

Managing invaded food webs: a case study from Iceland on different ethical perspectives of key stakeholders



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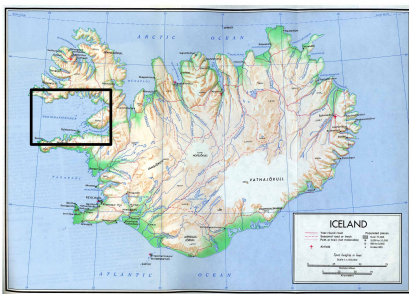


Abstract:

Management decisions are ideally taken by consensus or compromise among stakeholders. However, these discussions frequently represent a clash of "echo chambers" in which stakeholders with different perspectives interact with each other. In particular, stakeholders often differ in their ethical perspectives: (1) Conservationists may advocate for conservation actions for all or at least key species in the ecosystem; this is close to a biocentric approach where life itself should be protected. (2) Most local citizens and the industry usually take an anthropocentric approach focused on ecosystem services and species' benefits for humans. However, while (2a) local citizens usually also support the protection of those ecosystem services and nature's contributions to people that do not have an economic value, for example the aesthetic or cultural value of biodiversity, (2b) representatives of the industry will by their professional role take a more restricted anthropocentric stance: the immediate, short- or mid-term economic value of ecosystem services, for example of a particular species in an ecosystem. We compare how these three ethical perspectives lead to distinct goals regarding the management of an invaded ecosystem in coastal Iceland, especially regarding the farming of invasive mink and its consequences for native avifauna. This work has a different focus than efforts to homogenise stakeholder terminology, because we highlight a deeper cause for communication problems in these discussions. We believe that it is crucial for mutual understanding to know where we are coming from and on which ethical axioms our perspectives are based on. Openly communicating and mutually understanding our ethical perspectives are vital steps to negotiating political decisions.

Location and trophic network:

In West Iceland lies Breiðafjörður bay, 90 kilometres wide and with 3000 islands and skerries inhabited by nesting common eider (*Somateria mollissima*), black guillemot (*Cepphus grylle*) and Atlantic puffin (*Fratercula arctica*). They feed on mollusks and the sand eel (*Hyperoplus* sp.), while being preyed by native white-tailed sea eagle (*Haliaeetus albicilla*), Arctic fox (*Vulpes lagopus*) as well as the invasive American mink (*Neovison vison*).

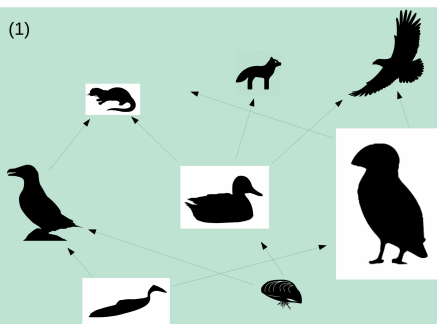


Materials and Methods:

We exploit different sources of data for the three ethical perspectives. (1) The biocentric perspective is quantified by the IUCN threat categories for Iceland. (2a) Classification of the inclusive anthropocentric perspective is more complex and involves data from all kinds of sources: newspaper articles, fairytales, tourist shops, guided tour ads and interviews with local stakeholders. In 2018 we started interviewing local eider farmers who have a special relationship and knowledge with and about the common eider nesting grounds on the islands in Breiðafjörður bay. (2b) The economic perspective is quantified by analysing trade volumes and relevance for the Icelandic GDP.



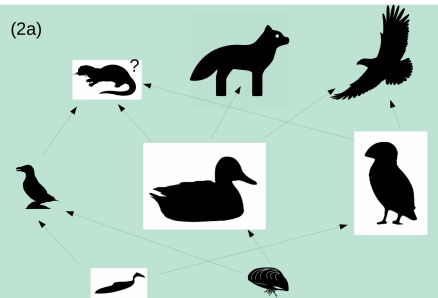
(1)



Biocentric perspective

The Atlantic puffin is critically endangered. White-tailed sea eagle and black guillemot are endangered and the common eider classified as vulnerable. Different sand eel species – important prey for most nesting bird species – are in decline but data deficiency hinders a clear classification. Mollusks are less threatened and Arctic fox and invasive American mink suffered declines but are not of conservation concern.

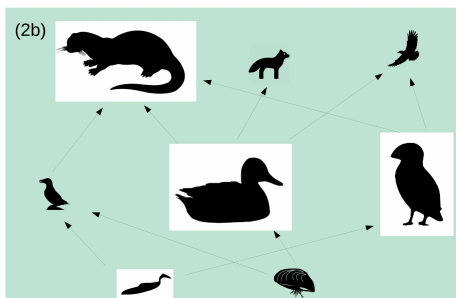
(2a)



Inclusive anthropocentric perspective

The most charismatic species of Iceland are certainly the Atlantic puffin and the Arctic fox, both of which quite present in imagery and tokens like furry animals or key chains. While the image of the puffin is unambiguously positive, many locals have a more hostile view on the fox. It is an important competitor for food to the settlers and appears in many myths and legends (sagas). Within Iceland, the common eider has a very prominent status and, due to a long tradition of down collection, is linked with cultural identity.

(2b)



Economic perspective

The common eider also has a prominent position in the economic perspective, as its valuable down is harvested every year. 20% of eider colonies are in Breiðafjörður, and 40% of all global eider down comes from Iceland. The invasive American mink has been introduced for pelt farming and is still harvested for its fur. While the mink thus has economic benefits, it also reduces the eider and puffin populations and therefore comes with ecological costs. The puffin is of economic significance for its touristic value.



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