Conservation of Arctic Flora and Fauna

Memorandum 2/11/2018

IAB2: Safeguarding habitats for Arctic species under changing environmental conditions

This memo provides a summary of reports submitted on the session IAB2 organized at the Arctic Biodiversity Session in Rovaniemi, Finland, October 9-12 organized by the Swedish Environmental Protection Agency and the Ministry of the Environment, Finland.

Attendance: 50

Arctic Biodiversity Assessment recommendation themes most prominently addressed in the session:

- Identifying and safeguarding important areas
- Climate change
- Addressing stressors
- Improving knowledge and public awareness

Key points raised in the session that were important to note:

- The importance of finding simple, transparent, cost-effective means of identifying biodiversity hotspots and developing protected area systems that are effective now and into the future. Examples include:
    - using colony size as a proxy for determining size and location of hot spots (for identification of important bird areas) for common murres in Canada (relationship between colony size, prey quality and foraging range can be used to identify areas).
    - using existing fish assessment research platforms as mechanism to collect samples of benthos for determination of hot spots in changing climate. In addition, using variance from means as a way of comparing data collected using different methodologies, overlaying maps, etc. Very simple so anyone can follow the methodology.
- The impacts of climate change on protected areas can vary at the local and landscape scale. Using different climate variables)i.e. water balance, temperature and growing degrees days) and approaches to predict the change on the ground to understand impacts on communities within protected areas. impacts can be drastically different and the protected area may not be able to effectively protect some species/communities as climate changes. important to determine where climate change impacts most to ensure protected areas are in right spot for future -- still may loose some species.
- Use of rapid assessment tools to determine effectiveness of protected areas now and predict their effectiveness in the future, including looking at effectiveness under varying levels of mitigation and vulnerability of climate change, show the importance of mitigation and adaptation measures to ensure effectiveness into the future- some species will be impacted more than others, climate vulnerability varies. These tools can help to determine where to focus protected area establishment on specific species, rather than planning for whole ecosystems into the future
- Use tools to determine cost-effective action to prioritize addressing pressures/threats on protected areas. An example is looking at irreplaceability and restoration potential to determine best areas to restore to maximize overall value of the area in most cost-effective manner.

- There may be unintended negative consequences to the establishment of PAs on the ecosystem or other species. For example, the recovery and explosion of snow geese in the Canadian Arctic has resulted in destruction of wetland habitat and can be linked to declines of Arctic breeding shorebirds
- Points of discussion: how to choose what to do. More flexibility needed in legislation on protected areas? But also protected areas are a very strong instrument that should not be weakened. How to predict other factors than climate affecting survival? Need to look not only at protected areas but also the use of the landscape at large.
- The modelling of the species and the use of new information of the habitats was presented e.g. how the process is done. The example was made of birds and foraging range. The other example was made on fish species incl. gateway hotspots. The sea stress is getting bigger and this need to be noted. The detected change is that the warmwater species are getting stronger.
- An important question is how does the community function; the feeding habitats and detected change -> the feeding habitats differ in the Artic?
- In the south of Finland pressure from climate change is smaller than in the North. Different patterns are effected such as water balance, soil composition, lower - higher areas. Certain species implications are clear and need to be noted.
- Climate change will hit harder in lowland areas and we need in the future look at microclimate and the ecological demand. Tools that can also be used are PA effectiveness assessments which are important.
- Are protected areas situated and managed in a proper way for the future threats? Mechanisms need to be looked at. PAs are important for the continued conservation and protection work, values and the protocols including connectivity need to be communicated properly.
- The work on these themes need to involve reindeer holders, IPLCs, and the extractive industry, municipalities among others. The challenges are not easy and human activity and pressures in the future need to be taken into consideration. Need to identify cost-effectiveness and complementary, ecosystem restoration management and mechanisms continue including legal tools.

Recommendations/actions identified for how to deal with the issues raised in the session:

- Consider if microclimate refuges could save populations
- Explore how specific species are linked to climate variables
- There is a need for flexibility in legislation and policy to adapt in a changing world

Take home message from the session:

- Both basic ecological/behavioural data, occurrence data and models need to underpin decisions on safeguarding of habitats. But there is also a need to adapt to unforeseen circumstances.
- There is a need for simple, cost-effective, flexible means of identifying biodiversity hot spots for protection, determining their vulnerability to threats in particular climate change, evaluating/predicting their effectiveness and setting priorities for mitigative measures
- The importance of improving science on the impact of human activities, where protected areas fit in changing world and how to effectively manage both protected areas and the areas outside to best conserve biodiversity.