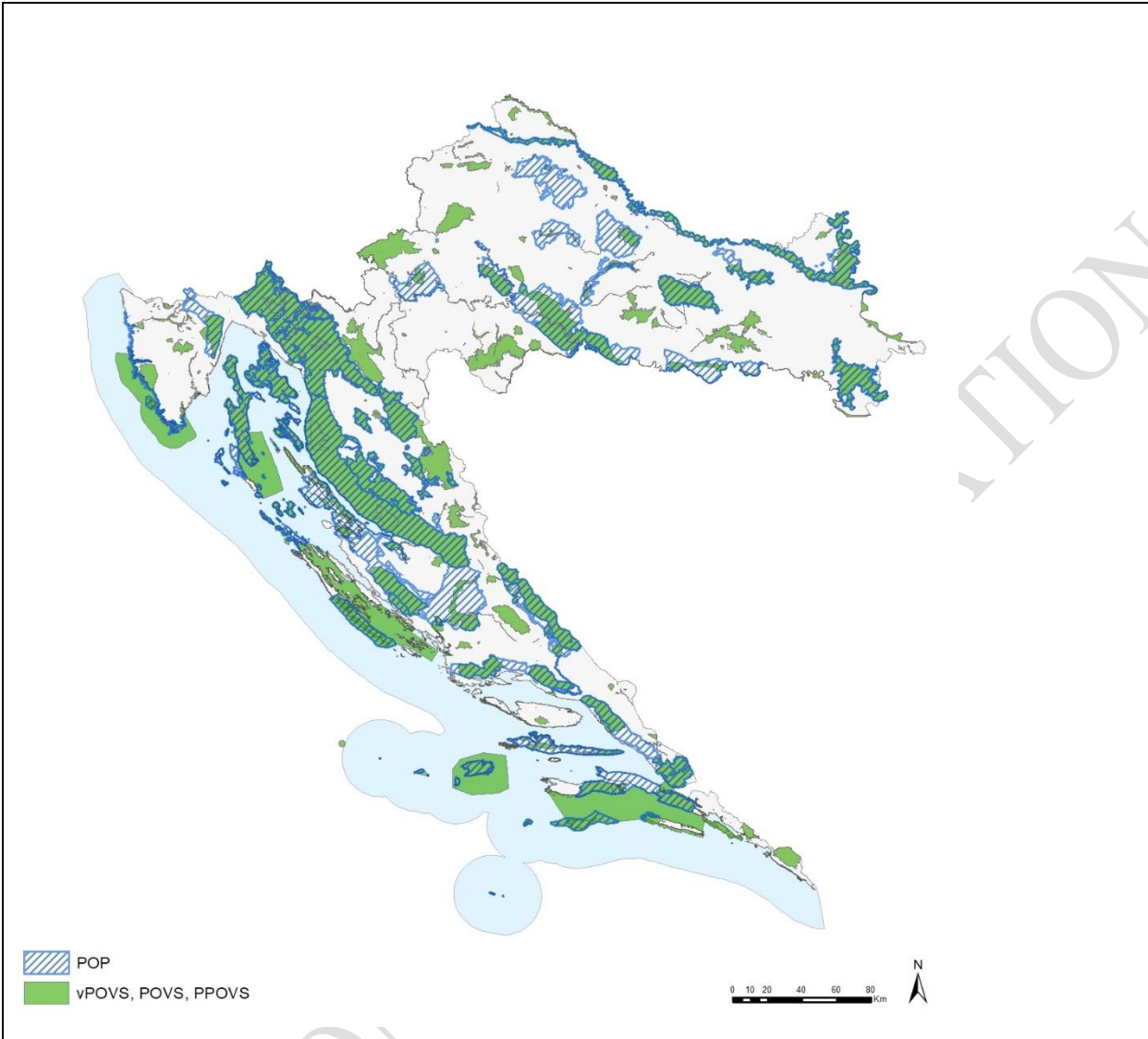
¹⁹ POP in Croatian

²⁰ POVS in Croatian

²¹ vPOVS in Croatian

²² PPOVS in Croatian

C.2. Map of the Natura 2000 network in the Republic of Croatia



D. EU and national financing of the Natura 2000 network during the period 2014 – 2020

This section provides a comprehensive overview of the funding allocated to Natura 2000, protection of species of EU interest and green infrastructure during the period 2014-2020. This data should help the EC and national/regional authorities assess to what extent the financial needs of Natura 2000 are currently met and what the funding gap is.

Remarks:

- The sums of individual allocations from EU funds for the Republic of Croatia, which are indicated in this PAF, have been taken in EUR currency from the relevant official documents
- Consumption amounts have been converted from HRK to EUR at the rate of EUR 1 = HRK 7.46 (Croatian National Bank mid-exchange rate on 3 November 2019)

D.1. European Agricultural Fund for Rural Development (EAFRD)

Total allocation from the EAFRD to the Member State/region: **2 026 222 500 EUR**

Current status: **from 31 December 2019**

Measure	Total current allocation to the EAFRD measure		Current allocation to actions or sub-measures relevant for Natura 2000		Current spending on actions or sub-measures relevant for Natura 2000		Comments (relevance, experience to-date, challenges for the next period)
	EU	National	EU	National	EU	National	
M4 Investments in physical assets	598 974 491	96 802 581	5 592 105	986 842	0	0	Sub-measure 4.4.1. "Non-productive environmental investments" is included, which is to be carried out both inside and outside Natura 2000 and is considered fully relevant to Natura 2000/species of Community interest /green infrastructure. It includes a number of eligible costs relevant to PAF: building dry stonewalls and planting hedges; removing invasive alien species from agricultural land; procuring electric shepherds with related equipment and/or indigenous shepherd dog (Tornjak); building of new and restoration of existing livestock housing in the areas of natural distribution of large carnivores; restoring habitats important for biodiversity conservation on agricultural land; investing in the reconstruction of derelict livestock ponds;

							purchasing the land for project realization up to 10% of the total eligible cost of the project. The measure was not yet implemented at the time the PAF was drafted.
M7 Basic services & village renewal in rural areas							The Republic of Croatia did not use type of operation 7.1.1. for development of conservation and management plans for the Natura 2000 sites and other areas of high natural value.
M8 Investments in forest area	75 239 636	13 277 583	39 707 566	7 007 218	927 425	163 663	The relevant is Sub-measure 8.5. "Support for investments in improving the resilience and environmental value of forest ecosystems", type of operation 8.5.1. "Conversion of degraded forest stands and forest crops" and 8.5.2. "Establishment and arrangement of educational trails, lookouts and other smaller infrastructure." For operation type 8.5.1. the costs of projects implemented in Natura 2000 areas are shown. Funds are allocated for "conversion of degraded forest stands, forest stands of disturbed structure by tree species and forest crops into mixed stands of indigenous species of high-growing trees". When selecting projects from the type of operation 8.5.2. in accordance with the selection criteria, more projects are awarded to projects implemented in Natura 2000 areas.
M10 Agri-environment climate measures	57 737 185	10 188 915	30 945 950	5 461 050	13 664 614	2 411 402	Of the 16 sub-measures, the following are included here: 10.1.3 Preservation of high nature value grasslands; 10.1.4. Pilot measure for the protection of the Corncrake <i>Crex crex</i> ; 10.1.5. Pilot measure for the protection of butterflies; 10.1.6. Establishment of field strips; 10.1.7. Maintenance of extensive orchards; 10.1.8. Maintenance of extensive olive groves; 10.1.9. Conservation of endangered native and protected breeds of domestic animals; 10.1.10. Preservation of dry stonewalls; 10.1.11. Preservation of hedges. The most important measures for Natura 2000 are: 10.1.3. (implemented throughout the Republic of Croatia), and 10.1.4. and 10.1.5. (implemented only in Natura 2000 sites). As the budget for measure 10 within the Rural Development Program 2014-2020 was planned based on an assessment in the lack of previous experience in carrying out similar activities, so even with a visible trend of increasing the use of measure 10, a significant part of the funds remained unused. Due to the great interest of users for M11 Organic farming, subsequent corrections of indicators in 2019, in 2020 was allocated part of the funds from M10 to M11 in order to use them. Nevertheless, there has been a systematic increase in interest in M10, e.g. the number of ha included 10.1.3.-10.1.5. has grown from over 500 ha (2015) to over 10,000 ha (2019). In the next MFF, it is important to plan a more stimulating amount of individual payments for M10 and to increase education and information for both advisers and farmers. It is important to strengthen the capacity of public institutions managing Natura 2000 sites to work with local stakeholders (encouraging the

							uptake and assisting with the implementation of measure 10 and other relevant measures).
M12 Natura 2000 payments							The Republic of Croatia did not use this measure
M13 Payments to areas facing natural or other specific constraints	269 938 750	47 636 250	13 357 750	2 357 250	7 825 613	1 380 991	Sub-measure 13.3. Payments in areas facing specific constraints (Karst) is included here. – it applies to karst pastures, a prescribed requirement is that the user holds at least 0.3 livestock units/ha, so that the measure directly contributes to the conservation of extensive pastures in karst areas. Other sub-measures encourage all forms of agriculture in mountainous areas and in areas with significant natural constraints, and no direct link to Natura 2000 can be found.
M15 Forest-environmental and climate services and forest conservation							The Republic of Croatia did not use this measure
Other measures M1 Transferring knowledge and information activities	9 807 236	1 089 693	1 918 028	213 114	676 805	8552	The entire sub-measure 1.1.1. is included - Vocational training for cross-compliance, Package of Measures: Agriculture, Environment and Climate Change, Organic Farming (includes Natura 2000 training)
Subtotal	1 011 697 298	168 995 022	91 521 399	16 025 474	23 094 457	3 964 608	
TOTAL	1 180 692 320		107 546 873		27 059 065		

The most important measures are M10 and M4 (4.4.1.), which are adequately designed, but their uptake is very low, while the sub-measure 4.4.1. has not been realized at the time of PAF drafting. The interest for M10 is low, given that the premiums are relatively low and most farmers own small areas of land eligible for these payments. The next MFF requires higher payments and more intensive information and education activities. It is also necessary to include other extensive agricultural practices that contribute to the mosaic nature of the ecosystem and to expand the scope of possible unproductive investments related to environmental protection.

D.2. European Regional Development Fund (ERDF) / Cohesion Fund (CF)

Total allocation from ERDF to the Member State/region: **4.321 billion EUR (not including national co-financing)**

Total allocation from Cohesion Fund to the Member State/region: **2.510 billion EUR (not including national co-financing)**

National co-financing from Operational Program Competitiveness and Cohesion 2014 – 2020: 1.206 billion EUR, **total value of the OPCC is 8.037 billion EUR.**²³

Current status: from 30 September 2021

Category of intervention	Allocation to measures relevant for Natura 2000 ²⁴		Current spending on measures relevant for Natura 2000 ²⁵		Comments (relevance, experience to-date, challenges for the next period)
	EU	National	EU	National	
85 Protection and enhancement of biodiversity, nature protection and green infrastructure	26 303 424	7 093 087	4 480 086	1 190 909	MESD projects included: <i>Development of Natura 2000 management framework; Development of proposals for management plans for strictly protected species (with action plans); Establishment of a national system for monitoring invasive alien species; Developing a management and control system for invasive alien species.</i> Also are included five projects to improve and increase the capacity of wildlife rescue centers (beneficiaries: ZOOs from Zagreb and Osijek, JU Priroda, Faculty of Veterinary Medicine, University of Zagreb and Aquarium Pula).
86 Protection, restoration and sustainable use of Natura 2000	111 989 474	27 153 996	57 571 768	13 504 489	MESD projects included: <i>Mapping of coastal and benthic marine habitats in the Adriatic Sea under national jurisdiction</i> (basis for the designation of new Natura 2000 marine sites) and <i>Development of monitoring system for the conservation status of species and habitat types</i> (framework for monitoring and reporting under Articles 12 and 17), and the Croatian Forests project of <i>Demining, restoration and</i>

²³ Data of the MRDEU calculated in EUR

²⁴ Amounts for total funds according to intervention categories allocated and spent on measures important for the Natura 2000 network were calculated based on data from the eFunds system (September 2021). For funds from national sources, allocated funds were calculated by subtracting EU funds from the total value of investment, while the calculation of current spending used the share of national funds calculated as the share of EU funds in total investment, and in this case it is estimated amount

²⁵ See footnote 20

					<i>protection of forests and forest land in protected areas and Natura 2000 sites in the Danube-Drava region - Naturavita. Fearless Velebit - Demining and preservation of forest ecosystems in protected and Natura 2000 areas in Lika-Senj and Zadar counties and Demining and protection of karst forests in Natura 2000 areas in the southwestern part of Karlovac County - Karlovac Karst, as well as project of State Geodetic Administration Recording of the special legal regime as a contribution to more efficient management of protected areas. Also includes project from Croatian Forest ltd. contracted in 2021, whose activities started during the 2018 funded by Croatian Forests (the project relates on development of forest and forest land management plans that are considered management plans for Natura 2000 forest area.</i>
91 Development and promotion of tourism potential of natural areas ²⁶	127 968 937	53 439 403	71 638 201	29 260 673	Projects of public institutions for the management of protected areas under Specific objective 6c2 “Increasing the attractiveness, educational capacity and sustainable management of natural heritage destinations” are included - mostly related to investments in visitor infrastructure.
Subtotal	266 261 836	87 686 487	133 690 056	43 956 071	
TOTAL	353 948 323		177 646 128		

The MESD uses OPCC to finance strategic projects that realize the main obligations related to the implementation of the Habitats and Birds Directives and the issue of invasive alien species. State Geodetic Administration is implementing the project that will record the special legal regime of protected areas, which are also Natura 2000 sites, as a contribution to more efficient management. Also, public institutions use considerable funds for investments in visitor infrastructure. OPCC fund were also allocated to wildlife rescue centers in order to improve and increase their capacities. Significant funds are intended for demining in Natura 2000 sites. Funds withdrawal from September 2021 is about half of the total allocated funds, and the total funding will be realized by the end of 2023.

²⁶ Data of the MRDEU calculated in EUR

D.3. European Maritime and Fisheries Fund (EMFF)²⁷

Total allocation from the EMFF to the Member State: 252 643 138 EUR

Current status: from 31 December 2021

Measure	Allocation to measures relevant for Natura 2000		Current spending on measures relevant for Natura 2000		Comments (relevance, experience to-date, challenges for the next period)
	EU	National	EU	National	
Measure I. 15 Limiting the impact of fishing on the marine environment and adapting fisheries to species protection	1 500 000	500 000	0	0	The measure allows investment in equipment to protect fishing gear and catches from mammals and birds protected by the Habitats and Birds Directives. We note that funds for this measure in 2020 as part of the amendment of the Operational Programme for Maritime Affairs and Fisheries of the Republic of Croatia for the programming period 2014-2020, were reconverted for the purpose of aid allocation in order to mitigate the consequences of the COVID-19 pandemic in the fisheries and aquaculture sector.
Measure I. 17 and I.18 Protection and restoration of marine biodiversity and ecosystems and compensation regimes in the framework of sustainable fishing activities	2 300 000	700 000	0	0	The measure is intended to protect and restore biodiversity and ecosystems in the framework of sustainable fishing activities, including: management, conservation and monitoring of Natura 2000 sites and marine protected areas; mapping and action to prevent, control or eliminate invasive alien species; preparation of protection and management plans for fisheries-related activities and more; tenders are in preparation.
Measure II. 10 Aquaculture providing environmental services	30 871 946	10 290 649	0	0	The measure provides compensation for the additional costs and/or income forgone resulting from the application of aquaculture methods that meet the specific environmental needs and are subject to specific management requirements arising from the designation of Natura 2000 sites in accordance with the Habitats and Birds Directives. Measure has been in implementation since 2020..
Measure VIII.2/VIII.3 Protection of the marine	1 000 000	300 000	300 000	100 000	Consumption so far relates to the following activities: educational and informational materials to promote the protection of the marine

²⁷ Amounts of funds in the table submitted from the Ministry of Agriculture until 31 December 2021

environment, sustainable use of resources and advancement of knowledge					environment and the sustainable use of marine resources, primarily protected and endangered species such as marine mammals, sea turtles and cartilaginous fish; monitoring populations of sea urchins and sea cucumbers; development of expert baseline for the red coral (<i>Corallium rubrum</i>) management plan. The rest of the funds have also been earmarked for aid allocation to mitigate the effects of the COVID-19 pandemic in the fisheries and aquaculture sector.
Subtotal	35 671 946	11 790 649	300 000	100 000	
TOTAL	47 462 595		400 000		

The use of funds for measures relevant to Natura 2000 is low (0,84%). Significant withdrawal of funds is expected following the adoption of management plans for Natura 2000 marine sites and the establishment of national monitoring for marine species and habitat types. In the next MFF, appropriate EMFF measures will be more important for the management and monitoring of Natura 2000.

PROVISIONAL TRANSLATION

D.4. LIFE Programme

Type of project or financing instrument	Current allocation to measures relevant for Natura 2000		Comments (number of projects, relevance, experience to-date, challenges for the next period)
	EU	National	
Traditional projects	6 185 066 ²⁸	3 597 217	8 projects in 2014-2018*; in 3 projects (bolded) the Republic of Croatia is the Lead partner country, and in 5 projects Croatian institutions are partners. In January 2020 started the implementation of the project " <i>Management planning and restoration of Dinara dry grasslands to save biodiversity and support sustainable development - Dinara back to LIFE</i> " with a total budget of 1 296 509 EUR, of which the EU co-finances 777 903 EUR and the national contribution is 518 606 EUR. All project partners are from the Republic of Croatia.
Integrated projects			
Others (NCFE etc.)			
Subtotal	6 185 066	3 597 217	
TOTAL	9 782 283		

***LIFE Artina - LIFE Artina - seabird conservation network in the Adriatic**

LIFE EUROTURTLES - Collective actions for improving the conservation status of the EU sea turtle populations

DRAVA LIFE - DRAVA LIFE Integrated River Management

WISEDRAVALIFE - Wise water management for the conservation of riverine and floodplain habitats along the Drava River

LIFE Old-Drava - Transboundary cooperation for revitalization of riverine habitat complex in Drava region within Natura 2000 sites

LIFE Against Bird Crime - Delivering the EU Biodiversity Strategy: Awareness and Capacity Building against Bird Crime in Priority Flyway Countries

LIFE Lynx - Preventing the extinction of the Dinaric-SE Alpine lynx population through reinforcement and long-term conservation

LIFE DINALP BEAR - Population level management and conservation of brown bears in northern Dinaric Mountains and the Alps

The use of LIFE in current MFF is restricted due to uncertain national co-financing. The Environmental Protection and Energy Efficiency Fund (hereinafter: EPEEF) has become more involved in the last two years and is expected to provide systematic co-financing for LIFE projects in the next MFF. Given that LIFE will finance strategic projects (SNaPs) in the new MFF, it is likely that the Republic of Croatia will make greater use of LIFE in the future for nature protection.

D.5. Other EU funds, including Interreg:

²⁸ EU contribution to Croatian users

Total EU co-funding allocated from other EU programmes for the implementation of EU nature policy and associated green infrastructure in the Member State/region: **31 587 626 EUR**.

Total national/regional funding allocated for the co-funding of these measures: **5 569 310 EUR**.

Interreg (European territorial cooperation in the Republic of Croatia for the period 2014 - 2020)

The total allocation for European Territorial Cooperation at the start of the current MFF was 1 715 482 798 EUR from the European Regional Development Fund and IPA funds.

Within these programs, the share of Croatian partners in projects related to natural heritage and/or biodiversity is 31 317 626 EUR in the EU part, or a total of 36 859 936 EUR (EUR 5 542 310 is national co-financing).

In this MFF, Interreg has financed a number of projects in which institutions and NGOs from the Republic of Croatia are their leaders or partners: cross-border projects (Interreg V-A Italy-Croatia, Interreg V-A Hungary-Croatia, Interreg V-A Slovenia-Croatia, Interreg IPA Croatia-Serbia) and transnational projects (Interreg V-B Danube, Interreg V-B Adriatic-Ionian, Interreg V-B Mediterranean and Interreg V-B Central Europe). In most of the projects, public institutions for the management of protected areas are involved as partners.

European Union Transition Facility for Croatia

This instrument funded a one-year project “Strengthening the role of the Croatian Environmental Protection Agency in informing and raising public awareness in the fields of environment, climate change, nature protection and biodiversity - Diverterra Educational Information Center”. The total value of the project is 270 000 EUR - 90% of the contracted amount (243 000 EUR) was financed by the Transition Instrument program and 10% (27 000 EUR) was national co-financing.

D.6. Other (mainly national) funding for Natura 2000, green infrastructure and species protection in 2014-2020:

Total financing allocated to implementation of EU nature policy and associated green infrastructure, for measures or projects not benefiting from any EU co-funding: **144 78 mil EUR²⁹**

Nature protection in Croatia is largely dependent on the state budget, while the budgets of regional and local self-government units contribute to a smaller extent. Projects funded from international sources also play an important role in the ongoing MFF. The EPEEF provides funding for co-financing EU and international projects, and to a lesser extent co-financing national projects (e.g. MESD project to establish a Speleological Database CroSpeleo and the Bird Ringing Project of the CASA Institute of Ornithology (for 341 823 EUR)). Revenues from PIs’ own activity for managing national parks and nature parks, which in the current MFF amount to an average of 63 m EUR/year, are invested in nature protection. The contribution of the private business sector towards financing nature conservation is very small.

²⁹ The sum is obtained by adding: D.6.1, D.6.2. and approximation for the entire MFF for categories D.6.3.-D.6.6.

Total financial resources for D.6. include several major cost categories³⁰ (D.6.1.-D.6.6.) that include practically all PAF relevant funding in 2014-2018. The costs of projects of individual scientific and other institutions contributing to the conservation of species and habitats of EU interest were not included, as such detailed data could not be collected. Other contributions made by various stakeholders, sectoral institutions, the business sector involved in the implementation of projects and appropriate assessment procedures and others cannot be reflected in this calculation.

Costs D.6.1. and D.6.2. refer to projects that are completed, while for cost categories D.6.3.-D.6.6. the average annual consumption is calculated and the approximation made for the seven-year period.

D.6.1. Projects financed from international sources – 20 m EUR

A key strategic project of the MEE that was largely implemented in this MFF (project duration: 2011-2017) is the **"EU NATURA 2000 Integration Project - NIP"**, financed by a World Bank loan of 140 m HRK (18.9 m EUR). The results of the project include strengthening the capacity of public institutions to manage protected areas, including substantial investment in the construction of visitor infrastructure; collecting and integrating existing data on Croatia's biodiversity; development of the Nature Protection Information System; development of a map of non-forest terrestrial habitats of the Republic of Croatia; drafting of the measure Agriculture, Environment and Climate Change under the Rural Development Program (hereinafter:(RDP); preparation of strategic projects for financing from the OPCC for 2104-2020. and others. Also significant was the UNDP-GEF project "Strengthening the Institutional and Financial Sustainability of the National Protected Area System – PARCS" (4.4 m EUR - GEF Grant) and several long-term projects funded from international sources ("Towards strengthened conservation planning in South-Eastern Europe"; ESENIAS TOOLS - Invasive alien species networking for information exchange and capacity building, MedMPAnet - Regional Project for the Development of a Mediterranean Marine and Coastal Protected Areas (MPAs) Network through the boosting of MPA creation and management, WWF MedPAN South project - phase II - SEA-Med - Development of sustainable economical activities in marine nature parks and WWF Dinaric Arc Parks for a total value of **0.9 m EUR**).

D.6.2. MESD and SINP/CAEN³¹ projects funded from national sources - 1.13 m EUR

There are 11 authorized wildlife rescue centers in Croatia which take care for strictly protected native animal species that are found sick, ill, injured, wounded or poisoned or have been confiscated due to illegal taking from nature, possession, cross-border traffic and trade. The

³⁰ Funds spent up to 31 December 2018 (the average annual consumption is 20% of the aforementioned funds) respectively by 31 December 2020 (damage compensation)

³¹ In 2015, the State Institute for Nature Protection (SINP) was merged with the Environmental Protection Agency into the Croatian Agency for Environment and Nature (CAEN), which in 2019 was annexed by the MEPP as the Institute for Environment and Nature Conservation

MESD regularly co-finances five of them that are being held by NGOs. By the end of 2018, **450 670 EUR** was spent in the current MFF.

The EPEEF co-financed several SINP/CAEN projects whose total value (excluding co-financing from the NIP project reported under D.6.1) was **682 276 EUR**. The projects concerned the development of a Nature Protection Information System (NPIS) for the implementation of Natura 2000 as well as the preparation for reporting obligations under the EU Nature Directives and the preparation for the establishment of Natura 2000 management (defining conservation objectives and measures).

D.6.3. Projects and activities of public institutions (PI)³² funded from national sources - 26.7 m EUR (cost 2014-2018)

As part of its regular activities, the PIs carry out various activities and projects which, inter alia, relate to: development of management plans for Natura 2000 sites, monitoring of target species and habitats of Natura 2000 sites, activities for habitat maintenance/restoration, conservation of strictly protected species and more. Funding sources include the state budget, EPEEF, regional and local self-government units' budgets, and others. For the purposes of developing the PAF, data were collected from 31 PIs out of a total of 45 regarding their relevant costs for the 2014-2018 period from national funding sources. The resulting amount of 20 m EUR for a five-year period was increased by 30% as an approximation of the costs of the remaining 14 PIs. The total cost is 26.7 m EUR, i.e. an average of 5.3 m EUR/year, **or approximation for the entire MFF is 37.1 m EUR**. The above amount does not include administrative costs (see D.6.4) and co-financing by EPEEF for payments made by the PIs as compensation to the owners of facilities containing the White Stork nests (see D.6.6).

D.6.4. Administrative costs (salaries and running costs) - 47.05 m EUR (cost 2014-2018)

Expenditure on salaries charged to the state budget in 2014-2018 relate to the salaries of MEE employees (for Nature Protection Directorate and Inspection Directorate - Nature Protection Inspection Division; ex-SINP/CAEN and PIs for the management of national and nature parks. The salary amount is increased by 25% in relation to the related running administrative costs for employees. The total cost is **35 m EUR**, **or approximation for the entire MFF is 49 m EUR**.

Costs for salaries of regional self-government units (counties, City of Zagreb) increased by 25% amount are **10.25 m EUR** (i.e. **approximation for the entire MFF is 14.35 m EUR**), and for public institutions of local government units with an additional 25%, **1.8 m EUR** (that is, **the approximation for the whole MFF is 2.52 m EUR**).

³² 19 PIs for the management of national and nature parks founded by the Government of the Republic of Croatia are included; 21 PIs for management of protected areas founded by the County/City of Zagreb (regional self-government units) and five PIs for management of protected areas founded by municipalities/cities (local self-government units). All PIs are responsible for managing individual Natura 2000 sites.

D.6.5. NGOs - 3 m EUR (cost 2014-2018)

Several larger NGOs have participated in the ongoing MFF in the implementation of various LIFE and OPCC projects (funding is provided in the relevant chapters) and implemented a number of smaller projects co-financed by county and local PIs, or used donations, such as the Swiss MAVA Foundation.

As the costs financed by EU funds and PIs have been reported in the previous chapters, only additional resources have been included here, most of which relates to MAVA. Additional funds are around 3 m EUR for the period 2014-2018, i.e. 0.6 m EUR/yr. and **the approximation for the entire MFF is 4.2 m EUR.**

D.6.6. Compensation for damage from strictly protected species –16.84 m EUR (cost 2014-2020)

The MESD regularly makes **compensation payments for strictly protected species** in the amount of approximately 270 000 EUR/year, i.e. 2.16 m EUR for the period 2014-2021, i.e. **the approximation for the entire MFF is 1.89 m EUR**, of which about 90% relates to damage made by the Wolf, and 10% relates to other strictly protected species (damage to crops and objects etc.). There is considerable damage made by fish-eating birds, especially the Great Cormorant *Phalacrocorax carbo*, on large carp fishponds, all of which are included in Natura 2000 for their ornithological value. Ministry of Agriculture has paid to the fish farms state support "for the maintenance of ecosystems of carp fishponds" - a total of 3.5 m EUR in the period 2014-2016. From 2018 annually, the aid is paid as compensation "for damage from various species of birds and other animals on carp fishponds", and in period 2018-2020 allocated of 8.7 m EUR. Since 2017, the Ministry of Agriculture has launched a call for the measure "Protection and restoration of marine biodiversity and marine ecosystems and compensation regimes in the framework of sustainable fishing activities - compensation for damage caused by mammals"³³, referring to the damages done by **dolphins** on fishing nets. For the period 2017- 2020, compensation of 2.2 m EUR was paid. Damage caused by the activities of the **Beaver *Castor fiber***, which is a strictly protected species but under the jurisdiction of the Ministry of Agriculture as a species on the game list, is paid by the owners/lessees of certain hunting grounds in which the damage occurred, in accordance with the Hunting Act (Official Gazette, no. 99/18, 32/19 and 32/20). During 2017 and 2018, 8 783 EUR was disbursed, while litigation was initiated for some damages. The EPEEF paid 270 000 EUR in the period 2009-2018 to **compensate the owners of objects with the White Stork nests**³⁴ - an average of 27 000 EUR/year, i.e. 135 000 EUR for the period 2014-2018, i.e. **the approximation for the entire MFF is 0.19 m EUR.**

Considering the information presented in Chapter D, it can be concluded:

³³ Ordinance on the conditions, criteria and method of granting State aid under the program "Protection and restoration of marine biodiversity and marine ecosystems and compensation regimes in the framework of sustainable fishing activities" - Compensation for damage caused by mammals (Official Gazette, no. 84/17, 20/19, and 104/21)

³⁴ Roofs with the White Stork nests need to be renovated every 10 years for damage; costs of approximately HRK 15 000 are reimbursed through annual payments over a ten-year period - the EPEEF pays 700 HRK per nest, and the rest is reimbursed by the county public administrations, as shown in D.6.3.

The Republic of Croatia systematically implements its main commitments to the Bird and Habitat Directives through major strategic projects: NIP funded by a World Bank loan (2011-2017) and several OPCC projects in the current MFF (up to 2023). Strategic projects, including significant investments in the procurement of equipment and the construction of visitor infrastructure, are also a major contributor to county/local PIs managing most of the Natura 2000 sites, which have very modest budgets allocated by the competent regional/local government units. Non-governmental organizations also play a significant role in the implementation of strategic projects.

In the ongoing MFF, the OPCC made a key contribution to the protection of nature by financing the strategic projects of the MESD and the PI investment projects related to increasing the attractiveness and educational capacity and establishing better management of visitors to protected areas. The important role of the EPEEF is highlighted, primarily through financial resources obtained from emission trading system, which ensures national co-financing of strategic national projects of the MESD and EU-funded NGO projects, including LIFE. Additional co-financing of national NGO projects is expected in the coming period, which is especially important for many small NGOs that are not able to apply for high value tenders and receive modest funding from the Office for NGOs of the Government of the Republic of Croatia.

National allocations from EAFRD and EMFF have made relatively small contributions to nature protection up to the time of the creation of this PAF. EMFF has not been used at all in relation to the Natura 2000 issues. EAFRD has a very well-designed measure for non-productive investments (4.4.1). Tender for measure 4.4.1. was published in October 2020, the processing of the request is in progress. The measure Agriculture, Environment and Climate Change is also well designed, but so far, the funds withdrawal has been very low. In 2019, amendment in the PRD reallocated part of the funds from Measure 11 Agriculture, Environment and Climate Change in Measure 11 Organic farming.

Compared to the period before the accession of the Republic of Croatia to the European Union, much larger financial resources for nature protection are available today, but the problem of low human capacity remains, with a significant increase in obligations and competencies, both at the state and local (regional) level. The consequence of this problem is, among other things, low capacity for the necessary administrative procedures related to the withdrawal and realization of EU funds.

E. Priority measures and financing needs for 2021 – 2027

In its planning of activities for the next MFF, Croatia starts from the starting point that by 2023 the expected results of strategic OPCC projects from the current MFF will be achieved, and that the remaining priority needs and commitments of Republic of Croatia indicated in this PAF will be met through follow-up strategic priorities listed in the table below:

- SP1 Improved management of protected area network (protected areas and Natura 2000) and species through development of management plans (MP) for species and areas and implementation of priority management activities - estimated value 1 126 679 491 EUR

Within this strategic priority following interventions are envisaged: Development of management plans for the ecological network Natura 2000, including forest and forest land management plans that are considered as ecological network management plans; Implementation of priority management activities/conservation measures of Natura 2000 sites; Development of management plans with action plans (hereinafter: MPAPs) for 5 priority strictly protected species and for 2 groups of endangered species/habitats and implementation of at least 11 developed MPAPs; Management and control of the spread (including rapid eradication) invasive alien species (hereinafter: IAS) from the Union list and national blacklist; Cooperation with sectors related to implementation of the management and conservation measures; Strengthening the capacities of all those responsible for managing Natura 2000 sites (PIs, MESD, Ministry of Agriculture, other sectors, authorized personnel, State Inspectorate, etc.) as well as for implementation of MPAPs and plans related to IAS, including education and development of system tools, as well as procurement of management related equipment; The Nature Protection Information System will be updated, modernized and upgraded; Renovation of visitor infrastructure and of existing facilities for the purpose of their inclusion in the visits/education system in protected areas, with the aim of reducing pollution and environmental footprint; Extensive activities will be undertaken related to communication of Natura 2000 network to stakeholders and the general public; A branding system for Natura 2000 products will be developed; and PAF proposal for MFF 2028-2034 will be developed.

- SP2 Implementation of priority restoration activities, including restoration of green infrastructure out of urban area - estimated value 404 401 039 EUR.

Within this strategic priority following interventions are envisaged: Restoration of degraded ecosystems within the Natura 2000; and Restoration of green infrastructure outside of Natura 2000 sites (with the aim of raising the conservation status of species and habitats and connectivity of Natura 2000 sites), including carbon-rich ecosystems.

- SP3 Development of nature monitoring system of Republic of Croatia, including development of national tools for achieving objectives of the EU Biodiversity Strategy for 2030- estimated value 39 134 060 EUR.

Within this strategic priority, following interventions are envisaged: Implementation of national programme monitoring of species and habitat types, including IAS and development of national reports on the state of conservation of nature compounds; Implementation of monitoring effectiveness of Natura 2000 management sites;

Monitoring of effectiveness of horizontal sectoral measures for individual species and habitat types, which are regulated through the appropriate assessment of sectoral plans; Identification of forest areas and other ecosystems suitable for strict protection; Analysis and assessment of functionality existing network of protected areas in national categories; Identification of the IUCN management categories for all protected areas and ecological network sites; Development of a monitoring system for objectives achievement of the EU Biodiversity Strategy for 2030 and appropriate IT tools.

- **SP4 Development of a complete habitat map and map of ecosystems conditions and their services, including ecosystem services accounting - estimated value 18 450 180**

EUR:

Within this strategic priority, following interventions are envisaged: Development of complete habitat map of the Republic of Croatia through mapping of remaining marine and updating the map of terrestrial habitats, including mapping of rainforest ecosystems and their services; and Development of ecosystem accounting.

Achieving the measures envisaged by PAF is crucial for achieving climate goals and policies, so investment in new MMF will be aimed at reducing the vulnerability of natural systems to the negative effects of climate change and strengthening their resilience and ability to recover. Great importance will have measures to increase protected areas, restore ecosystems and green infrastructure and development of monitoring system of state of nature, which includes climate change monitoring and ecosystem management. These measures will contribute to the overall increase carbon sink in order to achieve climate neutrality.

E.1. Horizontal measures and administrative costs related to Natura 2000

E.1.1. Site designation and management planning

Current status and progress made so far in terms of site identification, designation and management planning (situation: 31/12/2021)

Site designation

Croatia has a large Natura 2000 network, the second largest in terms of surface area (after Slovenia). Species and habitats of interest to the EU are represented by large proportions of their populations/areas in Natura 2000. Based on the conclusions of the 2014 Biogeographic Seminar for Croatia, it was necessary to make smaller additions to the land network and to address significant scientific reserves regarding the sea: SCI RES for the Posidonia beds (1120 *) and for the Loggerhead sea turtle *Caretta caretta* - in the whole MMED region, and scientific reserve SCI RES for Reefs (1170) and for the Common bottlenose dolphin *Tursiops truncatus* in the offshore waters.

Regulation on the amendments to the Regulation on the Ecological Network (OG No. 105/15) Natura 2000 was revised in such a way that requirements from Biogeographic seminar were incorporated based on available scientific data. In the following years, additional data were collected and a new more detailed Map of non-forest terrestrial habitats of Republic of Croatia from 2017 was used, so Natura 2000 was revised once again in 2019 by the Regulation on the Ecological Network and the Jurisdiction of Public Institutions for the Management of Sites of

Ecological Network. In this way, the SCI network in the mainland is considered complete, with minor changes and additions possible based on new scientific data. The situation is similar with the SPA network, which can be supplemented exceptionally based on new research.

For the purpose of resolving scientific reserves and completing the marine part of Natura 2000, the OPCC project “Mapping of coastal and benthic marine habitats in the Adriatic Sea under national jurisdiction - Marine habitats” is implemented, through which at least 50% of marine habitats will be mapped by 2023 as a basis for the designation of new Natura 2000 marine sites. The LIFE -EUROTURTLES (2016-2021) and LIFE-ARTINA (2018-2023) projects will provide new data for evaluating areas of importance for sea turtles in the Adriatic, i.e. for seabirds in the offshore part of the central Adriatic.

Management Planning

The development of management plans for Natura 2000 sites is mandatory under the Nature Protection Act. So far, six sites (national parks and nature parks) have adopted management plans from 2016, 2017 and 2019 that adequately include the Natura 2000 conservation objectives and measures, and five of them have been designated as SACs by the Regulation on the Ecological Network and the Jurisdiction of Public Institutions for the Management of Sites of Ecological Network. The SPA conservation objectives and measures are prescribed by the Ordinance on Conservation Objectives and Conservation Measures for the Target Bird Species in the Ecological Network Areas.

The expected results of the ongoing OPCC project "Development of Natura 2000 Management Framework - Natura Management" include defining conservation objectives and measures for all Natura 2000 sites and developing management plans for at least 40% of the area. At the moment, the project has adopted or is in the process of adopting management plans for 19 areas of the Natura 2000 ecological network. Through the complementary OPCC „Ecomanager“ project, forest and forest land management plans will be developed that are considered as ecological network management plans, covering about 380 000 ha of forest and forest land inside Natura 2000. OPCC projects end in 2022/2023.

Sites of Community Importance (SCIs) under the EU Habitats Directive	Number of sites	Number of sites with:		
		legal site designation (SAC or equivalent)	specific site level conservation objectives	specific site-level conservation measures
SCI	745	5 ³⁵	5	5
Total				

Number of sites with:

³⁵ The Regulation on the Ecological Network and the Jurisdiction of Public Institutions for the Management of Sites of Ecological Network (Official Gazette, No. 80/19)

Special Protection Areas (SPAs) under the EU Birds Directive	Number of sites	legal site designation (SAC or equivalent)	specific site level conservation objectives	specific site-level conservation measures
SPA	38	38	38	38
Total				

Further measures needed

In order to improve knowledge of the state of marine biodiversity, as a basis for an effective implementation of the Habitat Directive, the Birds Directive and the Marine Strategy Framework Directive, map all marine habitats, which are not covered by mapping at least 50% of marine habitats through the OPCC project “Mapping of costal and benthic marine habitats in the Adriatic Sea under national jurisdiction”. Mapped habitats of the entire Adriatic Sea under national jurisdiction are the basis for monitoring the conservation status of marine habitat types and species in accordance with the Habitats Directive, the state of marine conservation in accordance with the Maritime Strategy Framework Directive through indicator D1. Biodiversity and D6. Integrity of the seabed and the Integrated Monitoring and Assessment Program (IMAP) under the Barcelona Convention (Common Indicator 1-Habitat Distribution Ecological Objective 1-Biodiversity). Also, up-to-date and complete map of marine habitat types is the basis for updating the spatial plan of marine area in accordance to Directive on the Establishment of a Framework for Spatial Planning of the Marine Area. An up-to-date and complete map of marine habitats enables updating the Natura 2000 marine sites, including habitat type 1170 Reefs in the area outside the costal sea. In accordance with the Mediterranean Regulation, the Republic of Croatia should specifically regulate fishing in the area: “seagrass bottoms”, “coralligenous habitat” and “mäerl covered bottom”, and establish protected fishing area to improve the exploitation and conservation of living aquatic resources or conservation of marine ecosystems. For spatial definition of these regulations and decision-making, it is necessary to have complete map of these habitats.

Evaluate the Adriatic area (primarily the northern and southern part) in order to identify potential new areas important for bird conservation (SPA).

Develop management plans (MPs) for the remaining 60% of the Natura 2000 area as well as forest and forest land management plans considered as ecological network management plans. Also, carry out a 10-year review of five MPs from 2016 and 2017.

Strengthen the capacities of all those responsible for management of the Natura 2000 sites (PIs, MEE, Ministry of Agriculture, sectors, authorized personnel, State Inspectorate, etc.), including education and development of system tools.

Develop appropriate sensitivity maps.

Identify areas of rainforest ecosystems suitable for strict protection and other (marine and terrestrial) ecosystems suitable for protection, especially in the category of strict protection.

Analyze the functionality and representativeness of the network of all types of designated areas (Protected Areas, Natura 2000, OECM) including IUCN categorization.

Develop national management performance monitoring system of protected and ecological network areas.

Upgrade the Nature Protection Information System (NPIS) as a basis for quality management planning and implementation

Develop a PAF for the new MFF 2028-2034.

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Mapping of rainforest ecosystems and identification of marine and terrestrial areas suitable for protection, especially in category of strict protection	O	214 290	CF/ERDF
Measure 2. Analysis of the functionality and representativeness of the designated areas network	O	71 430	LIFE
Measure 3. Development of national management performance monitoring system	O	142 860	CF/ERDF
Measure 4. Mapping of marine habitats and identification of potential areas for protection	O	1 785 700	CF/ERDF
Measure 5. Identification of possible new areas important for bird conservation (SPA)	O	640 000	LIFE
Measure 6. Development of management plans for Natura 2000	O	7 546 400	CF/ERDF
Measure 7. Development of forest and forest land management plans that include Natura 2000 considered as ecological network management plans	O	3 714 285	CF/ERDF
Measure 8. Development of sensitivity maps	O	100 000	CF/ERDF
Measure 9. Capacity-building for Natura 2000 management, including education and development of system tools	O	909 290	CF/ERDF
Measure 10. Upgrading the Nature Protection Information System (NPIS) as a basis for quality planning and management implementation	O	285 700	CF/ERDF
Measure 11. Development of PAF for new MFF 2028-2034	O	10 000	CF/ERDF
Measure 12. Cross border connectivity (green infrastructure)	O	142 850	INTERREG

³⁶ For all measures where no possible funding from the Union Programme is indicated (primarily LIFE, Horizon Europe and INTERREG) in case they meet the rules of grant in accordance with provisions defined by relevant regulations funding can be provided from the Union Programme

* indicate whether the measure is recurring (R) or one-off (O)

Expected results

Provided expertise and developed tools to meet the objectives of the EU Biodiversity Strategy until 2030

Complete Natura 2000 network has been established on sea and mainland in the Republic of Croatia.

More efficient management of Natura 2000 sites, thanks to developed management plans and forest and forest land management plans considered as ecological network management plans for 100% of the area of the existing Natura 2000 network, and thanks to the strengthened capacity of PIs and sectoral stakeholders to implement conservation measures

Better quality implementation of Appropriate Assessment procedures for ecological network

Effective planning of activities in the next MFF 2028-2034.

E.1.2. Site management (administration) and communication with stakeholders

Current status and progress made so far in terms of site administration and communication with stakeholders

Natura 2000 sites are managed by public institutions (PIs) that were originally established to manage protected areas under the Nature Protection Act. Their founder is the Government of the Republic of Croatia (19 PIs for national parks and nature parks), counties/City of Zagreb (21 PIs for other protected areas) or municipalities/cities (5 PIs for certain areas, based on the consent of the competent units of local and regional self-government). By designating the Natura 2000 network in 2013, PIs were given the jurisdiction to manage a much larger area (especially county PIs), since protected areas make up about 26% of the Natura 2000 network, but their financial and human resources have not increased adequately. Mandatory development of management plans for all Natura 2000 sites and their implementation, including the necessary communication with stakeholders, requires significant additional resources. In order to ensure effective management of Natura 2000 sites and communication with stakeholders, it is necessary to strengthen the human capacities of the competent public institutions and the MESD and ensure the procurement of the necessary equipment.

Further measures needed

Increase the number of employees, i.e. the sums for their salaries and running costs, by an average of 20% over the costs in this MFF for the MESD and PIs for national parks and nature parks, and by 50% for county and local level PIs, as well as increase the number of employees of the ministry competent for agriculture and forestry (through projects).

Strengthen PIs for cooperation and assistance to farmers, forest owners, fisherman and aquaculture breeders in the implementation of the necessary conservation measures in agriculture, forestry, fisheries and aquaculture (see more detailed explanation under E.2.4) and enable each PI to be equipped with an appropriate expert on this issue.

Improve cooperation with the Ministry of Agriculture, Directorate for Professional Support to the Development of Agriculture and Fisheries in educating farmers on the implementation of the necessary conservation measures

Improve cooperation with the Ministry of Agriculture, Directorate for Forestry, Hunting and Wood Industry, Sector for Forests of Private Forest Owners in relation to the education of private forest owners on the implementation of the necessary conservation measures

Improve cooperation with fishermen / fishermen's associations / fisheries local action groups (FLAGs) and aquaculture breeders in relation to education on the implementation of the necessary conservation measures

Design and print educational materials for various stakeholder groups

Maintain regular communication with stakeholders regarding conservation measures and management plans for Natura 2000 sites and for strictly protected species (MPAP) (including stakeholders such as farmers, foresters, hunters, energy workers, etc.)

Purchase and lease of private land and other real estate for managing Natura 2000 sites

Provide the necessary equipment related to the management of Natura 2000 site

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Natura 2000 network running costs	R	11 550 000	CF/ERDF
Measure 2. Teaming up of PIs with agricultural, forestry and/or fisheries experts ³⁷	R	1 360 000	CF/ERDF
Measure 3. Equipment supply	O	714 290	CF/ERDF
Measure 4. Communication with stakeholders regarding the implementation of conservation measures	R	200 000	CF/ERDF/ EAFRD/ EMFAF
Measure 5. Purchase and lease of private land and other real estate for the purpose of managing Natura 2000 sites	O	2 000 000	CF/ERDF
Measure 6. Harmonization of management of transboundary Natura 2000 sites	O	1 000 000	INTERREG

* indicate whether the measure is recurring (R) or one-off (O)

Expected results

More efficient management of Natura 2000 sites and improved conservation status of target species and habitats

³⁷ Average 17 000 EUR/yr. x 40 Pis x 2 experts

Acceptance of Natura 2000 issues by stakeholders and their active involvement in the implementation of conservation measures

E.1.3. Monitoring and reporting

Current status and progress made so far in terms of monitoring and reporting

National monitoring programs in Croatia are prepared by the expert service of the MESD (Institute for Environment and Nature Conservation), in cooperation with external experts for individual taxonomic groups, according to the methodology developed in 2012 through the IPA MANMON project. To date, 58 programs have been developed for a total of 81 species and habitat types. By 2023, it is planned to develop monitoring programs for at least 400 species and habitat types, which will be the result of the strategic OPCC project of the MESD “Development of a system for monitoring the conservation status of species and habitat types”.³⁸

The groups currently best covered by monitoring programs are birds (31) and fish (20). Due to the lack of systematic financing of national monitoring from the state budget, only about 60% of the monitoring programs have been implemented. In 2014, the monitoring was co-financed by the EPEEF, and by 2017, NIP funds were used. The OPCC project is primarily focused on the development of new monitoring programs, and it remains a problem to finance their implementation, which will be the topic of a new planned strategic project in the next MFF.

The PIs managing Natura 2000 sites carry out various site-based monitoring with participation of their employees or hired external associates, and the results are submitted to the MESD. This monitoring has not yet been fully harmonized with the appropriate national monitoring.

The Institute of Ornithology of the Croatian Academy of Sciences and Arts, in cooperation with a network of associates, regularly implements the program of bird migration monitoring “Scientific bird ringing”. Certain sectors carry out monitoring programs relevant to some BHD species and habitats. Croatian Forests develops a database on forest associations, the Ministry of Agriculture maintains a Central Hunting Records database and also funds monitoring of the implementation of the measure of the Rural Development Program - Agriculture, Environment and Climate Change, including monitoring of common bird species in agricultural habitats, monitoring of grassland butterflies and monitoring of grassland habitats. The Institute of Oceanography and Fisheries monitors the marine ecosystem in accordance with the Marine Strategy Framework Directive. Croatian Waters conducts monitoring in accordance with the obligations of the Water Framework Directive.

Implementation of the OPCC project to establish a national system for monitoring invasive alien species is currently ongoing.

In 2019, the Republic of Croatia prepared the first national reports under the Habitats and Birds Directives. Due to insufficient data to assess the conservation status of the species, the trend for as many as 83% of bird populations, as well as the conservation status for 46% of other species,

³⁸ <http://www.haop.hr/hr/projekti>

was assessed as unknown, indicating the necessity and urgency of establishing systematic monitoring.

Further measures needed

Commence the implementation of all national monitoring programs for at least 400 species and habitat types, including commercially used species

Establish activities of PIs related to site-based monitoring in order to monitor the effectiveness of Natura 2000 site management

Conduct effectiveness monitoring of the horizontal sectoral measures for individual species and habitats

Ensure continued regular monitoring of bird migration by scientific ringing

Develop a new unique map of terrestrial habitats (forest and non-forest)

Develop new national reports on the state of nature conservation in accordance with the HD and BD by 2025

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Implement national monitoring programs for at least 400 species and habitat types, including training of monitoring participants	R	2 000 000	CF/ERDF
Measure 2. Monitoring the effectiveness of Natura 2000 site management - site-based monitoring	R	1 000 000	CF/ERDF
Measure 3. Monitoring the effectiveness of horizontal sectoral measures for individual species and habitats	R	285 700	CF/ERDF
Measure 4. Monitoring of common birds of agricultural habitats (FBI)	R	80 000	EAFRD
Measure 5. Monitoring of population of the Corncrake (<i>Crex crex</i>), including analysis of impact of grassland management	R	43 000	EAFRD
Measure 6. Monitoring of butterflies of grassland habitats, including habitat monitoring and analysis of impact of grassland management	R	90 500	EAFRD
Measure 7. Monitoring of pollinators	R	71 430	EAFRD
Measure 8. Scientific bird ringing - monitoring of bird migration ³⁹	R	-	/
Measure 9. Preparation of atlas of breeding and wintering birds for the entire territory of the Republic of Croatia ⁴⁰	O	-	/

³⁹ Implementation of the measure does not require funding from MFF 2021 - 2027

⁴⁰ See footnote 33

Measure 10. Development of a new Habitat Map of the Republic of Croatia	O	242 900	CF/ERDF
Measure 11. IAS - Design and implementation of monitoring programs for invasive alien species from the EU list and the national black list	R	142 850	CF/ERDF
Measure 12. Preparation of national reports on the state of nature conservation, including consultation with stakeholders (CBS reports 2025)	O	5 700	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

Expected results

The national monitoring system established through the OPCC project “Development of a system for monitoring the conservation status of species and habitat types and reporting under the EU Birds Directive and the Habitats Directive” is functional in all its components

National BHD reports in 2025 include a significantly smaller proportion of species with unknown conservation status, or population trends

Monitoring of the effectiveness of sectoral measures for individual species and habitats is enabled

E.1.4. Remaining knowledge gaps and research needs

Current status

For many BHD species and habitats, there is insufficient knowledge relevant to their detailed distribution, ecology and threat, which makes it difficult to effectively implement conservation measures.

Also, impact of climate change on species, habitats and ecosystems in Croatia has not yet been sufficiently researched, although the threat to their long-term conservation is real. Some progress has been made in assessing the current state and vulnerability of ecosystems to climate change.⁴¹

Further measures needed

Conduct targeted research of BHD species and habitats as a basis for effective implementation of conservation measures

Complete marine habitat map (planned under E.1.1)

Complete Speleological Database (Speleokatastar)

Conduct research to define quotas and measures for species used commercially, including species listed in Annex V of the Habitats Directive

Conduct mapping and assessment of the state of ecosystems and their services, and develop economic accounts of natural capital

⁴¹ [State of nature report for the period 2013.-2017.](#)

Conduct research into the impact of invasive alien species on biodiversity and ecosystem services

Conduct research of pollinators

Conduct research on the impact of climate change on species and habitats of HBD

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Research related to the unfavorable conservation status of forest habitats	O	285 700	CF/ERDF
Measure 2. Research of insufficiently known BHD species ³⁹	O	100 000	CF/ERDF
Measure 3. Other specialist professional and scientific research for the purpose of conservation and monitoring of species and habitats	O	185 720	LIFE
Measure 4. Completing the database of speleological objects (Speleokatastar)	O	-	/
Measure 5. Investigating the impact of invasive alien species on biodiversity and ecosystem services, with particular emphasis on pollinators	O	142 850	CF/ERDF
Measure 6. Analysis of the spread of invasive alien species due to anthropogenic environmental changes	O	142 850	CF/ERDF/ EMFF
Measure 7. Research to define quotas and measures for species used commercially, including species listed in Annex V of the Habitats Directive	O	142 850	EMFF
Measure 8. Determining the impact of climate change on species and habitats - monitoring bird migration	O	714 290	CF/ERDF/ HORIZON EUROPE
Measure 9. Research related to marine species (sustainable use, reduction of by-catch, status determination)	O	142 850	EMFF
Measure 10. Research of pollinators	O	14 290	CF/ERDF
Measure 11. Sensitivity and connectivity analyze of Natura 2000 sites (connectivity corridors)	O	7140	CF/ERDF
Measure 12. Defining ecologically acceptable flow and necessary ways of adapting the operation of HPPs	O	142 850	CF/ERDF LIFE
Measure 13. Mapping and assessment of the state of ecosystems and their services, and develop economic accounts of natural capital	O	250 000	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

Expected results

Scientific basis for defining and effectively implementing conservation measures and appropriate national monitoring for BHD reporting

E.1.5. Natura 2000-related communication and awareness raising measures, education and visitor access

Current status

Significant information and awareness-raising activities related to the Natura 2000 network, education and access to visitors, have taken place in the ongoing MFF, mainly within the framework of individual projects. The NIP project, financed by a World Bank loan, provided significant investments in visitor infrastructure of public institutions (visitor centers, educational trails, promotional materials, etc.) by 2017. Such investments are also being made through the ongoing OPCC under Specific objective 6c2 “Increasing the attractiveness, educational capacity and sustainable management of natural heritage destinations”. This created the preconditions for higher quality appropriate activities of many public institutions, especially county ones, which for the most part did not have any visitor infrastructure.

As part of the NIP project, a communication strategy for the Natura 2000 network was developed and is being implemented through the ongoing OPCC Natura 2000 Management project.

Through the Diverterra project, CAEN has developed the mobile application "N3VR Diverterra Virtual Museum" (3D virtual world of natural biodiversity in which the user can move virtually in all directions) as a first step towards establishing a modern and innovative Diverterra Information and Education Center (IEC) in the area of environmental protection, climate change, nature protection and biodiversity. These activities have resulted in attracting more visitors to Natura 2000 sites, especially protected areas, which cover about a quarter of the total ecological network. Several such areas, such as the Plitvice Lakes, Krka and Brijuni National Parks, have a problem with too many visitors and, during the ongoing MFF, have drawn up and begun implementing visitor management plans while limiting visitors' daily quota.

Further measures needed

Continue implementation of the Natura 2000 network communication strategy (campaigns, publications, TV spots, websites etc.)

Establish an administrative framework and commence with implementation of the Natura 2000 product branding system, in collaboration with PIs and relevant stakeholders

Provide co-financing for information, education and awareness raising activities related to the Natura 2000 network implemented by NGOs, through the small grants system

Develop a web portal of the Nature Protection Information System (Bioportal) and relevant institutions web sites

Maintain existing and build new visitor infrastructure

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Communication of Natura 2000 to stakeholders and the general public (campaigns, publications, TV spots, websites)	O	557 140	CF/ERDF/EMFF
Measure 2. Branding of Natura 2000 products	O	142 850	CF/ERDF
Measure 3. Information, education and awareness raising activities related to the Natura 2000 network implemented by NGOs	R	285 700	ESF
Measure 4. Development and maintenance of Biportal and websites of the MESD and PIs	R	142 850	CF/ERDF
Measure 5. Activities to reduce the incidence of environmental crime and offenses ⁴²	O	1 317 156	LIFE
Measure 6. Maintain existing visitor infrastructure and restoration of facilities for inclusion in the visitors/education system	O	10 000 000	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

Expected results

More visitors to the Natura 2000 sites and other adequately educated citizens whose awareness of nature protection has been developed

Developed branding of Natura 2000 products, including sustainable tourism and visiting protected areas

E.1.6. References (for horizontal measures and administrative costs related to Natura 2000)

Web sites: ex-CAEN <http://www.haop.hr/hr/pocetna-stranica>; MESD-nature protection <https://mzoe.gov.hr/o-ministarstvu-1065/djelokrug-4925/zastita-prirode/1180>; national parks and nature parks <http://www.parkovihrvatske.hr/parkovi>; Nature Protection Information System <http://www.biportal.hr/>; web sites of individual county PIs

⁴² Includes the development of a national environmental crime report, the development and implementation of a national action plan for the suppression of wild animals illegal killing, and the development and implementation of a National action plan for the suppression of wild animals poisoning and part of project costs Balkan Detox LIFE in amount of 260.093 EUR, i.e. 37.156 EUR/annual

E.2 Site-related maintenance and restoration measures, within and beyond Natura 2000

E.2.1. Marine and coastal waters

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total (km ²)	Conservation status	CM#
1110	Sandbanks which are slightly covered by sea water all the time	375.91			XX	√
1120	Posidonia beds (<i>Posidonia oceanica</i>)*	159.83			U1	√
1130	Estuaries	75.71			U1	√
1140	Mudflats and sandflats not covered by sea-water at low tide	0.75			XX	√
1150	Coastal lagoons*	5.48			XX	√
1160	Large shallow inlets and bays	110.45	2.8	112.53	XX	√
1170	Reefs	150			U1	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

The detailed distribution of marine habitats is not yet known, and a project on marine habitat mapping is currently underway, that will enable the evaluation of the total area of marine and coastal waters from the nature protection point of view. The most valuable known habitat types of HD are included in Natura 2000, and the greatest doubt is the distribution of Posidonia beds and reefs. It is expected that new Natura 2000 sites will be designated for 1120* and 1170 after marine habitat mapping.

Certain marine habitats, especially Posidonia beds (1120*) and reefs (1170), are known to be locally threatened by fishing, nautical tourism (e.g. anchoring) or mariculture. For the Posidonia beds in the northern part of the eastern Adriatic, there are analyses with negative trends in the last 50 years. Complex estuary habitats also have unfavourable conservation status. For other habitats, the status was evaluated as unknown. Seawater pollution, both from land and from the sea, threatens all types of marine habitats. In addition, coastal water habitats (1130, 1140, 1150, 1160) are exposed to various anthropogenic pressures due to the development and intensive use of the coastal area, especially in relation to tourism and recreation, and in some cases the illegal construction and arrangement of beaches. Invasive alien species pose a threat to biodiversity of all habitat types. Conservation measures must be implemented for all habitat types.

The restoration of certain degraded sites can be achieved by limiting threatening activities and allowing the ecosystem to regenerate naturally over time. In some cases, it is necessary to plan artificial habitat restoration, e.g. restoration of Posidonia settlements by transplanting Posidonia shoots. In the settlements of Posidonia, it is necessary to carry out activities for the restoration of endangered populations of the Persian *Pinna nobilis*, which have experienced a drastic decline in recent years. Certain marine and coastal habitats listed by the Habitats Directive need

to be cleaned of accumulated waste. HD species of marine and coastal waters include Natura 2000 target species - *Tursiops truncatus* and *Caretta caretta*, which are in favourable conservation status. However, several sedentary species characteristic of particular habitat types are in unfavourable conservation status. For example, the characteristic species for 1170 *Coralium rubrum* is rated U1 (degraded habitats in shallower areas, illegal coral extraction, changes in water temperature due to climate change), and *Lithophaga lithophaga* as U2, (primarily due to illegal extraction, which also results in habitat destruction); the characteristic 1120 species *Pinna nobilis* also has U2 status and is currently exposed to mass extinction for yet undetermined reasons (pathogens).

Habitat types 1130, 1140, 1150 and 1160 are important for a wide range of waterbirds and waders during their migration and wintering. Although the conservation statuses for some of these habitats have been evaluated as unknown, it is a fact that these are very sensitive habitats, being exposed to intense anthropogenic impacts.

Measures needed to maintain or restore favourable conservation status

This is a very complex group of habitats whose conservation requires a full range of different types of measures. Numerous **regulatory provisions**, primarily related to the prohibition of construction in the coastal zone and the preservation of seawater quality, have already been adopted, however, their implementation is still insufficient. Management plans for marine Natura 2000 sites will include more detailed conservation measures for individual habitats in particular sites, such as: prohibition of construction and embankment; ban on anchoring; regulating the use of fishing gear; limiting the number of visits or divers and more.

The necessary **active measures** for the maintenance and restoration of these habitat types include:

Remove of invasive alien species from the most endangered locations, i.e. where possible

Provide a sufficient number of eco-moorings in the area of Posidonia beds distribution, beyond permanent anchorages

Restoration of certain localities of Posidonia settlements

Carrying out activities for the restoration of endangered populations of the *Pinna nobilis*

Cleaning of certain marine and coastal habitats from the list of the Habitats Directive from accumulated waste

Fees for permanent cessation of fishing activities and purchase of towed fishing gear (towed fishing gear related to seagrass settlements, especially Posidonia meadows and reefs)

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Removal of invasive alien species in Natura 2000 sites	O	5 locations	245 000	CF/ERDF
Measure 2. Establishment of environmentally friendly anchorages (eco-moorings)	O	20 locations	300 000	CF/ERDF
Measure 3. Adoption and implementation of regulatory provisions for the conservation of marine habitats ⁴³	O			/
Measure 4. Restoration of posidonia meadows	O	5 locations	142 857	CF/ERDF
Measure 5. Restoration of the <i>Pinna Nobilis</i> population	O		113 000	CF/ERDF
Measure 6. Cleaning of marine and costal habitats from anthropogenic waste	O	20 locations	85 715	CF/ERDF
Measure 7. Fees for permanent cessation of fishing activities and purchase of towed fishing gear	O	licence number	2 000 000	EMFF ⁴⁴
Measure 8. Replacement of materials in fishing, shellfish and mariculture with materials less harmful to the environment (biodegradable nets for shellfish farming, etc.)	O		50 000	EMFF

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Establishment of environmentally friendly anchorages	O	10 locations	150 000	CF/ERDF
Measure 2. Adoption and implementation of regulatory provisions for the conservation of marine habitats ⁴³	O			/
Measure 3. Removal of invasive species outside Natura 2000 sites	O	5 locations	245 000	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Improved conservation status of 1120 * and 1170 habitat types and related species

Expected results: other benefits

⁴³ Implementation within the regular activities of the competent services (administrative bodies, public institutions, inspection, police)

⁴⁴ Co-financing the purchase of fishing gear is still under discussion with the EC and it has not been confirmed that this activity can be co-financed through EMFF.

In the long term, improving the conservation status of 1120* and 1170 habitat types will contribute to the richness and better status of fishery resources as well as to better quality of other marine ecosystem services

E.2.2. Heathlands and shrubs

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total (km ²)	Conservation status	CM #
4030	European dry heaths	0.12-1.4 CON 2.5 ALP	0-3.4	2.12-4.8	U1-ALP, U2-CON	√
4060	Alpine and Boreal heaths	80	10	90	FV	√
4070	Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (<i>Mugo-Rhododendretum hirsuti</i>)*	70	0-30	70-100	FV	
5130	<i>Juniperus communis</i> formations on acid or calcareous substrate	6.5-18	2-6	8.5-24	FV	
5210	Arborescent matorral with <i>Juniperus spp.</i>	285-700	280-600	565-1300	FV	
5330	Thermo-Mediterranean and pre-desert scrub	1.1	0	1.1	FV	
92D0	Southern riparian galleries and thickets (<i>Nerio-Tamaricetea</i>)	0.01	0	0.01	FV	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

With the exception of European dry heaths (4030), habitat types in this category are in a favourable conservation status and for most, no additional conservation measures are required. 5330 and 92D0 are only present in small sites that are all within Natura 2000. Mountain habitats 4060 and 4070 occur on larger areas in higher mountain zones and are not exposed to significant threats. Scrub habitat types 5130 and 5210 spread naturally at the expense of threatened grassland habitats or 4030 heaths. Therefore, in managing individual Natura 2000 sites, it is important to determine their preferred ratio to grasslands and heaths and to adjust planned activities accordingly. European dry heaths (4030) are found in Croatia on the edge of their natural range, represented on acidic dry soils. They come in complex with various grassland habitats. Formerly maintained by grazing, sometimes even by burning, today they are susceptible to overgrowth and converting to shrubs and forests. Large heath areas in Lika are overgrown with *Pteridium aquilinum*, traditionally harvested as litter for livestock. It is important to encourage extensive livestock farming for the conservation of heathlands, which

can be achieved through EAFRD measures, since heathlands are registered in LPIS as agricultural land, mainly pastures. In the current RDP, the appropriate measure is Measure 11 Organic farming. The overgrown heath areas need to be restored and their further maintenance ensured.

Measures needed to maintain or restore favourable conservation status

Remove woody vegetation on overgrown heaths 4030 and occasionally on habitats 4060 and 92D0

Restore a part of the 4030 heaths overgrown with *Pteridium aquilinum*

Encourage extensive livestock farming as stated in E.2.4, since these are small areas that occur in grassland complexes

Prioritization of measures to be implemented during the next MFF period

Priority measures relate to habitat type 4030

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Restoration of heaths (removal of <i>Pteridium aquilinum</i> , woody vegetation, etc.) ⁴⁵	O	70 ha/7 yr.	20 000	EAFRD

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Improved conservation status of habitat type 4030

Expected results: other benefits

Higher quality ecosystem services provided by heaths

E.2.3. Bogs, mires, fens and other wetlands

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

⁴⁵ Estimated cost of 2000 EUR/ha

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
1310	Muddy shores overgrown with species of the genus <i>Salicornia</i> and other annual halophytes	1.92	0-0.42	0.64-2.34	U1	-
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	2.84-7.33	0.27-0.74	3.11-8.07	U1	-
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	6.55	0-0.95	1.12-7.5	U1	√
7110	Active raised bogs	0.085	0	0.085	U2	√
7140	Transition mires and quaking bogs	0.152	0	0.152	U2	√
7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	0.03	0	0.03	U2	√
7220	Petrifying springs with tufa formation (<i>Cratoneurion</i>)*- Point or banded formations dominated by mosses from <i>Cratoneurion commutati</i> *	0.013	0	0.013	XX	-
7230	Alkaline fens	0.635	0.205	0.84	UN2-CON, UN1-ALP	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

Croatia is located on the southern edge of European distribution range of bogs. Very few of them is present here and they are extremely endangered by changes in habitat conditions. These are small localities where special microclimate conditions have been maintained. Almost all known sites are found in the Natura 2000 network. Bogs and fens are extremely sensitive and threatened, and their conservation status is rated U2, with the exception of Alkaline fens 7230 in the Alpine region whose condition is U1. These habitats are exposed to succession processes that are accelerated in some localities due to disturbance of the water regime. The habitat overgrows into *Molinia caerulea* grass, sometimes into *Phragmites communis* or other marsh vegetation, and into shrubs of alder, birch and other woody plants. It must be actively maintained by removing grass and shrubs and maintaining a favourable water regime. Acidophilic bogs in Croatia represent the only habitats of rare moss *Hematocaulis (Drepanocladus) vernicosus* listed in Annex II of the Habitats Directive, which was found only in three localities, and the conservation status was rated U1.

Petrifying springs (7220) are small sites that are only partially registered and mapped, and all known sites are included in Natura 2000. The conservation status is rated as unknown.

The category of *Bogs, mires, fens and other wetlands* also includes coastal wetland habitats (salt marshes) that remained along the Adriatic coast as small sites extremely exposed to anthropogenic impacts such as construction, 'concreting' the coast and tourism related activities.

The major part is included in Natura 2000. For such degraded habitats, it is possible to carry out restoration, sometimes passively - by protection and allowing for the course of natural processes, since these habitats are not exposed to natural succession, and in some cases, it is appropriate to carry out active restoration, especially for habitats 1420.

Measures needed to maintain or restore favourable conservation status

Regularly remove vegetation that overgrows bogs and fens (mowing *Molinia* grass, removing alder shrubs etc.) while leaving bare surfaces for light-loving bog species to settle

Restore degraded bog and fen habitats

Restore degraded salt marsh habitats, especially 1420

Encourage extensive livestock farming in the area of alkaline fens 7230 – measure included in E.2.4, given that these are small areas that occur in complexes with grasslands

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Regular maintenance of bogs and fens by removing overgrown vegetation	R	90.2 ha	90 200	CF/ERDF
Measure 2. Restoration of degraded bog and fen habitats, including water regime	O	20 ha/7 yr.	100 000	CF/ERDF
Measure 3. Restoration of saline wetlands, including saltworks	O	20 ha/7 yr.	200 000	CF/ERDF

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Improving the conservation status of bogs, fens and saline wetlands

Expected results: other benefits

Higher quality ecosystem services provided by bogs, fens and saltwater wetlands

E.2.4. Grasslands

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
1530	Pannonic salt steppes and salt marshes*	0.045	0	0.045	U2	√
6110	Rupicolous calcareous or basophilic grasslands of the <i>Alyso-Sedion albi</i> *	0.15	0.03	0.18	XX	√
6170	Alpine and subalpine calcareous grasslands	160	0-38	160-198	FV	√
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>) (*important orchid sites)	278-325	257-345	535-670	FV-ALP and MED, U1-CON	√
6220	Pseudo-steppe with grasses and annuals of the <i>Thero-Brachypodietea</i> *	225-335	308-431	533-766	FV	√
6230	Species-rich <i>Nardus</i> grasslands *	0.12	0	0.12	U2	√
6240	Sub-continental steppic grasslands (<i>Festucion vallesiaca</i>)*	3-4.5	0.5	3.5-5	U2	√
6250	Pannonic loess steppic grasslands*	0.01	0	0.01	U2	√
6260	Pannonic sand steppes*	0.23	0	0.08-0.23	U2	√
6410	<i>Molinia</i> meadows (<i>Molinion caeruleae</i>)	33-40 ALP 1.6 CON	3.9-5.9	38.5-47.5	U1-ALP, U2-CON	√
6420	Mediterranean tall humid grasslands of the <i>Molinio-Holoschoenion</i>	0.1-07	0.1-0.3	0.2-1	U1	-
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (<i>Convolvulion sepii</i> , <i>Filipendulion</i> , <i>Senecion fluviatilis</i>)	7-9.1	0.7-107	11.5-16	U1	√
6440	Alluvial meadows of river valleys of the <i>Cnidion dubii</i>	2.9-7.55	0	2.9-7.56	U2	√

6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	109-122.5	245-272.5	354-395	FV-ALP, U1-CON, XX-MED	√
6520	Mountain hay meadows	0.83	0	0.83	U2	√
6540	Sub-Mediterranean grasslands of the <i>Molinio-Hordeion secalini</i>	30-45	31-40	61-85	FV	√
62A0	Eastern sub-mediterranean dry grasslands (<i>Scorzoneratalia villosae</i>)	2077-2640	2263-2860	4340-5500	FV-ALP, U1-CON	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

Croatia has an extremely large diversity of grassland habitats - dry, wet and mesophilic. Many of them are threatened with overgrowing due to abandoning traditional activities such as extensive grazing and mowing. Some are on the brink of their natural distribution here (1530, 6240, 6250, 6260) or their surface area has decreased significantly (6230, 6420, 6440, 6520), so they are present in only a few localities which are all included in Natura 2000. In general, sub-Mediterranean and Mediterranean dry grasslands (62A0, 6540, 6220) and Alpine and subalpine grasslands (6170) have favourable conservation status, unlike wet grasslands that are represented by much smaller areas and are in unfavourable conservation status. In terms of the ratio of grassland areas within Natura 2000, rare and threatened habitat types are generally or almost entirely included in Natura 2000, while the more widespread habitat types 6210, 6220, 6510, 6540, 62A0, 6420 are represented with approximately half of their area in Natura 2000. A total of at least 2.928 km² of grassland habitat types listed in Annex I of the Habitats Directive are represented in the Natura 2000 network and also in at least 3.109 km² outside Natura 2000. More than 2/3 of this coverage goes for the habitat type 62A0 Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*). Grassland surfaces are based on the map of non-forested habitats of the Republic of Croatia and expert assessments, and it is not known what share is registered in LPIS.

Grasslands support a large number of species, some of which are crucial for the survival of threatened species, such as lowland hay meadows with *Sanguisorba officinalis* (6510), on which the large blue butterflies *Phengaris* (= *Maculinea*) *nausithous* and *Phengaris* (= *Maculinea*) *teleius* depend as well as wet *Molinia* meadows (6410) to which the butterflies *Coenonympha oedippus* and *Phengaris alcon alcon* are associated. The breeding population of the Corncrake *Crex crex*, which has a declining trend, also depends on grassland habitats. For over 80% of bird species in Croatia, the population trend is unknown, including the range of grassland species. Natura 2000 target bird species associated with grasslands include: *Ciconia ciconia*, *Aquila chrysaetos*, *Circus pygargus*, *Circus cyaneus*, *Circus aeruginosus*, *Asio flameus*, *Melanocorypha calandra*, *Calandrella brachydactyla*, *Lullula arborea*, *Anthus campestris*, *Lanius collurio*, *Lanius minor* and others. The HD grassland butterflies with U2 conservation status include *Maculinea teleius*, *Maculinea nausithous*, *Coenonympha oedippus*, *Euphydryas aurinia*, *Lycaena dispar*. A number of plant species with U1 conservation status include: *Arnica montana*, *Pulsatilla grandis*, *Chouardia* (= *Scilla*) *litardierei*, *Serratula lycopifolia* and others.

Since 2015, data have been collected in Croatia for an indicator of the implementation of rural development measures “common farmland bird species” - the FBI (Farmland Bird Index). Although this monitoring program has been implemented for too short a period to observe the trend of bird populations in relation to the management of agricultural land, the analyzes to date indicate that areas under IACS support (Measures 10, 11, 13) have a generally positive impact on abundance of birds (Mikulić et al., 2018).

Within the Rural Development Program, the measure Agriculture, Environment and Climate Change, the following operations have been established:

- 10.1.3. Conservation of high nature value grasslands (including all grassland habitat types listed in Annex I of the Habitats Directive, both within Natura 2000 and beyond) with a compensation amount as follows: Continental lowland region 183 EUR/ha (361 EUR/ha from 2020), mountainous region 147 EUR/ha (255 EUR/ha from 2020) and Mediterranean region 102 EUR/ha (113 EUR/ha from 2020).

- 10.1.4. The pilot measure for the protection of Corncrake *Crex crex* (244 EUR/ha from 2020 254 EUR/ha), is implemented in SPAs where the Corncrake is a target species.

- 10.1.5. The pilot measure for the protection of butterflies (for *Coenonympha oedipus* - 326 EUR/ha, from 2020 338 EUR/ha for *Phengaris nausithous*, *Ph. teleius* and *Ph.alconalcon* - 274 EUR/ha, from 2020 277 EUR/ha), is implemented in SCIs where these are target species.

Extensive livestock farming is also encouraged through the measure 11 Organic farming for which the obligation to keep livestock on permanent grasslands is prescribed: at least 0.5 livestock units/ha, except in karst pastures 0.3 livestock units/ha (Sub-measure 11.1. Conversion to organic permanent grasslands - 310 EUR/ha and sub-measure 11.2. Organic production on permanent grasslands - 258 EUR/ha).

The implementation of these operations so far has not given satisfactory results due to the low interest of farmers. As poorer uptake in this programming period is likely to be caused by inadequate information of farmers, there has been an intensified campaign at the end of the programming period related to Measure 10. It is expected that in the next programming period, enhanced advisory services to farmers will contribute to an increase of the area under these operations. In Natura 2000 sites, the role of PIs is important, but they lack human resources. One of the reasons for the disinterest in these operations are relatively low compensations, which should be significantly increased in the next MFF, however, the possibility of increasing the aid is limited by the fact that the amount of aid is calculated solely on the basis of lost income and increased costs. Another problem is the fact that a significant part of grasslands is not listed in the LPIS, for example, 50% of lowland hay meadows where the butterflies *Phengaris nausithous* and *Ph. teleius* have been recorded (information from the MPAP for butterflies).

In 2019, 447 users with a total of 9 200 ha were included in the HNV grassland conservation operation, 88 users with a total of 306 ha of grasslands in the pilot measure for the Corncrake, and 9 users with a total of 20 ha of grasslands in the pilot measure for butterflies. In the next MFF, it is necessary to significantly increase the area involved in these operations.

Many grasslands are degraded due to overgrowth and require restoration by clearing overgrown vegetation. This type of activity can be financed from the RDP measure for non-productive investments 4.4.1, Tender for measure 4.4.1. was published in October 2020, processing of applications is in progress. Some grassland areas in Natura 2000 sites are maintained by competent PIs that organize their mowing or the clearing of overgrown vegetation. For example, the only two existing sites with habitat 6260 Pannonic sand steppes* are entirely maintained by the PI Koprivnica-Križevci County.

Measures needed to maintain or restore favourable conservation status

Continue with the operation Conservation of high nature value grasslands within the RDP measure Agriculture, Environment and Climate Change, and during the new programming period within the eco-schemes in the CAP Strategic plan, with potentially increased compensation

Continue the operation Pilot-measure for the Corncrake *Crex crex* within the RDP measure Agriculture, Environment and Climate Change, and during the new programming period in the CAP Strategic plan, with potentially increased compensation

Continue the operation Pilot measure for the protection of butterflies within the RDP and during the new programming period in the CAP Strategic plan, with potentially increased compensation

Continue to implement the Measure 11 Organic farming, where the obligation to keep livestock on permanent grasslands contributes to increasing of area of extensive livestock farming

Restore overgrown grasslands by removing woody vegetation

In certain cases, restore overgrown grasslands with controlled burning

Conduct at least one pilot-project for result-based payments

Remove invasive plant species from the grasslands

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Implementation of the operation Conservation of high nature value grasslands ⁴⁶	R	75 000 ha	18 225 000	EAFRD/ EAGF

⁴⁶ Of the 290 000 ha HD grasslands mapped, at least 75 000 ha should be covered, bearing in mind that a total of 10 000 ha (inside and outside Natura 2000) is included in the current MFF; the planned average compensation is 243 EUR/ha (there are three types of compensation: for the continental lowland, mountainous and Mediterranean regions); current compensations

Measure 2. Implementation of the operation Pilot-measure for the protection of corncrake <i>Crex crex</i> within the RDP measure Agriculture, Environment and Climate Change ⁴⁷	R	4000 ha	1 016 000	EAFRD
Measure 3. Implementation of the operation Pilot measure for the protection of butterflies within the RDP measure Agriculture, Environment and Climate Change ⁴⁸	R	500 ha	144 600	EAFRD
Measure 4. Implement the Measure 11 on permanent grasslands ⁴⁹	R	25 000 ha	6 450 000	EAFRD
Measure 5. Restoration of overgrown grasslands by removing woody vegetation ⁵⁰	O	500 ha/7 yr.	142 860	EAFRD
Measure 6. Restoration of overgrown grasslands with controlled burning ⁵¹	O	200 ha/7 yr.	28 570	CF/ERDF
Measure 7. Removal of invasive alien plant species from grasslands ⁵²	O	500 ha/7 yr.	71 430	EAFRD
Measure 8. Purchase of grasslands and other agricultural land (categories of reeds and wetlands) for management purposes ⁵³	O	200 ha/7 yr.	85 000	CF/ERDF EAFRD
Measure 9. Preparation and implementation of a pilot-project for result-based agri-environment scheme	O		84 300	EAFRD
Measure 10. Restoration of degraded grasslands ⁵⁴	O	100ha/yr.	70 000	EAFRD CF/ERDF
Measure 11. Preparation of agri-environment measure for conservation of the Montagu's harrier (<i>Circus pygargus</i>) nesting population	O		7 240	EAFRD
Measure 12. Preparation of the agri-environment measure to encourage the pastoral system	O		11 500	EAFRD

- additional measures beyond Natura 2000 (wider green infrastructure measures)

(average 144 EUR/ha) are increased by 60%, which is estimated amount in accordance with changed amount for given measure in 2020

⁴⁷ Currently 400 ha are included; increased compensation in 2020 is 254 EUR/ha;

⁴⁸ Currently, 24 ha are included; planned 100 ha for *Coenonympha oedippus x* increased compensation in 2020 is 338 EUR/ha and 400 ha for *Phengaris x* increased compensation in 2020 is 277 EUR/ha

⁴⁹ As part of Measure 11, there is an obligation to keep livestock on permanent grassland, which contributes to the increase of the area on which livestock is grown in an extensive manner. The current amount of compensation from M11 is planned to be EUR 258/ha.

⁵⁰ Estimated cost of 2000 EUR/ha

⁵¹ Estimated cost of 1000 EUR/ha

⁵² Estimated cost of 1000 EUR/ha

⁵³ According to data for 2020, the Agency for Trade in Agricultural Land <http://poljoprivredno-zemljiste.hr/cijena-poljoprivrednog-zemljista.php> the average price of agricultural land in Croatia per hectare is 3.325 EUR for arable land, 1.832 EUR for meadows and for pastures 1.791 EUR. The price for the continental part of Croatia is about 3% lower than the average, while for the Adriatic part of Croatia it is twice as high as the average. Prices are constantly rising, the average annual increase is about 186 EUR/ha. Costs of this measure: purchase of 150 ha in the continental part at the price of 2.300 EUR/ha and 50 ha in the coastal part at 5.000 EUR/ha. In the context of EAFRD investments, this measure will be implemented through existing measures under the Strategic Plan, for example the measure for non-productive investments, in such a way that the purchase of land is an eligible cost up to 10% of the total eligible project costs.

⁵⁴ Can include regulation of water regime, soil restoration, etc.

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Conservation of high nature value grasslands	R	75 000 ha	18 225 000	EAFRD/ EAGF
Measure 2. Implement the Measure 11 on permanent grasslands	R	25 000 ha	6 450 000	EAFRD
Measure 3. Restoration of overgrown grasslands by removing woody vegetation	O	500 ha/7 yr.	142 860	EAFRD
Measure 4. Removal of invasive alien plant species from grasslands	O	500 ha/7 yr.	71 430	EAFRD
Measure 5. Implementation of the operation Pilot-measure for the Corncrake <i>Crex crex</i> within the RDP measure Agriculture, Environment and Climate Change ⁵⁵	R	1200 ha	380 400	EAFRD
Measure 6. Implementation of the operation Pilot measure for protection of butterflies within the RDP measure Agriculture, Environment and Climate Change ⁵⁶	R	120 ha	32 880	EAFRD

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Improvement of the conservation status of grassland habitat types and associated species

Expected results: other benefits

Contribution to the development of rural areas, including the development of eco-tourism, halting depopulation of rural areas, improvement of ecosystem services

E.2.5. Other agroecosystems (incl. croplands)

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

Extensive agricultural mosaics represent important habitats for a range of associated species. A mixture of small arable land trimmed with hedges and flower strips, fallow land and grassland patches, which is extensively managed with limited use of chemicals, is an ideal habitat for many species, including the Natura 2000 target species: birds *Ciconia ciconia*, *Circus aeruginosus*, *Circus cyaneus*, *Circus pygargus*, *Coracias garrulus*, *Melanocorypha calandra*, *Calandrella brachydactyla*, *Lullula arborea*, *Anthus campestris*, *Lanius collurio*, *Lanius minor*, *Hippolais olivetorum*, *Sylvia nisoria*, *Emberiza hortulana*; reptiles: *Testudo hermanni*, *Elaphe situla*, *Elaphe quatuorlineata*; butterflies: *Euphydryas aurinia*, *Proterebia afra dalmata*, *Euphydryas maturna*, *Lycaena dispar* and many other species. It is important to maximize the

⁵⁵ Currently, the measure is implemented only in Natura 2000 area, and since approximately 30% of the corncrake population is outside the Natura 2000 area, an additional area outside Natura 2000 is planned for the implementation of this measure

⁵⁶ Currently, the measure is implemented only in Natura 2000 area, and since approximately 30% of the species population *Maculinea teleius*, and 25% of species population *Maculinea nausithous* is outside the Natura 2000 (100% of species population *Coenonympha oedippus* is included in Natura 2000), an additional area outside Natura 2000 is planned for the implementation of this measure

value of these ecosystems for biodiversity by combining crop rotation and fallow land and establishing micro-habitats and landscape elements that serve both as habitats and as corridors for connecting populations of agricultural species. Activities to establish new or restore neglected habitats of hedges, dry stonewalls, flower strips, trees in a line and groups of trees, significantly contribute to improving the functions and services of agricultural ecosystems.

Since 2015, data have been collected in Croatia to calculate the CCI 35 Farmland Bird Index (FBI). Common bird species (28 species) that are monitored are also related to extensive agricultural ecosystems: *Alauda arvensis*, *Anthus campestris*, *Anthus trivialis*, *Carduelis cannabina*, *Carduelis carduelis*, *Coturnix coturnix*, *Emberiza cirrus*, *Emberiza citrinella*, *Emberiza melanocephala*, *Falco tinnunculus*, *Galerida cristata*, *Jynx torquilla*, *Lanius collurio*, *Lanius senator*, *Lullula arborea*, *Luscinia megarhynchos*, *Miliaria calandra*, *Motacilla flava*, *Oenanthe hispanica*, *Oriolus oriolus*, *Passer montanus*, *Pica pica*, *Saxicola rubetra*, *Saxicola torquata*, *Streptopelia turtur*, *Sylvia communis*, *Upupa epops*, *Vanellus vanellus*.

These habitats, together with grasslands, are crucial for the conservation of numerous pollinator species, which have not yet been fully explored in Croatia.

Extensive agricultural mosaics are threatened by processes of land consolidation and agricultural production intensification. Measures in the next MFF should make the greatest possible contribution to the biodiversity of the targeted areas. The mosaic structures of the landscapes are contributed by the existing obligations for the establishment of ecologically significant areas (ESA) from the I. pillar and some operations within the M10 from the II. pillar of the PRR, which is intended to be implemented in the next programming period. The category *Other agricultural ecosystems* also include orchards, olive groves and vineyards, which can also be important for biodiversity if extensively managed, or organic farming practices and methods are applied. Within the Rural Development Program, incentive measures are in place to maintain extensive orchards and olive groves, to establish field strips, and to maintain hedges and dry stonewalls.

Measures needed to maintain or restore favourable conservation status

Include new incentive measures for the maintenance of mosaic agricultural habitats in the future Strategic Plan for Agriculture. At least the following measures are required:

Continue implementation of RDP measures to establish field strips, establish and maintain hedges

Include new incentive measures based on a minimum five-year crop rotation plan with at least five fallow crops

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Development and implementation of a new measure based on five-year crop rotation plan with at least five crops leaving fallow land ⁵⁷	R	6000 ha	1 500 000	EAFRD
Measure 2. Continue implementation of the incentive measures for maintenance of hedges	R	8500 m	3 000	EAFRD
Measure 3. Continue implementation of the incentive measure for the establishment of hedges ⁵⁸	O	5000 m	11 500	EAFRD
Measure 4. Adaptation for biodiversity and implementation of the existing measure in the framework of Agriculture, Environment and Climate Change for extensive orchards ⁵⁹	R	300 ha	50 000	EAFRD
Measure 5. Adaptation for biodiversity and implementation of the existing measure in the framework of Agriculture, Environment and Climate Change for extensive olive groves ⁶⁰	R	500 ha	140 000	EAFRD
Measure 6. Continue implementation of the incentive measure in the framework of Agriculture, Environment and Climate Change for the establishment of field strips ⁶¹	R	1200 ha	1 560 000	EAFRD

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Implementation of a new incentive measure to maintain wide crop rotation while leaving fallow land	R	4000 ha	1 000 000	EAFRD
Measure 2. Continue implementation of the incentive measure for maintenance of hedges	R	8 500 m	3 000	EAFRD
Measure 3. Continue implementation of the incentive measure for the establishment of hedges	O	5000 m	11 500	EAFRD
Measure 4. Adaptation for biodiversity and implementation of the existing measure from the RDP for extensive orchards	R	200 ha	33 500	EAFRD
Measure 5. Adaptation for biodiversity and implementation of the existing measure from the RDP for extensive olive groves	R	500 ha	140 000	EAFRD

⁵⁷ Estimated compensation of 250 EUR/m, a detailed calculation is necessary

⁵⁸ Estimated compensation of 16 EUR/m

⁵⁹ Estimated compensation of 585 EUR/ha, current compensation is 450 EUR/ha

⁶⁰ Estimated compensation of 1000 EUR/m, current compensation is 804 EUR/ha

⁶¹ Estimated compensation of 1300 EUR/ha; current compensation: for establishment of flower strips 985,74 EUR/ha of the strip, for establishment of grass strips 898,59 EUR/ha of the strip

Measure 6. Continued implementation of the incentive measure for the establishment of field strips	R	300 ha	390 000	EAFRD
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* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

A maintained or achieved favourable conservation status for the associated species

Expected results: other benefits

Improved service quality of agricultural ecosystems

E.2.6. Woodlands and forests

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
9110	<i>Luzulo-Fagetum</i> beech forests	163.42	46.3	209.72	FV	√
9130	<i>Asperulo-Fagetum</i> beech forests	152.33	404.31	556.64	FV	√
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>	578.73	754.05	1332.78	U2-CON, FV-MED	√
9180	<i>Tilio-Acerion</i> forest of slopes, screes and ravines*	5.27	0.26	5.53	U1-ALP, U2-MED	√
9260	<i>Castanea sativa</i> woods	41.07	77.36	118.43	U1	√
9320	<i>Olea</i> and <i>Ceratonia</i> forests	100-300	0	100-300	FV	√
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests	590.14	187.52	777.66	FV	√
9410	Acidophilous <i>Picea</i> forests of the montane to alpine levels (<i>Vaccinio-Piceetea</i>)	242.38	63.37	305.75	U2	√
9530	(Sub-)Mediterranean pine forest with endemic black pines*	27.78	14.79	42.57	FV	√
9540	Mediterranean pine forests with endemic Mesogeian pines	114.10	73.62	187.72	FV	√
91D0	Bog woodland	0.07	0	0.07	U1	√
91 E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)*	182.6	54.29	236.89	FV	√

91F0	Riparian mixed forest of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> along the great rivers (<i>Ulmion minoris</i>)	776.27	512.03	1288.3	U2-CON, FV-ALP, FV-MED	√
91H0	Pannonian woods with <i>Quercus pubescens</i> *	4.53	12.46	16.99	FV	√
91K0	Illyrian <i>Fagus sylvatica</i> forests (<i>Aremonio- Fagion</i>)	7880.87	1207.38	9088.25	FV	√
91L0	Illyrian oak-hornbeam forests (<i>Erythronio- carpinion</i>)	557.91	1171.3	1729.21	FV	√
91M0	Pannonian-Balkan turkey oak-sessile oak forests	0.4	0	0.4	FV	√
91R0	Dinaric dolomite Scots pine forests (<i>Genisto januensis-Pinetum</i>)	32.43	6.06	38.49	FV	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

Forests and forest land cover 47% of the territory of the Republic of Croatia, and 97% of the total forest fund are forests of natural composition characterized by a high degree of biodiversity, domestic tree species, floral composition identical to natural potential vegetation, conservation and abundance of fauna, presence of endemic species and more. In general, forests in Croatia are considered to be in good condition. The forestry of the Republic of Croatia is characterized by close to nature and sustainable forest management.

According to the National Forest Inventory (Čavlović, J., 2010), the average share of dead wood in the forests of the Republic of Croatia is 13.95 m³/ha.

The application of the principle of nature-friendly forest management is the fundamental reason for the high naturalness and biodiversity of forest ecosystems in the Republic of Croatia, and it is reflected in:

- supporting natural forest regeneration
- supporting sustainable forest management
- supporting natural dynamics and natural forest structures through cultivation interventions
- intensive forest care from early age
- apply artificial forest restoration as needed, but according to the nature restoration principles
- no use of clean logging

Active and sustainable forest management is key to adaptation and mitigation of impact of climate change. The task of forest management is to find and implement in every forest ecosystem, regardless of the purpose and owner, such forest management procedures that will:

- prevent forest damage where forest ecosystem will be prepared and have strong defense mechanisms
- restore forest damage in the shortest possible time, and restore and nurture damaged forest as soon as possible so that they are ultimately stable, vital, productive and regeneratively capable.

Forests and forest land are managed on the basis of forest management plans adopted for a period of ten years. The forest management plan of the area is a planning document, and is currently valid for the period 2016-2025. According to the Forest Management Plan, 76% of forests are owned by the Republic of Croatia and are mostly managed by the public forest owner company “Hrvatske šume” (Croatian Forests Ltd.), while the remaining 24% is privately owned and managed by private forest owners. Area of forests managed by Croatian Forests Ltd. in the Natura 2000 area it is approximately 1 050 000 ha, while the area of private forests in the Natura 2000 area is approximately 200 000 ha.

Of the stands of alien species, hybrid poplars are the most prevalent. Almost all forest habitats in Croatia (except for sub-Mediterranean oak forests) are included in Annex I of the Habitats Directive. Some habitats are represented by large areas, such as 91K0, 91L0, 91F0, 9160, while others are distributed only locally, e.g. 9180, 9410, 9530, 9540, 91D0, 91H0, 91M0 and 91R0. Beech forests are generally considered to be in good condition, while the Pedunculate oak (*Quercus robur*) forests are extremely sensitive to changing environmental conditions due to their dependence on the water regime and in continental Croatia their current condition is not favorable. Additionally, forests under restoration are exposed to the growth of the invasive bush *Amorpha fruticosa*. In recent years, the stands of the Narrow-leaved ash *Fraxinus angustifolia* have been declining rapidly due to the infection with the pathogenic fungus *Hymenoscyphus fraxineus* (= *Chalara fraxinea*). Oak forests 9160 and 91E0 in the continental region and spruce forests 9140 have U2 unfavourable conservation status. Locally, the structure and function of forest habitats has been degraded due to the lack of old trees and deadwood.

A large number of species are associated with forest habitats, and most of them are in favourable conservation status. A large number of birds are related to forest ecosystems and according to the Report on the State of Nature in the Republic of Croatia for the period from 2013 to 2017 (Ministry of Environment Protection and Energy, 2019) the degree of conservation of bird habitats in Natura 2000 areas Natura 2000 - SDF): outstanding (A) and well preserved (B) for 98.41% of species. The forest target species of Natura 2000 sites include a rich and diverse ornithofauna: *Haliaeetus albicilla*, *Aquila pomarina*, *Ciconia nigra*, *Milvus migrans*, *Pernis apivorus*, *Strix uralensis*, *Aegolius funereus*, *Glaucidium passerinum*, *Dendrocopos medius*, *Dryocopus martius*, *Picoides tridactylus*, *Picoides leucotos*, *Tetrao urogallus*, *Bonasa bonasia*, *Caprimulgus europaeus*, *Ficedula albicollis*, *Ficedula parva*. Other forest target species are large carnivores *Ursus arctos*, *Lynx lynx* (U2) and *Canis lupus* (U1), bats *Myotis beshsteinii* (U2) and *Barbastella barbastellus* (U1), beetles *Osmoderma eremita*, *Morimus funereus* (U2-CON, U1-ALP), *Rosalia alpina* (U2-CON, U1-ALP), *Lucanus cervus* and *Cerambyx cerdo* (U1-CON), butterflies *Leptidea morsei* (U1), *Euplagia quadripunctaria* and *Eriogaster catax*, mosses *Buxbaumia viridis*, *Dicranum viride*, *Mannia triandra* and other species.

In RDP for the period 2014-2020 no institutional mechanism/measure for forest sector were developed and nor funds were planned to be paid to end users on the basis of Regulation (EU) no. 1305/2013 of the European Parliament and the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1782/2003 1698/2005 (OJ L 347. 20.12.2013).

Measures needed to maintain or restore favourable conservation status

The required restoration of forest habitats refers to the local improvement of their structure and function for biodiversity conservation, especially species related to old stands and deadwood. Where appropriate, conversion of allochthonous into native forest stands is carried out. Restoration of degraded forests of *Fraxinus angustifolia* that has suffered from the pathogenic fungus *Hymenoscyphus fraxineus* (= *Chalara fraxinea*) is needed. Areas of even-aged forests under restoration should be cleared of the invasive species *Amorpha fruticosa*. In forest management, it is necessary to ensure favourable conditions for the conservation of the targeted BHD species, for example, not to cut the forest 100 meters around the nests of *Haliaeetus albicilla* and *Ciconia nigra*, to leave forest clearings within the forest complexes, to leave sufficient quantities of all forms of deadwood and more (according to the National Forest Inventory from 2010, average share of dead wood in Croatian forests is 13.95m³) and provide adequate compensation/fee for compensation of owners due to limited management and consequent loss of income due to implementation of forest species conservation measures and habitat types of Habitat and Bird Directives.

Within the new Strategic Plan for Agriculture, it is necessary to develop a system of compensation for private forest owners who have restrictions on forest management resulting from the implementation of conservation measures for forest species and habitat types annexed to the Habitats Directive and the Birds Directive (formerly M12). Also, it is necessary to develop a system of restriction compensation for all forest owners arising from "no-management" in current and future areas of strict protection that the Republic of Croatia is obliged to establish by 2030 in accordance with the EU Biodiversity Strategy until 2030 (former M12), as well as an incentive system for all forest owners who voluntarily carry out "no-intervention management" outside the area of strict protection (former M15 - Forestry, environment and climate services and forest conservation).

Restore forest habitats where their structure and function for biodiversity are degraded (conversions, substitutions) that also include restoration of *Fraxinus* stands and translation of allochthonous species cultures and implementation of silvicultural works with the aim of preserving biodiversity.

Restore degraded forests of *Fraxinus angustifolia* suffering from the pathogenic fungus *Hymenoscyphus fraxineus* (= *Chalara fraxinea*)

Gradually converse existing poplar cultures and other stands of allochthonous species into native species stands where possible, taking into account postulates of sustainable forest management and consequences of global climate change.

In forest management, systematically implement conservation measures for BHD targeted species and habitats

Prevent the spread of the invasive bush *Amorpha fruticosa*, and remove it from overgrown surfaces using mechanical methods

Remove other invasive species from forest stands

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised) ⁶²	Possible EU co-funding source
Measure 1. Reforestation of <i>Fraxinus angustifolia</i> forests affected by the pathogenic fungus <i>Chalara fraxinea</i>	O	30 000	20 000 000	CF/EFRD
Measure 2. Conversion of poplar cultures and other stands of allochthonous species into native species stands	O		500 000	EAFRD
Measure 3. Removal of invasive species from forest stands	R	1 000 ha	1 200 000	EAFRD
Measure 4. Implementation of the conservation measure for the BHD forest species and habitat types (Natura payments) ⁶³	R	200 00 ha	20 000 000	EAFRD
Measure 5. Conservation of forest species and habitat types, and natural processes by ensuring “no-management” in areas of strict protection ⁶⁴	R	100 000 ha	10 000 000	EAFRD
Measure 6. Conservation of forest species and habitat types, and natural processes by implementing “no-management” outside the areas of strict protection in order to improve the quality of habitats for species ⁶⁵	R	10 000 ha	1 000 000	EAFRD

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Conversion of poplar cultures and other stands of allochthonous species into native species stands	O		300 000	EAFRD
Measure 2. Removal of invasive species from forest stands	R		1 100 000	EAFRD
Measure 3. Implementation of the conservation measure for the BHD forest species and habitat types ⁶⁶	R	90 000	9000 000	EAFRD

⁶² The values are approximate

⁶³ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations.

⁶⁴ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations. Also, the exact area of forests under strict protection within the Natura 2000 network will be known after the definition of these areas in the Republic of Croatia according to the criteria from the EC guidelines.

⁶⁵ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations.

⁶⁶ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations.

Measure 4. Conservation of forest species and habitat types, and natural processes by ensuring “no-management” in areas of strict protection ⁶⁷	R	25 000 ha	2 500 000	EAFRD
Measure 5. Conservation of forest species and habitat types, and natural processes by implementing “no-management” outside the areas of strict protection in order to improve the quality of habitats for species ⁶⁸	R	4 500 ha	450 000	EAFRD

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Preserved favourable status of forest species, i.e. improved status of those species rated as U1 or U2

Expected results: other benefits

Improved quality of forest ecosystem services

E.2.7. Rocky habitats, dunes & sparsely vegetated lands

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
1210	Annual vegetation of drift lines	0.29-0.52	0.046-0.2	0.336-0.72	XX	√
1240	Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium spp.</i>	48.1-64.6	17.71-8.75	65.81-75.35	FV	
2110	Embryonic shifting dunes	0.16-0.39	0	0.16-0.39	U2	√
2340	Pannonic inland dunes*	0.085-0.23	0	0.085-0.23	U2	√
8120	Calcareous and calcshist screes of the mon- tane to alpine levels (<i>Thlaspietea rotundifolii</i>)	7	0-3	6-10	FV	
8140	Eastern Mediterranean screes	170-240	30-60	200-300	FV	
8210	Calcareous rocky slopes with chasmophytic vegetation	291.2-446.3	69.5-54.1	360.7-500.4	FV	√

⁶⁷ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations. Also, the exact area of forests under strict protection within the Natura 2000 network will be known after the definition of these areas in the Republic of Croatia according to the criteria from the EC guidelines.

⁶⁸ The estimated cost of 100 EUR/ha is approximate. The exact amount of the fee will be known after making detailed calculations.

* priority habitat types under the Habitats Directive; #Conservation measures are required

Very different habitat types are included here, with the vast majority found within the Natura 2000 network. Rock and scree habitats are in principle not threatened in Croatia and are in a favourable conservation status. On the other hand, sand habitats (coastal and inland dunes) are extremely threatened and require maintenance and restoration. Embryonic shifting dunes are represented on only a few beaches that have not yet been completely degraded by tourist and recreational activities, and their vegetation is only partially maintained. In order to restore it, it is necessary to limit and regulate the use of beaches. Pannonic dunes remained in only two sites, as patches mixed in a complex with Pannonic sand steppes (6260), maintained by a competent public institution.

Rock habitats are important nesting sites of some bird species such as *Aquila chrysaetos*, *Falco peregrinus*, *Falco eleonora*, *Calonectris diomedea*, *Puffinus yelkouan*, *Bubo bubo* and others. These habitats are also associated with certain plant species that are also Natura 2000 target features: *Arabis scopoliana*, *Aquilegia kitaibelii*, *Cerastium dinaricum*, *Degenia velebitica* and *Moehringia tommasinii*.

Measures needed to maintain or restore favourable conservation status

Maintain and restore continental Pannonic inland dunes (2340)

Restore degraded sandy beaches with habitat 2110

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Maintenance and restoration of continental Pannonic inland dunes (2340)	R	2 localities	50 000	CF/ERDF
Measure 2. Restoration of degraded sand beaches with habitat 2110	O	5 localities	200 000	CF/ERDF

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species and habitat types

Improved conservation status of habitat types 2110 and 2340

Expected results: other benefits

E.2.8. Freshwater habitats (rivers and lakes)

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
3130	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoeto-Nanojuncetea</i>	157.29	54.09	211.38	FV-CON, U1- ALP, MED	√
3140	Hard oligo-mesotrophic waters with bent- hic vegetation of <i>Chara spp.</i>	1.4	0-29.47	1.4-30.87	XX	
3150	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	32-54.9	8.23-31.13	63.13	FV-CON, U1-ALP, MED	
3170	Mediterranean temporary ponds*	0.09	0	0.09	XX	√
3180	Turloughs*	3.7	0	3.7	XX	
3230	Alpine rivers and their ligneous vegetation with <i>Myricaria germanica</i>	0.5	0	0.5	U2	√
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	8.7	0.11-1.2	8.81-9.9	XX-CON, FV-ALP, U1- MED	√
3270	Rivers with muddy banks with <i>Chenopodion rubri p.p.</i> and <i>Bidention p.p.</i> vegetation	2.5	2.5	5	U1	√
32A0	Tufa cascades of karstic rivers of the Dinaric Alps	2.15	0	0.8-1.15	U1	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

These habitats include fresh water (rivers and lakes), natural or artificial, with associated aquatic and coastal vegetation. An assessment of the general status of rivers and lakes in Croatia has shown that about 50% of the water bodies of rivers and lakes do not achieve good status with regard to nutrients and hydromorphological load (River Basin Management Plan 2016-2021). Restoration of degraded watercourses is needed, especially with regard to their hydromorphology as well as restoration of associated wetlands. Projects for the restoration of degraded watercourses are needed, especially with regard to hydromorphology and associated wetland habitats. In addition to habitat types listed in Annex I of the Habitats Directive, habitats dependent on natural river dynamics (sandbanks and gravelbanks, eroded steep river banks of lowland rivers) are threatened in Croatia as well. Habitat types 3130 and 3150 are present in natural wetland complexes, but they also occur on artificial waters such as carp fishponds, abandoned gravel pits and others. Restoration projects for such sites may also be important for the conservation of BHD targeted species and habitats.

Some habitat types, including the specific habitat type of karst rivers which was added by the Republic of Croatia to Annex I to the Habitats Directive - Tufa cascades of karstic rivers of the Dinaric Alps (32A0), have small coverage and are represented on few localities, out of which all or almost all are situated within Natura 2000 (3170, 3180, 3230).

A large number of targeted BHD species, including entire groups - fish, amphibians, waterbirds, freshwater crayfish *Decapoda*, dragonflies *Odonata* and others, are dependent on freshwater habitats. Large natural wetland complexes are important for migrating and breeding birds, especially in continental Croatia (along the Sava, Drava and Danube rivers), but also artificial complexes such as large carp fishponds, which are inhabited with extremely rich and diverse ornithofauna throughout the year. Breeding populations of *Aythya nyroca*, *Platalea leucorodia*, *Chlidonias hybrida* and other wetlands birds are significant. Watercourses with natural river banks and developed gravelbanks or sandbanks are important for the nesting of *Sterna hirundo*, *Sternula albifrons*, *Riparia riparia*, *Alcedo atthis* and *Merops apiaster*.

Freshwater habitats are crucial for the survival of the Otter *Lutra lutra*, which is not in a favourable conservation status (U1-CON and ALP, U2-MED).

Measures needed to maintain or restore favourable conservation status

In addition to measures to reduce water pollution, freshwater habitats are important for restoration projects for individual watercourses, their segments or standing waters, which have been degraded as a result of anthropogenic interventions or due to exposure to succession. The following measures are required:

Maintain/restore individual Mediterranean temporary ponds (3170)

Prevent succession in particular wetland sites

Renew the connection of individual oxbows to the main watercourse

Restore the natural hydromorphology of individual watercourses/segments of watercourses by removing or modifying barriers

Implement conservation measures for target species and habitats on carp fishponds

Remove invasive species from freshwater habitats

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised) ⁶⁹	Possible EU co-funding source
Measure 1. Maintaining/restoring individual Mediterranean temporary ponds (3170)	O	10 localities	100 000	CF/ERDF EAFRD
Measure 2. Prevention succession in particular wetland sites	O	50 ha	100 000	CF/ERDF
Measure 3. Prevention succession and restoring river banks with habitat 3230	O	2 localities	50 000	CF/ERDF
Measure 4. Renewing the connection of individual oxbows to the main watercourse	O	5 localities	500 000	CF/ERDF
Measure 5. Restoration of natural hydromorphology watercourses by removing or modifying barriers	O	30 barriers	430 000	CF/ERDF
Measure 6. Implementing conservation measures for target species and habitats on carp fishponds	O	14 000 ha	7 000 000	EMFAF
Measure 7. Removing invasive species from freshwater habitats (SP5) ⁷⁰	O			
Measure 8. Revitalization interventions in the area of Kopački rit according to the study of revitalization of aquatic ecosystems in the floodplain of the Kopački rit Nature Park prepared in the Naturavita project ⁷¹	O	23 143 ha	7 142 857	CF/ERDF

- additional measures beyond Natura 2000 (wider green infrastructure measures)³⁶

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Prevention succession in particular wetland sites	O	25 ha	50 000	CF/ERDF
Measure 2. Renewing the connection of individual oxbows to the main watercourse	O	3 localities	300 000	CF/ERDF
Measure 3. Restoration of the natural hydromorphology of watercourses by removing or modifying barriers	O	3 barriers	43 000	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

⁶⁹ The estimated costs are indicative

⁷⁰ Costs reported under E.3.1

⁷¹ The Naturavita project is implemented within the Operational Program "Competitiveness and Cohesion 2014-2020", a specific objective - Demining, restoration and protection of forests and forest land in protected and Natura 2000 areas

Expected results for targeted species and habitat types

Favourable status of freshwater species maintained, i.e. improved status of species rated U1 or U2

Expected results: other benefits

Improved quality of freshwater ecosystem services

E.2.9. Others (caves, etc.)

Current status of habitats and species, conservation measures taken until now and their impact so far, remaining pressures and threats

	Habitat type	N2K (km ²)	Outside of N2K (km ²)	Total	Conservation status	CM#
8310	Caves not open to the public	0.109	0.012	0.121	U1-ALP, MED; U2-CON	√
8330	Submerged or partly submerged sea caves	241 site		0.17	U1	√

* priority habitat types under the Habitats Directive; #Conservation measures are required

This category includes **subterranean habitats**, which are, in principle, extremely sensitive and significantly degraded locally. All three biogeographical regions in Croatia, especially the Alpine, are rich in karst underground habitats. The most valuable known speleological sites that meet the criteria for habitat types 8310 and 8330 are included in Natura 2000. There are still a large number of unexplored and potentially important sites. Speleological research is ongoing and reveals new localities and new endemic taxa that inhabit them. Research is conducted by speleological and biospeleological expert associations involving experts and scientists. MESD maintains a database of speleological objects - the speleocadaster CRO-Speleo.

Speleological objects are important habitats for a range of threatened and endemic taxa, including BHD species such as bats, *Congeria kusceri*, *Leptodyrus hohenwartii*, *Proteus anguinus*. They are threatened mostly by pollution, both from solid waste and from pollution of surface and groundwaters with which they are associated. The problem, especially outside Natura 2000, is also unregulated visiting of speleological objects and inadequate adaptation of objects for visiting (lighting and other infrastructure, lack of adaptation of cave entrances for bats etc.).

This category of ecosystems also includes **artificial habitats**, which by themselves are not of great importance for biodiversity (with the exception of a smaller number of species adapted to such habitats). However, it can be achieved that they become valuable through establishing a

dense network of small “green” habitats. Establishing such a “green infrastructure” also mitigates the effects of fragmentation and isolation of natural habitats and establishes connectivity for many species (ecological corridors). In Croatia, habitat fragmentation is not as pronounced as in some other EU countries, but projects are needed in urban areas. There is also the problem of large roads, which represent a barrier to the movement of large carnivores, and this is successfully solved in Croatia by building “green bridges”, i.e. wildlife crossings across large roads.

The Ministry of Construction and Physical Planning has prepared the Green Infrastructure Development Program for Urban Areas for the period 2021 to 2030, which will be implemented in conjunction with the Program for the Development of Circular Spatial and Building Management for the Period 2021 to 2030. During the next MFF, through ten pilot – projects, green infrastructure networks in urban areas will be designed and implemented, including appropriately the needs of BHD species and habitat types.

Measures needed to maintain or restore favourable conservation status

Speleological objects

Remediation of landfills in catchment areas of speleological sites

Remove existing sources or causes of surface water and groundwater pollution

Remove waste from speleological objects

Define the conditions for conservation of speleological objects that are being commercially visited by tourists and, if necessary, adjust lighting in objects that have been inadequately arranged for visiting (for Natura 2000 sites before joining the EU)

Identify objects with unregulated visiting and implement conservation measures (e.g. by installing bat-friendly doors)

Green bridges

Maintain existing and construct new bridges at key crossing points for wildlife; constructions of new locations as part of the road construction project

Urban ecosystems

Implement the Green Infrastructure Development Program in urban areas for the period 2021 to 2030, including ten pilot projects that will target the needs of relevant species and habitat types from the list of the HBD, respectively.

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

- within Natura 2000 sites designated for the targeted habitats and species

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Waste removal from speleological objects	O	20 objects	100 000	CF/ERDF
Measure 2. Defining conditions for conservation of speleological objects that are being commercially visited by tourists and, if necessary, adjusting lighting in objects that have been inadequately arranged for visiting before accession of the Republic of Croatia to the EU	O	2 objects	50 000	CF/ERDF
Measure 3. Identification of objects that are visited irregularly and implementation of measures for their preservation (e.g. by installing “bat-friendly” doors)	O	3 objects	10 000	CF/ERDF

- additional measures beyond Natura 2000 (wider green infrastructure measures)

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Waste removal from speleological objects	O	10 objects	50 000	CF/ERDF
Measure 2. Defining conditions for conservation of speleological objects that are being commercially visited by tourists and, if necessary, adjusting lighting in objects that have been inadequately arranged for visiting before accession of the Republic of Croatia to the EU	O	5 objects	100 000	CF/ERDF
Measure 3. Identifying objects with unregulated visiting and implementing conservation measures (e.g. by installing bat-friendly doors)	O	3 objects	10 000	CF/ERDF
Measure 4. Implementation of Green Infrastructure Development Program in urban areas for the period 2021 to 2030, including ten pilot projects ⁷² targeted including the needs of species and habitat types listed by the HBD respectively	O		22 570 000	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

⁷² Total cost according to MCPP data is 395 m EUR; 40% of this amount is included here, in accordance with Rio markers, since the conservation of BHD species and habitats is not the primary objective of the project

Expected results for targeted species and habitat types

Improved quality of habitats, reduced anthropogenic pressure

Expected results: other benefits

E.2.10. References for site-related maintenance and restoration measures within and beyond Natura 2000

Ordinance on Conservation Objectives and Basic Measures for Conservation of Birds in Sites of Ecological Network (Official Gazette, No. 25/2020 and 38/2020); Management plans for Brijuni National Park, Mljet National Park, Lastovo archipelago Nature Park, Žumberak - Samoborsko gorje Nature Park and Biokovo Nature Park; draft conservation goals and conservation measures for Natura 2000 sites (internal MESD documents); National reports of the Republic of Croatia under the Habitats Directive and the Birds Directive, 2019. <http://cdr.eionet.europa.eu/>

Mikulić, K., Majer, M., Zec, M., Čulig, P., Katanović, I. (2018): Izvješće o izračunu zajedničkog poljoprivredno-okolišnog pokazatelja PRR 2014.-2020.: CCI 35. Indeks populacije čestih vrsta ptica na poljoprivrednim staništima za 2018. godinu. Association BIOM. Zagreb. 48 p.

E.3. Additional species-specific measures not related to specific ecosystems or habitats

E.3.1. Species-specific measures and programmes not covered elsewhere

Current status of the species

The measures listed in this part of the PAF mainly relate to priority species identified by the MEE on the basis of specific criteria (<http://www.haop.hr/hr/tematska-podrucja/prirodne-vrijednosti-stanje-i-ocuvanje/planovi-upravljanja-i-mjere-ocuvanja-6>) and for which management plans with action plans (MPAPs) have been developed through the OPCC project: fish *Telestes* and *Salmo*; the olm *Proteus anguinus*, the Balkan terrapin *Mauremys rivulata*, birds: shearwaters (the Scopoli's shearwater *Calonectris diomedea*, the Yelkouan shearwater *Puffinus yelkouan*), the Golden eagle *Aquila chrysaetos*, the European roller *Coracias garullus*, the Griffon vulture *Gyps fulvus*, Large Blue butterflies (*Phengaris nausithous* and *Phengaris teleius*), the Wolf *Canis lupus* and the Lynx *Lynx lynx*. These plans have been developed in a participatory manner, in collaboration with relevant stakeholders, and the measures are aimed at preserving/achieving a favourable conservation status of threatened species. In the next MFF, a strategic project is planned for the implementation of the elaborated MPAPs covering 15 threatened strictly protected species.

In addition to measures for certain types, some horizontal measures are also important. Individuals of strictly protected species from nature that are found exhausted, sick, injured, wounded or poisoned are taken care of in wildlife sanctuaries where they are temporarily cared for, with the primary goal of their return to nature. Animals that have been temporarily seized through inspection, customs and police activities are also taken care of here.

The MESD has established a System for notification and tracking of captured, killed, injured and ill strictly protected animals and adopted appropriate protocols on acting in such situations for individual groups of animals. The MESD website has a form through which a notification can be made. It is planned to integrate the data into the Nature Protection Information System and make it available to the public through the website Bioportal.

Activities related to the removal of invasive alien species are also listed here. The Republic of Croatia is currently implementing two relevant OPCC projects: “Establishment of a national system for monitoring of invasive alien species – IAS” and “Development of an invasive alien species management and control system”, and a follow-up project is planned, aimed at managing and controlling the spread (including rapid eradication) of invasive alien species from.

The problem for a large number of threatened species on islands and in the coastal areas, such as the Griffon vulture, is represented by allochthonous game species, especially the Wild boar that has spread from continental Croatia. Therefore, some of the activities need to be focused on this problem as well.

Measures needed to maintain or restore favourable conservation status

Implement the measures identified in individual MPAPs for threatened strictly protected species

Provide costs for accommodation of wild species in authorized rescue centers and their returning to nature

Develop and implement an emergency response system (to implement measures such as emergency removal of invasive alien species or some native species which, due to anthropogenic impacts on the ecosystem balance, adversely affect threatened native species, various other types of emergency response)

Develop and implement System for notification and tracking of captured, killed, injured and ill strictly protected animals, maintained by the MESD

Maintain existing and build new artificial habitats (islands and platforms) for breeding terns in the Drava and Sava area

Provide artificial habitats for bats in urban areas by installing bat boxes on facades and purchase and/or adapt facilities that represent important bat shelters

Implement measures to prevent by- catch in marine fishery (seabirds, turtles, dolphins)

Remove allochthonous game species in the coastal area/islands that pose a threat to threatened protected species

Conduct management and control of the spread (including rapid eradication) of invasive alien species from the EU list and the national black list, establish a system for early detection and rapid eradication and cooperate with other sectors on the management and prevention of the introduction and spread of invasive alien species

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures³⁶

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Implementation of 11 management plans with action plans	O		2 470 000	CF/ERDF
Measure 2. Costs of accommodation of wild species in authorized rescue centers and their returning to nature ³⁹	R		-	/
Measure 3. Development and implementation of a system for notification and tracking of captured, killed, injured and	O/R		-	/

ill strictly protected animals, maintained by the MESD ⁷³				
Measure 4. Improvement of the operation of wildlife rescue centres	R		1 200 000	CF/ERDF
Measure 5. Development and implementation of emergency response systems (to implement measures such as emergency removal of invasive alien species or some native species which, due to anthropogenic impacts on the ecosystem balance, adversely affect threatened native species, various other types of emergency response)	R		100 000	CF/ERDF
Measure 6. Management and control of the spread (including rapid eradication) of invasive alien species from the EU list and national black list, establishing a system for early detection and rapid eradication and cooperation with other sectors on the management and prevention of the introduction and spread of invasive alien species ⁷⁴	O		928 570	CF/ERDF
Measure 7. Project to mitigate the impact of electricity infrastructure on birds	O		714 290	CF/ERDF LIFE
Measure 8. Determination of zero-status and technical measures to prevent by-catch of sensitive species (seabirds, cartilage, turtles, whales) and, including capacity building of fisheries observers and investment in equipment that limits and, if possible, removes physical and the biological effects of fishing on the ecosystem or the seabed	O		450000	EMFAF
Measure 9. Design and implementation of a national action plan for the removal of allochthonous game species from islands	O		191 430	CF/ERDF
Measure 10. Supply and placement of nesting boxes for medium-sized hole nesting birds (<i>Columba oenas</i> , <i>Upupa epops</i> , <i>Otus scops</i> , <i>Athene noctua</i> , <i>Glaucidium passerinum</i> , <i>Aegolius funereus</i> , <i>Jynx torquilla</i>)	R		27 140	CF/ERDF LIFE
Measure 11. Maintenance of island and nesting platforms for terns at four locations (Sava, Drava)	R		2 700	CF/ERDF LIFE
Measure 12. Establishment of artificial habitat for terns along the Drava River (Koprivnica-Križevci County)	O		10 000	CF/ERDF INTERRE G

⁷³ Establishment of a database in the total amount of 268 000 EUR (38 290 EUR/yr.) is included as a one-off cost, which includes the education of users, while annual maintenance of the database in the amount of EUR 13 400/yr., as well as field trip costs, emergency care, cost of autopsy and toxicological analysis and education of inspectors, in the amount of 80 000 EUR/yr. are included as recurrent costs. Recovery of animals is included in the cost of the rescue centres (Measure 2).

⁷⁴ Part relating to research and monitoring is outlined in Chapters E.1.3. and E.1.4.

Measure 13. Provision of artificial habitats for bats in urban areas by installing bat boxes on facades and purchasing and adapting facilities that are important bat shelters ⁷⁵	O		285 720	CF/ERDF LIFE
Measure 14. Preparation and implementation of a project for the restoration of poplar tree lines by planting white poplar trees at key sites for <i>Coracias garrulus</i> in SPA Ravni kotari ⁷⁶	O		42 130	EAFRD
Measure 15. Improving the conservation status of the Red coral and sea urchins and sea cucumbers	O		100 000	EMFAF
Measure 16. Development of proposal of Management plans with actions plans for strictly protected species	O		228 57	CF/ERDF

* indicate whether the measure is recurring (R) or one-off (O)

Expected results for targeted species

Improved conservation status of some of the most threatened species and their habitats

Quality and efficient functioning of mechanisms relevant to the protection of threatened animal species: rescue centers, System for notification and tracking of captured, killed, injured and ill strictly protected animals, and emergency response system

Expected results: other benefits

Cease spreading of some invasive alien species

The Wild boar and other allochthonous game species removed from islands, and their abundance in coastal area reduced

Contribution to the development of eco-tourism

E.3.2. Prevention, mitigation or compensation of damage caused by protected species

Current status in terms of prevention, mitigation and compensation for damages

In Chapter D.6. the issue of damage from strictly protected species and the method of solving the problem have been described. The largest reported damage is from the Wolf on livestock and from the Great cormorant on carp fishponds. The necessary preventive measures for damage from large carnivores relate to the distribution of shepherd dogs (Tornjak) and electric fences to farmers as well as to building of new and restoration of existing livestock housing in the areas of natural distribution of large carnivores - for these measures funds are provided in the current MFF within the RDP measure for non-productive investments, but this operation has not yet been implemented.

⁷⁵ The cost of cottages in urban areas is provided through E.2.9. Measure 4.

⁷⁶ Part of the MPAP *Coracias garrulus*; set aside because EAFRD funding is planned

Measures needed

Pay compensation for damage caused by protected species

Carry out activities for the prevention of damage from large carnivores, including the distribution of shepherd dogs (Tornjak) and electric fences to farmers as well as building of new and restoration of existing livestock housing in the area of natural distribution of large carnivores

Carry out activities to prevent damage from the Otter and the Beaver (installing fences, pipes etc.)

Prioritization of measures to be implemented during the next MFF period

All listed measures represent priorities

List of prioritized measures to be carried out, and estimated costs for these measures

Name and short description of the measures	Type of measure*	Target (Unit & quantity)	Estimated cost in Euros (annualised)	Possible EU co-funding source
Measure 1. Payment of compensation for damage made by the strictly protected species (Measure 2., Measure 3. and Measure 4.) ⁷⁷	R		-	
Measure 2. Payment of compensation for "damages to various species of birds and other animals on carp fishponds"	R		2 700 000	EMFAF ⁷⁸
Measure 3. Payment of compensation for damage on fishing nets made by dolphins	R		880 000	EMFAF ⁷⁹
Measure 4. Payment of compensation for damage made by the Beaver ³⁹	R		-	/
Measure 5. Co-financing the restoration of roofs with nests of the White stork ³⁹	R		-	/
Measure 6. Supply and distribution of shepherd dogs (Tornjak) and electric fences to farmers for the prevention of damage made by large carnivores ⁸⁰	O		71 500	EAFRD
Measure 7. Procurement and placement of bear-proof containers ⁸¹	O		28 600	CF/ERDF
Measure 8. Renovation and construction of housing for livestock in the area of natural distribution of large carnivores	O		76 000	EAFRD

* indicate whether the measure is recurring (R) or one-off (O)

⁷⁷ Implementation of the measure does not require financing from MFF 2021 - 2027

⁷⁸ EMFAF co-financing is conditioned by an EC decision on eligibility and this possibility has not yet been confirmed.

⁷⁹ EMFAF co-financing is conditioned by an EC decision on eligibility and this possibility has not yet been confirmed.

⁸⁰ The cost of a shepherd dog (Tornjak) is approx. 470 EUR, prices go up to 670 EUR and more depending on the litter and how many are currently on the market. Support for electric fences ranges from 48 to 57 kn/m depending on whether it is located on the mainland or on an island.

⁸¹ The cost of a „bear-proof“ container is approx. 2000 EUR

Expected results for targeted species

Species causing damages are less likely to suffer from persecution which contributes to their conservation.

Expected results: other benefits

Species causing damages are better accepted by those who suffer harm. The injured parties develop a more positive attitude towards nature protection.

E.3.3. References for additional species-specific measures not related to specific ecosystems or habitats

The MESD and the Ministry of Agriculture, data collected for the needs of the PAF; drafts of MPAPs (MESD internal documents)

F. Further added values of the prioritized measures

Implementation of the priority measures outlined in this PAF will contribute to the improvement of the conservation status of threatened habitat types and species, and thus to the overall quality of ecosystems, which will in turn result in better quality services of individual ecosystems. In addition, the conservation of ecosystems, that is, of natural values, indirectly leads to increased interest in visiting them and generates various forms of tourism and other offers, including “green” jobs and income for competent public institutions, local population and entrepreneurs.

References