

Climate is changing Why are we not acting?



URDAIBAI BIOSPHERE RESERVE (Basque Country)

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It is not an environmental problem



It is a
people
problem

Why people are not acting towards protected area adaptation?



Dragons are
preventing
people to
adapt
protected
areas to
climate
change

U R B A N
K L I M A
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Deliverable C.7.1.1



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Dragons of inaction are preventing people to adapt protected areas to climate change

Dragons of Inaction

Psychological Barriers

(Gifford, 2011)

- Psychological barriers may explain the attitude-behavior gap.
- 5 families, 22 species (Lacroix *et al.*, 2019):
 - Change Unnecessary
 - Lacking Knowledge
 - Tokenism
 - Conflicting Goals and Aspirations
 - Interpersonal Relations

<http://www.dragonsofinaction.com/>



Let's talk
about
dragons

Change Unnecessary

Messages

- Open/broaden your mind
- Better/Smart management

"Protected area management is doing well. We will manage climate change as usual"



The Ideology Dragons

Ideologies are broad, umbrella-like sets of beliefs.

They may shelter anti-climate beliefs and actions.

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4 types:

- *Worldviews*: natural world is free to exploit as much as one desires or is able.
- *Suprahuman powers*: not feel responsible for the climate or the environment (a n omnipotent deity will cause or solve problems, Mother Nature is in charge...)
- *Technosalvation*: technology by itself will reverse the effects of climate change. Overconfidence in it can lead to inaction.
- *System justification*: "this is the way it was meant to be."

"Climate change isn't a prediction. It is happening"

Dr. James Hansen (Gross *et al.*, 2016, UICN)



(IPCC, 2014)
https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgll_spm_en.pdf

BOX 1

Headline messages from the UK Terrestrial Biodiversity Climate Change Impacts Report Card

- There is strong evidence that climate change is already affecting UK biodiversity. Impacts are expected to increase as the magnitude of climate change increases.
- Many species are occurring further north and at higher altitudes than in previous decades, including some species which have colonised parts of the UK from continental Europe.
- Recent rates of change in distributions differ between species. Some species, including many plants, are intrinsically slow to disperse and fragmentation of habitat may contribute to some species spreading more slowly than would be expected from climate change alone.
- Warmer springs in recent decades have caused a trend towards many biological events (eg flowering, budburst, laying and hatching of eggs) occurring earlier in the year. The rates of change vary among species, which may alter the interactions between species.
- There is evidence of changes in the composition of plant and animal communities, consistent with different responses of different species to rising temperature.
- Species differ in their responses to variation in precipitation. The effects of climate change are less certain for precipitation than for temperature, but potential changes could lead to substantial changes in biodiversity and ecosystems.
- Some habitats are particularly vulnerable to climate change. The risks are clearest for montane habitats (to increased temperature), wetlands (to changes in water availability) and coastal habitats (to sea-level rise).
- Climate change exacerbates the risk that non-native species (including pests and pathogens) may establish and spread.
- We expect there to be regional differences in the impact of climate change on biodiversity, reflecting different species, climate, soils and patterns of land use and management.
- The protected area network, which includes Sites of Special Scientific Interest and National Nature Reserves, will continue to have a valuable role in conservation, although there will be changes in populations, communities and ecosystems at individual sites.
- Climate change will interact with, and may exacerbate, the impact of other continuing pressures on biodiversity, such as land use change and pollution.
- Extreme weather events, such as droughts and floods, have clear impacts on ecosystems and the ecosystem services they provide. Climate change may alter the frequency and severity of such events. Extreme events associated with climate change may have a greater impact on biodiversity and ecosystems than changes in the 'mean climate'.

(Natural England and RSPB, 2014)

<http://publications.naturalengland.org.uk/publication/5629923804839936>

Change Unnecessary

- "First of all, it is important to bear in mind that the effects of induced climate change will be felt in the same way and with similar intensity within ecosystems and within biodiversity "inside" and "outside" of protected areas. This will pose new challenges for managers" (EUOPARC-Spain, 2020)
- "When talking about adaptive management, a wide variety of terminology exists, which can be confusing...we are talking about a structured, iterative process of optimal management decision-making in the face of uncertainty, based on system monitoring...the challenge in using and adaptive management approach lies in finding the correct balance between gaining knowledge to improve management in the future and achieving the best, short-term outcomes based on current knowledge" (European Commission, 2013)
- "Under changing conditions, conventional management practices no longer be adequate" (Gross *et al.*, 2016, UICN)
- "Not only does climate change bring both threats and opportunities, but also the requirement to adapt to make the best for nature and people in an ongoing trajectory of different weather and climate conditions" (Natural England and RSPB, 2014)
- "Climate change brings us new challenges of huge importance from the conceptual, institutional and instrumental points of view" (EUOPARC-Spain, 2020)
- "Creative thinking by managers and stakeholders will be required to evaluate strategies and identify those that will be most effective" (Gross *et al.*, 2016, UICN)
- "The past lessons are important and still relevant as we move forward. In our collective future, we will need to stand on this knowledge base and try new things to adapt to a changing future" (Gross *et al.*, 2016, UICN)



Lacking Knowledge

"How can I start? Too much information and at the same time so uncertain. I will wait a bit more."



The Limited Cognition Dragons

Often, as humans, we don't think very well; we think we are rational, but often we rationalize.

The environment often falls victim to us not thinking when we could, and should, take more action.

<http://www.dragonsofinaction.com/>

Messages

- Accept uncertainty
- Plan for change
- Back from the future

11 types:

- **Ancient brain:** tend to think in terms of immediately.
- **Ignorance:** unaware or aware (but no knowledge of what to do).
- **Uncertainty:** when we are not sure, we hesitate; hesitation is inaction.
- **Spatial & temporal discounting:** problems are worse in other places or in the future. Not need to take responsibility now.
- **Environmental numbness:** 1) screening out distant aspects of climate change with which one cannot immediately identify or which have no immediate impact. 2) we habituate to the message not listening it.

"No regret (synergy) measures should be implemented without any further delay"

(European Commission, 2013)



- Adopt a global, integrating perspective that considers protected areas and the territory in which they are located as a functional unit.
- Manage uncertainty by basing decision-taking on the best scientific information, constantly evaluating the outcomes of any actions taken.
- Incorporate change as a process that is always present and increase the ability of ecosystems to adapt to the new environmental conditions and their disruptions.
- Develop new governance tools for a new context, incorporating a larger number of agents, improving social support and sensitization on the effects of global change.

(EUROPARC-Spain, 2020)
<https://www.europarc.org/news/2020/04/manual-climate-change-adaptation-in-protected-areas/>

(Natural England and RSPB, 2014)
<http://publications.naturalengland.org.uk/publication/5629923804839936>



Figure 4.1: Adaptation questions at different scales

Lacking knowledge

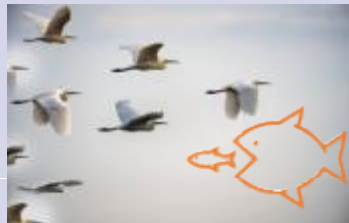
- "There is an urgent need to bridge the gap between the growing scientific knowledge and its practical application in the field" (European Commission, 2013)
- "Adaptation often needs to be developed with less knowledge and more uncertainty...Accepting uncertainty and adopting approaches such as adaptive management to deal with it is widely advocated" (Natural England and RSPB, 2014)
- "When considering adaptation it is a good idea to look at a range of plausible scenarios for the next few decades...This will help to identify immediate adaptation needs and the path of longer-term changes which may be needed" (Natural England and RSPB, 2014)
- "Developing practical know-how is essential to increase the effectiveness of responses to climate change, assisting the review and refinement of practical ways to address climate change in future" (European Commission, 2013)
- "The current reality is that many site managers are uncertain about how to manage, what to manage and how to adapt to the impacts of climate change" (European Commission, 2013)
- "Evidence of climate-change impacts is strongest and most comprehensive for natural systems" (IPCC, 2014)
- "The long time needed to detect many climate changes can make it difficult to get the attention and commitment needed for effective management" (Gross *et al.*, 2016, IUCN)



Tokenism

"If I work for Conservation, why I have to take Climate Change objectives? I won't care for other sectors"

"Now everything is Climate Change"



The Limited Behavior Dragons

Most people try to do something. But sometimes their efforts fall short or even boomerang.

<http://www.dragonsofinaction.com/>

Messages

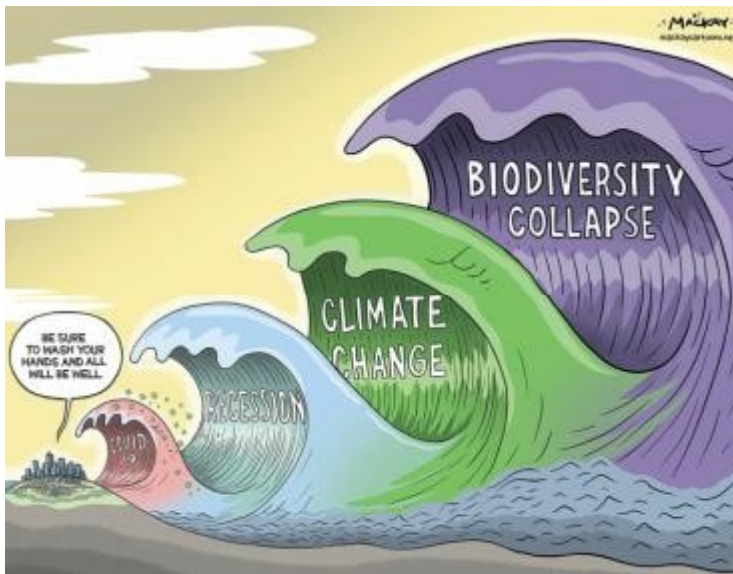
- Integration is the future
- Do not forget mitigation!!!
(Climate change as a whole)

2 types:

- **Tokenism**: choose less effective solutions than they could. Working in one environmental topic can be enough contribution.
- **The rebound effect**: when a positive environmental behavior is followed by one that negates it. For instance, people with fuel-efficient vehicles sometimes drive more than those without them, to the point where the net damage is greater.

"Climate change and biodiversity crisis are different, but their solutions overlap"

(Climate Change Task Force Policy Brief, in prep.)



<https://mackaycartoons.net/tag/2020-09/>

Tokenism

- "Now comes a threat that is bigger than all the previous ones and even interacts with most of them" (Gross *et al.*, 2016, UICN)
- "Climate change can bring new features" (Natural England and RSPB, 2014)
- "the maintenance of the ecosystems in good condition, namely with a high resilience and capable of supplying environmental services in the context of climate change, is considered to be one of the main pillars of this adaptation strategy in protected areas, known as 'Ecosystem-Based Adaptation'" (EUOPARC-Spain, 2020)
- "...the need for increasingly adaptive management to realize the full potential of nature as part of the solutions to climate change" (European Commission, 2013)
- "Much can be done to both mitigate and adapt to climate change" (Gross *et al.*, 2016, UICN)
- "... protected areas can play a fundamental role in coordination and collaboration to develop new cohesive and sustainable territorial models" (EUOPARC-Spain, 2020)
- "Managers can find it difficult to consider their role in implementing solutions with implications that exceed their jurisdictional responsibility. To be successful, more effort than is typical will often be needed..." (Gross *et al.*, 2016, UICN)
- "There is a general awareness, especially amongst site managers, that they do not 'hold all the cards: they can only be part of the solutions'" (European Commission, 2013)
- "This shows that in the context of Global Change the problems of protected areas are increasingly social and transcend their administrative boundaries" (EUOPARC-Spain, 2020)
- "Natura 2000 sites can be managed in ways that increase their mitigation or adaptation role, whilst, at the same time, deliver Natura 2000 objectives" (European Commission, 2013)



Conflicting Goals and Aspirations

"We have invested too much for conserving this species/ecosystem and we will keep on working on it"



The Sunk Costs Dragons

Sunk costs are investment choices (not necessarily monetary) that limit alternative choices, in this case climate-friendly choices.

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Messages

- No conflict between conservation & cc
- Protected areas will change definitely: natural conservation vs. heritage

4 types:

- **Financial investments:** if someone invests in sth, for instance, she or he is then less likely to change it for climatic reasons.
- **Behavioral momentum:** habits are difficult to change.
- **Conflicting goals and aspirations:** an especially difficult dragon. We all have multiple goals.
- **Lack of place attachment:** less attachment to the place less likely to act in pro-environmental ways.

Conflicting Goals & Aspirations

"May be you did not notice that you are already contributing to adaptation. Be aware of!"

(Ainhize Butrón, 😊)

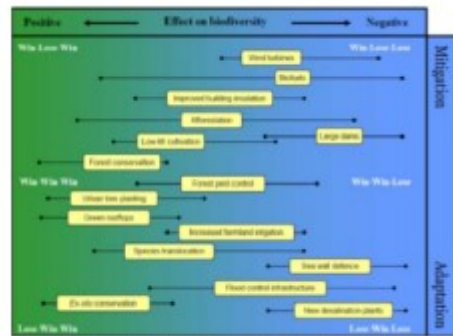
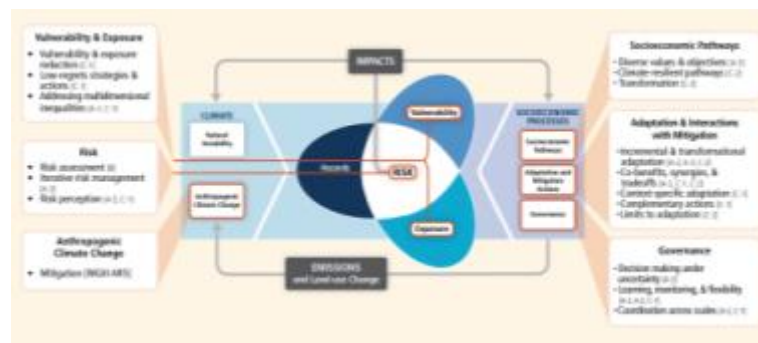


Figure 6. Known and potential relationships between mitigation and adaptation measures and their impacts on biodiversity (From Berry (2009)).

(European Commission, 2013)

<https://ec.europa.eu/environment/nature/climatechange/pdf/Guidance%20document.pdf>



(IPCC, 2014)

https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgll_spm_en.pdf

• "Protected areas, as tools for contributing to nature conservation in a broad sense rather than as an end in themselves, face the challenge of overcoming the limitations ensuing from applying sectorial policies" (EUROPARC-Spain, 2020)

• "The need for greater integration and cross-sectoral working: the involvement of multiple stakeholders, active within and around Natura 2000 sites, is required to safeguard biodiversity and respond to climate change" (European Commission, 2013)

• "Sites can acquire new interest features through climate change, as well as losing existing ones...they are likely to remain important places for wildlife, even though climate change may affect their current interests" (Natural England and RSPB, 2014)

• "It is essential that nature is seen as an essential part of the solution, without which we will not be able to tackle climate change and its impacts" (European Commission, 2013)

• "We need to think about not only adaptation within protected areas, but planning and building regional and centennial-scale conservation networks that function in the face of climate change" (Gross *et al.*, 2016, UICN)

• "The threat posed by the impacts of climate change for species and habitats needs to be compared to other existing threats. If the impacts of climate change are low compared to other threats dealing with the other threats should have a higher priority (European Commission, 2013)

• "Explicit adaptation measures are scarce and are usually found in forest management. In any case, many management measures have an adaptation component: most actions aimed at improving the conservation status of habitats or ecosystems, increasing heterogeneity or diversity of species, or reducing exposure to disturbances such as fire or floods are, in fact, contributing to greater adaptation to climate change" (EUROPARC-Spain, 2020)



Interpersonal Relations

"If nobody (no institution) takes into account climate change why should I overwork myself with it?"



The Social Comparison Dragons

The tendency to be influenced by others is quite strong.

It can determine a portion of one's environmental actions.

<http://www.dragonsofinaction.com/>

Messages

- Leadership, collaboration, open-minded dialogue
- Introduce other disciplines
- It is not easy to work in a multidisciplinary way

4 types:

- *Social comparison*: people often compare their actions with those of others to determine the "correct" behavior.
- *Social norms and networks*: norms predict behaviour.
- *Perceived inequity*: no one wants to be taken advantage of.
- *Authority rules*: sometimes organization requires carbon-negative behavior.

"A different set of principles and guidelines is required in order to meet these new and complex expectations"
(Gross *et al.*, 2016, UICN)



<https://www.stockholmresilience.org/research/research-news/2016-06-14-how-food-connects-all-the-sdgs.html>



(European Commission, 2013)
<https://ec.europa.eu/environment/nature/climatechange/pdf/Guidance%20document.pdf>

Interpersonal Relations

- "We need to try new solutions and share lessons, knowledge and experience" (Gross *et al.*, 2016, UICN)
- "While the emphasis has generally been on the direct impacts of climate change, the way society responds to climate change will also impact on the natural environment" (Natural England and RSPB, 2014)
- "This shows that in the context of Global Change the problems of protected areas are increasingly social and transcend their administrative boundaries" (EUROPARC-Spain, 2020)
- "Adaptive management is important not only to ensure that habitats, plant and animal species across Europe can respond to climate change, also for society" (European Commission, 2013)
- "Simply adopting widely cited and popular strategies (for instance, enhancing connectivity) may not be the best approach" (Gross *et al.*, 2016, UICN)
- "By working together with stakeholders that are not directly linked with nature conservation, determining which measures in response to climate change should be taken, synergies can be found, increasing the opportunities for sustainable adaptation and cross-sectoral 'win-win' outcomes" (European Commission, 2013)
- "...starts with a commitment to include climate change in discussions with others" (Gross *et al.*, 2016, UICN)
- "Importantly, especially in terms of reaching out to engage the public, it is necessary to avoid jargon and use real-life examples" (European Commission, 2013)

Conclusions

The important part is to act:

- Analyze your barriers for inaction (find your dragons)
- An (individual) effort should be done (tame your dragons)

The sum of individual and institutional efforts will make us move TOGETHER in the right direction

Find your messages:

From the experience gained in the process of drafting this manual, and through applying the recommendations to several pilot projects, at least the following lines of work have been identified as necessary in the short and medium term:

- To draw up and implement adaptation strategies on a territorial scale, forecasting the impact that alterations in the distribution of species and habitats may have on the representativity of current protected area networks and demands for further connectivity throughout the territory.
- To develop methodologies and procedures that will allow quantifiable identification of the effects of climate change on ecosystems' social and cultural features, and not only on their biodiversity components (species, habitats).
- To incorporate climate change adaptation schemes to planning and management strategies for protected areas that anticipate changes both in ecosystems and in human organisations.
- To develop practical tools, databases of good practices and mechanisms for exchanging knowledge and experience.
- To support training and research to increase knowledge on species' and ecosystems' adaptability, validating forecasting models with experimental results.
- To adapt and diversify governance systems that encourage greater social involvement and a broader spectrum of players embracing the adaptation measures as their own, to participate in developing instruments for declaring and planning these measures, and in monitoring and accountability systems.
- To strengthen institutional support permitting sound, replicable strategies to be developed, to promote protected areas' contribution as sites where adaptation to climate change is demonstrated.

(EUROPARC-Spain, 2020)

<https://www.europarc.org/news/2020/04/manual-climate-change-adaptation-in-protected-areas/>



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