Shared Values from the Genetic Rescue Community

May 2, 2025

The Genetic Rescue Community is a growing network of biotechnologists, conservationists, legal scholars, ethicists, and others who acknowledge that there are various approaches to developing and applying biotechnologies for conservation efforts.

Members of this community may hold differing opinions on whether and which particular applications (including biobanking, cloning, genome editing, gene drives and de-extinction) may be suitable for achieving specific conservation goals. This reflects the complexity of conservation challenges, the wide range of potential solutions, and the varied perspectives within the community itself.

Nevertheless, we all agree that while biotechnologies can enhance conservation practices, they are dependent upon foundational conservation science and infrastructure. Developing and applying biotechnological tools for a given species requires knowledge of genomics, embryonic development, cell culture, reproductive physiology, behavior, ecology, and husbandry. Much of which is obtained through conservation practices that include protecting, monitoring, and studying species in their natural habitats, as well as in conservation breeding programs and restoration activities.

Recent high-profile advancements in de-extinction have caught the attention of US government officials. Misguided statements have been made that biotechnologies could replace existing conservation measures. This has evoked skepticism and concern from scientists, ecologists, ethicists, conservationists, and the broader public, jeopardizing the development and application of biotechnologies. In response, and in solidarity with those concerned, Revive & Restore, with members of the Genetic Rescue Community, have outlined these five shared values to create common ground for responsible innovation in conservation as we strive toward our shared biodiversity goals.

1. BIOTECHNOLOGIES ARE NOT A PANACEA FOR CONSERVATION PROBLEMS

No new technology can substitute for preserving and restoring habitats and protecting species in the wild. Biotechnologies can be additive tools for saving species, and in some cases they enable scalable solutions that no other method can (e.g. controlling invasive species). However, while emerging biotechnologies give the impression that progress happens overnight, they can take years or decades to take effect. This is especially true for de-extinction: it will always be easier, safer, and less expensive to conserve existing species and ecosystems instead of expecting to "bring them back" De-extinction as a practice cannot resurrect a species, but it aims to create functional ecological proxies that promote the conservation of habitats and biodiversity.

2. LAWS PROTECTING THREATENED AND ENDANGERED SPECIES AND NATURE RESERVES REMAIN ESSENTIAL

Federal and state laws protecting endangered species, restricting invasive species, and conserving public lands and waters are critical tools for conservation. These are cornerstones of conservation policy in nations around the world, such as the Endangered Species Act (ESA) in the U.S. When at-risk species and their habitats are protected under these conservation laws, we also safeguard countless other species, essential ecosystem functions and services that support human well-being, cultural and economic values, outdoor recreation opportunities, and unique biological properties that may lead to future scientific and medical breakthroughs.

3. HABITAT PROTECTION IS NON-NEGOTIABLE

The U.S. Department of the Interior's current proposal to redefine "harm" in the ESA undermines essential habitat protection that is critical to the survival of threatened and endangered species.

The destruction and fragmentation of ecosystems by human activities, including the introduction of invasive species, remain the foremost drivers of global biodiversity decline and the slow, often invisible process of extinction. Functioning ecosystems where species can thrive remain the foundation of effective conservation. The preservation, restoration, and conservation of intact, connected landscapes through robust implementation of public land and other conservation laws is essential and must increase regardless of biotechnological advances.

4. NEW BIOTECHNOLOGIES CAN PLAY AN IMPORTANT ROLE IN CONSERVATION

21st Century problems require the aid of 21st Century solutions**.** Biodiversity faces unprecedented challenges, including ongoing habitat fragmentation, invasive species, and emerging diseases, all exacerbated by climate change.

Multiple conservation approaches working in concert offer the best path forward for addressing complex biodiversity challenges. Although most challenges will be solved without biotechnology tools, increasingly, conservationists are recognizing that biotechnologies will be vital to saving certain species from extinction.

5. THIS GENETIC RESCUE COMMUNITY IS COMMITTED TO DEFINING AND FOLLOWING BEST PRACTICES

Any intervention in nature has the potential to have wide-reaching effects in diverse environments, impacting not only many species but also human communities. Biotechnological conservation work demands high standards of practice, making every possible effort to:

- Recognize the intrinsic value of nature, the moral imperative to protect ecosystems as living communities, and the importance of animal welfare.
- Work within appropriate governance, ensuring legal compliance and third party oversight.
- Provide research transparency (such as scientific and economic incentives)
- Thoughtfully engage and include all relevant public and private parties
- Objectively evaluate intended and unintended socio-ecological consequences
- Communicate scientific research and policies clearly and accurately with the public

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By embracing these principles, we can integrate cutting-edge biotechnology with established conservation practices while maintaining our fundamental commitment to protecting biodiversity and ecological health through multiple complementary approaches.

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**Note: The signees below have endorsed this statement as individuals and do not represent the viewpoints of their affiliated institutions.*

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