

Fondazione
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Fondazione Cariplo's strategy for a changing climate: the F2C project and the call for ideas

Climate strategy

Session 2 - Conservation and spatial priorities in the Alps: from science to action. When climate changes, politics need to follow

AlpWeek 2024 - Nova Gorica

Federico Beffa | Paolo Siccardi

Fondazione Cariplo

WHO WE ARE and WHAT WE DO

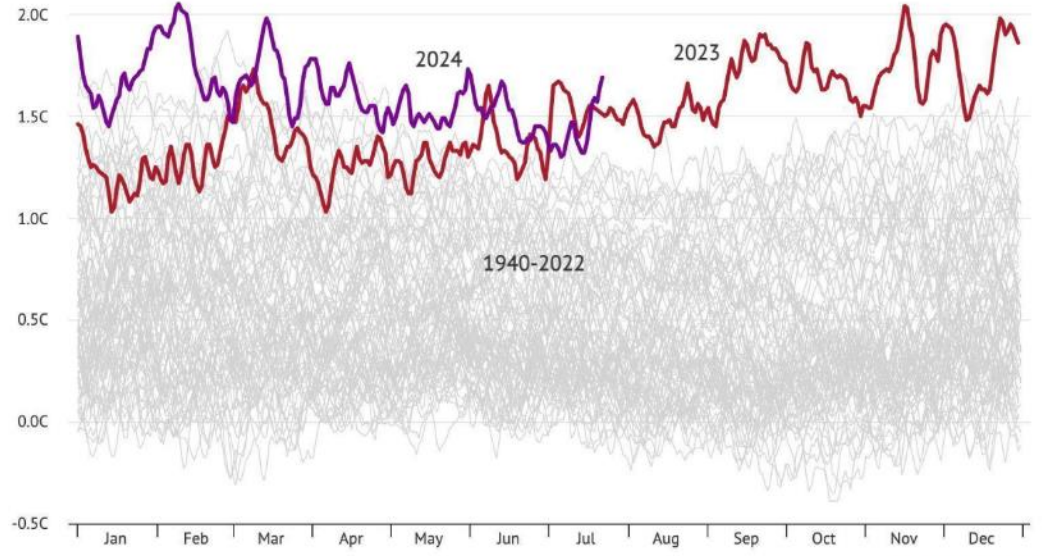
- **Grant-making foundation** of banking origin, established in 1991, based in Milan
- **Geographic focus:** Lombardy Region + 2 Piedmont provinces
- **4 sectors:** Social & Human Services, **Environment**, Scientific Research, Arts and Culture
- 1991-2022: **€ 4 billion grants** to support around **40,000 projects** in the 4 sectors



F2C – Cariplo Foundation for Climate: the context

Record-breaking daily temperatures in 2023 and 2024

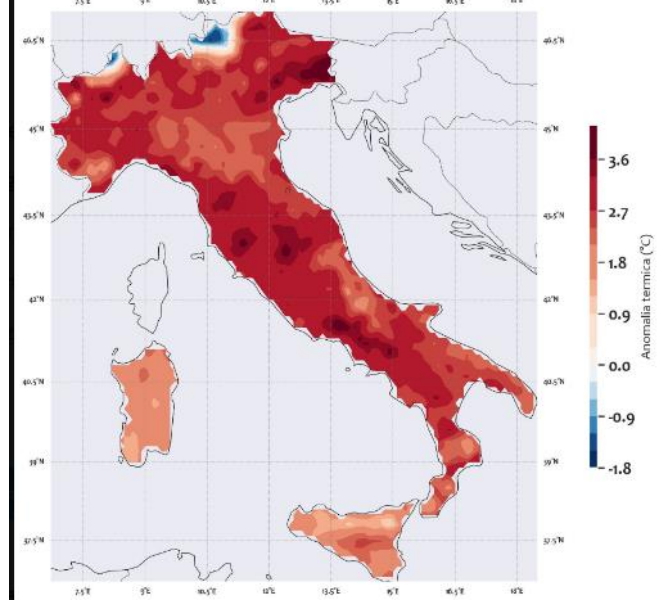
Daily global average temperature anomalies, against a 1850-1900 baseline



Source: Copernicus/ECMWF ERA5



Agosto 2024 - Anomalie termiche delle temperature medie.
Baseline: climatologia 1991-2020

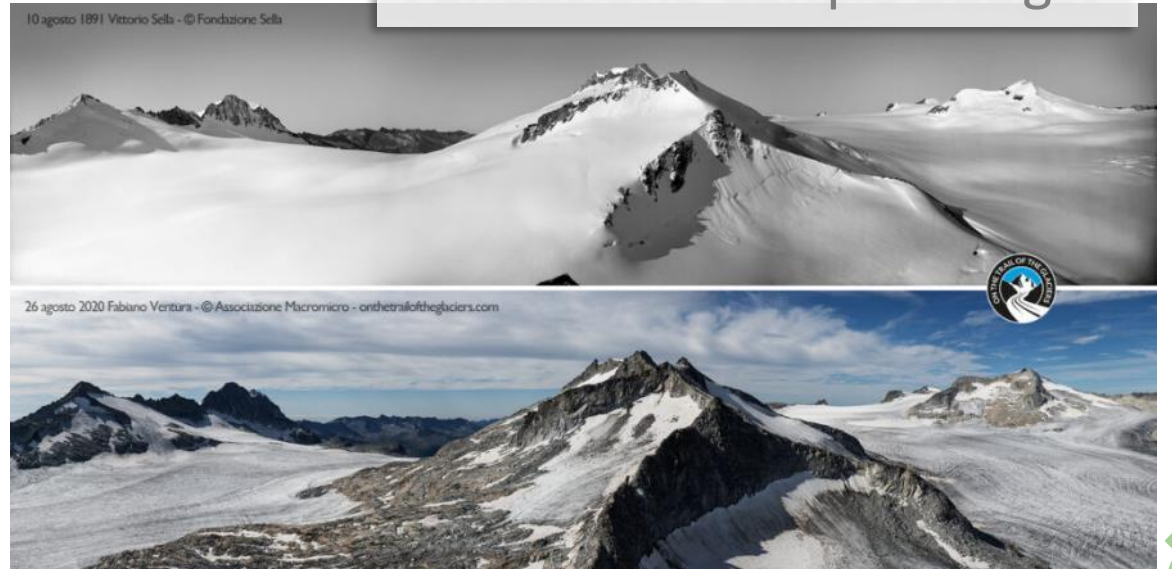


F2C - Cariplo Foundation for Climate: Objectives and Strategies

Description: since 2019 through the project F2C Fondazione Cariplo is supporting climate transition strategies for local alliances and research projects on climate change:

- **Call for ideas “Climate strategy” (4 editions):** supporting the development of Climate Transition Strategies at local level through several actions, included resilient and sustainable urban planning
- **Call for projects “Alternative” (2 editions):** supporting the development of Renewable Energy Communities with social impacts
- **Events and cultural initiatives on CC**
- **Researches and studies on CC**

18,4 M€
Fondazione Cariplo budget



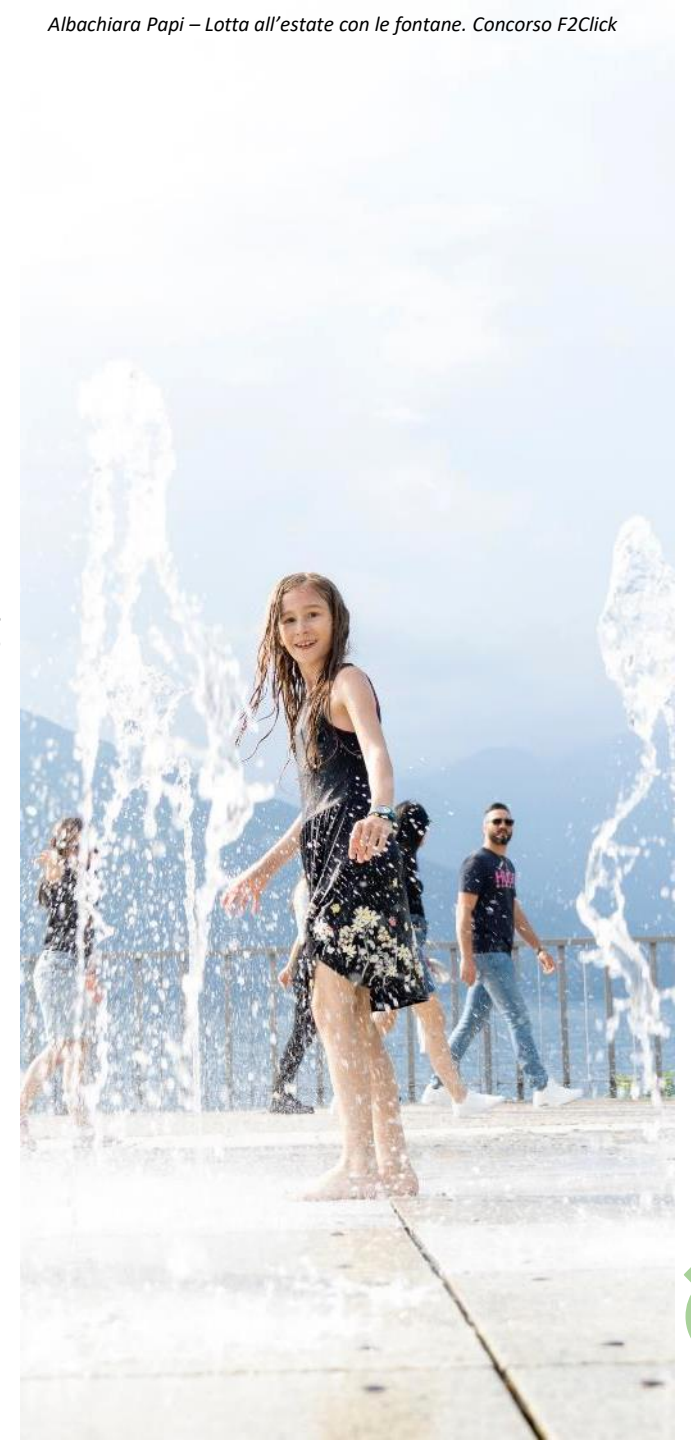
Call for ideas «Strategia Clima» - Objectives



Supporting pathways to climate neutrality by 2040 and strengthening community resilience to risks related to climate change through the creation of local alliances

Specific objectives:

Supporting local alliances in the definition and implementation of Climate Transition Strategies



Local alliances

Project leader

- › **Municipalities, group of municipalities, Mountain Communities**

Partners

- › **Parks**
- › **NGOs**

Stakeholders

- › **Universities, land reclamation consortiums, businesses,...**

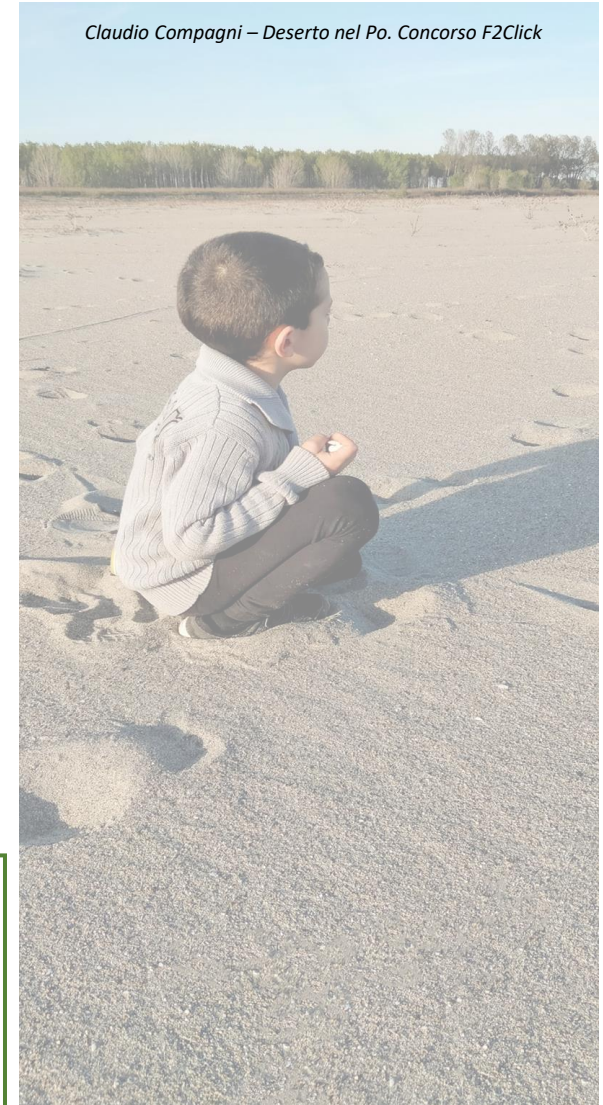


Call for ideas Strategia clima

support from Fondazione Cariplo

- Technical Assistance for the definition of the Climate Transition Strategies (CTS)
- Grant for the implementation of all these actions:
 - Ⓒ Revision of local urban planning with a climate lens
 - Ⓒ Adaptation
 - Ⓒ Mitigation
 - Ⓒ Meteorological and climate monitoring
 - Ⓒ Fundraising
 - Ⓒ Capacity building for public officers
 - Ⓒ Citizen awareness

**it is mandatory to
approve the CTS in
the public councils**



Climate transition manager

The involved administrations must appoint the Climate Transition Manager(s)

The Climate Transition Manager will be responsible for directly pursuing the objectives, coordinating, and monitoring the implementation of the Strategy and various initiatives

The Climate Transition Manager must be an official from the involved administration(s), preferably a manager already in place or hired specifically for the role, as long as they hold a position of responsibility, given the importance of the role they will play



The scientific committee of Strategia clima

The scientific committee is composed of 5 members, tasked with helping to identify solutions to any issues that may arise during the project and ensuring alignment with the overall strategy

Additionally, the committee is supporting Cariplo Foundation in reviewing project ideas and evaluating Climate Transition Strategies before their approval



The Community of Practice

The local alliances involved in Strategia clima joined a community of practice (3 meetings per year) in which these topics will be discussed:

- › Governance of the CTS
- › Meteorological and climate monitoring
- › Impact assessment of the CTS
- › Communication
- › Public procedures and tenders
- › Citizen engagement



Call for ideas Climate Strategy ongoing Climate Transition Strategies



8 Climate Transition Strategies

Involving as project leader medium size cities (<200 k citizens), small cities (<50k citizens), mountain communities, unions of municipalities

6 new possible Climate Transition Strategies

40+ grantees

Local administrations, Parks, NGOs

Overall budget of 30 M€

Fondazione Cariplo own funds; Lombardy Region grants and grantees own funds

Cities and territories in transition

Urban planning through a climate lens



Climate Strategy Territories – territories active today



Fondazione Cariplo
PER IL CLIMA

I territori di
STRATEGIA CLIMA

1. Cli.C. Bergamo!

- Comune di Bergamo
- **Parco dei Colli di Bergamo**
- Legambiente Lombardia

2. Un Filo-Naturale

- Comune di Brescia
- Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici
- **AmbienteParco**
- **Parco delle Colline di Brescia**

3. La Brianza Cambia Clima

- Comune di Cesano Maderno
- **Comuni di Bovisio Masciago, Meda, Varedo**
- **Parco delle Groane e della Brughiera Briantea**
- Agenzia Innova21
- Fondazione Lombardia per l'Ambiente
- Associazione di volontari della Protezione Civile di Cesano Maderno

4. ACE3T

- Comune di Mantova
- Comuni di Curtatone, Marmirolo, Porto Mantovano, San Giorgio Bigarello
- **Parco del Mincio**
- Unione Colli Mantovani
- Alkémica Cooperativa Sociale

5. Bosco Clima

- **Comunità Montana Valli del Verbano**
- **Parco Regionale Campo dei Fiori**
- Centro per un Appropriato sviluppo Tecnologico
- Lega Italiana Protezione Uccelli
- Centro Geofisico Prealpino
- Società Astronomica C.V. Schiaparelli
- Università degli Studi dell'Insubria

6. AgriCiclo2030

- Comune di Lentate sul Seveso
- Comune di Barlassina
- **Parco Regionale delle Groane e della Brughiera Briantea**
- Agenzia Innova21

7. Monza & CO

- Comune di Monza
- Comune di Bellusco
- **Consorzio Villa Reale e Parco di Monza**
- **Parco regionale Valle del Lambro**
- l'Ente Regionale Servizi Agricoltura Foreste della Lombardia
- Legambiente Lombardia

8. RiforestAzione

- **Comunità Montana Valle Seriana**
- **Parco delle Orobie Bergamasche**
- Cooperativa Eliante
- L'Università degli Studi di Milano

Impacts climate change in the territories of the local alliances

**BOSCO
CLIMA**

Per affrontare il cambiamento climatico
facciamo squadra con la natura!

CM Valli del Verbano

Effetti a monte



Conseguenze a valle



Impacts climate change in the territories of the local alliances

CM Valli del Verbano



16

incendi boschivi



18

interruzioni stradali



35

eventi franosi



37

allagamenti



Impacts climate change in the territories of the local alliances



Torrent flood – Lentate sul Seveso

Impacts climate change in the territories of the local alliances



Torrent flood Seveso – Barlassina



10 year for biodiversity in Lombardy Region

Dario Kian

Nova Gorica, 24 settembre 2024

Lombardy Region & Natura 2000

Since 10 year...

- **Life GESTIRE (2013)**
- **Life IP GESTIRE2020 (2016)**
- **Life SNAP NatConnect2030 (2024)**

Experimentation of concrete actions to support habitat and species improvement

- INNOVATIVE STRATEGIC PILOTS ACTIONS
- GOVERNANCE ACTIONS



Lombardy Region & Natura 2000

Since 10 year...

INNOVATIVE STRATEGIC PILOTS ACTIONS

- Reintroduction of umbrella species
- Interventions in favour of avifauna: sheathing on power lines for protection
- Combating invasive species
- Analysis of pressures on habitats and species

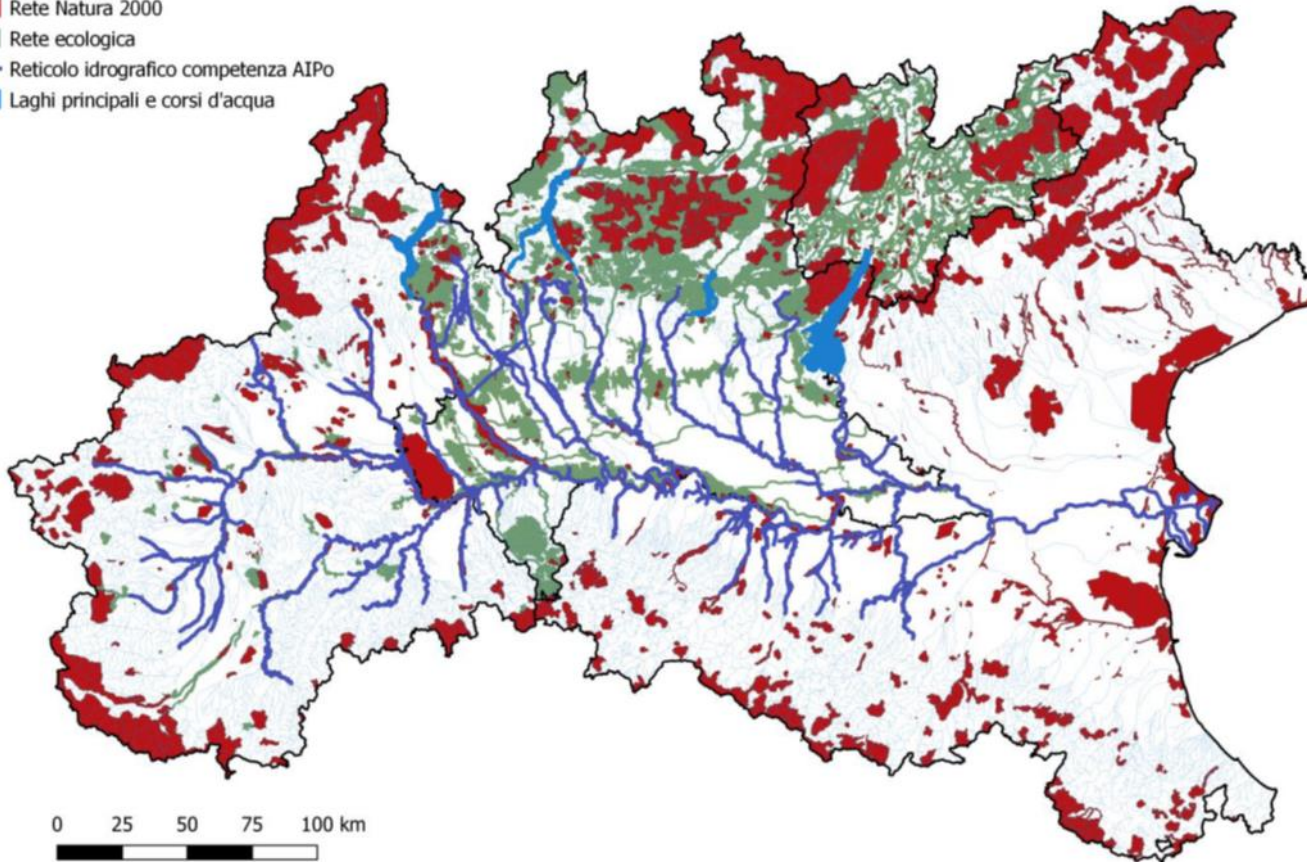
GOVERNANCE ACTIONS

- Supporting public utilities and professionals → Facilitating technicians
- Utilities managers (electricity and water) → Specific workshop



Life NatConnect2030

- Rete Natura 2000
- Rete ecologica
- Reticolo idrografico competenza AIPo
- Laghi principali e corsi d'acqua



Whole Po basin

4 Regions of the Po plain
and 1 Province

17 million inhabitants -
100.000 Km²

843 Natura 2000 sites

Life NatConnect2030

Increased complexity

Consortium 15 partner

- 4 Regions + 1 Province (Lombardia (LP), Piemonte, Emilia Romagna, Veneto, Trento)
- 2 river Po Managers (Autorità di Bacino & Agenzia Interregionale) + ATO (Consiglio di Bacino Brenta)
- 3 NGO environmental associations (WWF Italia, LIPU, Legambiente Lombardia)
- 3 Parks and N2000 managers (ERSAF, Parco Regionale Delta del Po Veneto ed Emilia Romagna)
- Fondazione Lombardia per Ambiente
- Comunità Ambiente

More than 46 Milions €

9 WPs → more than 50 Tasks

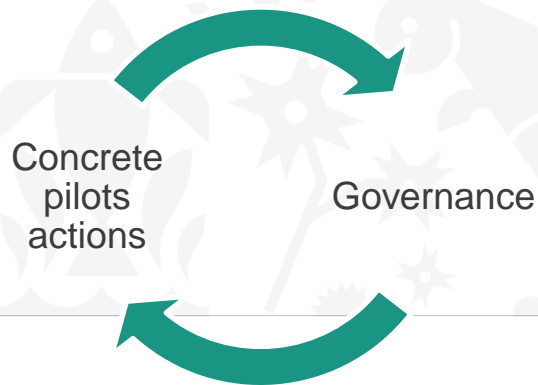
- Maintaining the same effectiveness of action
- Mutual contamination
- New functional role of Climate Change in project strategy
- Not only dedicated to protected areas

Climate Change WP4

New functional role

- The CC has a highlighted role in a **specific WP**
- transversality remains in all WPs

- **Forest management** and CC: how to maintain the same level of SE provision?
- **Wetlands** and CC: how to maintain their ecosystem function?
- **Pollinators**: how to contain the impacts of CC on habitats?



Ecological Network

On the road to Nature Restoration Law

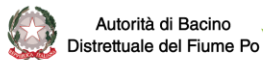
Not only Natura 2000 sites:
the project extends its thinking
and goes beyond the
boundaries of protected areas

rethink and adapt the Ecological Network
design to the needs arising from Climate
Change scenarios and the changing functional
requirements of habitats and species

→ DYNAMIC ECOLOGICAL NETWORK

CONCLUSIONS

- ✓ Great effort but a feasible approach and work!
- ✓ Technical facilitators key figure [↑ TOP](#)
- ✓ Improving the capacity for action of management bodies
- ✓ International sharing and collaboration - Crossroad Biodiversity Message



Sostenuto da



Thank you and..
Stay tuned!

www.naturachevale.it
www.ersaf.lombardia.it

dario.kian@ersaf.lombardia.it

CLIMATE REFUGIA FOR HIGH-ELEVATION BIRDS IN THE ALPS



Francesca Roseo · Claudio Celada · Mattia Brambilla
Lipu/BirdLife Italia · Milan University





25%

Of land surface occupied by mountains

1,1 billion

Of people living in mountainous regions
(15% of the entire world population)

25 of 34

Of the world's biodiversity hotspot is
located in mountains area





Mountain ecosystems, communities and species are highly vulnerable to climate change



Mountain species are cold-adapted and at high risk of extinction from climate warming

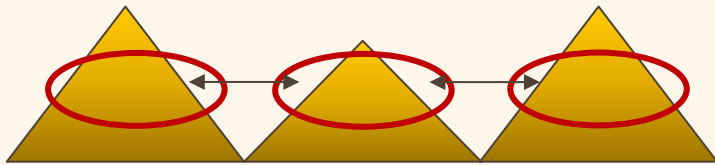


The Alpine region is experiencing dramatic ecological changes due to climate change

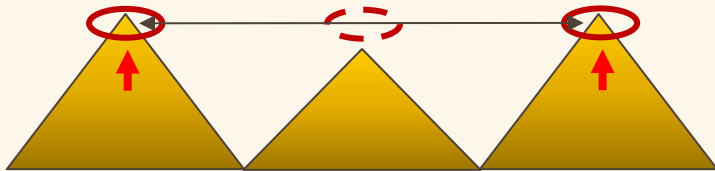
Alpine high-elevation birds



Climate change increases population fragmentation / isolation



Present



Future



Key objectives

1. Identify climate change refugia for cold-adapted bird species in the Alps
2. Check if these refugia are adequately covered by the Protected Areas Network (PAN) of the Alps
3. Evaluate the potential impact of ski-pistes on refugia



Climate refugia



What are climate change refugia?

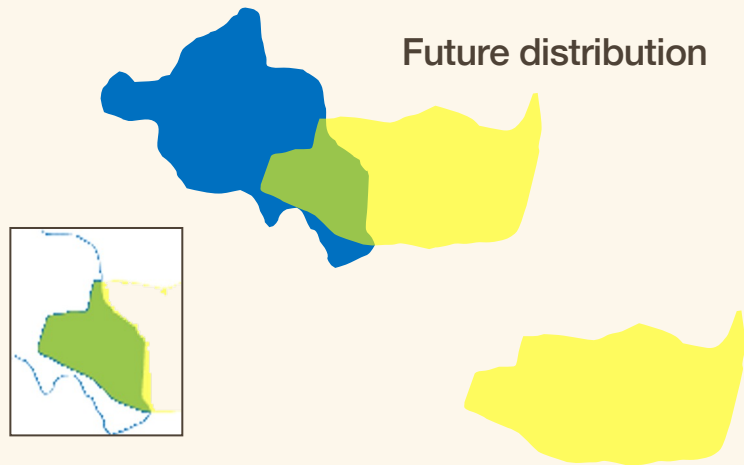
“...areas that remain relatively buffered from contemporary climate change over time and enable persistence of valued physical, ecological, and socio-cultural resources” (Morelli TL et al. 2016)

How to identify them?

Using biogeographic approaches (SDMs), looking for areas (if any!) which enable future persistence of species under the most extreme climate warming scenarios

Current distribution

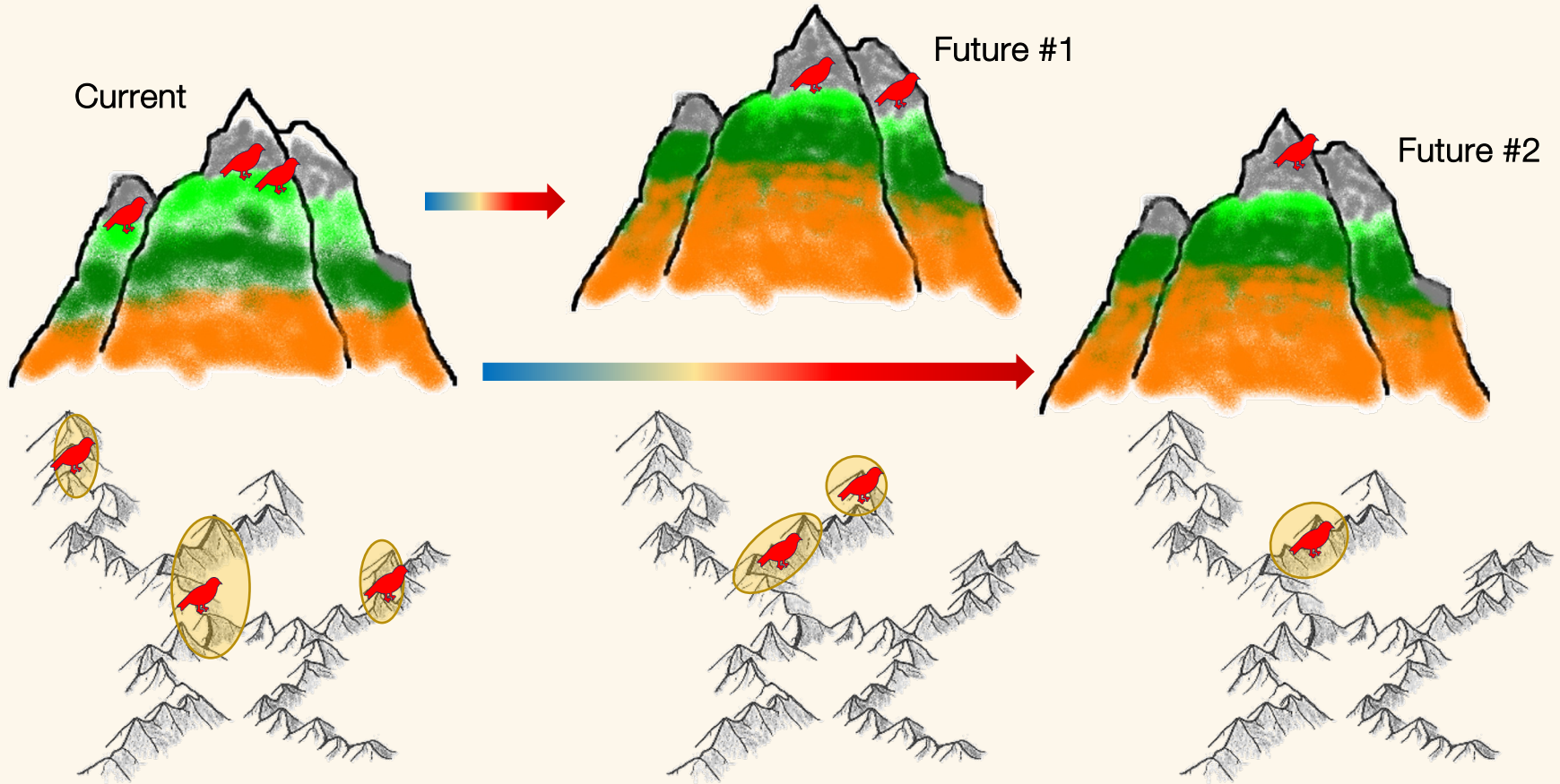
Future distribution

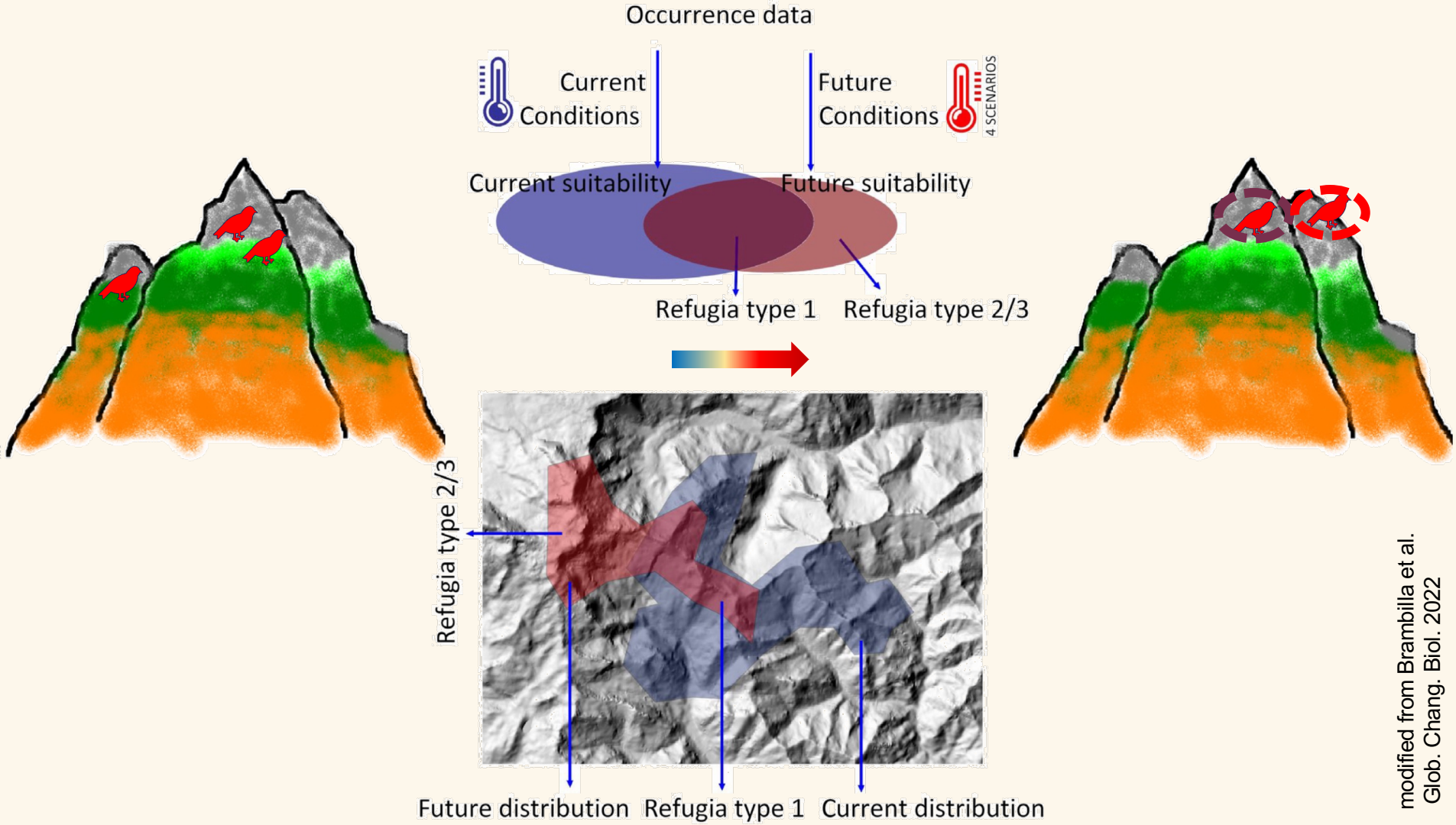


In-situ refugia
resistant units

Ex-situ refugia
resilient units

Climate models and future scenario





Species and data

4 typical high-altitude species (rock ptarmigan, alpine accentor, snowfinch, water pipit)

96,861 spatially accurate (1 km) breeding occurrence records from ornithological citizen science portals



Modelling approach



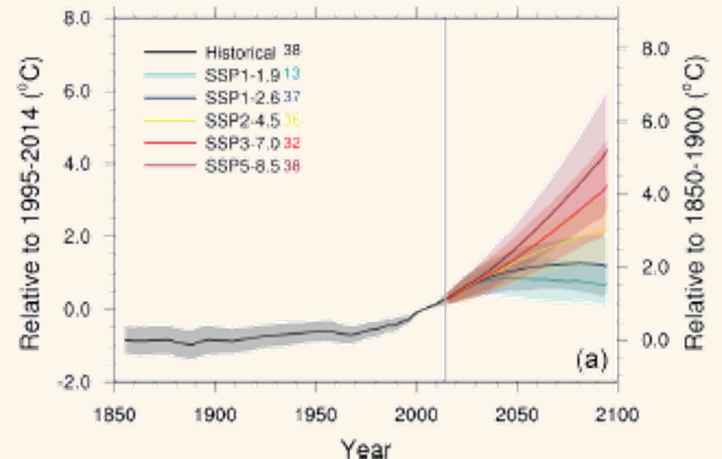
- 4 modelling SDM algorithms (**MaxEnt**, **ANN**, **BRT**, **RF**)
- background data close (within 2 km) to breeding locations
- Beside climate (CHELSA) (n = 4), several habitat and landscape variables included (n = 12)
- Careful model validation including predictive ability over distant areas of the breeding range
- Ecological realism of SDMs: qualitative (expert-based) assessment of all bird presence-habitat association
- >> MaxEnt best in most assessed indicators

Future climate

4 climate models:

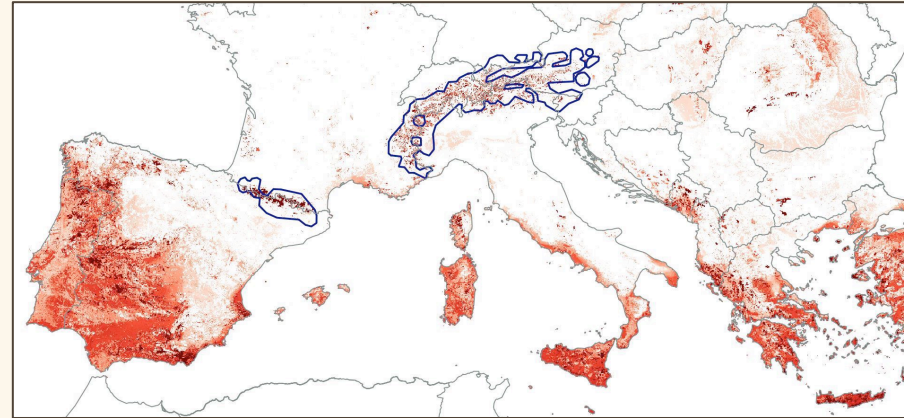
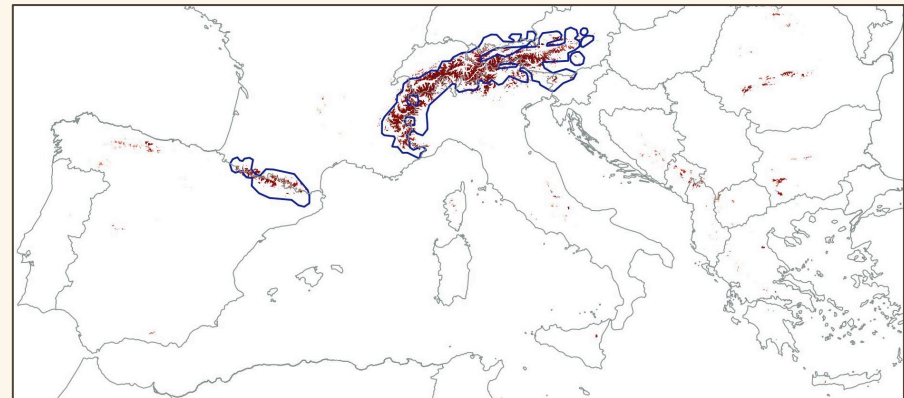
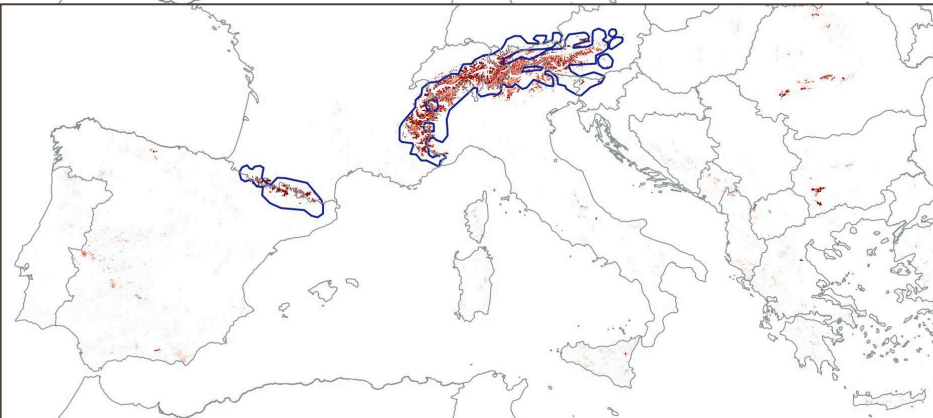
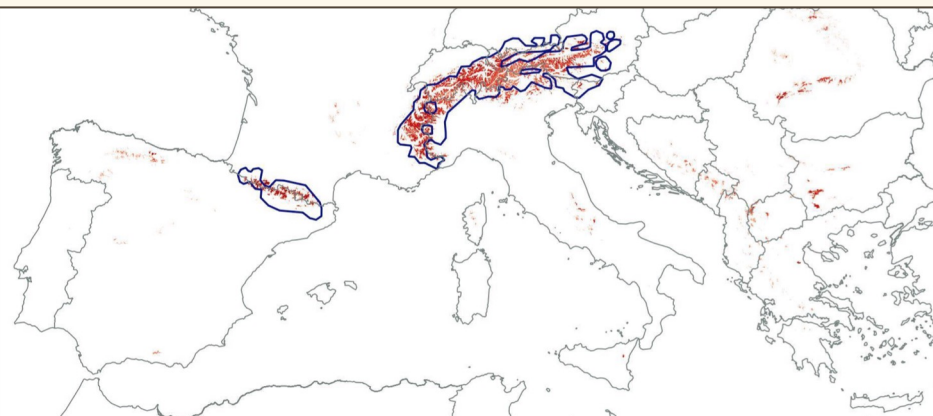
GFDL-ESM4, UKESM1-0-LL, IPSL-CM6A-LR, MRI-ESM2-0

«Worst case» scenario (SSP5-8.5)
Taking the Highway



Comparing distribution predicted over distant area

MaxEnt, ANN, BRT, RF



modified from Brambilla et al. Glob. Chang. Biol. 2022

Multi-species in-situ refugia and overlap with PA network

Only 44% inside PAs!

By country



18%



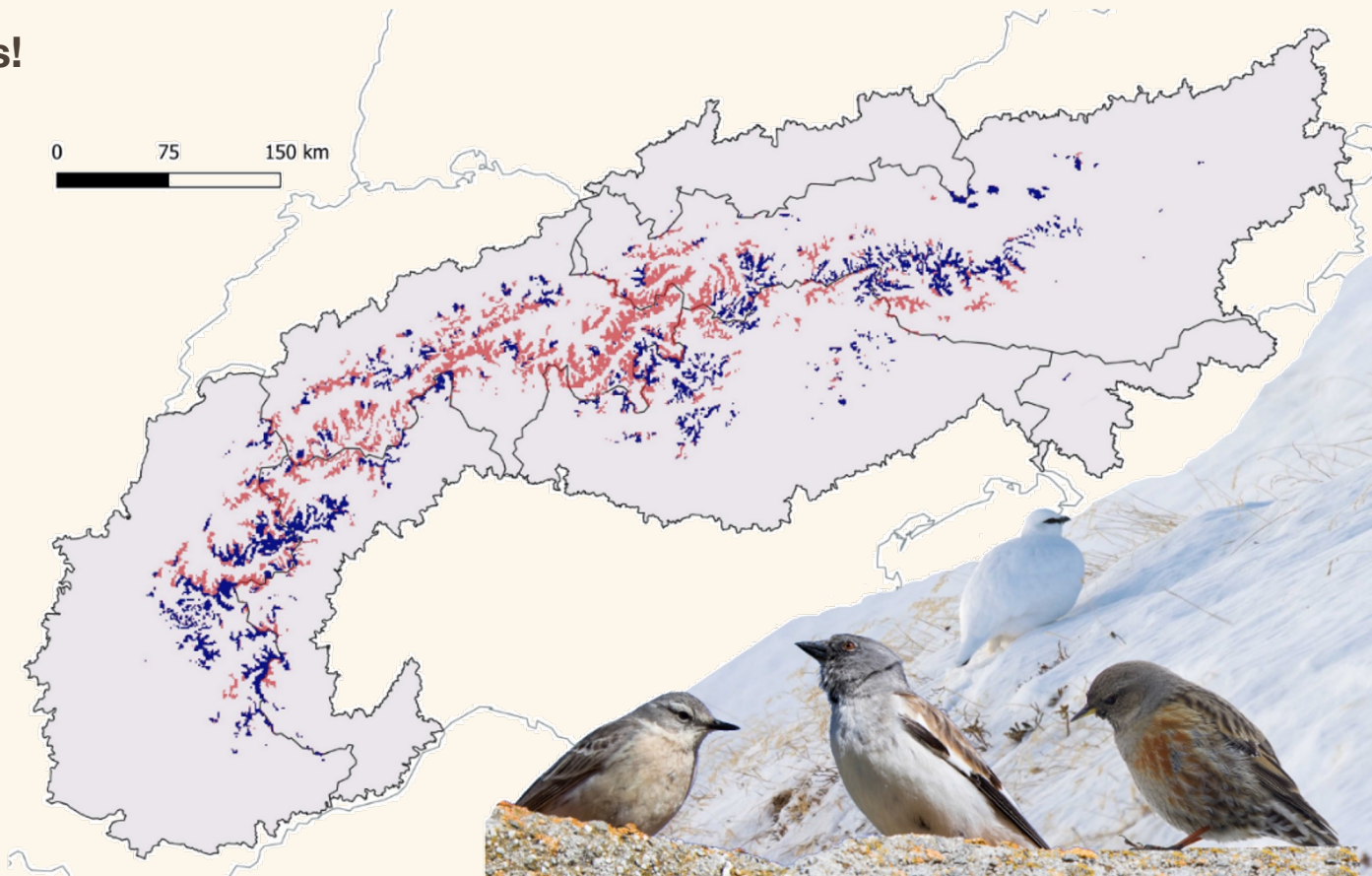
52%



54%

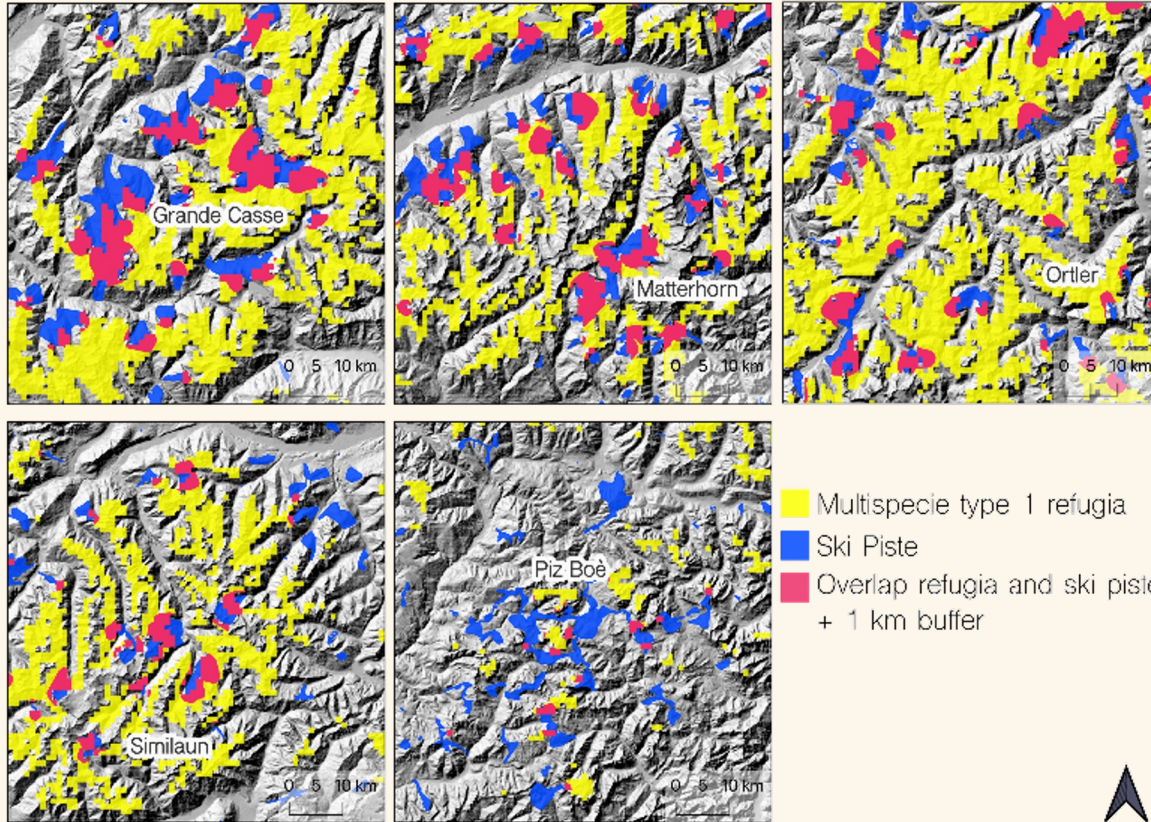


66%

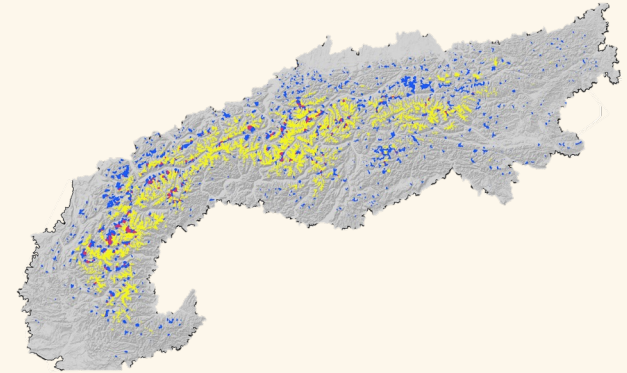


Main threat to climate refugia: alpine skiing

1/100



- Multispecies type 1 refugia
- Ski Piste
- Overlap refugia and ski piste + 1 km buffer



Map of current distribution of ski piste and infrastructure showing the overlap with refugia



Main threat to refugia: alpine skiing

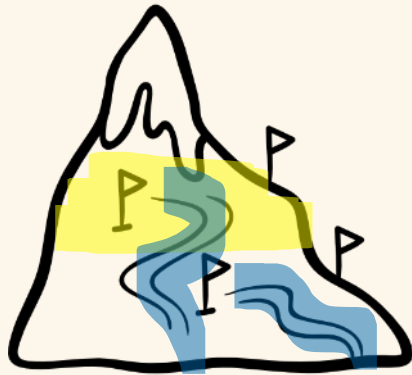
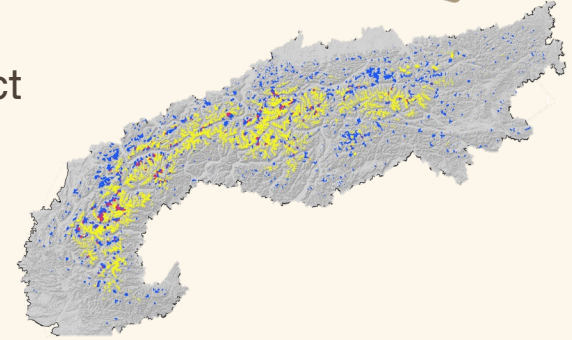
- Negative impacts on many species
- Increasing impacts in the future
- Environmental damage



Main threat to climate refugia: alpine skiing

1/30

- Winter sports industry is rapidly growing despite the impact of climate change
- Future climate condition → exacerbation of the conflict between skiing and biodiversity



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journal homepage: www.elsevier.com/locate/envsci

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Review

Impacts of climate change on ski industry

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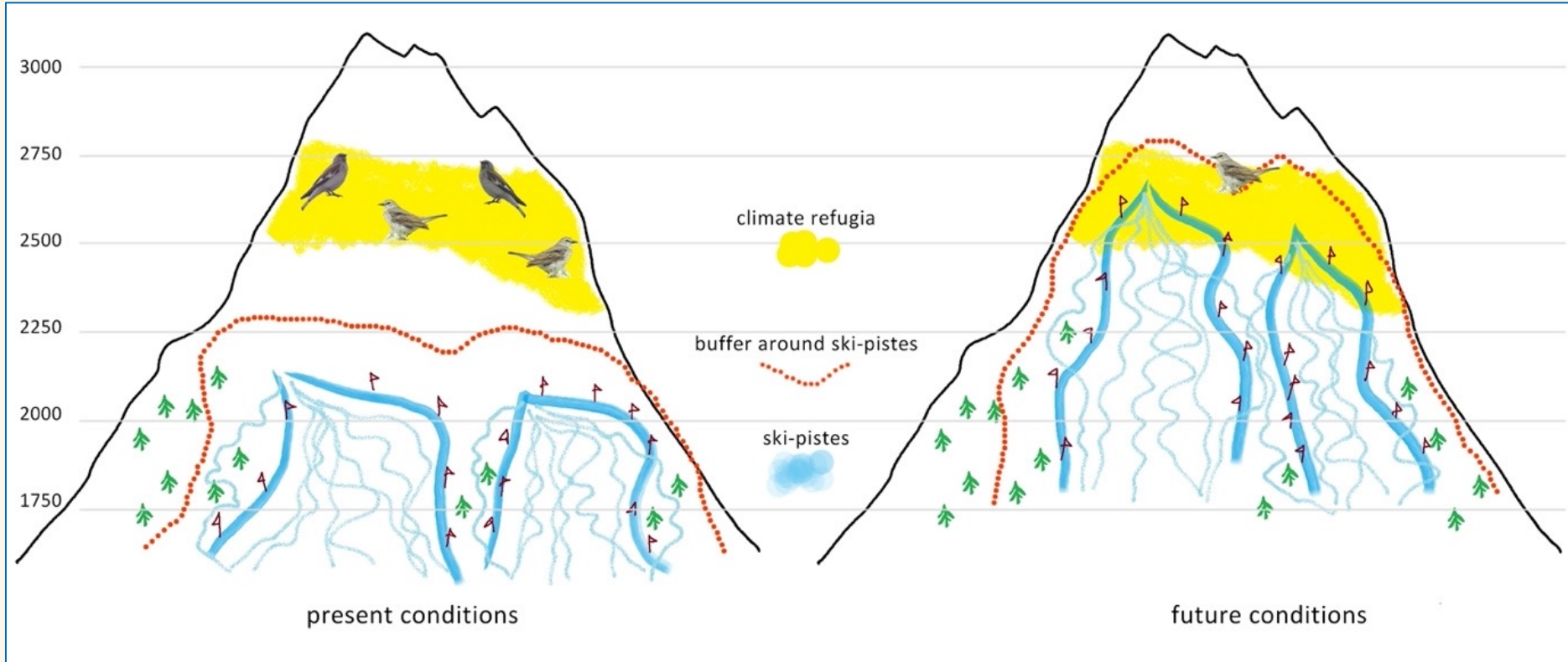
^c Instituto Pirenaico de Ecología, CSIC, Avenida de Montañana, 1005, 50059 Zaragoza, Spain³

CrossMark



Main threat to climate refugia: alpine skiing

10/10





TAKE HOME MESSAGE

Identified refugia should be regarded as key areas for biodiversity conservation in the Alps

The current Alpine PAN may be insufficient to adequately protect these refugia



Climate refugia → spatially explicit layers can be downloaded here:

dataverse.unimi.it/dataset.xhtml?persistentId=doi:10.13130/RD_UNIMI/ESCYNG



the reference paper is available here:

<https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.16187>



Hvala, Thanks, Grazie



THANKS!

Do you have any questions?

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