Trends in
Ecology & Evolution

CellPress

Letter

Conservation changed but not divided

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We acknowledge the valuable perspectives presented in the letter by Murray *et al.* [1] in response to our recent publication [2]. They highlight the risk that artificial intelligence (AI) may divide conservation if ecological and field experience do not underpin the design of AI tools, and if AI capacity in the Global South does not develop to avoid further scientific inequities. We agree wholeheartedly with these points and recognise that the task of equitable integration of AI into conservation is beyond the scope of any single group and requires collective action. We take this opportunity to further develop our original discussion [2], and to elaborate how we think equitable integration of AI into conservation may be achieved and the potential roles of different actors, to enable conservation to be changed, but not divided.

Governments and policy-makers can enable equitable and inclusive use of AI in conservation practice by establishing regulations and economic incentives which encourage AI approaches that emphasise equity and inclusiveness, applying both to commercial and scientific development of AI-enabled tools. The design of regulatory frameworks that mandate and guide AI development, while promoting innovation, is crucial. Governments may facilitate multi-stakeholder dialogues, whereby actors driving AI development – including for conservation – are encouraged to interface with relevant actors, from development to deployment, to create greater understanding, trust, and participation. Governments can also invest in digital infrastructure, both in terms of computing capacity to support the development of AI models, but also improving connectivity to support remote areas. These could be underpinned by procurement policies which prioritise provision of equitable and inclusive AI systems and services.

Funders can encourage change to current practice, for example, demanding the use of evidence from the field to inform project design and implementation [3]. Funders of AI-enabled technologies in conservation can similarly require evidence of equitable and inclusive deployment. Alongside recognising the importance of community engagement in monitoring and management for the success of conservation initiatives [4], support can be provided to enable conservation actors (e.g., local communities, stakeholder groups, rights holders, and governments) to have greater appreciation of the capabilities and limitations of AI as part of training communities to participate in their deployment. Long-term projects should be supported to design their technologies iteratively with feedback from conservation actors, such as in relation to the types of data that are collected and analysed, and the locations at which sensing devices are installed. Funders should also consider equitability and inclusiveness when evaluating project outcomes. Supported projects should be required to consider the ethical dimensions of AI systems in conservation, making them more inclusive of Indigenous and local perspectives and values.

Scientists have a significant role to play in ensuring that the design and deployment of AI-enabled tools engage local experts and communities in the process. Conservation scientists should ensure that outputs of AI models are validated empirically and serve local conservation priorities, prior to deployment. The limitations and biases of underlying models should be evaluated and understood, with the findings shared with AI developers to improve performance. Conservation scientists must also engage with local experts, citizen scientists [5], and other community members to build willing local capacity to use these tools and include non-Western values and perspectives. They also have a critical role to play in deployment, ensuring that the motivations and methods of data collection are communicated appropriately to local communities so they can decide how they wish to participate in accordance with the principles of free, prior, and informed consent.

Developers of AI tools have a foundational role to play in delivering an equitable AI landscape. Technologies disconnected from pragmatic ecological, cultural, and socioeconomic factors are unlikely to advance the field in a positive way [1]. Developers should adopt participatory design and development principles, identifying conservation actors to guide the process, designing data collection and management protocols that respect cultural sensitivities and Indigenous and local knowledge and perspectives [6]. Tools need to be designed to function with the internet connectivity and power resources available in the target area. All tools should be open source and thoroughly documented, so that they can be easily adapted for local contexts.

Questions still remain regarding how best AI can be integrated equitably into conservation practice [7]. Key emerging themes include: how can we make this process more participatory? How can we provide training and education on AI-enabled technology? How can people be compensated fairly for their data and insights? And how can we incentivise the prioritisation of equitable and inclusive AI in conservation practice? We reiterate our call to the whole conservation community to co-design and adopt a code of practice to address the sustainability and equitability of AI in conservation. Proactive development of AI that supports all conservation actors is required to allow AI to be a tool that promotes representation and enables participation, rather than a tool that divides us.

Declaration of interests

The authors declare no competing interests.

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https://doi.org/10.1016/j.tree.2025.04.002

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