

other conservation projects in the region. In addition to promoting biodiversity conservation, these projects could benefit the welfare of other animals by protecting threatened native species (5).

Considerations of what one could have done otherwise with a given resource is a foundational principle of the effective altruism movement, an evidence-based ethical framework (6). Emerging applications of this framework to conservation include considerations of animal welfare and offer promising solutions to complex cases of value conflict (7, 8).

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## Pragmatic animal welfare is independent of feelings

In their Policy Forum “Engage with animal welfare in conservation” (7 August, p. 629), N. Sekar and D. Shiller state that the “overwhelming evidence that animals think and feel” is the basis for their call to include animal welfare in conservation practices. This feelings-based approach is problematic because there is substantial scientific uncertainty about whether taxa such as fish are sentient and, therefore, able to feel pain and suffer (1, 2).

In recreational fishing, animal welfare concepts are embedded in global international conservation policies (3, 4) and in local welfare actions (5), despite the uncertainty about fish sentience. These activities are motivated by the reality that fish populations are composed of individuals whose well-being is important to the conservation of populations and fisheries, regardless of whether the animal is able to think and feel. Moreover, many users of fish respect the life, function, and welfare of individual fish and act accordingly, independent of whether they think that the animal can feel pain (5, 6).



Recreational fishing policies recognize the importance of animal welfare regardless of whether fish are sentient.

An effective application of animal welfare in conservation is possible—and is perhaps more effective and convincing to stakeholders—without invoking or relying on concepts such as consciousness, sentience, or pain (5, 7). A pragmatic approach to animal welfare that relies on objective and measurable endpoints of animal well-being is more likely to gain support among stakeholders and be implemented in practice than a feelings-based framework that is based on concepts that are difficult to define and cannot be readily measured in many taxa (5, 7).

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#### COMPETING INTERESTS

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## Animal welfare science aids conservation

In their Policy Forum “Engage with animal welfare in conservation” (7 August, p. 629), N. Sekar and D. Shiller overlooked a long history of conservation-related animal welfare science. The integration of animal welfare science and conservation spans at least 60 years (1) and has been applied to a broad range of wildlife management activities (2) and interdisciplinary research (3–5). Understanding and incorporating animal welfare science can benefit conservation efforts.

Animal welfare science is not synonymous with opposition to intentional killing of wildlife (compassionate conservation) (6, 7). Rather, animal welfare science uses quantitative measurements to assess harmful and positive impacts of human activities on animals (8). Traditionally, the harms are weighed against conservation benefits to justify (or rule out) a management action. Approaches such as compassionate conservation may, perhaps counterintuitively, worsen animal welfare outcomes and make biodiversity conservation more difficult (9).

Sekar and Shiller use prescriptive advocacy framing that does not represent animal welfare science. Stipulating that conservation agencies should avoid factory farming products does not reflect scientific quantification and comparison of harms posed by this and other human activities. Processes such as land clearing (10) may pose greater animal welfare impacts when all wild sentient species and types of harm (11) are considered.

We agree that increased animal welfare focus is warranted in conservation. Progress will be expedited by wider collaboration with animal welfare scientists. Decades-old