

BEHAVIOR CHANGE FOR BIODIVERSITY CONSERVATION

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Individual behavior in all spheres of life

- We mostly think of individuals as consumers, but individuals can also affect biodiversity in other spheres of life
- Individuals can both actively promote and counteract biodiversity conservation
- Relatively few behavioral studies on policymakers, corporate leaders, wealthy investors, community leaders, "influencers", etc.

Broadening the conceptualization of individual behavior highlights the many areas where behavioral science can contribute relevant knowledge











Individual versus system change

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Opinion

Individual responsibility: a red herring that lets the fossil fuel industry off the climate catastrophe hook

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Climate Deniers Shift Tactics to 'Inactivism'

CLIMATE CHANGE

Fossil fuel interests are trying to blame climate change on individuals while also sowing division, says Michael Mann, one of their prime targets

By Richard Schiffman on January 12, 2021

I work in the environmental movement. I don't care if you recycle.

Stop obsessing over your environmental "sins." Fight the oil and gas industry instead.

By Mary Annaise Heglar | Updated Jun 4, 2019, 9:33am EDT



Big oil distracts from their carbon footprint by tricking you to focus on yours



Understanding and changing behavior

Behavior results from a complex interplay between individual characteristics and social, economic, cultural, political, and physical factors

This means no discipline has the answer – only pieces of an incredibly complex puzzle

Behavioral science has much relevant knowledge but still has important limitations





A framework of behavioral determinants







Motivation refers to the conscious and unconscious processes that direct and inspire behavior

Automatic motivation (System 1) is motivation that involves habitual, instinctive, drive-related and affective processes

• Relevant concepts: habits, emotions, impulses

Reflective motivation (System 2) is motivation that involves conscious thought processes

• Relevant concepts: intentions, attitudes, goals, plans, high involvement







Capability is defined as an individual's psychological and physical capacity to engage in the behavior.

Psychological capability is capability that involves a person's mental functioning

• Relevant concepts: knowledge, understanding, memory, intelligence, self-control

Physical capability is capability that involves a person's physique and musculoskeletal functioning

• Relevant concepts: physical strength, motor skills





Opportunity

Opportunity is defined as all the external factors that lie outside an individual that make behavior possible or prompt it.

Physical opportunity is opportunity that involves inanimate parts of the environmental system and time

• Relevant concepts: financial and material resources, time, infrastructure, features of physical environments

Social opportunity is opportunity that involves other people and organizations

• Relevant concepts: social norms, culture, social networks





BEHAVIOR CHANGE INTERVENTIONS



Behavior change interventions

We need to understand behavior before we intervene!

- > Who performs the behavior?
- > Why is the behavior performed?
- > What is the context within which the behavior?
- > How often is the behavior performed?

Skipping the behavioral analysis step can waste resources (even a superficial analysis is helpful)





Example catalog of behavior change interventions

	Intervention class	Sample of intervention types	Conservation examples
Individual level Population level	Capability		
	The physical, psychological, or management resource to perform, modulate, or resist an activity	Training physical, psychological, or management skills; providing behavioural support	Training fishers in using less damaging fishing gear; making new insights in habitat management available to conservation managers
	Motivation Any process that energizes, directs, and sustains behaviour	Communicating social norms; promoting public commitment; providing social comparison; offering behavioural feedback	Inducing a sense of pride in local habitats and species; lobbying policymakers or corporations to promote ambitious conservation action
Population Invol	Physical microenvironment The settings that people use for specific purposes and where they interact directly with objects and stimuli in those environments	Altering availability, position, presentation, or size of products or objects	Increasing vegetarian meal availability in cafeterias; changing the presentation of products to increase salience; altering defaults to lower-footprint settings
	Physical macroenvironment The basic physical and organizational structures and facilities needed for the operation of a society or organization	Increasing availability of public transport; altering functionality of roads	Increasing public transport options to national parks and nature reserves; increasing the energy efficiency of public buildings
	Economic environment The prices of goods and services	Introducing, modifying, or removing taxes, subsidies, and other material incentives	Introducing taxation on ruminant meat; paying farmers to restore natural habitat on their land; removing subsidies for fossil fuels; governments divesting from environmentally damaging industries
	Institutional environment The voluntary and regulatory codes of practice to which public and private organizations must conform if they are to receive support and legitimacy	Introducing, modifying, or removing fines or other material incentives; establishing or altering institutional standards	Creating a protected area; increasing environmental standards for contractors; introducing or increasing fines for undesirable behaviour

Example: breaking habits (motivation)

Breaking people's habits is difficult.

A promising intervention point is when people going through life transitions (e.g., moving home) – called the *habit discontinuity hypothesis*

In one study (n = 800) people **received tailored information about sustainable behaviors**. Eight weeks later, participants who recently relocated were significantly more likely to perform such behaviors than those who hadn't (Verplanken & Roy, 2016).







Example: Cooking skills (capability)

Even incentivized behavior change is unlikely to succeed without the necessary capabilities to perform the new behavior.

Offering Amazonian households coupons for chicken to reduce consumption of wild meat was only successful when **advised how to cook chicken** (Chaves et al., 2018)

Promoting sustainable food consumption in Denmark by **altering which recipes are taught** in cooking school







Example #3 – availability (physical microenvironment)

Changing features of a physical environment can profoundly influence behavior (e.g., altering the presentation, availability, or position of products

One study altered the availability of vegetarian meals in three college cafeterias at the University of Cambridge (Garnett et al, 2019).

They found that increasing the share of vegetarian meals to 50% resulted in vegetarian meal sales increasing by 14.9, 14.5, and 7.8 percentage points across the cafeterias







FEASIBILITY



What's feasible?

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- Profound gap between countries, cities, and companies' environmental pledges and actual progress
- Ignoring feasibility can create an illusion of progress (e.g., Copenhagen's net-zero pledge, large companies' tree-planting pledges)
- ... and lead to solution bias (bioenergy with carbon capture, tree planting, fancy technologies, etc.)

We need change today, tomorrow, and next year!



Feasibility of conservation initiatives

What is the realizable biodiversity impact of initiatives?

Three key considerations:

- 1. **Technical potential:** What is the impact of the target behavior change if the initiative achieves its objectives?
- 2. Behavioral plasticity: To what extent can the initiative change the target group's behavior?
- 3. Initiative feasibility: What are the feasibility and costs of implementing the initiative?

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SUMMARY			
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Limiting global warming to 2° C or less compared with pre-industrial temperatures will require unprecedented rates of decarbonization globally. The scale and scope of transformational change required across sectors and actors in society raises critical questions of feasibility. Much of the literature on mitigation pathways addresses technological and economic aspects of feasibility, but overlooks the behavioral, cultural, and social factors that affect theoretical and practical mitigation pathways. We present a triparitie framework that "unpacks" the concept of mitigation pathways by distinguishing three factors that together determine actual mitigation: technical potential, initiative feasibility, and behavioral plasticity. The framework aims to integrat and streamline heterogeneous disciplinary research traditions toward a more comprehensive and transparent approach that will facilitate learning across disciplines and enable mitigation pathways to more fully reflect available knowledge. We offer three suggestions for integrating the tripartite framework into current research on climate change mitigation.



Feasibility of conservation initiatives



Fig. 1 | **Steps from proposed initiatives to actual mitigation.** One trajectory of potential mitigation in response to an initiative and several possible trajectories of actual mitigation from the initiative (top). Elaboration of the path from a proposed initiative to responses that determine the actual mitigation trajectory (bottom).



POLICY REFLECTIONS



We need descriptive behavioral data

Who does what, why, when, in which context, and under what circumstances?

A systematic and longitudinal accumulation of descriptive and observational data offers important benefits:

- 1. Build a stronger foundation for behavior-focused research
- 2. Identify which behavioral changes are feasible now and for whom
- 3. Identify which factors (e.g., psychological, social, economic, infrastructural, organizational) prevent change and undermine support for initiatives
- 4. Develop targeted political and organizational mitigation initiatives
- 5. Provide inputs to modeling studies



Inequality

- 1. Inequality in who causes biodiversity loss and environmental degradation
- 2. Inequality in who experiences the worst consequences of biodiversity loss and environmental degradation
- 3. Inequality in who influences efforts to conserve biodiversity (or the lack thereof)
- 4. Inequality in who will be affected by conservation policies/initiatives





Implications of conservation initiatives

Social and behavioral science is not only relevant for studying the role of behavior change in biodiversity conservation

They can help examine and model the (potential) psychological, social, and cultural implications of different conservation initiatives

For example: (perceived) wellbeing, social relationships, community engagement, cultural norms, and equity





Evidence synthesis

We desperately need a centralized evidence synthesis entity to curate evidence on behavioral determinants, intervention effectiveness, and heterogeneity across individuals, behaviors, and contexts

Better evidence synthesis and curation will help ...

- 1. Improve research priorities and therefore our science
- 2. Facilitate access to and use of state-of-the-art evidence
- 3. Policymakers, organizations, and corporations to identify and implement more effective initiatives





CONCLUDING THOUGHTS



Concluding thoughts

- Addressing biodiversity loss requires rapid and profound changes, including to individual behavior
- Behavioral science already has relevant knowledge to inform this transition, but there's an untapped potential for a substantially larger impact
- We need much closer interactions between the physical/technical sciences, social sciences, and policy and corporate actors





