

Areas of hope: ensuring the conservation of future values of nature

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As a practice, conservation has been largely devoted to keeping nature where it has been. Using observation, modelling and restoration, conservation of species and ecosystems is based on historical records of occurrence. Prioritization efforts based on Key Biodiversity Areas, Biodiversity Hotspots and Global 200 ecoregions, amongst others, institutionalize this perspective. Efforts such as these have been very effective in drawing attention and resources to areas critical for conservation. They are largely based, however, on assessments of current conservation value, with little attention to how these values could change.

Conservation practice has always had a difficult relationship with change. On the one hand, it has been devoted to stopping what is perceived as negative change, such as change in land use, ecosystem extent and species abundance. On the other hand, it fully recognizes that change is essential to conservation success through processes such as succession, evolution and restoration.

Ecologists have been clear-eyed regarding the changes that are and will continue to be brought about by climate change, particularly in the field of restoration ecology, where the concept of novel ecosystems has gained traction (Hobbs et al., 2009). There is a vibrant body of literature on how to manage areas in the face of predicted change (e.g. van Kerkhoff et al., 2019), and there has also been considerable work on which species will persist in protected areas despite climate change, and which will appear for the first time in other areas (cf. Gahbauer et al., 2022).

But this idea of change as a critical part of conservation has not received the consideration that might be expected in the establishment of protected and conserved areas. Much of the effort to fulfil the global thirty-by-thirty target to increase protected and conserved lands and waters, as laid out in the Kunming–Montreal Global Biodiversity Framework, is guided by priorities designed to include existing patterns of biodiversity distribution (e.g. Watson et al., 2023). Conservation practice must rise, however, to the challenge of including not only existing biodiversity values but future ones as well, including transient values as species gradually move their range.

We therefore propose the creation of a ‘future conservation area’ descriptor—an agreed-upon, carefully designed classification that would supplement the existing IUCN

protected area management categories and governance types for protected areas. It would be applied on top of these existing systems of classification in the same way that a Natural World Heritage designation is additional to, rather than a replacement for, the IUCN protected area management category. Application would mainly be to areas that are currently neither protected areas nor other effective area-based conservation measures (OECMs) but have the potential to become important conservation areas in the medium-term future. The term could also be applicable to certain protected areas and OECMs if these were likely to significantly change their conservation function in the future, for example by becoming a corridor for species’ range readjustments. These future conservation areas could be identified, described and mapped, but only assigned a specific conservation and management regime as need arose. Their management objectives would be either for a predicted future biodiversity value at the species level (see example below for salmon) or at an ecosystem level, as with the Great Fen restoration in the UK (Hughes et al., 2012).

Identifying places likely to be useful in the future for maintaining conservation systems in the face of climate change is different from planning for climate impacts to individual sites through approaches such as Resist, Accept, Direct (Lynch et al., 2021). Furthermore, a designation such as the one we are proposing could help translate the results of much of the climate projection planning work that has been done (cf. Hannah & Midgley, 2023) into the planning of national systems of protected and conserved areas.

In heavily modified landscapes, some future conservation areas could be restoration sites, with effort needed now to prepare them for a specified emerging conservation role. Here restoration might not be to the previous ecosystem but to one suitable for projected climate conditions. Others could in theory be useful only for a limited period, to facilitate range shifts or to secure a threatened species until other, more permanent populations can be established. From a policy perspective, the concept links neatly with the aspirations of initiatives such as the UN Decade on Ecosystem Restoration, the Land Degradation Neutrality target of the UN Convention to Combat Desertification, and aspects of the UN Sustainable Development Goals.

We assume that in most cases such future conservation areas will not, in the short term, have much in the way of legal protection. But if identified carefully, by authoritative means, they could act rather like Key Biodiversity Areas, to

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earmark places that responsible governments, companies and communities should treat with extra care.

A range of examples illustrate the situations where the future conservation area designation could be applied. In North America, melting glaciers are creating conditions for important future salmon migratory runs, yet such areas are being eyed by mining companies for new mineral exploitation possibilities. At this time, these areas are of little conservation value but in the future they may be vital (Moore et al., 2023). Other potential future conservation areas addressing species conservation needs could focus on newly colonized walrus haul-outs (Vasilyeva, 2020), predicted new cod spawning areas (Sandø et al., 2020) or predicted ground parrot habitat (Molloy et al., 2020).

Targeting future conservation areas might include landfill sites being restored to grasslands (Allen, 2021), abandoned quarries being restored as wetlands (Talento et al., 2020) or areas upslope of salt marshes accommodating ecosystem migration as sea levels rise (Meixler et al., 2020). In cases where restoration is involved, use of climate projections can help steer planners in identifying restoration objectives for any particular site, to prioritize future conservation needs. Being declared an area of future conservation would therefore allow the conservation of predicted future values that are currently not represented, or not yet significant.

The future conservation area designation would need to be employed strategically, for the most relevant species and ecosystems. Apex predators, generalist feeders and colonist plants, for instance, will often look after themselves in a changing climate, whereas specialized, range-limited species will need help. The same is true for widely distributed ecosystems versus those that are more localized. The ability to identify sites will also vary with location. Although some climate scenarios are now quite robust, others remain speculative and therefore identifying future areas may be difficult in some cases.

The huge surge of ecosystem change currently underway will inevitably bring losses, but there are also opportunities to avoid some of the worst impacts and to make some modest gains as we move towards a nature-positive future. Governments may admittedly be reluctant to accommodate another label, involving more territory; but the future conservation area concept fits well into the existing Global Biodiversity Framework. The process of identifying future conservation areas is a contribution to systematic conservation planning (Global Biodiversity Framework Target 1), which would in turn locate potential future protected areas and OECMs (Target 3), in some cases following restoration (Target 2). We believe that active and systematic

identification of future conservation areas should be an important part of efforts to conserve existing species and ecosystems, and to reverse biodiversity losses.

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