

## IUCN highlights relevance of gene drive research for conservation

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The International Union for the Conservation of Nature (IUCN) assessment of the potential use of synthetic biology, including gene drives, for conservation offers a timely and balanced review of the field. The report, published [online](#) on May 5<sup>th</sup>, accurately describes the complex challenges faced in conservation across the world, noting both the progress made on many fronts and the daunting challenges that remain, for which new tools are needed. This sound analysis will hopefully lead to an equally balanced and careful articulation of an IUCN policy on synthetic biology, a four-year long process launched in 2016 at the previous IUCN World Congress.

The Outreach Network welcomes the emphasis placed by the authors on the need for case-by-case assessments and decision-making for each application of synthetic biology. This is consistent with the analysis delivered by other recent reports on gene drive, notably "[Gene Drives on the Horizon](#)" by the National Academies of Science, Engineering and Medicine and the Netherlands Commission on Genetic Modification's [report](#) on gene drives. Seeking blanket acceptance for or rejection of entire categories of innovations would be to ignore the diversity of technologies proposed, overlooking important variations and differences between each that affect their acceptability and usefulness.

As illustrated by the case studies, researchers working on synthetic biology and gene drive are considering a broad range of possible applications. Across the board, researchers are focused not only on the technical hurdles to be overcome, but are also integrating consideration of the complex trade-offs, risks and socio-economic and cultural considerations inherent to such technologies into their research. While there are many questions that remain to be answered before any gene drive application can be considered for use, the report shows that there is great awareness of the issues to be addressed and efforts in place to answer them.

Collaborative approaches to technology development, endorsed by the members of the Network, are essential to ensure the outcomes of research are not simply technical feats, but meet the needs and priorities of the communities that need them. As the report aptly notes, it is important to bear in mind that all choices about technology use are not made in a vacuum and that communities and policy-makers must weigh not only the pros and cons of a particular tool, but also balance those considerations against the alternatives.

These are decisions not simply based on the scientific evidence presented but which also incorporate values and norms, and so the answers may differ from communities to communities and for different technologies. This is an essential message from the report as it acknowledges that across the world, support for or acceptance of different tools may vary but that respect and balance in managing these different views is essential.

### Quotes from the report:

"Although researchers' commitment to engagement is critical, it is not sufficient. There is also a need for national governance mechanisms to provide guidelines about the remits and scope of the engagement and of stakeholders' participation in decision making so that engagement can be aligned." (p.47)

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“Seeking “evidenced-based” decision making is about more than the quality of the data and the identification of key experts; it requires careful attention to the processes through which evidence is generated, gathered and considered in decision processes that must reflect the complexity of society itself.” (p.51)

“Polarised thinking that bundles all synthetic biology applications together for summary judgement, for or against, masks this complexity in favour of highly charged politics that fails to notice when different applications of synthetic biology could be beneficial, detrimental or a mix of both.” (p.57)

“However, past experience has shown that scaling these efforts up to the level necessary to reverse the declines in biodiversity and allow for recovery will continue to be a major challenge using current approaches, given the costs and the seemingly intractable nature of some of the threats.” (p.67)