Generic theories of change for conservation strategies: A new series supporting evidence-based conservation practice

This editorial introduces a new series in this journal featuring generic theories of change (ToCs) for key conservation strategies. We hope these ToCs can both help practitioners learn about each strategy as well as enable the collection of standardized data across specific implementations of each strategy in different conditions. These data will, in turn, inform increasingly more systematic assessments of the strategy, thus contributing to the evidence base of strategy effectiveness.

1 | THE CHALLENGE OF DEVELOPING EVIDENCE FOR CONSERVATION STRATEGIES

Conservation fundamentally involves practitioners taking action to achieve desired outcomes in a system of interest. There is a wide array of basic conservation actions that include directly managing resources, promoting behavior change, and creating enabling conditions (CMP, 2014; Salafsky et al., 2008). Effective conservation requires implementing strategies with the right combination of these basic actions to address the problems in any specific situation (CMP, 2020).

A large part of evidence-based conservation involves using analysis of data from specific experiences to determine generic principles about the conditions under which a given action or strategy will lead or at least contribute to desired outcomes (Salafsky et al., 2019). If researchers have a good experimental design and/or sufficient statistical power, they can show a significant causal relationship between implementation of Action X and achievement of Desired Outcome Y without necessarily understanding the mechanism of this hypothesis. It is much more challenging, however, to apply this “black box” approach to conservation strategies that take place in more complex ecological and socio-economic systems and involve multiple intermediate outcomes, long time frames, a host of confounding variables, and/or different combinations of actions. In these cases, if a strategy results in the desired outcome, it is hard to know with confidence that this outcome was “caused” by implementation of the strategy. And if the desired outcome was not obtained, it is difficult to figure out why the strategy did not work and what could be done to improve its implementation.

2 | ToC APPROACH

To solve these challenges, there is a growing recognition in development and other fields to use a ToC approach to articulate the mechanism by which a given strategy is hypothesized to lead to intermediate results and ultimate desired outcomes (GEF, 2019; Margoluis et al., 2013; Weiss, 1995). A recent review (GEF, 2019) defines a ToC as:

The process and product of developing an explicit account of how and why an intervention is expected to achieve its intended outcomes and impact goal, based on outlining a set of key causal pathways arising from the activities and outputs of the intervention... and the assumptions underlying these causal connections. The account will usually include a diagram to help summarize the logic through these causal pathways, but also a narrative that explains the context, what the logic is based on, and how success will be measured.

As the GEF review states, at its core, a ToC approach “opens up ‘black boxes’ in thinking through explicit causal pathways.” In particular, it is needed to “design a rigorous plan for a complex initiative; for evaluating appropriate outcomes at the right time and in the right sequence; and for explaining [how] an initiative worked or did not work, and why.” A ToC pathway is ultimately a set of hypothesis statements that can be tested against...
the evidence base to determine if and why a conservation strategy is effective (for an example ToC, see Boshoven et al., 2021).

3 | A NEW SERIES ON ToC FOR CONSERVATION STRATEGIES

To develop the evidence base for the effectiveness of a given conservation strategy of interest, it is useful to start with a generic ToC that can both clearly define what the strategy entails and create a template for the collection of standardized data across specific implementations of each strategy. To this end, this journal is introducing a new series featuring generic ToC pathways for key conservation strategies. Early examples in this series include:

- Jurisdictional Sourcing for Deforestation-Free Commodity Supply Chains (Boshoven et al., 2021).
- Fellowship Programs to Build Conservation Capacity.
- Enforcement Efforts to Combat Wildlife Trafficking.
- Partnering with Indigenous Peoples to Promote Conservation.

Each paper in this series will focus on the generic ToC for a conservation strategy that has been developed by a group of practitioners and experts who have been intimately involved in using and assessing the effectiveness of this strategy. Box 1 provides a summary of the elements of each paper. In addition, each paper will contain a link to an entry for the strategy in a searchable online library (CAML, 2020) that contains dynamic presentations of the ToC and that can serve as a home for discussion and ongoing refinements.

Although we have tried where possible to vet our draft ToCs against both the literature and specific case studies in which the strategy has been employed, we are not conducting systematic reviews of the evidence for each strategy (CEE, 2020). Instead, we see development of these ToCs as an important precursor toward developing the evidence base needed to conduct a useful systematic review. We hope the generic ToC hypotheses presented in this series will enable the collection and sharing of standardized data across specific implementations of each strategy in different conditions. These data can, in turn, inform ongoing and increasingly more systematic assessments of the strategy (e.g., CEE, 2020; Conservation Evidence, 2020; Evidensia, 2020) and ultimately, revisions to the generic ToC for the strategy as our collective knowledge improves (Argyris & Schön, 1978).

Although we are launching this series with the initial strategies listed above, we invite contributions from the community. If you have a generic ToC for a conservation strategy, please contact us. We are happy to receive ideas in any stage of completeness ranging from completed manuscripts to initial concepts that could be refined and developed. We also invite readers to contribute critiques and alternative versions of the published ToCs. Our own ToC is that this series will help build the evidence base about key conservation strategies, thus ultimately improving conservation effectiveness.

In addition, authors may also report on efforts to vet their generic ToC against the existing evidence base including specific case studies in which the strategy has been implemented and/or a review of the relevant literature.

**CONFLICT OF INTEREST**

The authors declare no conflicts of interest.

**AUTHOR CONTRIBUTIONS**

Nick Salafsky: Led the writing, the discussion among co-authors, and the submission and publication of the manuscript. All of the authors extensively discussed and contributed ideas and collaborated in reviewing feedback from reviewers and editing various drafts of this manuscript.

**DATA AVAILABILITY STATEMENT**

All data used to generate this article are presented in the paper.
ETHICS STATEMENT
The authors are not aware of any ethical issues regarding this work.

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REFERENCES
Argyris, C., & Schön, D. A. (1978). Organizational learning: A theory of action perspective. Reading, MA: Addison-Wesley.
Boshoven, J., Fleck, L. C., Miltner, S., Salafsky, N., Adams, J., Dahl-Jørgensen, A., ... Seymour, F. (2021). Jurisdictional sourcing: Leveraging commodity supply chains to reduce tropical deforestation at scale. A generic theory of change for a conservation strategy, v. 1.0. Conservation Science and Practice, 2, 383. https://doi.org/10.1111/csp2.383
CAML. (2020). Conservation actions and measures library. Retrieved from https://miradishare.org/actions.
CEE. (2020). CEE evidence syntheses. Bangor, UK: Collaboration for Environmental Evidence. Retrieved from https://www.environmentalevidence.org/completed-reviews
CMP. (2014). Conservation actions classification, v. 2.0. Bethesda, MD: Conservation Measures Partnership. Retrieved from https://cmp-openstandards.org/using-os/_actions/
CMP. (2020). The open standards for the practice of conservation, v. 4.0. Bethesda, MD: Conservation Measures Partnership. Retrieved from http://cmp-openstandards.org/download-os
Conservation Evidence. (2020). Conservation evidence. Retrieved from https://www.conservationevidence.com/.
Evidensia. (2020). Evidensia. Retrieved from https://www.evidensia.eco/.
GEF. (2019). Theory of change primer. Washington, DC: Global Environment Facility. Retrieved from https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF_STAP_C.57_Inf.04_TheoryofChangePrimer_0.pdf
Margoluis, R., Stem, C., Swaminathan, V., Brown, M., Johnson, A., Placci, G., ... Tilders, I. (2013). Results chains: A tool for conservation action design, management, and evaluation. Ecology and Society, 18(3), 22. https://doi.org/10.5751/ES-05610-180322
Salafsky, N., Boshoven, J., Burivalova, Z., Dubois, N. S., Gomez, A., Johnson, A., ... Wordley, C. F. R. (2019). Defining and using evidence in conservation practice. Conservation Science and Practice, 2, 27. https://doi.org/10.1111/csp2.27
Salafsky, N., Salzer, D., Stattersfield, A. J., Hilton-Taylor, C., Neugarten, R., Butchart, S. H., ... Wilkie, D. (2008). A standard lexicon for biodiversity conservation: Unified classifications of threats and actions. Conservation Biology, 22, 897–911.
Weiss, C. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. P. Connell, A. C. Kubisch, L. B. Schorr, & C. H. Weiss (Eds.), New approaches to evaluating community initiatives. Washington, DC: Aspen Institute.
