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Alpine Space
EUROPEAN UNION
ALPBIONET2030
EUROPEAN REGIONAL DEVELOPMENT FUND

ALPBIONET2030

Integrative Alpine wildlife and habitat management for the next generation

Report - Verification of the Strategic Alpine Connectivity Areas approach with Stakeholders and on-site analysis of situation

1 Introduction

The elaboration of the Strategic Alpine Connectivity Areas (SACA) approach was one of the main challenges of the ALPBIONET2030 project. This classification of the alpine and EUSALP area in three types of categories offering the possibility to better target actions and funds in favour of ecological connectivity has led to an innovative cartography of the territory.

In order to test the acceptance of the results provided by this approach by the local stakeholders and to verify the accuracy of the mapping results on-site a series of Workshop and site visits were organised in the different Project Working Regions (PWR) of the project.

A common general structure was proposed for these events, foreseeing a discussion of the approach and the mapping result as well as insights to the specific local situation and challenges during an indoor session. This was also the occasion to compare the ALPBIONET2030 results with existing local studies, cartographies etc. Furthermore, possibilities on how to use the project results in the regional and local context were explored.

A second part of the meeting was dedicated to a on-site visit verifying the accuracy of the mapping results with the situation on the ground, exploring different SACA types and their materialisation on the ground.

The following 6 visits took place:

- Berchtesgaden area (D)
- Mont Blanc area (F)
- Prealpi Giulie Nature Park area (I)
- Slovenia (Triglav area) (SL)
- Augsburg (D)
- Adamelo Brenta (I)

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Site visit in Berchtesgaden
13.11.2018

1 Programme

Uhrzeit	Thema	Vortragende
Indoor session		
09:30	**Begrüßung durch Gastgeber des Treffens**	NP Berchtesgaden
09:40 - 10:00	**Einleitung** Einführung in das Thema, Bedeutung des ökologischen Verbundes auf internationaler, alpenweiter Ebene, Zielsetzungen des Projekts und des Tages	Alparc
10:00 – 10:20	**SACA Konzept** Methodische Einführung in das SACA Konzept	Alparc
10:20 – 10:45	**Regionale Übersicht** Überblick über die Situation in der Region (geographische Abgrenzung, Einschätzung nach CSI, existierender Rahmen im Zusammenhang mit ökologischem Verbund, bekannte Planungs- und Managementinstrumente)	Alparc, NP Berchtesgaden
10:45 – 11:00	**Kaffee Pause**	
11:00 - 11:30	**Lokale SACA Situation** Diskussion der SACA Karten, Möglichkeiten der Verknüpfung des SACA Ansatzes mit bestehenden Instrumenten und Planungen	Alle NP Berchtesgaden
11:30 - 12:00	**Perspektiven und Weiterentwicklung** Erarbeitung von Aktionsvorschlägen und Integration des SACA Ansatzes in lokalen Kontext	Alle NP Berchtesgaden
12:30 – 14:00	**Mittagessen im Goberg, Anger**	
Outdoor session		
14:00 - 17:00	**Besuch von Beispielflächen einzelner SACA Kategorien**	LPV BGL, NP Berchtesgaden
17:00 – 17:30	**Abschlussdiskussion und Zusammenfassung des Tages**	Alparc

2 SACA1 and SACA3 in the PWR Berchtesgaden-Salzburg

The existing results of the SACA1 and SACA3 calculation (weighting: 2POP, 2LAN, 1FRA, 1ENV, 1TOP) shows that there just a few SACA3 areas in the sections with high urbanisation. This results is to be explained by the weighting, where population density is weighted twice and the highways, which constitute a barrier, influence the result less. Nevertheless, it was aim of the site visit to make the fragmentation by infrastructure a subject of the discussion. The highway A8 Salzburg-München is the main barrier in the northern part of the PWR and also to the EUSALP perimeter. However, there are SACA1 patches next to the highway which are important stepping stones but not connected to each other. It was part of the discussion, if the highway buffers to the surrounding areas and potential SACA1 area (see esp. landscape and plant protection area Untersberg Vorland in the Austrian part of the red circle of figure 1, which should be SACA1 but is not).

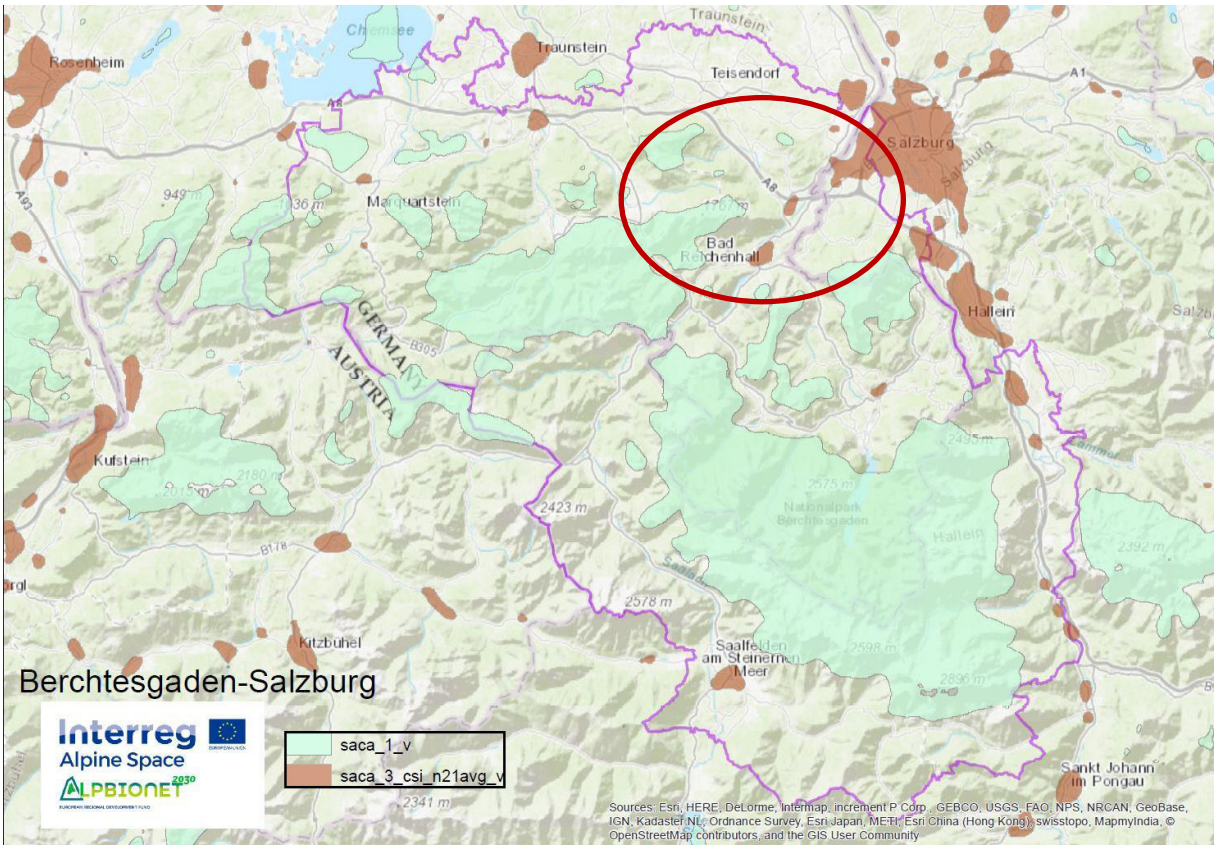

Figure 1:SACA1 and SACA3 in the PWR and excursion area of the site visit (red circle)

3 Discussion

The main question of the meeting was, what would be necessary to bring the SACA concept to a useful level for practitioners.

The scale is a main point of this discussion. For the experts, the tool up to now is good to bring the focus to corridors and hotspots where in a next step research is necessary. Once the SACA2 calculation is available, a proofment these areas with

the focus on different species or Natura200 sites would be necessary: Do the calculations fit to the reality? Also the 100 ha limit was discussed, because many small-scale issues would weight high in summary.

There is the wish of the experts for a possibility to integrate the SACA shapefiles in own maps and programs and – vice versa – integrate own data (e.g. species monitoring) in JEACMI2.0.

The basemap should graph the topography for a better understanding of the maps. By integrating for example the hillshade, the valleys with a high fragmentation are easy to see.

Maps are an interpretation of reality but also the interpretation of the maps will be various. Different people with different interest will interpret the results not the same way. So, a detailed, complete and easy explanation of the maps is necessary.

The interpretation of SACA1 as ecological “good” and SACA3 as “bad” areas is obvious. It should be communicated more as less/more urgent/easy for connectivity measures.

A main value of CSI for practitioners is the significance of the region, habitats and species in an alpwide context. The tool is a good opportunity to bring values of connectivity more to the center of ecological discussions and to consciousness of society.

4 Field visit

It was aim of the Site visit excursion to theme the ecological connectivity of the PWR to the EUSALP perimeter in the northern part of the region. In this part a main fragmentation issue is represented by the highway A8 Salzburg-München. There are no greenbridges and just some possibilities to cross the highway on smaller roads. There is the discussion of widening the highway to six lanes, in these measures an upgrade for ecological connectivity would be desirable.

In cooporation with the local landcare LPV, the site visit focused further on small projects for the stepping stone system next to the highway. The Landcare association works together with local farmers to recultivate sites in a sustainable way.

5 Participants

Site visit Berchtesgaden
13.11.2018

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Last name	First name	Organisation	Country	Email	Phone number	Signature
KICHLER	Yann	ALPARC	F			
KLAR	Carolin	NPV	D	carolin.klar@npv-bgd.bayern.de		
DWORSCHAK	ULF	NLPV	D	ulf.dworschak@npv-bgd.bayern.de		
Deischl	Anna	AELF Ebersberg	D	anna.deischl@aelf-eb.bayern.de		
Kyek	Martin	Haus der Natur	A	martin.kyek@hausdernatur.at	0043/664/2101471	
Fegg	Wolfgang	DVL	D	wolfgang.fegg@gmx.de	01609442492	
Linne	Georg	AELF Traunstein	D	georg.linne@AELF-TS.bayern.de		
Englmaier	Ilse	Das FaunNa-Büro	D	englmaier@fauna.de	08683-890648	
Reichhart	Susanne	ANL	D	reichhart.susanne@gmail.com	0043/660 2215346	
Maichner	Florian	UNB BGL	D	florian.maichner@lra-bgl.de	08561 773 854	
POSER	RITA	BUND Naturschutz	D	poser.rita@t-online.de		
Vesely	Philipp	SIR	A	philipp.vesely@salzburg.gv.at	00436604940083	

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Report – PWR Mont-Blanc

1 Participants

Date: 15/10/2018

9.30am – 4.30pm

Took part :

- Aline Breton (Asters-Conservatory for Natural Spaces) (Asters CEN74)
- Guillaume Costes (Asters- Conservatory for Natural Spaces) (Asters CEN74)
- Bertille Clavel (Auvergne-Rhône-Alpes Regional Council) (Conseil Régional Auvergne-Rhône-Alpes)
- Baptiste Doutau (League for the Protection of Birds) (LPO)
- Béatrice Fel (Haute-Savoie Departmental Council) (Conseil Départemental Haute-Savoie)
- Mégane Germain (Haute-Savoie Hunting Federation) (Fédération des Chasseurs de Haute-Savoie)
- Marion Guitteny (Asters-Conservatory for Natural Spaces) (Asters-CEN74)
- Etienne Jacquet (Mayor of Contamines-Montjoie)
- Yann Kohler (Alparc)
- Gaëtan Masson (Mont-Blanc Motorway and Tunnel) (Autoroute et Tunnel du Mont-Blanc)
- Aline Pissart-Maillet (Mont Blanc Region Community of Communes) (CC Pays du Mont Blanc)
- Jean-Christophe Poupet (WWF)

Present in the afternoon:

- Pierre-Olivier Carra (Passy Town Hall)

Excused:

- Joint Union for the Development of the Arve and its Tributaries- SM3A
- (Rhone-Alpes Federation for the Protection of Nature) FRAPNA – Haute Savoie
- Julie Chaboud (Valley of Chamonix-Mont-Blanc Community of Communes) (CC Vallée de Chamonix-Mont-Blanc)
- Éric Coudurier (Haute-Savoie Hunting Federation) (Fédération des Chasseurs de Haute-Savoie)
- Pauline Leterte (Montagne du Giffre Community of Communes) (CC Montagnes du Giffre)
- Guido Plassman (Alparc)
- Emmanuel Princic (Direction of Departmental Territories) (DDT)
- Fiona Prioul (Cluses Arve and Mountains Community of Communes) (CC Cluses Arve et montagne)

A second part of the meeting was dedicated to a on site visit verifying the accuracy of the mapping results with the situation on the ground, exploring different SACA types and their materialisation on the ground.

2 Welcome by the Mayor of Les Contamines-Montjoie

Mr. Etienne Jacquet opened the day's proceedings. The Commune of Les Contamines-Montjoie has put a lot of effort into the conservation of the natural heritage. Alongside Asters, It will celebrate the 40th anniversary of the reserve in 2019.

The Alpbionet project makes it possible to make a diagnosis of the ecological connectivities and this has helped the community to draw up its SNZ territory contract (Sensitive Natural Zone). For Mr. Jacquet, the goal is, first and foremost, to ensure that this leads to concrete actions in the territory.

3 Introduction Alpbionet 2030 Project

Yann Kohler from Alparc gave an overall presentation of the ALPBIONET 2030 Project. Cf. diaporama 1.

Alparc aims to reinforce the network of Alpine protected areas. Thus, for several years, the association has been working on the subject of ecological connectivities with the players in the territory of the protected areas who also exert influences on the neighbouring territories.

A report was given on the progress made in the various aspects of the project:

WP1: mapping work and the development of an online tool for the general public.

WP2: the management of wildlife. A trinational meeting will be organised in Chamonix on 4 December on hunting practices and the actions of hunters in favour of ecological connectivity.

WP3: a progress report will be presented in the course of the day of the site visit: cartography, measures proposed…

WP4: work on a macro-regional level

WP5: the management of Man-Nature conflicts, with two visits to colleges (Passy and Cluses), and a meeting concerning the infrastructures in 2017. A poster has also been produced (in English).

4 The Work of Cartographic Modelling

Cf. diaporama 2. This work is in the process of being finalised.

The resistance matrix of the movement of species in environments is a work in progress, based on homogenous data from the entire territory of the Alpine macro-region. These data are therefore not very precise and the choice was made to take into account the resistance of the environments for a majority of species. This model will therefore not be sufficient for species having specific ecological characteristics.

This work is a warning tool on both a national and a European scale. It is not intended to be used in communes or on an intercommunal scale. It is work carried out on the “Mont-Blanc” region which will be useable at a scale of 1:25000.

Most of the protected areas are also core areas of biodiversity (SACA1). Mr. Jacquet pointed out that the protected areas were created in areas difficult for Man to access.

Bird migration was not taken into account in this Alpine-scale study, but work to define air infrastructure will be carried out over the Mont-Blanc region.

The term chosen for the SACA 3, with environments that are not suitable to ecological connectivity, is “areas to be restored”. Now, these areas to be restored are not necessarily the most damaged. Damaged areas would be a more adapted term but the denomination was made according to the actions to be carried out: “areas of conservation”, “areas of intervention” and “areas to be restored”. It must also be pointed out that we must not deny the efforts which have been made in these damaged areas, for example concerning nature in the city.

5 Proposals for actions in the Mont-Blanc region

Cf. diaporama 3.

The goal was to propose actions in favour of ecological connectivity concerning the green, blue and air infrastructures .The black infrastructure has not been the subject of proposals for localised action, but for general action. Those present noted that this aspect is very important. First and foremost, localised lighting data must be collected. A request will be made to the Syane.

For the 4 French communities of communes, here is the current status of proposals:

- CCPMB : A report will be finalised following the site visit
- CCVCMB: A report is in the process of being finalised. A day is to be scheduled for its presentation to local politicians
- Montagnes du Giffre : Field check finalised
- Cluses Arve et Montagne: the meeting grouping together the players will be held on 17 October. The studies already carried out on this territory have been taken into account.

There have been exchanges concerning the study carried out on the otter: genetic origin, actions proposed…

Mr. Jacquet insisted on the importance of broad, ambitious actions, on the importance of going beyond awareness-raising actions. The protection of spaces which are still favourable is also important.

The continuation of this project will be to include the issues in the future SCOT, and the actions in the SNZ territory contracts or in green and blue contracts.

6 Examples of issues and measures in the territories

Some examples are shown on the maps to illustrate the issues of ecological connectivity and the measures which will be put forward. The main issues concern the crossing of the Arve and Giffre Valleys, but longitudinal corridors should also be taken into account.

- CCPMB: site of the afternoon visit. The Mont-Blanc plain and its environs could become a corridor after development.
- CCVCMB: issues in the corridor of the la Creusaz mountain torrent. Collisions, works under the RN205. This sector has to be studied more closely, notably with the help of camera traps. The LAB project, financed by the ADEME, will make it possible

to continue the work undertaken by Alpbionet. It will be necessary to determine which questions we're asking and what our intentions are in installing camera traps.

- Montagnes du Giffre: the issues are different from those in the Arve Valley, since the Giffre Valley is under less stress from infrastructures and urbanisation. The banks of the Giffre are still very favourable places, to be protected.

- Cluses and Magland: issues concerning the crossing of the Arve Valley in Magland. It will be necessary to study all the structures (bridges, buses) to identify the current crossing points, and measures will be put forward to improve them.

7 Prospects

The finalisation of the diagnosis which will be taken up in the SCOT. For the time being, governance is under discussion by the local politicians.

The Auvergne-Rhônes-Alpes region still plans to propose a blue and green contract in this territory, which would include the actions proposed in the frame of Alpbionet. This contract would not necessarily be on the scale of the 4 Communities of Communes.

For the CCPMB and the CCVCMB, the SNZ territory contracts can include this dimension and the actions.

For the 2CCAM, the SNZ territory contract will be renewed.

For Montagnes du Giffre, there is at present no political will to embark on a territory contract.

It may not be possible to include the project for inclusion on the UNESCO list in ecological connectivity, as the exceptional character which justifies this listing may be cultural in nature.

8 Visiting sites in the field

Several stopping places made it possible to visualise the problems of the territory. Cf. map in appendix :

- The banks of the Bon Nant are steep in some areas, so it is important to keep crossing areas where the topography is favourable, notably at the level of polygons 70, 71, 73 et 74.

- Route D902: several collision zones. A study needs to be carried out to determine the technical feasibility of installing reflector poles (polygons 71 and 72).

The penstock along the Bon Nant is probably a barrier for wildlife. Passages beneath it could be created or improved (polygons 68 and 69).

- Areas of meadow near the urban areas of la Planchette/Beaulieu (polygon 66): a corridor that is still very useful , the meadows must be kept as they are important for the fabric of open areas

- Hillside to the south of the Mont Blanc Plain: because it faces north this hillside is less urbanised than the hill in Passy. With a few orchards, meadows, areas of forest, this sector is favourable to many species (stop made at the level of polygon 32)

• The Mont-Blanc Plain: several actions would need to be carried out simultaneously to transform this sector into an ecological corridor. The agricultural plain (polygon 16) is made up of open environments favourable to biodiversity (notably dry grassland). Hedges and rows of trees would improve the potential of this sector as a corridor. The aquatic corridor of la Bialle could also be improved. It is currently impossible to cross the motorway. A bridge for wildlife, if possible to the east of the pont de la Carabote and at a good distance from it, could be envisaged (polygon 14). Several species can cross the Arve although they are obliged to cross on the riverbed, but the bridge could also provide a crossing. The departmental roads on each side of the plain must also be taken into account. Illuminated road signs could be envisaged on the D1205 (polygon 25).

The possible detection distance would be in the order of 300m, so the area could not be covered in its entirety. To the south of the lac de Passy (polygon 26) the forest is to be kept, by maintaining the forest cover and limiting the number of visitors, as it is the only patch of this type on the plain. The lac de Passy sector is hardly favourable because of the large number of visitors and the maintenance of the site. The railway line is fenced off near the lake so that crossing there is not possible for medium and large animals.

The Mont-Blanc Plain

- Hillside to the north of the Mont Blanc Plain: considerable urbanisation, but some corridors of forest remain. They are to be kept, in particular those which provide a connection with the Mont Blanc Plain (polygons 11 and 12).

- Barrage du Fayet (polygon 20): this site was not visited, but the problem of the crossing of otters was mentioned. On the left bank a fence protecting the dam prevents animals such as otters to travel along this obstacle. Conversations with the manager of the dam could lead to a technical solution so that animals would not have to climb up onto the road before going back down to follow the Arve.

Appendix: map of the sectors observed during the field visit

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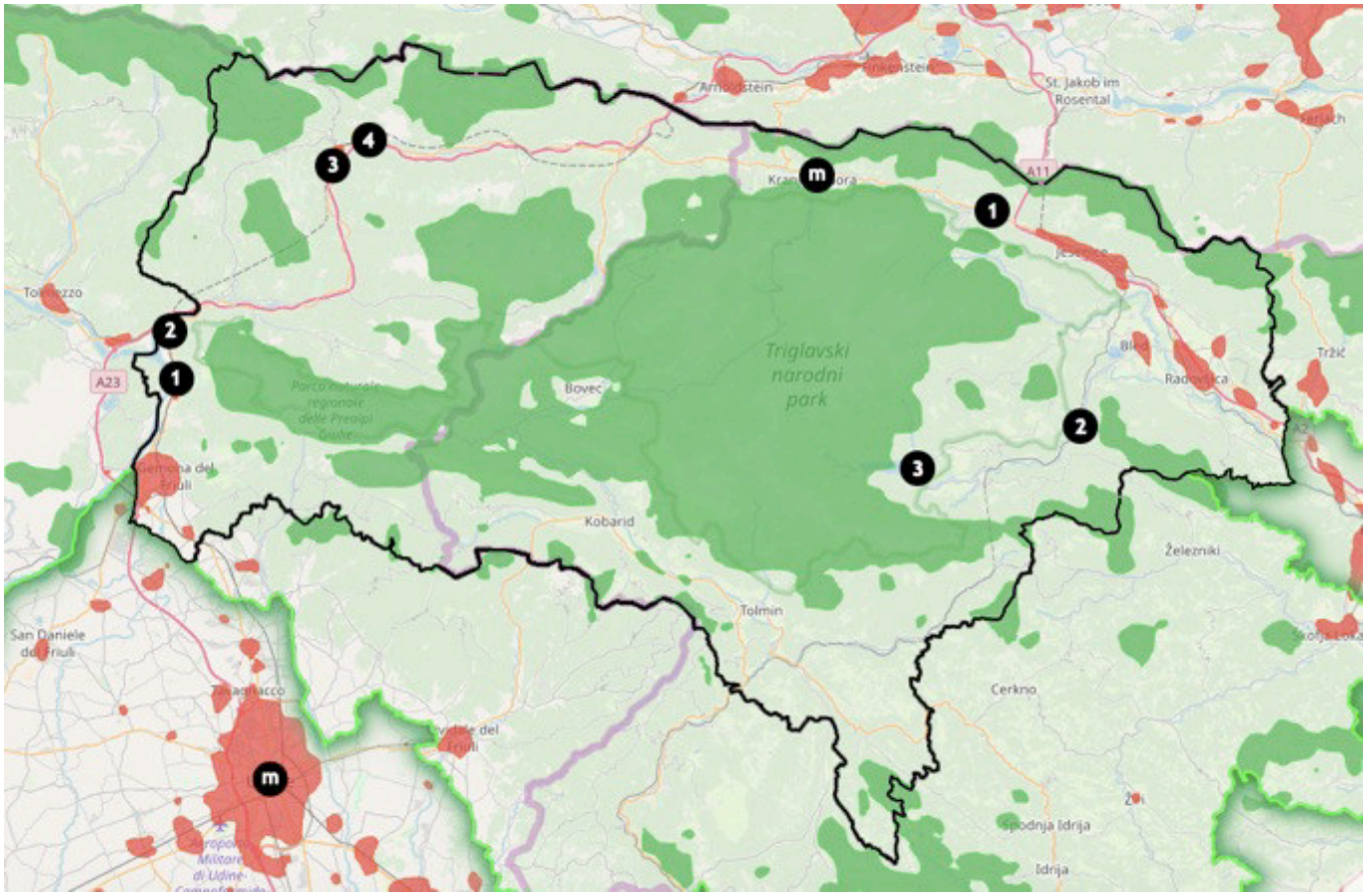
Field visit per la verifica della mappatura delle SACA

9 e 10 ottobre 2018, Prealpi Giulie-Triglav



Estratto della mappatura delle SACA presso la regione pilota Prealpi Giulie-Triglav, riportante (in nero) il perimetro della regione pilota e i siti della field visit (1, 2, ecc.) e dei meeting introduttivi (m).

REPORT

La mappatura delle SACA è una delle attività principali nell'ambito del WP3, nonché la maggiore sfida del progetto stesso. Il risultato atteso è di identificare e mappare nel perimetro di EUSALP **tre tipologie di aree strategiche per la connettività ecologica (le c.d. SACA – Strategic Alpine Connectivity Areas)**: SACA 1 (Aree di conservazione ecologica), SACA 2 (Aree di intervento ecologico), SACA 3 (Aree di ripristino della connettività). Al fine di verificare se la mappatura delle SACA riporta correttamente la realtà locale e individuare specifiche misure di adattamento e raccomandazioni per l'attuazione della connettività ecologica in queste aree, sono state previste diverse field visit presso le regioni pilota del progetto:

- *9/10: Prealpi Giulie (Udine)*
- *10/10: Slovenia (Kranska Gora Region)*
- *15/10: Mont Blanc*
- *08/11: Berchtesgaden Region*
- *09/11: Augsburg*

La field visit **presso la regione pilota transfrontaliera Prealpi Giulie-Triglav,** oggetto del presente report, è la prima delle tre previste nei prossimi mesi e si è svolta in **due giornate consecutive, 9 e 10 ottobre**, rispettivamente nel lato Italiano e Sloveno della regione pilota.

La mappatura delle SACA utilizzata per la verifica fa riferimento alla versione del 13 settembre 2018 resa disponibile online[1]. Si segnala che tale versione non riporta le SACA 2 che durante questa prima field visit erano ancora in fase di elaborazione e, pertanto, non sono state oggetto di verifica.

FIELD VISIT 1° GIORNO

Data	9 ottobre 2018
Luogo	Meeting: Udine Sites: collocati lungo la strada statale SS13: 2 siti in prossimità di Carnia e 2 di Pontebba
Partecipanti	17 pax.
• **Partner del progetto**	Parco delle Prealpi Giulie (esperti sulla caccia e l'avifauna), Servizio forestale sloveno, Istituto agricolo sloveno, Parco Berchtesgaden, Federparchi, ALPARC
• **Partecipanti Invitati**	Regione FVG, Università di Udine (esperti in pianificazione e grandi carnivori), For-Nature srl (gestione, conservazione e pianificazione ambientale)

PROGRAMMA			
SESSIONE/LUOGO		*INTERVENTO*	*REFERENTE/ENTE*
Mattina	Udine	Benvenuto ai partecipanti e giro di presentazione	Luci De Colle, Regione FVG (nelle veci di Paolo Zanchetta)
		Presentazione delle SACA e del loro ruolo	Guido Plassman, ALPARC
		Metodologia di identificazione delle SACA	Yann Kohler, ALPARC
		Presentazione del piano paesistico della Regione FVG	Francesco Boscutti, Università di Udine
		Presentazione dei siti oggetto della field visit	Stefano Santi, Parco delle Prealpi Giulie e Stefano Filacorda, Università di Udine
Pomeriggio	1° sito: in prossimità di Carnia	Nucleo urbano di Carnia come esempio di SACA 3 in vicinanza al perimetro del parco e di SACA 2 (ipotesi)	Parco delle Prealpi Giulie
	2° sito: in prossimità di Portis	Versante con nidificazione di grifone in vicinanza al perimetro del parco e di SACA 2 (ipotesi)	Parco delle Prealpi Giulie
	3° sito: in prossimità di Pontebba (sud)	Tratto della strada regionale come esempio di barriera per l'orso	Università di Udine
	4° sito: in prossimità di Pontebba (nord)	Problematico nodo autostradale che attualmente non appare come SACA 3	Parco delle Prealpi Giulie

Il primo giorno della field visit si è svolto in territorio Italiano delle Prealpi Giulie e ha riguardato quattro siti di sopralluogo collocati lungo la strada statale SS13. Per l'Italia hanno partecipato: esperti del Parco delle Prealpi Giulie e dell'Università di Udine, rappresentante del Servizio biodiversità della Regione Friuli Venezia Giulia, la società For-Nature che fornisce servizi e consulenze in ambito di gestione, conservazione e pianificazione ambientale, e Federparchi. Hanno partecipato anche i partner sloveni (il Servizio Forestale e l'Istituto Agricolo Sloveno), il Parco Berchtesgaden e il lead partner Alparc.
Nella mattinata si è tenuto un meeting introduttivo presso la sede della Regione FVG a Udine che ha avuto l'obiettivo di presentare ai partecipanti le SACA e di aprire il dibattito sul risultato atteso dalla field visit.

[1] http://91.134.194.223:8081/websig/lizmap/www/index.php/view/map/?repository=ab2030&project=201809_SACA_Lizmap

Il concetto delle SACA e la metodologia per la loro mappatura sono stati presentati dal lead partner del WP3 – Alparc. I partecipanti hanno potuto così conoscere gli indicatori che stanno alla base della costruzione del CSI (Continuum Suitability Index) e l'approccio per l'individuazione delle SACA derivante dai valori di questo indicatore. A seguire, al fine di poter valutare un potenziale ruolo delle SACA nella pianificazione territoriale, l'Università di Udine ha presentato il nuovo Piano Paesistico della Regione FVG e, in particolare, la sua attuazione a livello locale (Rete Ecologica Locale-REL) attraverso progetti pilota (circa 12) su iniziativa volontaria dei Comuni. Concludendo, il Direttore del Parco delle Prealpi Giulie ha presentato i siti oggetto della field visit del pomeriggio e l'approccio per la loro individuazione. Si tratta in effetti di quattro siti esemplificativi di alcune situazioni problematiche che interessano il territorio perimetrale del Parco delle Prealpi Giulie. I primi due siti sono stati selezionati per la loro particolare vicinanza al confine del parco e ad alcuni siti Natura 2000 (SACA 1) e, contemporaneamente, sono interessati anche dalla presenza di barriere alla connettività (SACA 3). Gli altri due siti, invece, rappresentano delle concrete barriere, per gli orsi nello specifico, bloccando totalmente il loro passaggio dalle Prealpi Carniche alle Prealpi Giulie.

Dal dibattito della mattinata è emerso che le SACA 1 risultano sovra rappresentate rispetto alle SACA 3, le quali invece risultano troppo piccoli e potrebbero anche non essere considerate una barriera. Questo risultato è dovuto al peso attribuito all'indicatore Environmental protection (ENV) adottato per il progetto. La nuova versione di Jecami permetterà la scelta individuale degli indicatori da impiegare per il calcolo del CSI e, quindi, la possibilità persino di escludere dal calcolo l'indicatore ENV al fine di "ridurre" l'estensione delle SACA 1. Durante il dibattito è stato anche chiarito che il CSI non fa riferimento a specie faunistiche o floristiche e che l'approccio si basa ad un calcolo già sviluppato con il progetto Ecconnet raffinato/semplificato in Alpbionet.

1° SITO: IN PROSSIMITÀ DI CARNIA

Il nucleo urbano di Carnia (SACA 3) è collocato lungo il versante che lo separa dal Parco delle Prealpi Giulie. Il sito è stato selezionato perché interessato da importante "potenziale" corridoio di connessione per gli orsi (SACA 2) tra le Prealpi Giulie e le Prealpi Carniche. In effetti, ad oggi risultano singoli casi in cui degli esemplari di orsi erano riusciti ad attraversare la strada SS13; tendono piuttosto ad arrivare al limite dei versanti montuosi e tornare indietro. Queste dinamiche degli spostamenti sono state testimoniate da rappresentazioni GIS graficizzate elaborate dall'Università di Udine (nell'ambito del progetto Nat2care), in grado anche di evidenziare i possibili corridoi di connessione. Il risultato atteso dalla mappatura delle SACA 2 è che essa possa confermare tali aree di collegamento, di cui si è già a conoscenza, o che possa dare un suggerimento in tal senso.

2° SITO: IN PROSSIMITÀ DI PORTIS

Si tratta di un sito collocato sempre lungo il margine del parco in corrispondenza del corridoio (SACA 2) individuato dall'Università di Udine. Il sito è stato selezionato piuttosto per la presenza di nidificazione di grifone,

l'unico settore alpino italiano dove è presente (trattandosi di una zona posta lungo quella che viene definita la "superstrada dei grifoni" utilizzata dagli uccelli che fanno la spola dagli alti Tauri austriaci alle isole del Quarnaro, in Croazia). Nonostante la mappatura delle SACA non è rappresentativa per la connettività delle specie migratorie, il progetto affronta l'argomento attraverso uno studio sull'impatto dei cambiamenti climatici sulla loro migrazione attraverso le Alpi. In merito, va segnalato che il parco delle Prealpi Giulie ospita la stazione di anellamento Malga Confin dove si svolge attività di monitoraggio dell'avifauna tramite cattura e inanellamento secondo il protocollo del "Progetto Alpi".

3° SITO: IN PROSSIMITÀ DI PONTEBBA (SUD)

L'area, collocata in vicinanza al nucleo urbano di Pontebba (SACA 3), è caratterizzata da frequenti tentativi di attraversamento della strada regionale da parte dell'orso. Sono stati infatti registrati alcuni incidenti e solo uno di successo. E' stato confermato pertanto che l'area rappresenta un importante barriera per la connettività.

4° SITO: IN PROSSIMITÀ DI PONTEBBA (NORD)

La field visit si è conclusa in corrispondenza del nodo stradale che vede l'intersezione fuori tunnel e in sopraelevato dell'autostrada e della statale. Risalente agli anni '80, il nodo infrastrutturale rappresenta una vera barriera per la connettività con un basso margine di soluzione e si estende per tutto il tratto verso la Slovenia non permettendo il collegamento tra Prealpi e Alpi Giulie.

FIELD VISIT 2° GIORNO

Data	10 ottobre 2018
Luogo	Meeting: Kranjska Gora Sites: 1 sito in prossimità di Mojstrana, 1 sito sul fiume Sava Bohinsjka e 1 in prossimità del lago Bohinj
Partecipanti	17 pax.
• **Partner del progetto**	Parco delle Prealpi Giulie (esperti sulla caccia e l'avifauna), Servizio forestale sloveno, Istituto agricolo sloveno, Parco Berchtesgaden, Federparchi, ALPARC
• **Partecipanti Invitati**	Parco Triglav, Istituto nazionale sulla Conservazione della Natura (referente AG7 Eusalp), Istituto nazionale per la pesca, Direzione Acqua, Direzione Infrastrutture

PROGRAMMA			
SESSIONE/LUOGO		*INTERVENTO*	*REFERENTE/ENTE*
Mattina	Kranjska Gora	Presentazione delle SACA e giro di presentazione dei partecipanti	Yann Kohler, ALPARC Istituto nazionale sulla Conservazione della Natura
		Presentazione dei siti oggetto della field visit	Irena Bertoncelj, Istituto agricolo sloveno
	1° sito: in prossimità di Hrusica-Mojstrana	Sezione della strada regionale dove avvengono frequenti incidenti con la fauna	Servizio forestale sloveno
Pomeriggio	2° sito: Diga (Soteska dam) sul fiume Sava Bohinjka	Diga della centralina idroelettrica che non ha previsto vasche che facilitino la migrazione dei pesci	Istituto di ricerca sulla pesca di Slovenia, Associazione Pescatori di Bled
	3° sito: Centro visite al lago Bohinj	Lago Bohinj suddiviso in SACA 1 e SACA 2 (ipotesi) e l'area di Pokljuka contente due "isole" di SACA 1 circondate da SACA 2(ipotesi)	Istituto agricolo sloveno, Servizio forestale sloveno

Nella mattinata si è tenuto un breve meeting introduttivo (Kranjska Gora) di presentazione del concetto delle SACA e della metodologia per la loro mappatura da parte di Alparc. Per la Slovenia, oltre i partner sloveni del progetto (Servizio Forestale e Istituto Agricolo), hanno partecipato anche il Parco Triglav, l'Istituto di ricerca sulla pesca di Slovenia, l'Associazione Pescatori di Bled e l'Istituto nazionale sulla Conservazione della Natura. La rappresentante di quest'ultimo, che è anche il referente sloveno presso l'AG7 di EUSALP, ha confermato il grande

interesse dell'istituto a poter vedere i risultati del progetto, in particolare la mappatura delle SACA, e avere la possibilità di presentarli in sede di EUSALP.

1° SITO: IN PROSSIMITÀ DI HRUSICA-MOJSTRANA

Si tratta di un sito caratterizzato da frequenti incidenti nell'attraversamento della fauna della strada che collega Kranjska Gora e Mojstrana, le due località in prossimità delle quali si snodano i collegamenti transalpini con l'Austria. Nonostante, appunto, non si tratti di una grande infrastruttura stradale, il peso degli incidenti stradali con la fauna in questo tratto di circa 20 km è maggiore rispetto a quelli verificatesi in corrispondenza del nodo dell'autostrada a Jesenica (SACA 3). Sono state sperimentate varie modalità di prevenzione (segnaletica legata a dei sensori, odori repellenti, riflettori, ecc.), ma non sono stati riscontrati dei particolari miglioramenti. Si è riscontrato difficoltoso persino definire nuovi punti di passaggio, dal momento che il comportamento degli animali è abitudinale. Gli esperti italiani e sloveni hanno potuto scambiare alcune possibili soluzioni in meriti e anche relativamente alla raccolta dati. Il desiderio principale è quello di limitare gli incidenti, ma anche di garantire il passaggio degli animali dall'altra parte della strada. Si auspica che la mappatura delle SACA possa indicare o confermare le aree più affini al pensare una modalità di connessione e possibili tipologie di connessione. Non sono ritenute adeguate le infrastrutture verdi.

2° SITO: CENTRALINA IDROELETTRICA SUL FIUME SAVA BOHINJKA

Il sopralluogo ha riguardato la Diga della centralina idroelettrica - Soteska dam - che segna l'inizio del primo distretto di pesca del fiume Sava Bohinjka, uno dei cinque distretti lungo il corso del fiume prima di versarsi nel Sava Dolinka. La stagione della pesca dura da aprile a novembre e continua con la stagione invernale della pesca del Salmone del Danubio fino a febbraio. Per questo motivo, lo sport di pesca è di particolare importanza per le attività turistiche collocate nell'area perimetrale del parco. E' ritenuta anche un'attività, molto bene regolamentata, di importante ruolo per il mantenimento di un equilibrio ecologico della popolazione dei pesci (es. ciascun Salmone del Danubio catturato deve essere immediatamente segnalato).
La criticità che caratterizza questo sito è che la diga non ha previsto vasche che facilitino la migrazione dei pesci. Nonostante la mappatura delle SACA non sia concepita come rappresentativa per la connettività della fauna ittica, si ritiene importante la valutazione dell'impatto di una simile attività nelle considerazioni generali del progetto.

3° SITO: CENTRO VISITE AL LAGO BOHINJ

Il sito è stato selezionato al fine di verificare il motivo per il quale il Lago Bohinj risulta suddiviso in SACA 1 e SACA 2 e l'area di Pokljuka contiene due "isole" di SACA 1 circondate da SACA 2. In effetti, tale mappatura non riporta la reale situazione sul campo, ma è anche comprensibile che tale "sfalsamento" della mappatura possa accadere essendoci diversi indicatori che interagiscono e influenzano l'identificazione delle aree (per citarne alcuni, la popolazione, la sovrapposizione di infrastrutture e abitati, l'uso del suolo, ecc.).

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Integrative Alpine wildlife and habitat management for the next generation

Site Visit for SACA presentation in Prealpi Giulie – Triglav Pilot Region (Slovenian side)

10th October 2018, 9:00 – 17:00

TRIGLAVSKI NARODNI PARK
PARCO NATURALE PREALPI GIULIE
alparc
ZAVOD za GOZDOVE SLOVENIJE
Slovenia Forest Service
Agricultural Institute of Slovenia

1 SITE VISIT aims and objectives

The aim of the site visit was two fold:

- Verify the mapping of SACA on the ground and visit problematic areas. Explore how can SACA be implemented in existing spatial plans.
- Discuss solutions and suggestions for solving problematic barriers and improve ecological connectivity.

Yann Kohler from ALPARC shortly presented the ALPBIONET2030 project and its aims. He focused further on SACA concept and the methodology of mapping. At the time of the Site visit a map of SACA 1 and SACA 3 was available, SACA 2 areas have not yet been calculated due to technical problems. Within SACA 2 there will be a gradient of suitability for ecological connectivity. River network was not included in the SACA mapping.

SACA maps will be used to place local / regional initiatives for improving ecological connectivity in relation with the EU level initiatives. The output maps will support discussion for local / regional initiatives. SACA will also serve as a basis for proposals for several categories of possible actions for improving ecological connectivity. SACA maps will not be used as the basis for selecting priority areas of ecological connectivity on the EU level and will not serve as a tool for distributing EU funds for developing green infrastructure.

In Slovenia we do not currently have any local or regional spatial plans for selecting priority areas for improving ecological connectivity. Currently the national spatial plan (from 2004) is being revised. Several projects have addressed ecological connectivity and corridors for large carnivores (LIFE AlpineBear etc.).

2 SITE VISIT, 1st stop: regional road Hrušica - Mojstrana

Blaž Černe (SFS) and Miha Marolt (TNP) presented maps of roe and red deer road-car collisions along the regional road Hrušica – Mojstrana which are spread along several kilometres of the road. Regional roads, unlike the highways are not surrounded by fences to prevent crossings of animals. Blaž and Miha presented several methods to prevent animal – car collisions such as chemical repellents and visual reflectors which have been used on this road section with mixed results. In this area approximately 50% of deer foreseen in the annual cull plans die due to car collisions. Green bridges over the regional road would be very expensive.

Yann pointed out that car – wildlife collisions in the case of roe and red deer is seen as problematic mostly for human casualties or damage but does not threaten the populations of deer. However, car collisions can present a problem for rare protected animals such as otters which have been killed in car collisions along this stretch.

At this point Miha Marolt also raised the issue of difference in state laws for hunting which pose a problem for ecological connectivity – an example of capercaillie and black grouse which are protected and not hunted in Slovenia. Animals crossing the border to Austria are culled as this species is not protected in Austria.

3 SITE VISIT, 2st stop: river dam in Soteska on river Sava Bohinjka

The river dam in Soteska on river Sava Bohinjka poses a barrier for fish migration along the river because there is no functional fish ladder. The main species of concern is *Hucho hucho* (Danube salmon).

Currently fishermen are restocking the fish populations and exchange fish from both sides of the dam therefore genetics of this population is not problematic. However, in the long term, such exchange should be enabled by a functional fish ladder.

4 SITE VISIT, 3st stop: Bohinj lake and surrounding forests and its division according to SACA mapping

At this stop we discussed two examples where SACA mapping is problematic according to local experts as it does not reflect well the real situation.

The first example is lake Bohinj which is divided in two parts of which the western part is SACA 1 and the eastern part is SACA 2. Local experts believe such geographically and ecologically coherent units should not be divided into different SACA categories.

The second example are two forested areas on the Pokljuka plateau which are managed in the same way as the surrounding forests but came out as SACA 1 as opposed to surrounding forests which came out as SACA 2. Local experts could not identify any characteristics to support the division of this homogeneous area into two different SACA categories.

Yann suggested the following steps to solve this issues:

- Compare regional models produced within ALPBIONET2030 project with the EU level SACA mapping.
- Increase the minimum size of SACA 1 sites from the current 100 ha threshold.
- Discuss the reasons for current SACA maps with GIS experts and explore the data behind it.

The question of how to quantify the suitability of the SACA model remains open and all suggestions are welcome.

Alpbionet 2030 Site Visit Augsburg, Germany

Place: Bayerisches Landesamt für Umwelt, Augsburg

Date: 15.04.2019 9:30 - 16:00

Teilnehmer*Innen:

Blümlein, Bernd DVL

Klar, Carolin DVL/NPB

Klar, Henrik DVL

Köhne, Katharina StMUV (Interreg Alpine Space)

Kohler, Yann Alparc

Kopp, Birgit, Lebensraum Lechtal, e.V.

Majovski, Patricia Lebensraum Lechtal e.V.

Meyer, Christopher, Regierung von Schwaben

Liebig, Nicolas LPV Stadt Augsburg e.V

Rehklau, Werner LfU

Secretary: Klar, Carolin; Klar, Henrik

Aim:

Presentation and discussion with experts of the SACA (Strategic Alpine Connectivity Areas) model.

Plausibility check of the SACA categories in local context.

Item 1: Introduction into the SACA-Approach:

Alpine habitat quality and species diversity is endangered by increasing intensive land use of several sectors. The project Alpbionet2030 focuses on Alpine Ecological Connecitivity on a political macro-scale (EUSALP). Wildlife habitat management and stakeholder involving concepts as well as transboundary cooperations for conservation and landscape planning are part of the project.
The Continuum Suitability Index (CSI), developed during the project by analyzing ecological landscape resistance, is the basis for three categories which illustrate Strategic Alpine Connectivity Areas (SACA). This model should help to focus strategically on three activity fields for ecological connectivity on a macro-scale:

- SACA1 – Ecological Conservation Areas
- SACA2 – Ecological Intervention Areas
- SACA3 – Connectivity Restoration Areas

The areas in the model without a SACA categorization can be interpretated as a lack of SACA 1 areas (protected areas > 100 ha) or a lack of connection of at least two SACA 2 areas. This "modelling problem" point out the need for action in this area.

Pic. 1: Discussion of the SACA map at LfU Augsburg (Bavarian Environmental Agency)

Item 2: Discussion of the results and evaluation on the basis of the local situation:

In the expert workshop some main crucial aspects of the SACA approach have been discussed.

Water bodies are main axes and corridors for Alpine and EUSALP connectivity and for the link to other natural environments. The existing model does not represent these important connecting elements as water bodies are excluded. Even if rivers like Lech are highly under human influence, they still play an important role for ecological connectivity. They are valuable in terms of ecological connectivity as they supply guidelines and migratory corridors for diverse species groups. Further valuable structures are often clustered along river axes. Apart from wet habitats there are often linear wood structures, floodplains or dry habitats (e.g. along dikes). Moreover, the availability of areas for nature conservation purposes is often better than in agricultural used landscapes. The SACA-approach doesn't implement water bodies, so their important role for habitat connectivity is not evident from the result

map. This leads to mistakes in the developed connectivity corridors at least in the German EUSALP perimeter.

The **minimum size for SACA 1 areas** of 100 ha seems unsuited as such large scale protection areas can barely be found in the alpine foothills. Many important Natura 2000 sites are smaller – but these areas are the backbone of the Bavarian connectivity approach outside the Alps. Apart from ecological connectivity along the rivers, especially a chain of stepping stone habitats is crucial and the more practical approach in this area.

The term “Ecological Connectivity” cannot be used universally. It is defined by the ecologic **requirements of target species**. Besides differences in space requirements, sensitivity towards barriers and differences in migrational behaviors there are many factors affecting the target species’ mobility. For example, a change of pH value between areas can be an insurmountable barrier for some species. For the experts, such a generalization of this term is hardly possible.

A map illustration with categorizations like the existing SACA model poses a **potential threat for wrong political interpretation**. It could be used to argue reduction of subsidies in SACA 3 or “white areas”, as strategic habitat linkage seems to be easier to be implemented in SACA 2 areas. Therefore, existing hot spots for ecological connectivity (like regional or local activities and projects) should be included in the concept. The experts kindly asked not to show these maps in a political discussion.

Settlements in general should not be seen as barriers as they appear quite heterogeneous. There are more or less valuable structures in terms of ecological connectivity and habitat quality in any settlement. A small rural village has not the same barrier effect as the inner city of a major town (ct. Item 3). In the map even small villages appear as SACA3 areas.

Item 3: River habitat Lechtal - Important corridor between Alpine and EUSALP landscape

The association Lebensraum Lechtal e.V. is working on the protection of the valuable habitats along the river Lech. These have an alpine wide importance for several calcareous habitats and species of floodplain forests, coppices, gravel banks etc. There is a high human impact on the river but there is still an important function of the river as connecting corridor and stepping stone for mentioned biotopes. In the SACA calculation Lech valley does not appear as a corridor but as SACA 3 because of the population along the river. There exists a lot literature that shows the importance of the River Lech for species distribution between the Alps and the Franconian Jura.

There are supervisors of the association that work in an area of 750 km² in the Lech valley. They attend to landcare measures, advise land users, do public relations and environmental education.

Pic. 2: Birgit Kopp presents the work of Lebensraum Lechtal e.V.

Item 4: Site visit of local landcare projetcs in SACA 3 areas around the city of Augsburg

- Nature conservation area Firnhaberauheide and deposit

There is a local specialty of a migrating sheepherder in the city area of Augsburg. The existing rest of heath sites and neglected grassland built an around five kilometers long biotope complex along the river Lech and the fragmenting highway A8.

- Höhgraben

Around the pastures of river Lech there is intensive used agricultural land. The small creek Höhgraben is a biotope in this area with low function for ecological connectivity due to high land use. It is habitat for valuable species like the sensitive dragonfly *Coenagrion mercuriale* (FFH annex I; Red List Germany Status 1). This species is in a conflict of target species management because a beaver (*Castor fiber*) has built a dam upstream and drained the creek.
There has been a renewal of land consolidation for buffer zones along the creek to avoid nutrient input from the surrounding fields.

- Lechauen

In the flood plains of the river Lech the so called Branntweinbach has been a dry creek for decades. By building a culvert from the channel on the other riverside the stream is now aquiferous again and typical habitats and species increasingly find their way back into the alluvial forests.

Under the electric power line typical dry habitats that had been abandoned for decades have been rebuilt. By now a connection of dry habitats through near the whole city of Augsburg was implemented and is mostly cultivated with sheep.

The old river bed of the Lech is nowadays characterized by gravel banks as most of the water is diverted to a channel. These gravel banks are habitats with a regional and alpine relevance, so several highly specialized species like the Little Ringed Plover (*Charadrius dubius*) and also support a migration corridor of high quality for numerous species of birds.

Conclusion

Valuable natural environments with good ecological permeability can also be found in SACA 3 areas. In areas with high human impact ecological connectivity might be established by small patches of stepping stones but also by river corridors. The “white” areas in the SACA maps should not just be considered as “no SACA area”. The model should be adapted in these regions (e.g. reduce SACA 1 minimum size; re-evaluate the population factor in the CSI in areas around the Alps, adapt the weight of the factors in the calculation).

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Integrative Alpine wildlife and habitat management for the next generation

Report of the field visit “Strategic areas for ecological connectivity in the Italian Alps”

9th May 2019, Adamello Park (Lombardy Region)

WP T3_A.T3.4 - D.T3.4.1

Project Partner Federparchi EUROPARC Italia in collaboration with the Italian Ministry for the Environment, Land and Sea - Observer

1 INTRODUCTION

Last May at Adamello Regional Park[1], located in the Lombard Valley Camonica, took place the field visit "Strategic areas for ecological connectivity in the Italian Alps", promoted and organized by the Italian Ministry for the Environment, Land and Sea - Italian delegation to the Alpine Convention, in collaboration with Adamello Park and Federparchi.

The field visit took place within the framework of the activities of Work Package 3[2] of the project Alpbionet2030 and was organized in conjunction with the first Expert Workshop of SAPA Network[3] on biodiversity monitoring. The workshop that took place in Milan the day before the field visit within the Programme of the Lombard presidency of EUSALP for the current year.

Alpbionet2030 foresees several field visits, starting from the project working regions (PWR), aimed at verifying whether the SACA mapping correctly reports the local situation and identifying specific adaptation measures and recommendations for the implementation of ecological connectivity in these areas. This extra[4] Italian field visit seeks to strengthen the involvement of the SAPA Network in the project, in particular the protected areas involved in the PWR and to consolidate and further develop the results in the field of ecological connectivity achieved by the network in the framework of the Alpine Convention and EUSALP, and other activities carried out in the Italian Alpine area.

Overview

Date	9 May 2019
Host entity and co-organizer	Adamello Park – Camonica Valley Mountain Community
Promoter and organizer	Italian Ministry for the Environment, Land and Sea - Italian delegation to the Alpine Convention
Collaboration	Federparchi EUROPARC Italia
Partecipants	27 pax.
- ***Project Partner/Observer***	*Federparchi, Eurac Research, Prealpi Giulie Nature Park, Swiss National Park, ALPARC, Italian Ministry for the Environment, Land and Sea*
- ***Other organizations***	*Lombardy Region, Province of Brescia, Mountain University - UNIMONT, Association Legambiente, Orobie Valtellinesi Regional Park*

2 MEETING

Ecological connectivity is strongly linked to issues such as territorial planning, biodiversity monitoring, protected areas management, infrastructures, etc. Therefore, it was important to imagine a joint action by different actors at various administrative levels involved in SAPA Network, as well as external ones, whose knowledge could contribute to complete the state of play of the Alpine connectivity.

Therefore, the intention of the field visit was to encourage a debate on the current situation of ecological connectivity in the Italian Alps and on existing instruments for mapping the connectivity (tools, platforms, databases, interventions, projects, research, etc.) through an exchange with local experts and stakeholders working on ecological connectivity issues.

[1] http://www.parcoadamello.it/
[2] WP T3_A.T3.4 Verifying the reality on the ground for SACA, PR and large scale corridors
[3] SAPA Network is the System of the Italian alpine protected areas. http://www.areeprotette-sapa.it
[4] A first Italian field visit was held in the PWR Prealpi Giulie-Triglav

An introductory meeting has sought to illustrate the SACA mapping methodology, to discuss the maps and to present the selected sites for the field visits. The meeting was also an opportunity to present significant experiences on the topic of ecological connectivity, as the initiatives carried out by Action Group 7 Green infrastructure of EUSALP and the research activities for the valorization of the territory and the ecosystems carried out by the Mountain University - UNIMONT.

Adamello Park

Adamello Park is involved in the Rhaetian Triangle that is a pilot region both of the Alpine Convention and the Alpbionet2030 project. This role of privileged territorial laboratory was further enhanced by the MaB (Man and Biosphere Program) UNESCO designation of Camonica Valley on 26th of July 2018. Such acknowledgment represents an additional point of strength of Camonica Valley area, already designated as UNESCO World Heritage "Valle Camonica Rock Art", and a greater commitment and responsibility, at the same time, to enhance and promote this recognition.

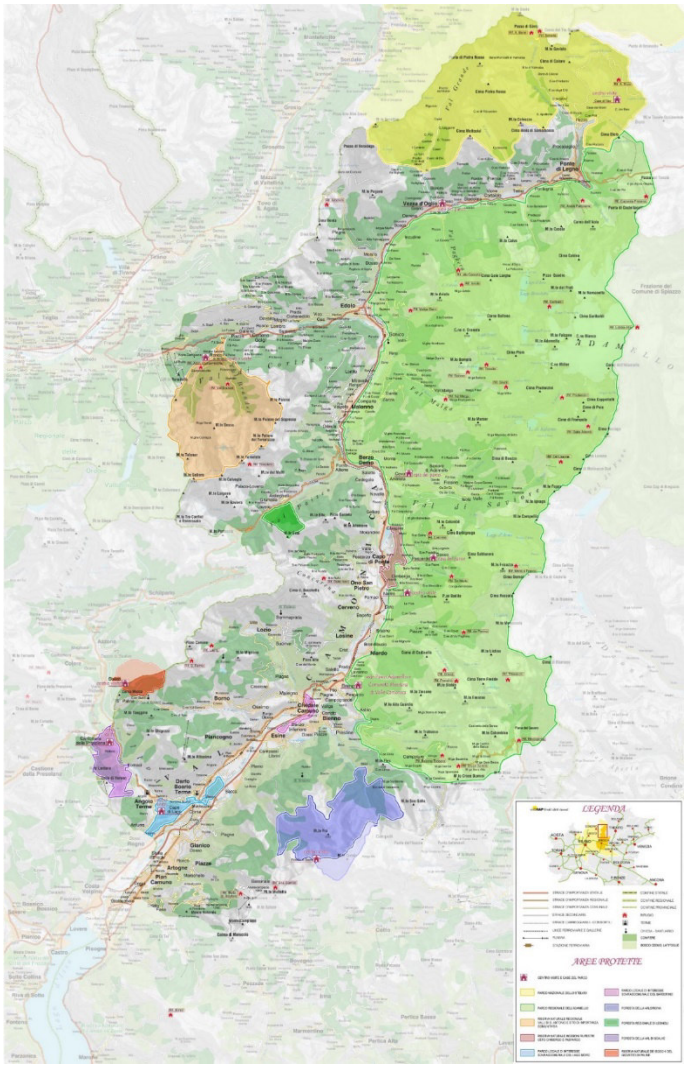

Fig. 1 Nature Network of Camonica Valley (source: http://retenatura.parcoadamello.it/)

About 50% of the territory of the Mountain Community of Camonica Valley, beside the Adamello Park, comprises numerous protected areas that constitute the “Nature Network of the Camonica Valley”. Indeed, the Network encompasses Adamello Regional Park, Natura 2000 sites outside the parks, nature reserves and many parks of local interest, as well as part of Stelvio National Park and Alto Garda Bresciano Park, constituting a very important large protected area in the heart of the Alps. The high number of protected areas is one of the most relevant aspects that led to the designation of MaB UNESCO Biosphere Reserve.

3 SITE VISITS

The sites selected for the field visit are of particular interest for the local ecological connectivity. Starting from the analysis of the SACA mapping, sites that present critical connectivity aspects or that are addressed by defragmentation interventions were identified.

Overview

SITE	INTERVENTIONS	EXPERTS OF THE PARK

SITE 1 | Oglio River near Losine	Ecological connectivity restoration through defragmentation of a river habitat	**Dario Furlanetto**, expert in nature protection; **Enzo Bona**, Botanist; **Guido Calvi**, Agronomist; **Anna Bonettini**, Biologist
SITE 2 | Industrial area in Malonno Plain	Requalification of critical situation of ecological connectivity	**Luca Dorbolò**, Landscape architect**; Anna Bonettini**, Biologist
SITE 4 | Malga Valley near Guat Bridge	Environmental requalification of the woods impacted by natural disasters	**Alessandro Ducoli**, Forestry; **Anna Bonettini**, Biologist

SITE 1 | Oglio River near Losine

Although Oglio River is one of the main ecological corridors of the Lombard Regional Ecological Network, funds and implementation tools are still scarce. Due to this, interventions of ecological connectivity restoration[5] were mainly supported by Cariplo Foundation and the Municipal Consortium BIM (Bacino Imbrifero Montano - Mountain River Watershed) of Camonica Valley. The project involved the stretch of the river from Edolo to Lake Iseo - beyond the perimeter of the Mountain Community but within the perimeter of the MaB area - and included numerous micro actions to defragment the problems of hydrogeological connection of the Oglio River. Three significant actions are visible on Site 1.

1) "Breakage" of the bridles in order to allow the fish fauna, mainly Salmonidae, going upriver.
2) Realization of "clusters" formed by huge rocks bound together. Unlike the previous intervention with fluvial connectivity purpose, the clusters have instead the role of diversifying the fluvial mesohabitat (riffle, pool or run), determining different morphological and hydraulic conditions for the colonization of the fish fauna.
3) Requalification of the peri-fluvial tree and shrub areas, aimed at marginalizing invasive species and safeguarding the most interesting coenoses. The requalification interventions of the forest bands are fundamental for maintaining the ecosystem, as well as the spaces of agricultural connectivity along the river often used for intensive cultivation and zootechnical use in the absence of regulatory prohibitions.

SITE 2 | Industrial area in Malonno Plain

The Malonno plain is representative of the transformations that since the second post-war period have affected the landscape of Camonica Valley with a significant impact on the transversal environmental connections, i.e. between the east and west sides of the valley.

[5] Furlanetto D., 2019. *Il fiume Oglio. Tra infrastruttura idraulica e giardino*. Breno: Comunità Montana di Valle Camonica – Parco dell'Adamello

In this regard, a specific research project[6] dedicated to explore the framework of the transformation of the Camuno landscape has been developed. The project identifies design guidelines for some specific sites, among which an important in-depth analysis concerns the Malonno plain and the industrial area specifically.

There are several critical aspects characterizing the site:

- its detachment from the residential area that negatively affects the open spaces, reducing them progressively and increasing their vulnerability to further transformations;
- evident barrier effect for the mobility of flora and fauna species, but also of resources such as the water subtracted from the hydrological cycle, with repercussions even over local;
- landscape degradation, as long as the industrial buildings compared to the traditional ones are completely off the scale.

Design solutions emerging from the project are:

- re-functionalization of the inactive buildings;
- water management using surfaces as rain gardens;
- open spaces design, recovering the symbolic relations between the two sides the plain, as well as the Oglio river.
- green infrastructures for crossing the main road SS42 along the industrial area.

Compared to the SACA mapping, the site is located within a SACA 3, which includes the entire village of Malonno. The research project therefore represents a potential design solution aimed at improving such situations of pressure.

SITE 4 | Malga Valley near the Bridge of Guat

Malga Valley, one of the most precious areas of Adamello Park from many points of view, last October was hit, as a large part of the central-eastern Alps, by the Vaja cloudburst that has not spared the woods that shown certain congenital fragility. In fact, the forests of the Malga Valley had already been identified as susceptible to hydrogeological problems and important measures to increase its natural features had already been adopted. Long-term planning and management is therefore fundamental to guarantee the resilience of these woods towards such extreme events.

[6] Field research *"Trasformazioni e Permanenze dei Paesaggi Camuni. Letture diagnostiche e interpretazioni progettuali"* https://flore.unifi.it/handle/2158/1142173#.XUw0AaJMHg8

After the cloudburst, mainly prompt interventions and clearing up actions of the main roads have been carried out. Furthermore, the extent of the damage has been assessed - 160 ha of forest completely razed to the ground and 300 thousands mc of trees - and the slopes stability now exposed to direct runoff was verified. Malga Valley is an ecological corridor of great importance for the bears that cross the valley towards Trentino Province. Moreover, in 1995 the valley was selected for reintroducing the ibex, now present in the main valleys of the park. Although the ibex would not be particularly affected by the new scenario generated by the cloudburst, systematic monitoring will show over time the impact these extreme events may have for the fauna, large carnivores included. The last October event could also be an opportunity for a concrete revision of the Lombard forest management plans, as well as for research activities on a new modeling of the variables by which are affected the impacts of these natural phenomena.

4 CONCLUSIONS

The final purpose of the meeting was to identify specific proposals for improving the ecological connectivity in the sites of the field visit, in order to integrate them into the SACA mapping as recommendations for the implementation, transferable to other similar contexts.

It could be said that a common approach emerges from the various interventions to restore ecological connectivity demonstrated during the field visit: the relevance of establishing a dialogue with stakeholders and local administrators, with technicians and professionals, for making awareness of ecological value of certain spaces and the project opportunities that can be put in place.

This is a priority commitment of the Management Plan of the MaB of Camonica Valley, which foresees a number of actions aimed at raising awareness among local administrations for sustainable urban planning, i.e. containment of land consumption and redevelopment of the abandoned industrial areas. For such long procedures, the establishment of a board/working group is an important first step. Initiatives like the field visit fulfills this need as an opportunity to "network" on common topics and achieve agreed outcomes.

A thematic box was dedicated to the main outcomes of the field visit within the 2nd Report of SAPA Network “Biodiversity monitoring in the Alpine area: strategies and perspectives of harmonization” published on July 2019.