

« WP3 » Research Priorities



Aims

Identify priority research needed to:

1. predict the impact of climate change, in conjunction with other pressures, on species and ecosystems;
2. adapt biodiversity conservation and management strategies to climate change.

Focus on **Belgian situation**

Research priorities

(as identified by the participants to the Biodiversity and Climate Change Meeting, Brussels, 21-22 May 2007).

1. The problem of **scale**

Most climate change and impact scenarios are relevant on a global or continental scale. Studies are needed that enable scaling down these projections to a regional and local level of interest to Belgium, and that enable prediction of biodiversity change following climate change and extreme events affecting these spatial levels.

Research priorities

2. Interaction between climate change and biodiversity;

Research needed to improve our understanding of the effects of climate change on all levels of biodiversity, especially taking into account the interaction between climate change and multiple other factors;

Improve knowledge on the effect of biodiversity on climate change, either mitigating (e.g., ecosystem service of carbon sink or of local climate regulator), or exacerbating (e.g., release of greenhouse gas by livestock or from wetlands).

Research priorities

3. Monitoring of change in populations, species and ecosystems .

Track range shifts of species and changes in status of populations, develop vulnerability assessments including genetic characterization of isolated and threatened populations of umbrella, flagship or keystone species; improve understanding of the ecology, including ability to adapt and/or migrate, of species to assess their vulnerability;

Evaluate distribution and impact of non-native invasive species, and the effect of climate change on their success.

Research priorities

4. Adjustment of management and policy to change

Develop methods to review and adjust management of natural resources and current policies in the light of likely climate change impacts and the role of ecological networks for adaptation.

Develop and test robust indicators of climate change impacts on biodiversity, as well as methodologies to reassess and define appropriate management units matching the ecological processes operating at the relevant geographical scales.

Research priorities

5. Knowledge transfer

Mitigation and adaptation to change can only be successfully achieved through interdisciplinarity and exchange of knowledge among a wide-range of stakeholders, following a cross-sectoral, participatory approach. Tools and mechanisms should be established to facilitate communication within and between sectors, scientific communities and institutions.

Promote open access to data in order to develop useful products for policy-makers and field practitioners.

Concrete research priorities

1. Which climate change-related factors affect biodiversity (populations, species, species interactions, ecosystems), and how (modelling)?

- Temperature: mean average, absolute highs/lows;
- Precipitation: mean, temporal patterns;
- Irradiation;
- Fenological disconnection (asynchrony);
- [CO₂] increase, ocean acidification, ...

Concrete research priorities

2. Which elements of biodiversity are most threatened, and how can they change be effectively monitored?

- Small, Isolated populations
- Refugial (boreal) species / habitats
- Species living near the edge (biogeographically spoken);
- Loosing the common and widespread: taxa with specific, crucial requirements;

... and what, if anything, can be done?

Concrete research priorities

3. Confounding factors: climate change versus other drivers; develop indicators of change;
 - Invasive alien species;
 - (New) parasites / diseases;
 - Habitat fragmentation / isolation;
 - Overexploitation (e.g., freshwater);

Concrete research priorities

4. Societal support / economic impact

- Flagship / umbrella species , red-list species (species-focussed management);
- Keystone species / habitats supporting ecosystem services;
- Economically important species / habitats (e.g., fisheries, agriculture, tourism);
- Mitigation of effects of climate change by biodiversity;

... and how to involve all actors!

Adapt conservation management

1. Identify management hiatuses
 - Is present-day conservation management ready to address climate change impacts?
 - Are there any practices with adverse effects?
2. Develop methodologies to adapt conservation management
3. Reconsider accepted paradigms
(re)introductions, exotic species;

Aim of the Forum

Concrete priority research questions

1. Actualize and focus research priorities;

Aim of the Forum

Concrete priority research questions

1. Actualize and focus research priorities;
2. Identify partners and stakeholders;
3. Focus research context;
4. Contact potential funding sources;
5. Submit spin-off project(s).