



# RETHINKING FOREST CONSERVATION AS A HUMAN AFFAIR

Dr Claude Garcia and Dr Patrick Waeber





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Climate change and land-use changes are shaping the future of the world's forests. Initiatives to halt deforestation and forest degradation are consistently missing their targets, despite political and public support. A key reason for this lack of effectiveness may be the failure to account for human behaviour. **Dr Claude Garcia** and **Dr Patrick Waeber** from the French Agricultural Research Centre for International Development and the Swiss Federal Institute of Technology use theoretical models and games to demonstrate how accounting for social and behavioural factors could significantly improve the outcomes of forest management.

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The Earth's forests are at increasing risk from changes in climate and land-use, both the result of complex, interacting chains of cause and effect. Changes in temperature and rainfall act over decades and centuries to alter the delicate balance in forest ecosystems. Trees are logged for construction and heating. Forests are cleared to provide additional space for farming and infrastructure, with agriculture being the predominant driver of deforestation.

In May 2020, Global Forest Watch reported that the tropics lost 11.9 million hectares of tree cover in 2019 – an area the size of Belgium. Over the last 20 years, net forest loss has stagnated at over 5 million hectares lost per year. Multiple conservation initiatives across the world aimed to reverse these trends, but despite some successes, global deforestation continues at an alarming rate.

Why are forest conservation initiatives failing to meet their targets? Researchers from the Swiss Federal Institute of Technology and their partners may have

the answer. In a recent paper published in *One Earth*, Dr Patrick Waeber and Dr Claude Garcia suggest that failure to understand human behaviour is at the heart of the issue.

The researchers explain that landscapes do not arise spontaneously; humans shape them. Landscapes today are primarily influenced not by ecological processes, but by social processes, such as policy and economy, and the decisions people take. Thus, failure to recognise the capacity of people to act independently and make their own decisions leads to conservation initiatives that neglect a key driver of forest losses.

Dr Waeber and Dr Garcia put together a team of international researchers to overcome this weakness. In their innovative approach, the researchers suggest that using modelling techniques that account for the human aspects of conservation, and structured games, can help decision-makers reach a consensus and align forces independently from their own internal values or perspectives.



Examining past 'forest transitions', which describe the shift from a shrinking to an expanding forest, along with the broader social context that influence landscapes, can give scientists clues about how to improve forest conservation initiatives. Halting deforestation can only slow down and stop the loss, but restoration efforts are needed to regain forest cover.

How do transitions happen? The theory says that innovations take place within small groups, where experimentation with novel technologies, practices and policies leads to more environmentally friendly practices.

Some of these innovations offer opportunities to alter the rules and routines of the broader regime as they





mature and become more cost-effective. An excellent example illustrating this process is the move towards hybrid and electric vehicles; eventually, better practices and technologies replace the older ones. Both systems and people can be resistant to change, especially where new innovations are more expensive than the conventional alternatives.

The social context is shaped by the political, social and economic trends, and the values and conventions within society. Although pressure from the public can produce opportunities for shifts in industry practices at this level, conflicting values and opinions within society can undermine efforts for improvements.

This suggests that for transitions to happen, there must be pressure from the public, with new values making it possible for innovations to take over.

The researchers propose that changing the values of decision-makers is not imperative for achieving the systemic changes necessary to conserve and restore forests. For successful collaboration, it is only necessary that decision-makers agree on how the world works and how it could change.

By asking *how* instead of *why*, people are not required to defend their beliefs. If their own knowledge of the system is adequately represented, this can foster a sense of security. Agreement can then be built up when exploring options rather than defending the values and emotions attached to them. It is

easier to agree on a description of the world (the world as it is), than to agree on objectives and values (the world as we want it). Gaining exposure to the realities experienced by others can also inspire epiphanies, where people dramatically alter their behaviour based on what they have experienced.

A 'theory of change' can help groups make their hypothesis explicit. Developing such theories while creating policies and projects addressing deforestation, forest degradation and reforestation, would contribute to realistic long-term goal setting. Using these and other similar methods would help decision-makers negotiate common or compatible goals, even when individuals disagree on an overarching objective.

Initially, a theory of change is developed based on the 'mental model' of the decision-makers – a representation of the perceptions and thought processes of how individuals involved in the process understand the system to work. By revisiting the mental models, they can be refined. A particularly difficult component is to understand how others will behave. Errors in the initial mental models can lead to costly mistakes and failing to adequately predict human behaviour is by far the most common flaw. Constructing possible scenarios rather than trying to predict what will happen can provide an opportunity to fast-track the process of testing and validating mental models.

However, the complexity surrounding forest conservation and other environmental issues defies the cognitive capacity





of most of us and limits the efficacy of these approaches to decision-making. Fortunately, Dr Waeber and Dr Garcia have come up with a novel solution: games. They suggest that it is far easier to examine the behaviour of a system by playing a strategic game than through open discussions alone.

Games help people to cope with the complexity inherent in environmental systems. In a game, the outcomes of an action depend on the interaction between the decisions of the players and the rules of the game. Therefore, they function as a model of a strategic situation and can be used to represent landscapes and their drivers of change.

Games developed through participatory processes represent all the crucial actors, resources, processes, and the ecological, social, economic and political interactions relevant to discussions about environmental initiatives. Players respond to challenges set by the game by thinking strategically and

pitching their ideas to other participants, allowing them to explore the success of their strategies and alternative futures in a low-risk environment. They become part of the model, and because they are humans making decisions, they bring the best possible representation of human behaviour into the model. These games have brains inside.

Dr Garcia and Dr Waeber suggest that the insights decision-makers gain by playing these games can then be translated into a refined theory of change and subsequently, as actual policy propositions.

With the apparent ineffectiveness of previous initiatives to halt deforestation and restore forest cover, the novel approach of games may be exactly what is needed to improve forest conservation outcomes. Now we just need to convince decision-makers to play them.

This SciPod is a summary of the paper 'The global forest transition as a human affair', from *One Earth*. <https://doi.org/10.1016/j.oneear.2020.05.002>

For further information, you can connect with Patrick Waeber at [patrick.waeber@usys.ethz.ch](mailto:patrick.waeber@usys.ethz.ch) or Claude Garcia at [claud.garcia@cirad.fr](mailto:claud.garcia@cirad.fr)

