LIFE CONNECT CARPATHIANS

Enhancing landscape connectivity for brown bear and wolf through a regional network of NATURA 2000 sites in Romania

Concept Note: Leveraging Carbon Value and Environmental Markets finance, Apuseni Link Biodiversity Corridor & Zarandul de Est Natura 2000, Romania

Concept developed by FFI Environmental Markets 2015 for Fauna and Flora International Romania and the Zarand Association

Background

This concept note aims to provide an overview of FFI and Zarand Association's work in Zarand, and the potential opportunities that exist to leverage carbon and other environmental markets finance for enhancing the sustainability and longevity of conservation interventions in the Zarand landscape, Romania.

Romania's natural value

Romania has one of the most extensive natural landscapes remaining in Europe; it includes approximately 6.5 million hectares of natural forests, and over 14 million hectares of agricultural lands including meadows and farmlands.

Over the last 15 years, since the cessation of collectivization under communism, significant areas of land have been returned to their original owners through a process of land restitution in Romania. This includes vast areas of Romania's rural landscapes, encompassing both natural forest and non-forest land meadows and traditional farmland.

Both land restitution and Romania's accession into the EU in 2007 have led to increasingly rapid economic development opportunities. While economic development and growth is welcomed in Romania, it also brings with it many challenges for both maintaining high-biodiversity values within rural landscapes and also building resilience and sustainability into economic development progress being made within Romania's rural communities. Addressing these challenges forms the basis of FFI's work in the landscape of the Apuseni Corridor in Romania.

Natura 2000 and the Apuseni Link Biodiversity Corridor

Romania is actively establishing an ecological network of protected areas, in line with the Natura 2000 objectives of the European Union. In 2012, new Natura 2000 sites were designated across an important biodiversity corridor known as the "Apuseni link" in the forested landscape of Transylvania in Western Romania.

This landscape corridor, which is approximately 750,000 hectares in size and extends approximately 150km in length, plays a critical role linking the Apuseni Natural Park in the north, and the Retezat National Park in the south (see map below). In particular, the Apusini Link includes the last remaining viable ecological corridor for large carnivores moving between the Western and Southern Carpathians.

In recognition of its biodiversity significance, FFI in partnership with local NGO, Zarand Association, began a programme of conservation activities throughout the corridor under an EU LIFE + Nature project in 2012 (see below).

FFI and Zarand association Apuseni Link Biodiversity Corridor Conservation objectives 2012 – 2018:

- Maintenance of habitat and landscape features essential for connectivity
- Promote sympathetic land management and natural resource use in the wider landscape
- Conserve target carnivore species through activities such as addressing human-wildlife conflict, monitoring species movement and raising local awareness
- Address local livelihood issues as part of a process to improve local social conditions and to support small scale sustainable land management activities
- Support research and monitoring activities to develop sustainable management tools
- Develop the institutional capacity of FFI's newly established local partner NGO, the Zarand Association

FFI and Zarand Association Natura 2000 custodianship

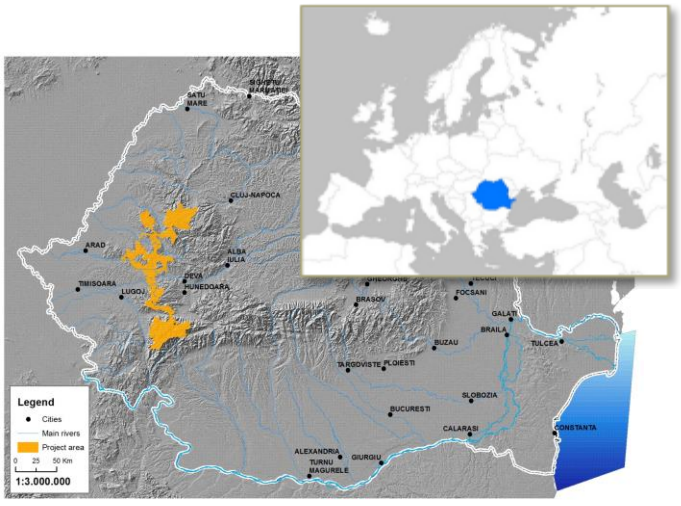
In 2013 FFI and the Zarand Association successfully attained Custodianship status from the Romanian Ministry of Environment and Climate Change for a significant Natura 2000 site in the Apuseni Corridor; *Zarandul de Est* (see map below). The Zarandul de Este Natura 2000 site covers approximately 20,315 hectares includes a complex mix of forest types, land ownership and management regimes.

Natura 2000 site status does not require absolute protection, but rather these sites are designed to maintain a range of natural values, which includes both traditional agriculture and sustainable natural resource use. Therefore custodianship of a Natura 2000 site grants FFI and AZ an official status, recognized by the Romanian Government, to do the following;

- Provide oversight of land management interventions on the site, with the intention to maintain the favorable conservation status of the species and habitats for which the site was designated; and
- Engage with stakeholders whose activities have the potential to negatively affect the site's significant biodiversity features, and thus provides FFI/AZ with significant influence in the area that can be used as leverage to develop sustainable solutions to development or other challenges

The FFI and AZ Romania team includes highly-skilled conservation biologists and foresters who are currently actively engaging with forestry stakeholders and operations, to both monitor and improve the sustainability of timber harvesting practices across the site.

Figure 1 The Apuseni biodiversity corridor, Natura 2000 sites and Zarandul de Est



Environmental markets and opportunities

Environmental markets have the potential to provide new, non-traditional and sustainable opportunities for long-term financing of conservation outcomes, alongside achieving social and sustainable development outcomes.

FFI's environmental markets approach includes four main streams of work; leveraging carbon market finance, impact investment, valuing natural assets, and enhancing sustainability in finance sector investment and decision-making (see below).

Currently FFI is working at 10 sites across 5 countries on environmental markets projects which aim to achieve landscape-scale change and conservation outcomes at all levels of implementation.

Leveraging carbon and other environmental market finance in Zarand

FFI and Zarand Association's programme of activities provides the basis for a number of prospective opportunities for environmental markets finance in the future.

A preliminary feasibility assessment conducted by Environmental Markets in May 2015 which identified three prospective concepts that could be used as the basis for leveraging environmental finance. These are outlined in more detail below.

FFI Environmental markets work streams

Carbon financing	▪ Community-based sustainable forest and land management pilot projects ▪ Reducing deforestation and third-party verified emissions reductions ▪ Progressing jurisdictional-level low-emissions frameworks at scale
Impact investment	▪ Establishing local sustainable commodity impact investment funds ▪ Investing in small-medium size businesses with positive impacts ▪ Developing impact measurement frameworks
Natural assets	▪ Valuation of key ecosystem services and policy engagement ▪ Natural capital accounting
Finance sector	▪ Assist finance sector actors to integrate biodiversity into investment decision-making, and encourage businesses to improve their standards of operations

Concept A. Leveraging voluntary carbon market finance through Improved Forest Management (IFM) mechanisms

Improved Forest Management (IFM) is a mechanism by which carbon value is enhanced through interventions that reduce the impact of forest harvesting operations, and ultimately an increase in the average carbon stock of a forest over time.

In Zarandul de Est this could be achieved through a range of management interventions including;

- Ensuring management plans and guidelines are strictly followed in comparison to a business as usual baseline whereby management plans are not strictly followed, resulting in higher emissions;
- Establishing forest harvest exclusion zones within forestry operation areas, whereby harvesting of valuable habitat forest pockets or habitat trees are avoided;
- Changing harvesting approaches from high-impact, such as mechanical harvesting, to lower-impact, such as cable- or horse-based logging extraction; and/or
- Reducing the long term impact of harvesting activities, for example through reducing harvest intensity (annual volume extracted) and/or through extension of the stand rotation age.

Proposed approach

FFI-AZ are already progressing work, through its Custodianship status, whereby they are engaging and coordinating closely with Zarandul de Est forest land owners to improve implementation of their official forest management plans across their estate. In Zarand an IFM approach could be developed drawing on this work, by formalising partnerships with landowners and building activities over the long term into a carbon-based performance framework.

Such framework could also draw on existing international best-practice carbon accounting methodologies as well as FFI's experience working with voluntary carbon market standards, such as the Verified Carbon Standard (VCS). Monitoring, measuring and reporting on carbon value in this way can also highlight the alignment between FFI and AZ's forestry intervention activities the EU's nature and biodiversity policy objectives, which in turn may facilitate further national and regional support for FFI and AZ's ongoing programme of work.

IFM models have already been successfully applied to forestry projects around the world, including forestry operations in boreal forests. These projects, which are already generating carbon credits, could be used as the basis to develop a Romanian approach in Zarand. IFM projects are now commonly being combined with other approaches that both improve sustainable forest management practices and add value to timber products, such as through Forest Stewardship Certification (FSC), which are also growing in prominence in Romania.

Box 1: Indicative carbon value from Improved Forest Management interventions in Zarandul de Est

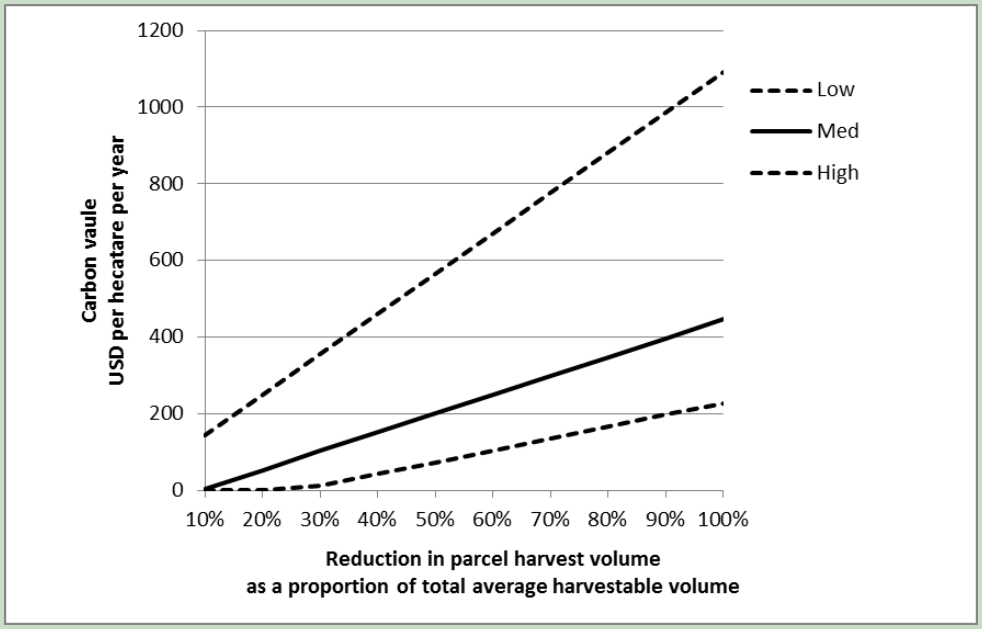
FFI Environmental Markets has developed a preliminary model to estimate the potential trade-offs between prospective increases in carbon value that can be achieved with reductions in timber harvest volumes.

This modelling is based on the premise that 'business as usual' timber volumes and harvest schedules in most Romanian forestry management plans prioritise maximisation of potential timber revenues, at the detriment of some key environmental performance indicators. This context creates opportunities for activities that improve forest management to generate additional carbon value.

The graph below shows the indicative relationship between reductions in timber volumes harvested, and prospective carbon value achievable for a typical forestry operation in Zarand.

The value of carbon emissions reductions is based on voluntary carbon market prices received for REDD+ credits. However, these values cannot be directly interpreted as prospective revenues, as this modelling does not take into account project development and operational costs that would be otherwise involved in establishing a carbon-market mechanism required to realise such revenues through the generation and sale of carbon credits (see final section below).

This modelling is being further developed and applied to specific forestry operations to analyse prospective project opportunities by FFI and AZ (see final section).



Concept B. Local sustainable forestry enterprise development

As a result of both the restitution process, forest land in Romania is owned by a range of different public and private entities, of which most manage their land for forestry purposes. As a result of this and also the structure of the forest management system in Romania, forestry operations involve a complexity of stakeholders at various stages of forest management cycles.

Presently both the development and implementation of forest management plans and harvesting operations are either being outsourced through private contractors or implemented quasi-illegally, and there are issues with the appropriateness and sustainability of all such operations.

Therefore opportunities exist for developing local enterprise capacity in a way that contributes to the local economy, provides benefits for local communities and ultimately enhances the sustainability of forest harvesting practices in Zarand.

Proposed approach

Seed funds and loans to establish local sustainable forestry enterprises could be leveraged from prospective impact-investors or impact investment vehicles, such as FFI's Oryx Impact Investment (OII) which is currently consolidating funds and a pipeline of impact investment projects in Indonesia.

Local capacity building to ensure the long term viability and sustainability of these enterprises could be built through FFI and AZ's existing strong relationship with local communities, experience in community enterprise development and in-house expert forestry capacity. This approach also aligns with the European Commission's policy developments in natural capital financing. In particular The EC is presently in the process of gearing up its 'Natural Capital Financing Facility' to provide support in the form of loans and investments for entrepreneurial projects that promote the preservation of environmental and social values.

Concept C. Land restoration through parcel purchase

As part of its conservation programme FFI and AZ are progressing procurement and rehabilitation of ex-agricultural land in critical regions of the Apuseni corridor.

The Apuseni Link Biodiversity corridor is particularly important for carnivore species migration across the landscape, however a key challenge for biodiversity conservation in this context is maintaining connectivity across an increasingly fragmented landscape.

In particular, in Romania currently private land sales are rapidly increasing. This presents both challenges and opportunities in securing strategic areas of land for their natural values, as well as ensuring land acquisitions lead to equitable outcomes for local communities. Overall FFI and AZ are aiming to purchase approximately 200 to 300 hectares of ex-agricultural land with the objective to restore vegetation and provide protective cover for carnivore species migration throughout the Apuseni Corridor.

Prospective approach

FFI-AZ land parcel purchases acquired under the LIFE+ program could be used to pilot approaches that leverage the carbon value created from restoring vegetation biomass on ex-agricultural land.

The biomass increase and enhancement of carbon value from restoring vegetation on ex-agricultural parcels in the landscape could also be leveraged through establishing Afforestation, Reforestation and Re-vegetation (ARR) projects that generate carbon credits and generate finance from voluntary carbon markets and mechanisms, for example those established under the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM).

Measuring and reporting of carbon value generated from land restoration activities may also be useful in leveraging policy-level support, given that it both provides quantifiable impacts and aligns with the EU nature and biodiversity policy objectives.

Figure 2. Pre-existing land cover and land uses within the prospective parcel purchase areas

Agricultual cropland | **Mixed shrubland and agricultural land** | **Shrubland (with scattered natural vegetation)**

Box 2 Land parcel vegetation restoration and carbon value scenarios

In standard agriculture and forestry carbon accounting protocols 'carbon value' is usually derived based on the 'net change' in carbon stocks from a pre-existing land use to a new land use established after specific land management interventions have been implemented.

Land parcels have not yet been identified and purchased, so a number of possible land use change scenarios that may result from these activities in the future. Therefore FFI EM developed indicative carbon modelling of land restoration based on a range of prospective 'pre' and 'post' land parcel purchase and land use scenarios (table below)

	Minimal carbon value	**Medium carbon value**	**Maximal carbon value**
Pre-existing land use	Shrubland	Mixed shrubland and agricultural land	Agricultural cropland
Post-management intervention land cover	Natural forest	Fast-growing plantation species	Fast-growing plantation species
Indicative net carbon value with land restoration	2 tCO2-e/ha/year	5 tCO2-e/ha/year	16 tCO2-e /ha/year

Trade-offs

The modelling demonstrates the potential trade-off between the extent to which carbon value may be maximised, and other potential considerations associated with land procurement and purchase.

For example, carbon value of land restoration activities could be maximised through targeting purchase and restoration of 'low-carbon' ex-agricultural land plots, with relatively 'high-carbon' fast growth tree species, such as beech and willow. However, a key objective of these activities is to provide strategically located vegetation as shelter for wildlife in areas where the Apuseni corridor is highly fragmented, and this may not always necessarily coincide with ex-agricultural land areas where carbon value may be maximised.

Although carbon may not necessarily the primary ecosystem service value associated with this program of activities, determining the prospective impacts of land parcel vegetation restoration activities may help to leverage support from both local stakeholders and policy decision-makers for both progressing and expanding land parcel purchase and vegetation restoration activities.

For example, the prospective carbon value, in terms of carbon emissions reductions, and the prospective biodiversity value, in terms of indicators of habitat connectivity indicators such as edge effect and isolation indices, may both be reported as quantifiable impacts resulting from land restoration activities that align with the EU nature and biodiversity policy objectives.

Environmental markets project development pathway

To develop projects that leverage environmental markets requires a number of stages of development over a period of time. FFI and AZ are exploring opportunities to advance the project concepts along this development pathway for the prospective concepts identified in the Zarand Landscape.

Phase	Key objective	Description
1. Preliminary feasibility study	Develop prospective project concepts	Identify feasible and viable project concepts and prospective environmental market opportunities.
2. Project scoping	Develop a draft project business plan(s)	Identify prospective sites and stakeholders, and develop detailed estimates of prospective project needs, costs and revenues.
3. Project development	Ready the project for operationalisation	Contingent on securing of funding and/or investment opportunities, develop the project to the point at which it can begin to generate benefits, including; building the capacity of project stakeholders and establishing project monitoring and reporting systems.
4. Project operationalisation	Operationalise the project plan	Operationalise the project and initiate a regular cycle of project implementation, monitoring, reporting and benefit generation. For a typical carbon-based forestry project this includes annual or biannual monitoring, reporting and verification of carbon emissions reductions and timber production through third-party auditing against a standard (e.g. the Verified Carbon Standard and Forest Stewardship Council standard).

Overarching principles and approaches

Prospective future development and implementation of environmental market-based activities in Zarand will be designed to incorporate the following approaches;

1. **Biodiversity conservation and Natura 2000 Custodianship objectives**

   Activities will be streamlined with FFI and AZs' biodiversity conservation objectives for carnivore conservation in the Apuseni Link Corridor, and aligned with its Custodianship responsibility for the Zarandul de Est Natura 2000 site.

2. **Grass-roots capacity building through the Zarand Association local NGO**

   FFI is committed to supporting its local partner NGO, the Zarand Association (AZ), through capacity building and further enhancing AZ's existing strong relationships with local communities and experience in grass-roots enterprise development.

3. **Establishing small-scale replicable project pilot models**

   New environmental markets approaches will be instigated through small scale projects that are able to demonstrate robust, systematic changes more quickly at a local level as well as act as a pilot model that can be rapidly replicated elsewhere.

4. **Environmental Markets investment and financing principles**

   Where FFI applies an environmental markets approach, FFI is committed to leveraging environmental markets finance for projects that target high biodiversity areas, demonstrate positive species or habitat based conservation impacts, support sustainable practices and ultimately stimulate local employment by providing livelihoods opportunities through local community sourcing.