



econnect

Restoring the web of life



econnect final
conference
26-28 sep 2011 • Berchtesgaden

Prof. Dr. Chris Walzer – Lead Partner of ECONNECT

Introduction - Background and Key Results

Life beyond the Application Form

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Project of ETC Alpine Space Programme and co-funded by ERDF
Total budget: 3.198.240,00€.

The partnership is composed by sixteen partners from six Alpine countries

Austria

- **University of Veterinary Medicine Vienna, Research Institute of Wildlife Ecology (Lead partner)**
- National Park Hohe Tauern
- Federal Environment Agency
- National Park Gesäuse
- University of Innsbruck, Institute for Ecology

Germany

- National Park Berchtesgaden

France

- CEMAGREF
- Council of Department of Isère
- Task Force Protected Areas – Permanent Secretariat of the Alpine Convention

Italy

- Alpe Marittime Nature Park
- Autonomous Region of Valle d'Aosta
- European Academy of Bozen
- Ministry for the Environment
- WWF Italy

Liechtenstein

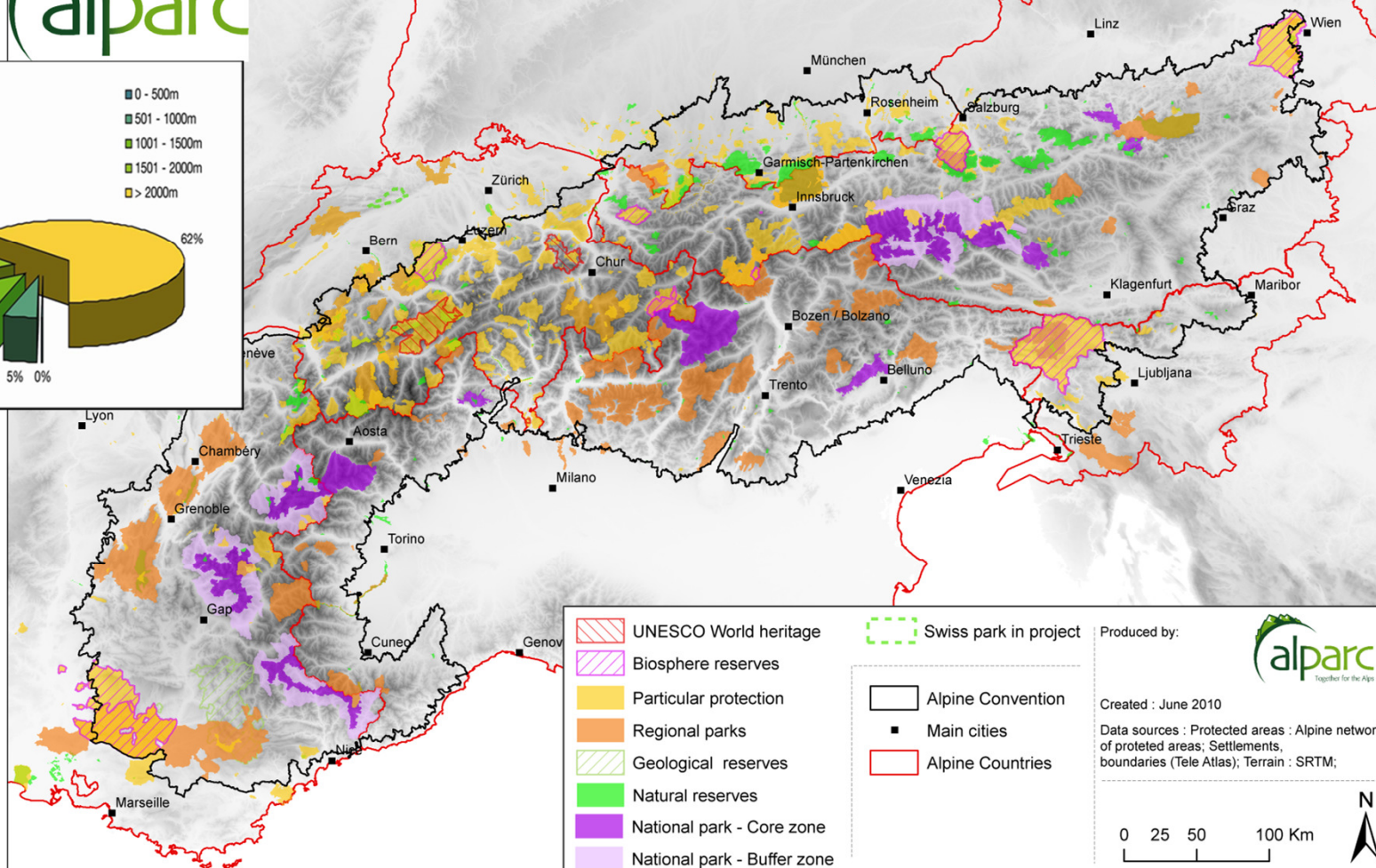
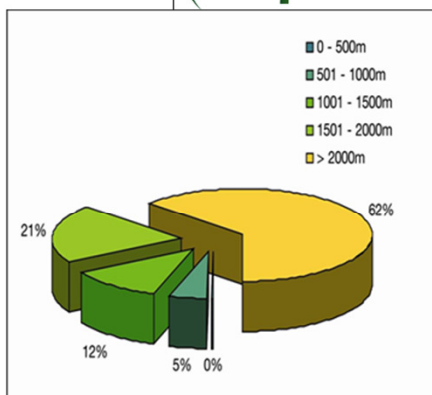
- International Commission for the Protection of the Alps (CIPRA)

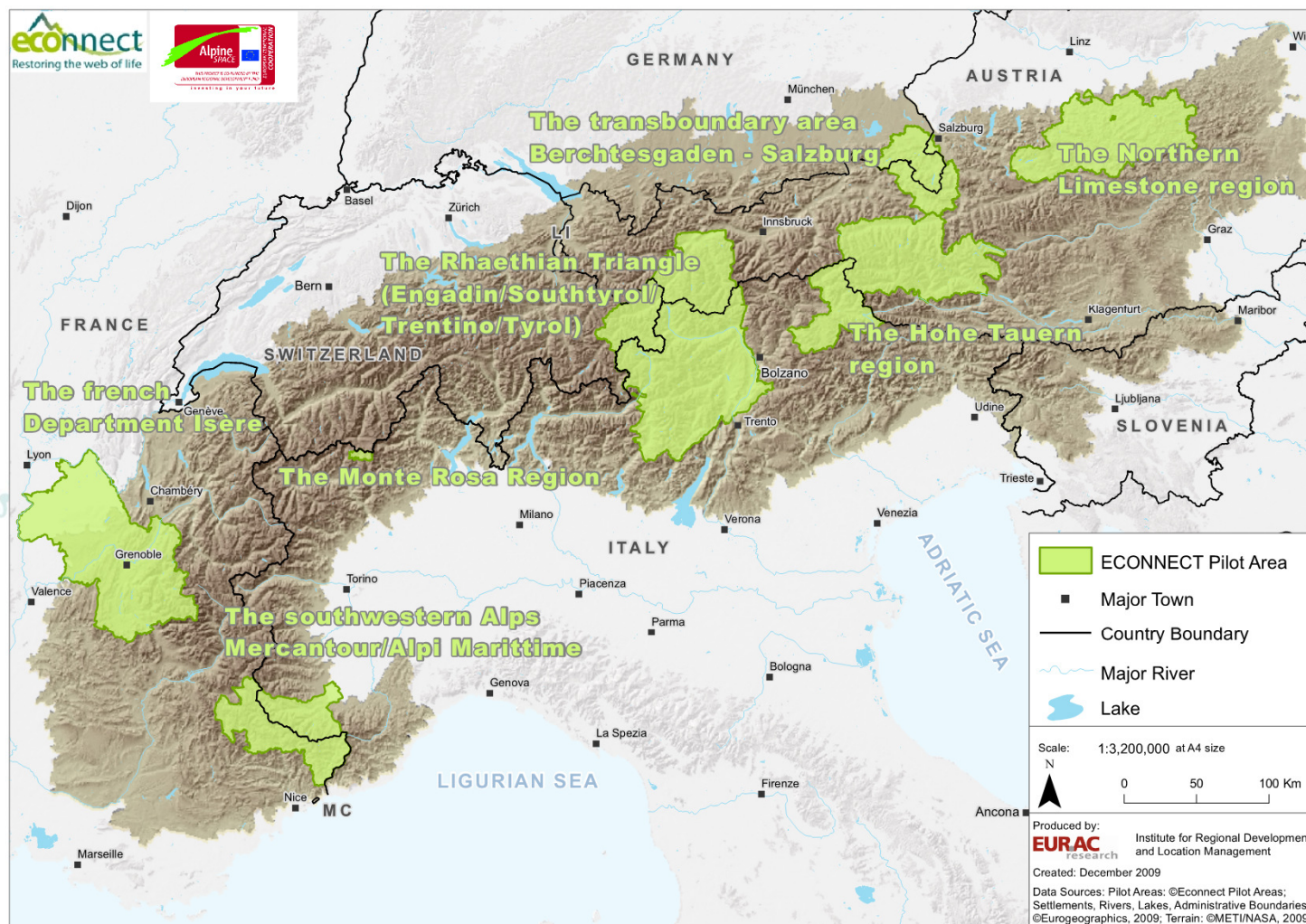
Switzerland

- Swiss National Park



Alpine network of protected areas





Protocol “Nature conservation and landscape planning” - Article 12

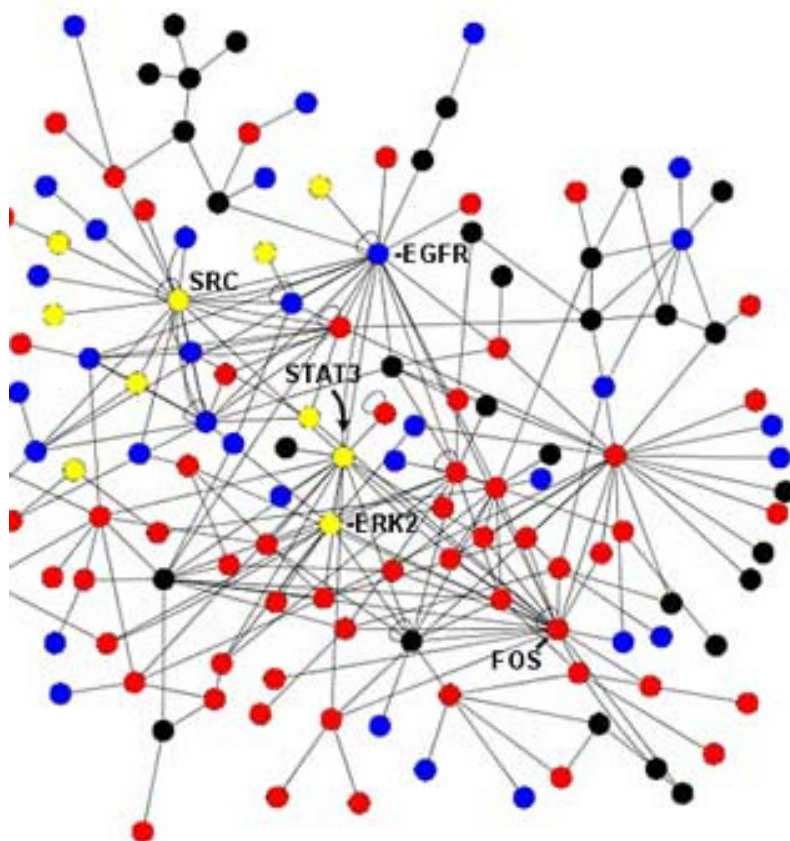
“The contracting parties take adequate measures to establish a network of existing national and transboundary protected areas, of biotopes and other protected elements or those to be protected. They commit themselves to harmonize the objectives and applicable measures in transboundary protected areas.”



Provides momentum
for connectivity issues
in the Alps - enhanced
previous and on-going
work

Platform Ecological
Networks - AC
Continuum Initiative





Econnect is a network
per se

Local and Alpine-wide

Enhances and extends
existing cooperations



1. Vision
2. Pilot Regions
3. Scale
4. Functional and structural connectivity
5. Legal Analysis



What was/is the project actually trying to achieve?

Agreement concerning the conservation objectives



Develop a Vision Statement

All partners must
Understand and agree



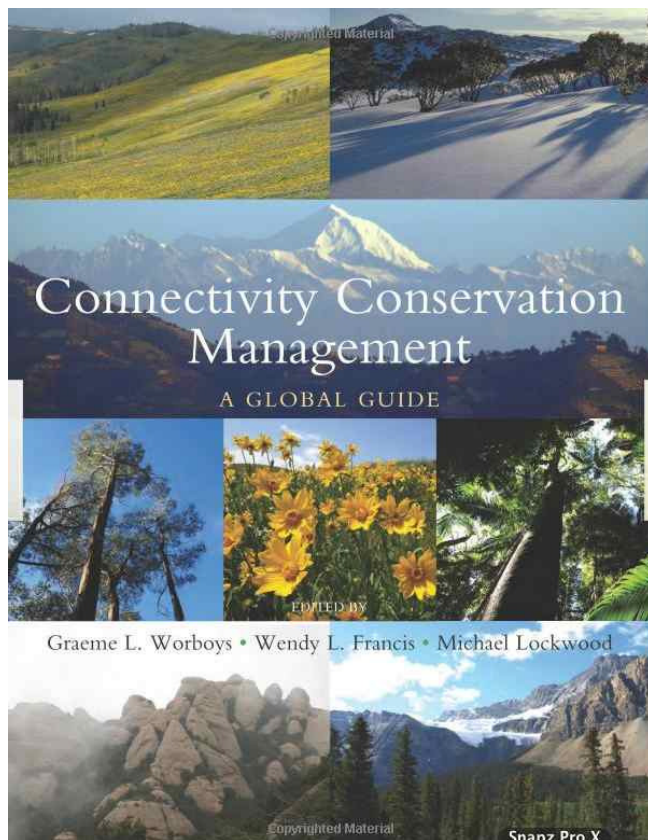
ECONNECT envisions an enduringly restored and maintained ecological continuum, consisting of inter-connected landscapes, across the Alpine Arc region, where biodiversity will be conserved for future generations and the resilience of ecological processes will be enhanced.



Knowledge Base?

How much do the project partners
actually know about the subject of the
project proposal?

Life beyond the AF #2



Connectivity is a vital element of landscape structure

Philip D. Taylor, Lenore Fahrig, Kringen Henein and Gray Merriam, Dept of Biology, Ottawa-Carleton Inst. of Biology, Ottawa, ON, Canada K1S 5B6

In a recent FORUM article, Dunning et al. (1992) put forward a framework of landscape processes that stimulated considerable discussion amongst us. We are in general agreement with their ideas, but feel that a more explicit recognition of the importance of movement as a component of landscape structure would add clarity and utility to the framework. We wish to build on their foundation by presenting some additional ideas.

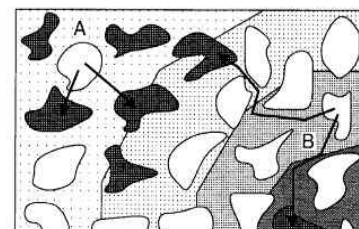
Dunning et al. (1992) outline four ecological processes acting at the landscape scale: 1) landscape complementation; 2) landscape supplementation; 3) sources and sinks; and 4) neighbourhood effects. Each process depends upon the distribution of resources in the landscape. Resources are distributed in patches. Implicit in the definition of each process is that animals move among the resource patches. In the first two, animals move among resource patches to: 1) acquire a full complement of resources to meet their needs; and 2) supplement their existing resources with those in additional patches. In the third, movement from sources to sinks is required for the maintenance of sink populations. The fourth process, neighbourhood effects, implies that individuals move between patches, but focuses on the permeability of the boundaries between contiguous patches.

Dunning et al. (1992) assume that the ability of an organism to complement or supplement its resource requirements depends only on the distance to those resource patches. In a related paper, Pulliam et al. (1992) state: "When both landscape physiognomy and composi-

allow unimpeded movement among patches; others impede to varying degrees the amount, or success, of movement.

Because movement is so critical to animal population survival, we recognize a third measure of landscape structure (sensu Dunning et al. 1992) namely landscape 'connectivity' (Merriam 1984, Baudry and Merriam 1988, Merriam 1991). Landscape physiognomy and landscape composition measure the distribution of resource patches in a landscape (Dunning et al. 1992). Landscape connectivity is the degree to which the landscape facilitates or impedes movement among resource patches.

Each of the components of landscape structure (landscape physiognomy, landscape composition and landscape connectivity) can be measured. Turner (1989) pre-



Landscape Ecology 18: 687-699, 2003.
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Research article

Is landscape connectivity a dependent or independent variable?

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Millbrook, NY, USA 12545-0129; current address:
ks, North Dakota, USA; (e-mail:

; Landscape structure, Measures of connectivity,

to ask what research has been done and what re-connectivity from 1985 to 2000. From these papers, a or dependent variable, what connectivity metrics each to studying connectivity. Most studies treated know about how landscape structure and organism ity. Structural measures of connectivity were more r was treated as an independent variable. Though roaches overall – studies dealing with connectivity dies. Based on the research achieved thus far, fu-cidating the relationship between landscape struc-tivity (e.g., treating connectivity as a dependent asures of connectivity, particularly structural and tions regarding landscape connectivity.

riam 1979; Liro and Szacki 1987; Potter 1990; ucki and Liro 1991; Johnson et al. 1992) led to :stioning the necessity of corridors for interpatch vement (Merriam 1991; Hobbs 1992). Subse-ntly, the concept of connectivity grew to encom-a the influence of the entire landscape and "the pree to which the landscape facilitates or impedes vement among resource patches" (Taylor et al. 03). In part due to this history, landscape connec-ity is currently viewed either structurally, where nectivity is entirely based on landscape structure ually habitat contiguity), or functionally, where auvioural responses to the landscape elements (ches and edges) are considered along with the tial structure of the landscape (Tischendorf and rig 2000b).

Multidisciplinary - Interdisciplinary?

How do you move from an additive to an integrated result?

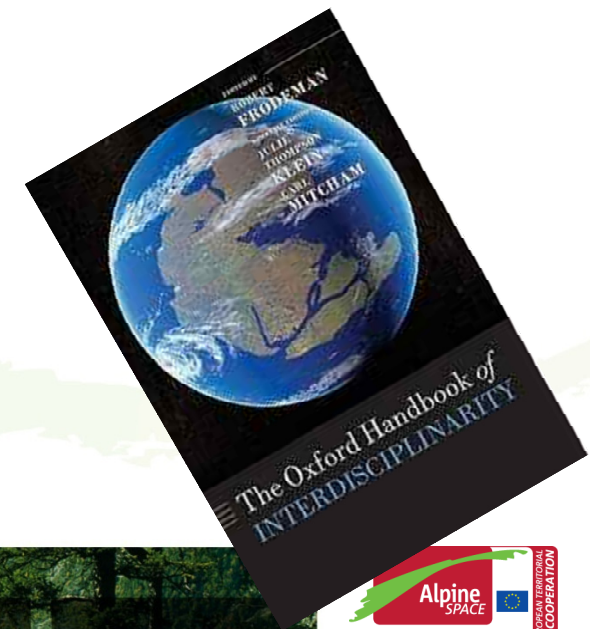
Multidisciplinary

Partial integration



Transdisciplinary

Full integration



Assumptions must be made

- i) Larger tracts of interconnected and permeable landscapes in undisturbed and human-dominated landscapes maintain more biodiversity than fragmented landscapes, which enables regeneration and renewal to occur after ecological disruption.
- ii) Following disruption, smaller less diverse ecosystems may suddenly shift from desired to less desired states and their capacity to generate total economic value may decrease.
- iii) Functioning ecological processes are the foundation for the adequate provision of ecosystem services.

The challenge consists in identifying indicators and metrics that permit the tracking of connectivity changes - improvements in the way nature is managed and used

Scale

~~Approach - functional vs. structural connectivity~~

Functional AND structural connectivity

Joint Ecological Continuum Analysis and Mapping Initiative - JECAMI

CSI : The CSI is a combined analysis of structural landscape connectivity and landscape permeability

SMA: Species Map Application - Analysis of umbrella species application to detect barriers and corridors between two spatially separated locations for one of the umbrella species on a alpine scale





CSI

„The landscape approach“

Connectivity suitability
index



SMA

„The species approach“

Habitat
Guidos



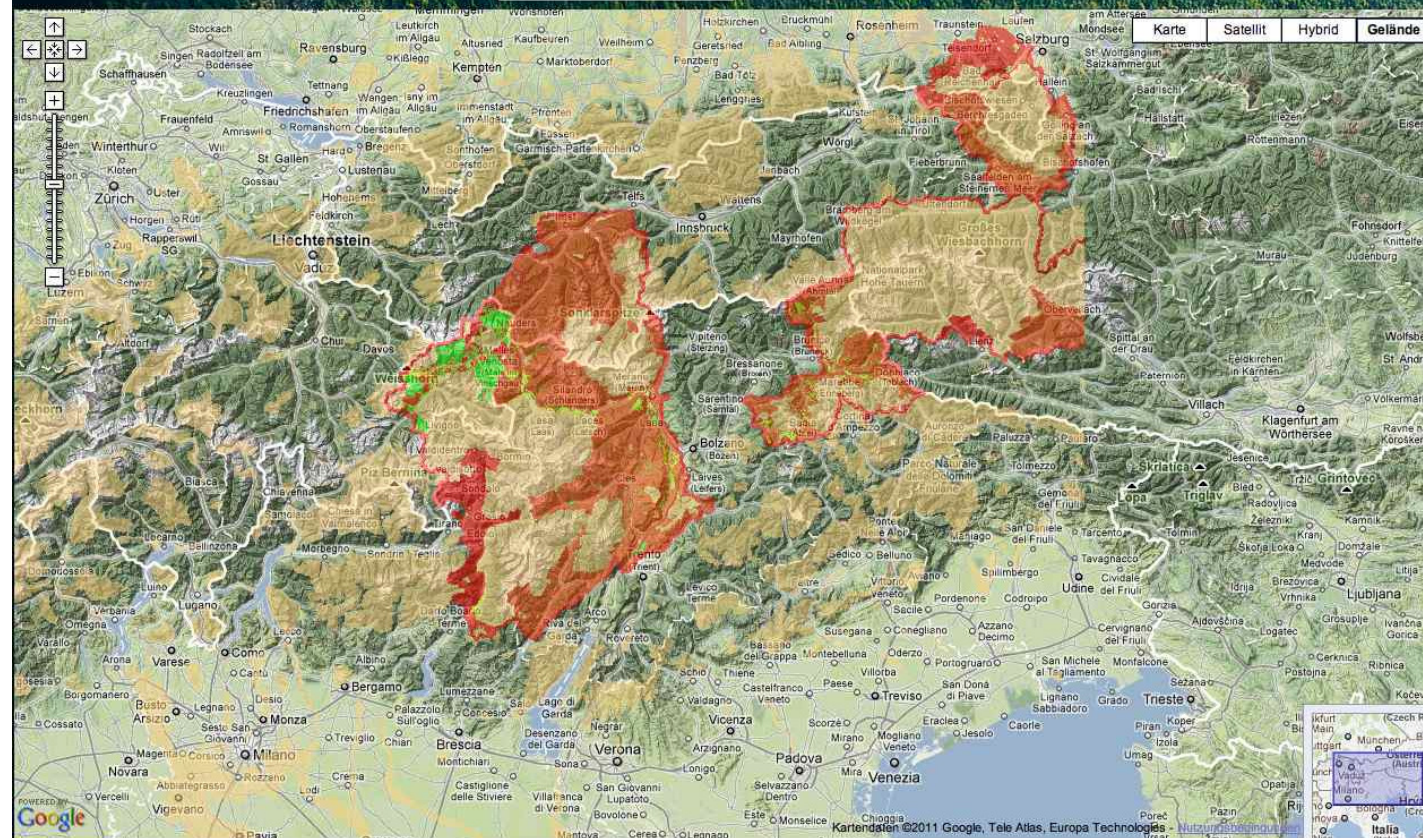
CARL

„The network approach“

Connectivity analysis of
Riverine Landscape

http://gis.nationalpark.ch/arcgisserver_app/econnect/jecami.htm

Adventure J Blogothèque Brompton MerckVM [Monocle] Outside Blog_Rapha Mongabay DirtbagD Nau FB MobileMe PatBlog Biblio_VMU FIWI VUW G-Scholar netbank BBC



CSI SMA PAM CARL

CSI Service (v.8)

Legend

- ☒ Pilot areas
- ☒ Municipality borders
- ☒ Protected areas
- ☒ Landuse LAN
- ☒ Landuse Planning LAP
- ☒ Population POP
- ☒ Infrastructure INF
- ☒ Altitude Topography TOP
- ☒ Fragmentation FRA
- ☒ Patch Cohesion COH
- ☒ Edge density ED
- ☒ Environmental Protection ENV
- ☒ Ecological Measures ECO
- ☒ CSI

Activate function and display Indices by clicking in the map

Search

Search a municipality inside a pilot region:

Execute Find Clear

Search pilot region:

Rhaethian Triangle Execute Find

Search Place or Address Go

Impressum

Prof. Dr. Chris Walzer – Lead Partner of ECONNECT

- ☐ Integrates structural and functional connectivity indicators
- ☐ High scalability and flexibility - NO previous homogenisation of source and INPUT data
- ☐ Preservation of high spatial resolution and accuracy on source data
- ☐ Quality-Indicator informs about source data



Recognize the heterogeneous character of nature

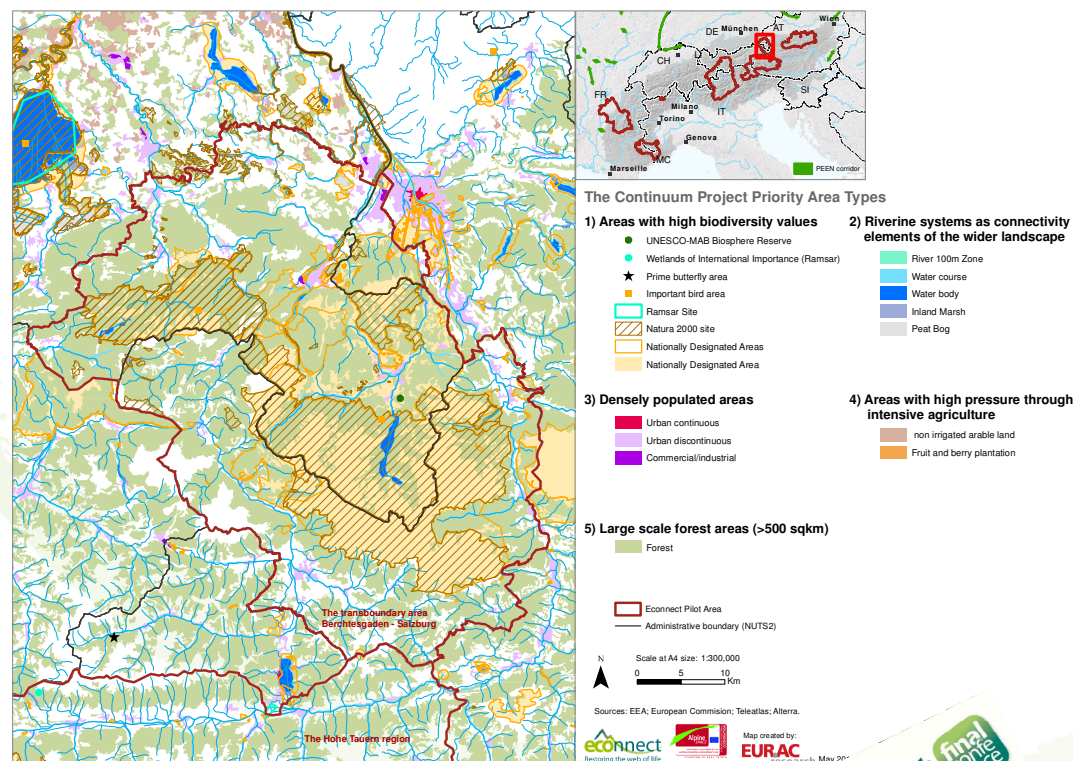
The global - Alpine reality is that most protected areas are isolated from adjacent protected areas or that habitats are located in fragmented landscapes



Local Networks

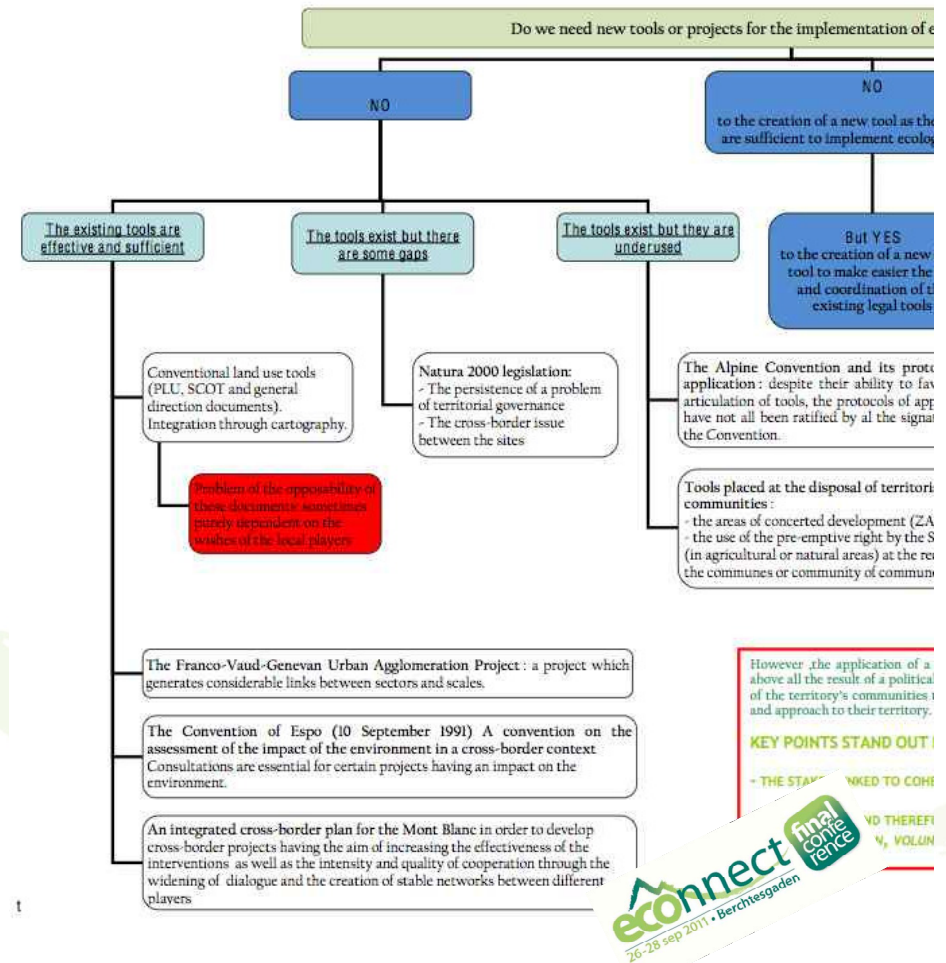
Common-Methodology

Implentation of Measures



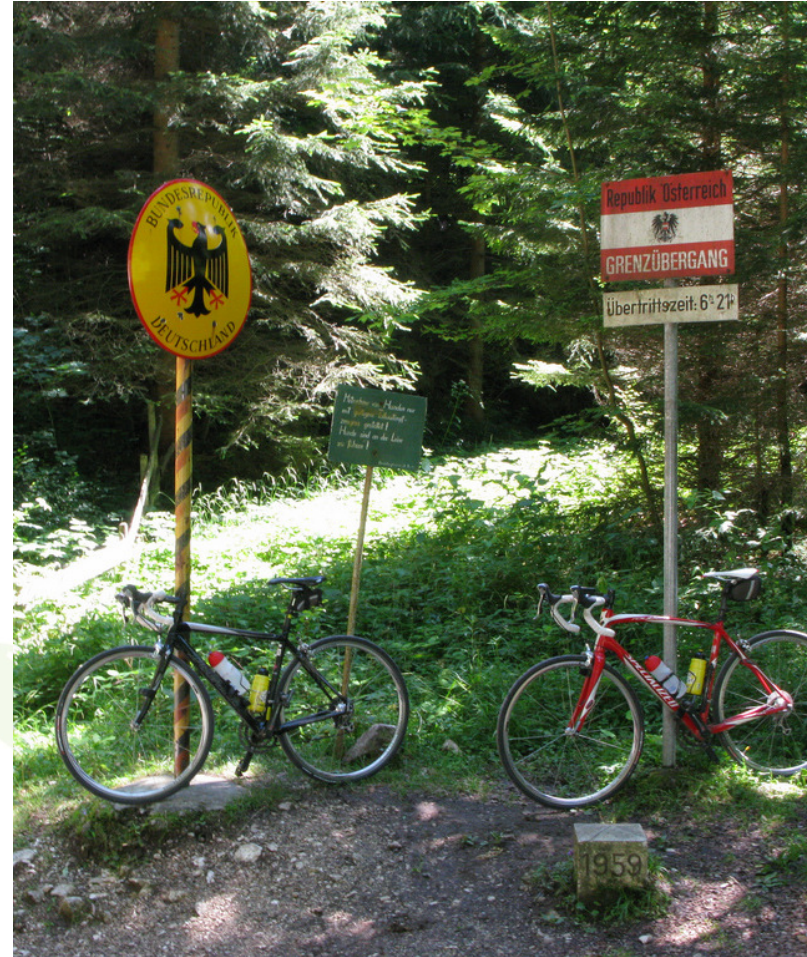
The Protection of Ecological Connectivity: Analysis of the Principal Legal Instruments.

Comparisons between Swiss, French and Italian Jurisdictions.



Do not underestimate
communication
problems due to
language

Similarly recognize and
appreciate cultural-
working traits





econnect
Restoring the web of life

HOME ABOUT THE PROJECT PILOT REGIONS WORK PACKAGES PARTNERS & OBSERVERS NEWS & EVENTS DOWNLOAD AREA LINKS

Econnect: restoring the web of life.

The Alps are one of the best-known mountain ranges as well as being one of the richest in biodiversity, it is, however, also one of the most densely populated. The traditional tool used to conserve biodiversity and the natural environment has always been the creation of protected areas, however it has become increasingly obvious that a majorly important aspect in the conservation process is to connect protected areas to one another to allow the migration of species across the entire alpine range. Genetic flow across the whole alpine range is important particularly to help species to adapt to the environmental transformations brought about by Climate Change. To successfully protect biodiversity across the whole alpine range a coordinated and transnational approach is needed in accordance with the legal framework provided by the Alpine Convention.

The ECONNECT project aims at the enhancement of ecological connectivity across the Alpine range. The project involves International umbrella organisations linked to the Alpine Convention, scientific institutions and local implementation partners. All these entities have joined forces to demonstrate the need for connectivity across the Alps as well as exploring the best options for coordinated action and the development of innovative tools to promote ecological connectivity.

News
19 July 2011
Econnect final conference
Now it's possible to register to the Econnect Final Conference

jecami
Jecami

final conference
Final Conference

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