REVIEW

Tacit working models of human behavioural change I: Implementation of conservation projects

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Abstract The “human dimension” of conservation is increasingly recognised as critical for success. Most conservation research involving people is based not on explicit “theories of change”, but tacit local knowledge or folk theories guiding programme design. In this study, I propose a schematization of the local socioecological knowledge and folk theories about the “human dimension” of conservation into tacit working models, comprised of individual factors and systemic factors influencing human behaviour in conservation contexts. These are called the Persuasion, Normative, Involvement and Uniformity tacit working models. I review a set of conservation interventions and programmes, in order to assess which of the implicit working models inform their design. I argue that in order to better understand how a project may arrive at different outcomes, the underlying assumptions about human behaviour and the implicit “theory of change” that went into programme design need to be made explicit. This schema does not evaluate different approaches to conservation, but it can help point out the underlying assumptions that structure interventions and that may be more or less suited to particular situations. This can allow researchers to recognise their own assumptions and test them explicitly, leading to the formulation of more reflective and explicit theories, and improving the quality of both discourse and practice in conservation.

Keywords Conservation · Folk theories · Human behaviour · Human dimension · Tacit knowledge · Theory of change

INTRODUCTION

Conservationists increasingly have embraced the idea that the major challenges facing the environment are issues of

human behaviour, not of ecology or biology (e.g. Schultz 2011; Opdam et al. 2013; Moon and Blackman 2014; Baynham-Herd et al. 2018; Wallen and Daut 2018). Since the majority of conservation researchers come from an ecological rather than social sciences background—though this is changing with increasing emphasis on interdisciplinary training—many of the approaches to human problems in conservation represent a kind of formalised informal knowledge. That is, conservation researchers rarely follow a particular school of analysis or a body of theory from anthropology, sociology, psychology, or other social sciences. In general, despite an emphasis on “evidence-based” assessment and design in conservation that involves people, the formulation of questions, hypotheses and assessment procedures—thus the very nature of evidence—is usually independent of social science theory. The result is a sort of “folk psychology” or perhaps “local socio-ecological knowledge” (e.g. Johnson-Laird and Oatley 1992; Kashima et al. 2009) held by conservation researchers themselves about how to understand, change and manage human behaviour. Like other kinds of “folk psychology” or “local ecological knowledge”, derived from experience in the world, these approaches are not inherently wrong, and may map onto academic findings from specialised disciplines. This paper seeks to trace the main characteristics of this knowledge. It does so by proposing models that schematize the tacit assumptions about human motivation and behavioural change that are most common in conservation science.

I focus primarily on the design of conservation projects and programmes. Conservation actions are usually applied and carried out through the modality of projects, for example applied research projects funded by research or conservation funding bodies, Global Environment Facility-funded projects (the mechanism for putting in place the

Box 1 Some key terminologies as used in this paper

Terminology

Folk theory, e.g. folk psychology: Non-academic, informal beliefs about how things work held by members of a culture or society in the form of cultural concepts or norms, sayings, etc., e.g. about what motivates people, why people do or don't do certain things

Local socio-ecological knowledge: Non-academic forms of knowledge based on observation, experience and adaptive learning in a socio-ecological system

Assumption: A belief or knowledge item that may be unstated, unquestioned, or unassessed, that forms the basis for argumentation or action

Tacit working model: A formulation and schematization that represents the general structure and content of folk theories and local socio-ecological knowledge

Theory of change: an explicit and formal model or theory of how an intervention will cause a desired change

Theory: understood to refer to disciplinary theories, that is, formal academic claims stated in terms of the concepts from a particular discipline, about how things may work or be related, from which specific hypotheses can be derived

Convention on Biological Diversity), or NGO (non-governmental organisation) projects. In conservation, projects and programmes have no characteristic scale, and may be organised, led, funded, etc. by very heterogeneous actors. Conservation also has a very broad remit, having expanded from a focus on populations of animals and plants to encompass landscapes, economic development, lifestyle choices, and so on. I offer no definition of a conservation project. However, by project I do *not* mean particular technical interventions, field methods, or analytical treatments: I do not consider “how to transport a rhinoceros”, “how to breed frogs”, “how to measure bryophyte diversity”, or “how to interview illiterate stakeholders.” Rather, by project or programme, I mean a particular (designed) relationship between a selection of technical interventions or field methods and a set of subjects/objects. In this paper, I focus on the classic and typical kinds of projects and programmes in the conservation toolbox, all of which notably include the “human dimension” in various ways. This reflects the integration of the social in nearly all modern conservation projects and programmes. How conservation projects and long-term programmes that they set up should design their implementation, management and governance to be most effective in altering human behaviour towards pro-conservation and sustainable actions is a theme of major importance to conservation (e.g. Brown 2003; Vermeulen and Sheil 2007; Ochoa-Ochoa et al. 2009; Hazzah et al. 2014; Roe et al. 2015).

“Theories of change” are widely considered to be important in interventions, so that the functioning of the intervention can be predicted, project impacts can be properly evaluated, and learning can take place (see Box 1 to clarify terminology; Rogers 2014). In the design and implementation of “human dimensions” interventions in conservation projects, “theories of change” are not always explicit. Using an inductive emic approach, I derive and review the common and typical tacit working models of human behavioural change used in conservation research,

which are equivalent to “theories of change” (see Fig. 1 for a summary of the study framing). I first identify two axes of “human dimension” factors that characterise conservation’s tacit working models of behavioural change: “personal factors” that affect individual actions and decisions and “systemic factors” such as project management and governance practices. In turn, conservationists’ ideas about how personal and systemic factors interact shape what I identify as the tacit working models of how conservation projects work. The inductive emic method draws on two sources. It draws first on discourses, in the published literature, expressing conservationists’ folk theories and local knowledge. Also, since we are dealing with assumptions that are not always expressed explicitly, this method works backwards from how projects are designed and implemented to work out the logic underlying their design and implementation. For example, one can often understand (through basic practices of informed critical reading) some of the assumptions that may not be explicit in paper introductions. These can be understood from how methods are justified, how results are contextualised and explained, how others’ results are compared and contrasted, or how past failures are proposed to be fixed. To illustrate my analysis, I sought publications with the clearest possible statements of assumptions, justifications, critiques of other work, and reasons for particular solutions to problems. My goal was not to illustrate the range of between-individual variation in ideas among conservations, although variation and disagreement certainly exist. I sought statements that either illustrated influential viewpoints or common and typical viewpoints. By ‘assumptions’, I refer to instances when local knowledge and folk theories are generalised, left unquestioned, not stated explicitly, or not distinguished from critically assessed scientific claims. The analysis also occasionally draws on third-party critiques, i.e. sociology, political ecology or anthropology studies of conservation, to explain how projects are structured or to provide perspective on how the conflicts between practice and

Fig. 1 Illustration of the approach taken in this paper. The cloud of blue symbols represents the folk theories, local socio-ecological knowledge, and assumptions of conservation researchers and practitioners. This informs and is informed by (double-headed black arrow, “in conservation practice”) different kinds of “human dimensions” elements of conservation projects and programmes (images on the right). In this paper (red arrows), I first (centre) analyse discourse and descriptions of project design and implementation to develop a schematization of the folk theories, local socio-ecological knowledge and assumptions informing the human dimensions of project and programme design. Second (lower right), I diagnose where on the schema different kinds of projects fall. To use the schema developed in this paper (black arrow, “how to use”), I recommend that conservation researchers and practitioners ask themselves where their positions or their own projects fall in this schema, and ask themselves how this relates to the positions of others, what the evidence is for these positions, and how projects they care about actually represent and enact different possible positions. For example, my own previous conservation research mainly falls in the Persuasion Model area, but I am now exploring the potential for other models to inform my work

assumptions can lead to shifts in discourses and projects. Conservationists do not currently actually use these tacit working models: they are *models* of the folk theories or local socio-ecological knowledge that are used. None of the proposed models should be understood as a theory in the sense of leading to falsifiable hypotheses. The models represent a set of implicit background assumptions that structure how people formulate hypotheses and structure interventions.

A contention in this paper is that conservationists’ tacit working models of the “human dimension” are relatively general, rather than particularised or highly context-specific. This reflects a widespread belief among

conservationists that there are aspects to human behaviour and psychology that can be generalised, as well as best-practice characteristics of project design and implementation that can work across contexts. In this paper, I do not examine how cultural, economic, and socio-ecological contexts shape project implementation, or the likelihood that people’s views fall in any particular part of the gradient space of the tacit working models (but see Root-Bernstein et al. 2020).

By making these working models more explicit than is usually the case, I hope to encourage fellow conservation scientists and practitioners to question their own assumptions. A more explicit approach to identifying, critiquing

and testing tacit working models may help to improve conservation project planning and implementation, and programme outcomes. Consideration of the models and how they have interacted with project implementation over time also reveals some of their weaknesses and gaps, including a lack of theorization of power relations and a focus on individuals' interactions with systemic factors rather than the dynamics and the transformation of economic and political systems themselves.

THE WORKING MODELS

Personal factors affecting projects and programmes

Personal factors refer to ways that conservationists understand the psychology and behaviour of others, e.g. the public, the “local people” local to the project, or stakeholders. In this paper, I address conservationists' *generalisations* about other people, rather than their contextual knowledge about particular individuals formed via personal relationships. Under personal factors, we can observe two main orientations for understanding how individuals take decisions and change their actions. These are not, on theoretical grounds, really opposed to each other. Both could be said to be at least partially correct, according to evidence from behavioural and cognitive sciences. Nonetheless, different applied fields have emphasised different aspects of human behaviour in their approaches. Focusing more on one orientation or the other can be seen as two ends of a gradient.

‘Values’ end of gradient

In conservation sciences, the generally held view is that values drive conservation (e.g. Jepson and Canney 2003; Mace 2014; Tallis et al. 2014; Chan et al. 2016). Thus the first orientation for understanding personal factors is that values, often assimilated to emotional interactions and love for nature, can be increased through forms of education and outreach, and can reach a sufficiently high or strong level to consistently motivate behavioural change towards pro-conservation behaviours. There are a number of key elements here. First, the emphasis is placed on affect or values within a framework of motivation, rather than, e.g., rational deliberation of possible actions or outcomes, or choices made in response to temporary self-interest (e.g. de Young 1993; Ballantyne et al. 2011; Fischer et al. 2013; Barca et al. 2016). Motivation, as a concept, implies some kind of underlying long-term structuring of the pursuit of needs and desires as the basis for action. Second, if there is a tendency for people *to not* act as if they loved nature or the environment, it is assumed that this is because their affect

is too low or weak, their values are too underdeveloped, or there is some other, probably psychological, barrier to the motivation of appropriate actions (e.g. Kollmuss and Agyeman 2002; Slocum 2004). A corollary is that this individual is presumably motivated by *other* values or affects that are relatively stronger (e.g. Burton et al. 2008; Root-Bernstein 2014). Following on from this, one can observe a belief that it is possible to increase the strength of affect or values regarding nature or the environment, and that is what increases motivation to act consistently in support of conservation (e.g. de Young 1993; Ballantyne et al. 2007; Lindon and Root-Bernstein 2015; Wright et al. 2015).

‘Contextual decisions’ end of gradient

The second orientation towards individual actions comes from the literature on human psychology and behavioural change for sustainability, green economies, and related public policy goals. This literature emphasises contextual factors, such as data displays, environmental cues, social pressures, design features, moments in the day, or life transitions, that make a certain action slightly more likely to be chosen than the alternative(s) (e.g. Russell 2004; Verplanken et al. 2008; Broman Toft et al. 2014; Vlaeminck et al. 2014; Van Loo et al. 2015). Because contexts vary in what they highlight or make relevant, people can make different, even opposite, choices in different contexts (Kahneman and Tversky 2000). Over time, such context-dependent biases in decision-making can be locked in through habit formation, leading to automatic decisions and thus permanent changes in behaviour, as long as the context is relatively stable (e.g. Gregory and Leo 2003; Verplanken et al. 2008; Schwanen et al. 2012). In contrast to the standard conservation position, this model emphasises the human actor as inherently malleable and highly influenced by their immediate circumstances. Notably, in this model, decisions are usually presented as being resolved automatically or subconsciously, without deliberation (Kahneman and Tversky 2000). Change in behaviour is thus primarily procured not through education or persuasion, but through salient changes in a constant onslaught of cues, information, and circumstances affecting choice (e.g. Thaler and Sustein 2008; Kremer et al. 2010; Dufflo et al. 2011; Vlaeminck et al. 2014; Van Loo et al. 2015). This set of hypotheses derives a certain legitimacy from its support by experimental evidence, even if it also leaves out other aspects of human behaviour and psychology. For example, while sociologists also emphasise context dependency, they have mainly focused on deliberate and public processes of evaluation (Heinich 2017). Equally, although there are branches in human psychology of behaviour and decision-making that approach more closely the

conservation model of value-driven behaviour (see e.g. Baumeister and Tierney 2011; Wilson 2011), those psychological studies tend to be overlooked from this, contextual, end of the personal factors gradient.

Systemic factors affecting projects and programmes

By systemic factors I mean modes of implementation and management, techniques and norms within a project, or methods of governance and assessment put in place by a programme. Again, I identify two general approaches in understanding how these factors affect human behaviour and which can be thought of as lying along a gradient.

‘People ignore rules’ end of gradient

Anthropology of development and bureaucracy, and environmental anthropology, ask how on-the-ground issues in applied projects are transmuted into a bureaucratic realm where official knowledges are created, and how this in turn shapes the conception of on-the-ground reality (e.g. Heyman 1995; Mosse 2004; Mathews 2008; Rocheleau 2008; Telesca 2015). Anthropologists tend to view project and programme policies as operations in a bureaucratic sphere relatively unrelated to the ad hoc “street-level” discretionary decisions made by individuals carrying out the project or programme (Mosse 2004; Hoag 2011, 2014). That is, practices of implementation respond to contextual and pragmatic concerns, tinker rather than follow blueprints, and may waive, invent, or bypass regulations. Policy makers, in turn, may respond to successful pragmatic interventions by enshrining them in the next round of policy, or blame unsuccessful interventions on poor implementation. One could conclude from this that policy is at best an imprecise inspiration (Hoag 2014); in practice, projects and programmes simply do whatever seems to work or whatever the individuals with the power or capacity to adapt the rules want to do based on their own judgements or other factors. Specifically within conservation, we see this orientation primarily when examining the views of project managers and practitioners, who often find ways to implement projects in spite of existing regulations which they consider to be inadequate or too narrowly conceived (e.g. Harrison and Davies 2002; Lorimer and Driessen 2014; Root-Bernstein et al. 2018; Tree 2018).

‘People agree to follow rules’ end of gradient

Finally, within the conservation literature there is another way of thinking about the role of policies, regulations, and governance within projects and programmes. Generally, we find the idea that policies enshrine collective values, and that by doing so they orient and guarantee certain

conservation actions (Jepson and Canney 2003). In this sense, creating policies is a key form of access to power: policies directly affect what is allowed and not allowed, rewarded, or punished (Watson 2005). If it is observed that people are not taking up voluntary programmes, e.g. agri-environment programmes, or are violating programme norms or laws, e.g. by poaching, the problem is usually assumed to be a misalignment between those individuals’ values and the values informing the policy (e.g. Fischer et al. 2013; Barca et al. 2016). One type of solution is to involve a broader range of stakeholders in the formulation of policy so that it will better reflect societal values. Notably, such participatory techniques are often framed as providing stakeholders with access to power, e.g. “decision-making power” or more broadly, political and social power within their communities (e.g. empowering women, Agrawal 2009). Legalistic approaches to regulating conservation and the environment, for example protecting endangered species or controlling the use and disposal of toxic chemicals, also fall within this category as do international conservation conventions. Within this notion of access to the power to control others’ actions is the idea that most people can and do follow rules in real, “street-level,” or should we say, “forest-level” conditions. Why this should be true is usually opaque in the conservation literature, but we might point to political ecology discussions of hegemony and governmentality to understand how ideological and state powers subtly shape lived reality (e.g. Waage and Benediktsson 2010; Margulies 2018; Sheng and Qiu 2018). When people do not follow the rules, again for reasons that often seem to escape analysis, state coercion and violence are sometimes seen as legitimate and effective (Brockington 2001; Duffy et al. 2015; Fletcher 2018).

Implicit working models: The intersection of personal and systemic factors

In this paper, I derive 4 implicit working models of how individuals respond to external programme factors by combining the viewpoints described above (Box 2). I go on to show that these combinations of viewpoints correspond to models of how to design conservation projects and programmes that can be recognised in common interventions.

Persuasion Model

What I call the Persuasion Model combines the idea that people ignore or work around policies to find pragmatic and personal solutions, with the idea that people are influenced by their strongest values or emotions. Thus, the Persuasion Model posits that the way to make a project work is to persuade people through education, appeals to

Box 2 The four tacit working models of the human dimension of conservation along with two null models. The images give examples of programmes and approaches following each model. The Persuasion Model suggests that individuals follow their own motivations, and thus attempts to persuade them through appeals to emotions and environmental values and to strengthen those values and emotions through education. The image of a sign urging people not to litter because the forest is beautiful is from Wli, Ghana (photo © MR-B). The Normative Model suggests that individuals are influenced by programme rules that provide a framework for normative values and evaluation. An example is organic production standards, as shown in this paper by the Chilean organic label. The Involvement Model proposes that context determines people's preferences and choices, and that people do whatever is in their self-interest in that context. The implication is that conservation decisions are best made from within the relevant context, by the same people who will live with those decisions. Devolution of decision-making, participative research, and community-based conservation may all be examples of this model. The image shows parabiologists being trained in Chile (photo © MR-B). The Uniformity Model proposes that programme norms and regulations provide a uniform context of choices and preferences that determine people's actions. Examples of this model can include protected areas and international programmes with large, stable spatial extents and durations such as the Man and Biosphere Reserves. The Indolence null model suggests that people simply do whatever is easiest without considering anything other than their own momentary, energy saving self-interest. The Regulation null model suggests that people follow rules simply because they exist, without assessing their own values or self-interests beyond compliance. While both null models are sometimes referenced, there is little use of them in applied conservation

	Systemic factors	
Personal factors	People ignore and work around policies to do whatever they want	Programmes and policies enshrine collective values that influence or control behaviours
Strongest values motivate actions	Persuasion Model sign: "Wli is beautiful, use the litter bins"	Normative Model
Context-dependent choices determine actions	Involvement Model	Uniformity Model
People are hypocrites or behave randomly	Indolence Model (null model)	Regulation Model (null model)

emotion, or incentives to each individual who act in the interests of the project for their own reasons. Monetary incentives are most strongly associated with ideas about influencing behaviour through contextual factors, since money is seen as something that people attempt to maximise through contextual decision-making, but not affect. However, it may also be considered a value (monetary value) and thus can be included here. That is, if maximising income/minimising expenses is understood as a kind of universal value that is always pursued with a specific

importance ranking ("first I ask if it's ethical, then I ask if it's lucrative"), then we are probably on the values end of the axis. On the other hand, if we imagine that things like price/income are sometimes relevant to choice, but in other contexts irrelevant ("I would accept \$200 to rake your lawn, but there is no amount of money I would accept to stop drinking coffee"), then we are probably in the contextual decisions end of the axis. Behavioural economics certainly supports the latter conceptualization, but this does

not prevent other economists or people in general from having a ‘values’ conceptualization about money.

Involvement Model

What I call the Involvement Model combines the same idea that people ignore or work around policies to find pragmatic and personal solutions, with the idea that individual behaviour is based on past and present contextual choices. In this model, a project works when it recognises that local, contextual factors shape how people will perceive and react to a project, and thus involves locals in choices related to the implementation and design of the project through consultations, participatory processes, local governance, and other devolved decision-making or decision-input powers. This is not the same as a model of “participation” in conservation. As we will see, community-based projects that include participative mechanisms may be characterised by essentially political processes intended to avoid/resolve socio-political problems in a project, or conversely by a desire to harness the entire endogenous machinery of social functioning for the purposes of a project. Different than either of these specific things, this model recognises and requires a heterogeneous set of behavioural and choice contexts of different kinds, best understood and manipulated from the perspective of those who are ‘involved’ with them.

Normative Model

What I call the Normative Model combines the idea that policies directly influence practices and thus represent power over others’ behaviour, with the idea that people are motivated by their strongest values or emotions. The idea here is that policies create norms that guide people in understanding what to value or how to evaluate. For example, the project sets up certain methods and metrics for indicating highest value or optimization of a set of values, which people are motivated to follow. Although there may often be a claim that project norms are derived from socially accepted values, this does not at all imply an assumption that project norms merely reflect existing behaviours, or that behaviour is expected to always conform to social norms rather than varying. Rather, the project’s norms are put in place precisely because those social values are not being acted on consistently, for whatever reason. The norms are intended to instruct or force people to evaluate and act according to them, wherever they apply.

Uniformity Model

What I call the Uniformity Model combines the idea that policies directly influence practices and thus represent

power over others’ behaviour, with the idea that personal behaviour is based on past and present contextual choices. In this model, a project creates a uniform context in which people’s choices are biased or influenced towards particular outcomes. The project or programme strives to be stable enough in time and large enough in space to guarantee a bias towards certain choices at an ecologically significant scale or to maintain a context supporting acquired habits. Differently to the Involvement Model, the Uniformity Model imposes a homogenous context, often physically delineated, that is intended to affect a wide range of choices within that context, rather than allowing users to identify, design, and manipulate heterogeneous contextual attributes of various types and scales themselves. Unlike the Normative Model, it does not expect people to make individual evaluations based on a normative regime all the time or everywhere that relevant values are in play, but only within the delimited uniform context created by the project. It thus accepts that people may be inconsistent, and in the cases where people’s values are in contrast to the behaviour required by the project, it demands that they be inconsistent, behaving one way within the project boundary and according to their values outside the project boundary.

Null models

I have not identified any applied academic sub-disciplines that claim that there is no relationship between actions and values, people are generally hypocrites, or people behave randomly (although some authors imply this, see e.g. Heberlein 2012). However, for the sake of completeness I posit two additional models of conservation projects and programmes, drawing on a “tacit working null hypothesis” of hypocrisy and/or randomness. The Indolence Model combines this with the idea that people ignore or work around policies to find pragmatic and personal solutions to suggest that projects will work to the extent that people can join the project passively or with the lowest possible effort: neither values nor rational calculations being relevant, minimising energy expenditure, investment, or change is the primary motivation or preferred option. This might also be the case if a habit was so ingrained that new behaviours could not be learned and new options were not perceived or evaluated. By contrast, the Regulation Model combines the hypocrisy and randomness of null hypothesis with the idea that policies directly influence practices and thus represent power over others’ behaviour to suggest that the way to make a project work is to create rules that people will follow without reference to their values or interests through automatic canalization of behaviour. So, while the Uniformity Model instructs people how to evaluate options within its imposed context, the Regulation Model assumes

that no evaluation takes place because people do not have values that drive behaviour. In a Uniformity Model, you create a measure of how many trees one has cut down and incentivize minimising it. In a Regulation Model, you draw a line around some trees and no one cuts down the trees inside it. How can this happen? This is a null model because it is not clear that this does happen except in trivial situations. If it actually worked in practice, this model would take on a dystopian character: presumably there must be a power relation behind the suppression or loss of all personal values or interests: surveillance, social exclusion, brainwashing, etc.

The tacit working models form a gradient space

In reality, since these are not explicit or formal hypotheses, they cannot be expected to form distinct model categories, but should be thought of as forming a gradient space of ways of thinking about human behavioural change (Fig. 2). For example, in the gradient between personal factors, one might hold the position that people are consistent in holding the same set of values across most contexts, but that values are inverted in extreme contexts (disaster, war, extreme poverty), or that key values (e.g. the golden rule) are constant but subjacent values (e.g. recycling) are context-dependent, etc. On the gradient between systemic factors, a possible intermediate position is that people usually follow the rules but under certain conditions (political instability, weak state institutions, corruption, revolution, etc.), people do whatever they want; or that people do whatever they want in certain realms of behaviour not

seen as properly the subject of normativity (e.g. street-crossing behaviour), but conform to normative regimes in realms where more is at stake: those closer to the core of the normative imaginary of that society (e.g. respect of private property) or under more punitive regimes. There is a huge amount of academic literature on these topics that might inform such views, but which I make no attempt to review here. The point is that many conservationists (like most people) may hold such views without having an academic background in the relevant literatures.

As a different example of how such gradients can work, take Balmford et al. (2017). They found that conservationists, despite having greater knowledge of environmental issues than medics or economists, had only a slightly smaller carbon footprint on average. While not about an existing project or programme, this paper is the kind of discussion that could easily be used to justify a project to encourage academics to reduce their carbon footprints for the good of the environment, and I refer to it primarily due to its explicit discursive shifting between different tacit models. Concluding that education alone does not lead to the adoption of the suite of lowest carbon lifestyle choices, the authors point both to the need for greater efforts to change both “underlying values” as well as “structural constraints and choice architectures.” Despite briefly noting an “absence of alternatives to high-impact behaviors” which suggests a systemic problem, the discussion remains anchored in the assumption that humans are by nature “hypocritical” but that conservationists ought to “lead by example” based on their knowledge and values. Thus, the authors of this study evoke all three models on the left side of Box 2—the null Indolence Model of hypocritical or random behaviour (applied to humans in general), the Involvement Model of inconsistent, context-dependent behaviour in service of the individual’s desires (applied to conservationists and their peers), and the Persuasion Model of consistent personal value-driven behaviours (aspirational for conservationists). This illustrates a possible way in which these models can form a gradient: the null model is seen as the state of nature, while personal betterment leads to adherence to a superior Involvement Model, culminating in achievement of self-controlled behaviour according to an “ideal” Persuasion Model: each model is thus imagined as the solution to the last. One may note a strong Northern European/Protestant cultural inflection to this particular way of treating the tacit models.

Fig. 2 The four tacit working models are found along a two-dimensional gradient space. Conservation researchers and conservationists may base their approaches on working models that are in intermediate spaces between the extremes

EXAMPLES OF CONSERVATION PROGRAMMES MAPPED ONTO THE WORKING MODELS

In this paper, I give some illustrative examples of common forms of conservation projects and programmes, and I

diagnose how (or whether) they map on to the implicit models described above. I neither make an attempt to provide a complete review of each type of conservation approach, nor do I assess the efficacy of each. In this paper, I provide typical and representative examples of arguments or assumptions about why and how typical kinds of projects and programmes are expected to be effective. These reveal the tacit working models that the programmes are based on. Recall that these tacit working models are *models* that represent and schematize the folk theories and the local socio-ecological knowledge that actually comprise conservationists' assumptions about the “human dimension” (Fig. 1).

Environmental education and outreach

Flagship species

Environmental education and outreach projects in schools, zoos, protected areas, and museums often use a combination of information and appeals to emotion to attempt to increase people's motivations to conserve nature. For example, flagship species are described as charismatic species, representations of which are targeted to particular audiences and expected to “catalyse...[a] conservation action” (Lorimer 2007; Barua et al. 2011; Root-Bernstein and Armesto 2013). The language and recommended techniques used for flagship species is often explicitly based on marketing techniques designed to influence people to make certain choices (Wright et al. 2015; Veríssimo et al. 2017). Flagships are expected to facilitate creating protected areas and soliciting donations to NGOs (Yasué et al. 2012; Clements 2013; Veríssimo et al. 2018). However, it has also been recognised that flagships do not always work very well (Slocum 2004; Barua et al. 2011; Douglas and Veríssimo 2013). The usual proposed solution is to provide improved guidance for the use of flagships to better motivate individuals (Slocum 2004; Barua et al. 2011; Wright et al. 2015). Thus, by identifying a set of motivating values—related to emotional attachment to a symbolic species—and attempting to strongly stimulate them, one expects to increase those values' power to motivate action. Failure suggests that the stimulation needs to be made stronger—a kind of supernormal stimulus folk theory of motivation. The flagship species approach fits the Persuasion Model of conservation project design. The use of flagship species per se to persuade people is clearly ad hoc, combining disparate Western cultural representations of animals and bits picked up from totemism, animism, and other traditions (Barua et al. 2011). No effort has been made to first work out what values most motivate the pro-conservation behaviour in some context and then how to best stimulate or strengthen those values.

Nature interpretation

A somewhat different outreach approach is nature interpretation, which can be seen as a mode of facilitating and promoting desired interactions with species and landscapes in situ. Nature interpretation aims to “relate what is being displayed or described to something within the personality or experience of the visitor...” (Tilden, quoted in Ham et al. 1993; see also Hvenegaard et al. 2012). Why is this supposed to be effective? A review notes that it “is frequently touted as playing a role in influencing visitor beliefs, attitudes, knowledge, and behaviours and as such is purported to be a desirable visitor management tool” (Munro et al. 2008), and that “interpersonal interpretation is usually ascribed as having greater intensity (and thus influence)”. Ballantyne et al. (2007) describe this technique as expected “to... foster understanding, appreciation and conservation of the environment.” One paper on this topic opens with the well-known quote “In the end we will conserve only what we love. We will love only what we understand. We will understand only what we are taught. Baba Dioum, 1968.” (Jager and Halpenny 2012). This conservationists' folk theory of motivation linking love, experience, and transfer of knowledge is echoed in related literatures on the importance of childhood experiences in nature to motivating adult conservation attitudes and actions (e.g. Nazarea 2006; Wells and Lekies 2006; Root-Bernstein et al. 2014). With its emphasis on strong emotions and information that change attitudes and actions on a highly personal basis that preserves or assumes individual autonomy, the nature interpretation outreach philosophy also fits clearly within the Persuasion Model. Unlike the flagship species approach, the nature interpretation approach is flexible and open-ended, so while it lacks a theorization of exactly what values need to be strengthened or how, those who apply it can draw on a wide range of interpersonal and pedagogical techniques. The link with actual behavioural change is also under-theorised, but anecdotal evidence supports the idea that the approach *can* work at least for some people in some situations, which in turn gives a sense that the folk theory is valid.

Standards and certifications

Standards and certifications have emerged as means to hold food production and natural resource extraction companies to account. There are, for example, certification schemes for fishing sustainability, livestock and poultry welfare, crop production environmental standards, timber production sustainability, and socio-economic standards. Certification schemes must affect behaviour at both ends: the consumer and the producer. Studies in European supermarkets have tested whether eco-labels corresponding

either to real or imaginary certification schemes are paid attention to by consumers, and whether they can increase sales (the answer is yes) (Vlaeminck et al. 2014; Hainmueller et al. 2015; Van Loo et al. 2015). Thus at the consumer end, certification schemes are expected to work according to the Persuasion Model, because a perception—here, primarily informational rather than emotional—increases the evaluation of a product and leads to behaviour (purchase).

However, why companies adopt certification schemes is considered less clear and is a major area of research (e.g. Giovannucci and Ponte 2005; Blackman and Rivera 2010; Burivalova et al. 2017). As an example, the Forest Stewardship Council (FSC) and its certification scheme was founded as a privately offered, voluntary scheme after the failure of international negotiations to control forestry practices leading to degradation (Auld et al. 2008). We should first note, thus, that the FSC certification arises from the failure and then rejection of a systemic approach to problem-solving. FSC certification was strategically promoted to the large retailers who act as intermediaries between producers and consumers. This means that researchers have little insight into why producers accept the rigorous and prescriptive standards, and this black box of uptake and compliance has become the focus of most research (Auld et al. 2008). Auld et al. (2008) raise the possibility that the effects of FSC certification may be limited if only “those producers that face minor compliance costs will opt in.” Thus, they evoke the Indolence Model as a null hypothesis. However, one of the main advantages of the FSC certification is supposed to be its audit system which is transparent and third-party accredited (Auld et al. 2008; Romero et al. 2017). Thus, studies of FSC certification tend to focus on how it works at the consumer end (using behavioural economics approaches) and whether it has the desired outcomes (using audits and assessments), rather than explaining why one would expect it to work (e.g. the power that can be leveraged by major retailers who control market access). The somewhat opaque assumption that rules and regulations provide power over others’ actions clearly fits the Normative Model, as does the creation of standards and modes of evaluation (audits, eco-labels, and price premiums). Thus, curiously, what might be read straightforwardly as a successful intervention in the distribution of power relations between actors (retailers and producers) has been reframed as a mysterious, poorly understood process that seems to have been caused by the rules and regulations that are used to monitor it. One might also wonder about the ways that this framing of certification as involving compliance with technical norms, but not retailers’ power, obscures questions about how certification schemes depend on neoliberal

global value chains, the models of production, and resource use that they put in place (e.g. Guthman 2007).

Protected areas

The IUCN defines a protected area as “a clearly defined geographical space, recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley 2008). In ecology, protected areas (PAs) are often modelled as islands. Extent and distribution of PAs is a key concern, since species and populations found outside protected areas are considered to be at risk (Rodrigues et al. 2004). Anthropogenic activities outside PAs are ideally kept at bay by strong borders, within which strict controls maintain an oasis of protective interventions (Bruner et al. 2001).

Early PAs, like hunting forests and game reserves before them, were run by elites and managed strictly for conservation with no other human uses. This ability to concentrate state resources on a single management aim has been argued to be a main benefit of PAs (Hayes 2006). Research suggests that “boundary demarcation, monitoring, and enforcement correlate with park effectiveness” (Hayes 2006; see Bruner et al. 2001). Peluso (1993) takes this point further, arguing that an assumption of the protected area model is that “..the nation-state should be able to control the behaviour of all users of all resources located within the state’s declared jurisdiction, whatever the origin of the state’s claim, whatever the nature of competition for those resources, and whatever the nature or origins of resistance to the state’s resource control.” Thus, PAs clearly fit the Uniformity Model: they create a large and long-term context of rules and regulations (e.g. no human activities inside the park) and they create unambiguous contexts for choice: inside the protected area individuals (should) choose to conserve nature, while outside they can make entirely different choices. What is obscured in this tacit working model, but which has been emphasised by Peluso (1993) and many others, is the political work and the power relations that permit this division of space and the creation of a hard boundary. However, state control is rarely absolute, and local people have often been able to resist and protest conservation measures in PAs through more or less overt forms of conflict (Peluso 1993; Brockington 2004; Di Giminiani and Fonck 2018). This outcome of initially untheorized, under-recognised power dynamics has led to a series of confused elaborations on protected area-related projects. We will now turn to those developments and how they challenged assumptions corresponding to the Uniformity Model.

Community conservation

Community conservation emerged as a means to reduce the social conflicts around PAs. These conflicts, researchers concluded, reduced the effectiveness of conservation interventions and opened conservation to criticisms of spreading injustice (Brockington 2004; Hayes 2006). Numerous organisations and researchers began to claim that PAs could not work without local support, a principle that came to be widely accepted (Berkes 2004; Brockington 2004). Brooks and Waylen (2012) clearly summarise the logic behind this position: “devolved decision-making...may be more responsive to local conditions, better understand local resource dynamics, and have incentives to harvest resources sustainably...[and] can increase the likelihood of securing participation and decrease the likelihood of failure because of cultural insensitivity.” Projects include interventions such as devolution of decision-making power to the local level, clear ecological targets and technical standards, and the avoidance of elite capture of social benefits (Ribot et al. 2010; Brooks and Waylen 2012). Interestingly, there does not seem to be much literature on why communities want community conservation projects. Apparently the benefits to biodiversity, natural resources, development, and gender equity are obvious to communities (e.g. Barrow and Murphree 2001), except when they are not and other strategies provide resources, development, and socio-political powers (Hackel 1999).

This new approach soon spread outside the boundaries of PAs, and took on many variations. According to Nelson and Agrawal (2008), “the premise underlying CBNRM [community-based natural resource management] reforms is that sustainable management is most likely where local users are able to manage and extract benefits from natural resources” or put differently, “through community-based conservation local people will benefit [economically] and take ownership of conservation, and thus will be more likely to support it” (Campbell and Vainio-Mattila 2003). More recently, the focus has shifted from community-based conservation (CBC)’s economic and development benefits or goals to the potential to build capacity for adaptive learning and local management (e.g. Evely et al. 2011; Brooks and Waylen 2012). In a review of various kinds of CBC in Africa, Galvin et al. (2018) describe CBC as taking many institutional forms, which have in common “the coexistence of people and nature”. In this one paper, CBC is variously defined as “an institution that simultaneously enhances human development—especially for people living directly with nature—and conserves biodiversity”, or “a suite of transformational institutional arrangements” with these goals, or as “a continuous

problem-solving process...”. Thus, CBC is simultaneously a world view, an institution, an institutional reform process, and a site-based learning process. CBC is, in essence, a total ontological project. Galvin et al. (2018) conclude that personal incentives and devolved community rights partly explain CBC success. These *results* identifying factors that explain CBC success map onto the Involvement Model because they point to contextual influences on decision-making and devolved processes. However, there is no sense that the totalizing ontology driving CBC design or implementation is based on this tacit working model, or any other one. In a similar review of community-based conservation in Latin America, Ruiz-Mallén et al. (2015) emphasise that CBC is conservation “by, for, and with the local community” which, though they describe it as a “seminal definition” (from Western and Wright 1994), is remarkably vague. Both Ruiz-Mallén et al. (2015) and Galvin et al. (2018) point to the conclusion that CBC makes no particular or precise claims about how it works or ought to work, and thus easily permeates all aspects of conservation and development.

Community conservation in relation to protected areas

How CBC is supposed to work, or works in practice, is rather unclear. CBC was originally designed to “fix” PAs. To understand what CBC is supposed to be doing, we might go back to ask about the way it relates to how PAs work or are expected to work.

In many cases, community conservation projects are set up, not on the initiative of the community (although this can happen), but as an attempt by the protected area or the state to resolve or avoid social conflicts (e.g. Hackel 1999; Infield and Namara 2001). Some studies of community conservation projects suggest that their main effect is to change the terms of the problem (e.g. Infield and Namara 2001). Whatever the new social and technical issues created by CBC approaches, does this reframing change the terms of the problem of PAs? In theory, no. Ecological outcomes of PA/CBC programmes might be seen as the result of the protected area which has now been water-proofed with CBC. CBC is just a diffuse and more complex kind of impermeable boundary for a PA: CBC makes a Uniformity Model intervention more effective. But when there is no boundary because there is no protected area, what CBC might be doing, other than simply reorganizing society, remains unclear.

CBC can look like an Involvement Model type of programme because it takes into account the local socio-ecological situation and works with local people to change it. Yet, in its complete agnosticism (at least *a priori*, before

outcome evaluation) of what the relevant contexts and factors to be changed are, one senses a tendency to under-theorise ‘the socio-economic situation’ as something that is unitary, homogenous, and spatialized. In other words, something like a protected area. Socio-economic situations are no more uniform contexts than communities are uniform populations (Titz et al. 2018). An under-theorization of the ‘socio-economic situation’ as unitary, homogenous, and spatialized might account for CBC projects that are implemented like a hybrid between the Uniformity Model and the Involvement Model, i.e. an attempt to put in place a new social organisation, via participative processes, in a particular territory. This hybrid tacit working model, I posit, is one way to understand the total ontology approach to CBC: the uniform context in which conservation regulations are imposed is no longer a particular delimited place, but everything. Thus, the new conservation rules aim to reorder not just socio-ecological relations inside a boundary, but all of society. Conservationists rely on the involvement of local people to figure out how to do this.

At the same time, however, we can find claims about why or how community conservation that alludes to the Persuasion Model works, but also, de facto, the Normative Model. It is often claimed that communities need to be persuaded to conserve nature by means of tangible economic benefits. At the same time, persuasion is often seen as an emergent *outcome*, not an integral process, of a CBC programme. Thus communities are not persuaded to take up CBC programmes in the way consumers are persuaded to buy certified products. These programmes are offered to communities in what essentially is an exercise of power—the power to redistribute power relations in a community (e.g. Brockington 2001; Agrawal 2009; Saito-Jensen et al. 2010; Brooks and Waylen 2012). This conceptual slippage between how people are thought to behave—whether they are driven by their values or making manipulable context-dependent choices—along with some confusion over what kinds of power PAs want to admit that they have—soft power, the kind of power conservationists may have over people who are free to make their own decisions, or state-backed coercive powers that limit that freedom—may account for the contentious nature of these projects and their ever-evolving goals. Of course, both of these kinds of behaviour and kinds of power may coexist, but an explicit theory of change clearly accounting for their coexistence is lacking.

To sum up this section, the existence of multiple models underlying CBC projects, including models in intermediate gradient spaces, suggests that conservationists have not always thought clearly about what they are doing or why when it comes to basic assumptions about human motivation, and that problems in practice have driven the development of new tacit theoretical positions.

Agri-environment programmes

Agri-environment programmes are a type of conservation programme aimed at farmers. In this paper, I will focus on the agri-environment programmes developed by the European Union through its Common Agricultural Policy (CAP). Agri-environment programmes are defined as “measures [that] provide payments to farmers who subscribe, on a voluntary basis, to environmental commitments to the preservation of the environment and maintaining the countryside” (European Commission, ec.europa.eu, accessed 2016). They are further described as payments “for the provision of environmental services” (ibid), thus making them a type of Pigouvian (governmental) Payment for Ecosystem Services (PES) programme (Schomers and Matzdorf 2013). The specific conservation measures, targets, and monetary compensations are set at the national level. For a reason that is rarely if ever made explicit, European farmers are thought to care mainly about individual cash payments and cost/benefit calculations, rather than, for example, cultural values, investments in social or human capital, technical training and capacity building, or participation in decision-making (emphasised in, for example, community conservation). Most studies of agri-environment scheme uptake have focused on the impact of factors thought to affect the evaluation of the monetary incentive (e.g. Morris 2004; Siebert et al. 2006; Herzon and Mikk 2007; Defrancesco et al. 2008; Ma et al. 2012; Schomers and Matzdorf 2013).

Thus one interpretation of agri-environment schemes is that they work according to a Persuasion Model, where farmers are free to do whatever they want, and monetary gain is understood as farmers’ highest, thus most motivating, value. This seems to be how most researchers make sense of how agri-environment schemes are set up. Interestingly, there is psychological evidence that attempting to persuade people to do things with monetary rewards is singularly unlikely to lead to self-motivation, and may weaken pre-existing non-monetary motivations (e.g. Deci et al. 1999). This is echoed in the literature on community conservation (Ruiz-Mallén et al. 2015). Why exactly are conservationists trying to persuade with money (rather than with another value); or why are they using money apparently to persuade rather than to flexibly adjust decision-making across varying contexts (i.e. an Involvement Model approach)? While, in fact, agri-environmental schemes take varied forms across years and nations or regions, almost no research attention is paid to how these variations in implementation might affect uptake.

If we look at the origins of agri-environment schemes in the EU, this emphasis on cash payments as the central motivating factor becomes clearer. Clark et al. (1997) argue that the core goal of the Common Agricultural Policy

(CAP) is to maintain a traditional rural landscape of smallholders and family farmers, which it primarily achieves through financial support to food production. Nevertheless, by the 1980s the CAP had resulted in increasing industrialization and intensification of agriculture in Europe, with clear negative impacts on rural nature (Hodge 2013). At the same time, it had produced a serious food surplus with negative economic implications (Buckwell 1997). Arguments for agri-environment measures fit into the discourse around CAP reform by emphasizing another kind of value or good produced by farmers: nature, the landscape, and traditional rural society (Clark et al. 1997). These values do not seem to have been communicated to farmers when the pre-existing policy of economic support was partially diverted to reduce production by protecting the environment (Buckwell 1997; Hodge 2013).

However, only about 20% of farms have currently adopted agri-environment schemes in Europe (Burton and Schwarz 2013), which has not reduced homogenization of the landscape or its impacts (e.g. Jongman 2002; Vellend et al. 2007; Ekroos et al. 2010). Reacting to this poor evaluation of agri-environment schemes, the current debate is whether it is more effective to pay farmers for specific practices, as is currently the case, or for biodiversity results regardless of how they are obtained, the so-called “payments-for-results” schemes (Gibbons et al. 2011; Hasund 2013). Burton and Schwarz (2013), in a review of current payment-for-results schemes; note that a key problem with current agri-environment schemes is that they do not change farmers’ values in a way that would lead to spontaneous motivations to adopt pro-conservation practices (see Burton et al. 2008; De Snoo et al. 2013), while payment-for-results, they argue, can do this by forcing farmers to learn from conservationists about how to get results. Payment-for-results agri-environment schemes thus work along the lines of the Involvement Model, since farmers are free to make their own decisions according to their farm context about how to achieve (or not) the required level of nature protection. At the same time, these authors expect that monetary rewards (if applied properly) can, or should, eventually translate into cultural changes and self-motivation, such that the programme is *actually* intended to transform itself into a Persuasion Model. As we saw with some literature on CBC, some authors assume that a properly functioning and successful project is the one that evolves into a self-sustaining cycle of value-based self-motivation to carry out pro-conservation behaviours.

The history of the policy development of agri-environment schemes in the EU suggests that policy makers had no particular working theory of why giving farmers money to adopt conservation practices should be an effective way to protect the environment. This comes surprisingly close to the null Regulatory Model, the view that people follow

rules and regulations simply because they exist. Simultaneously, a large literature has developed attempting to explain when and where the programme works, despite there being no particular reason *why* it should work. The history of EU agri-environment schemes also makes it fairly clear that the degradation of the rural environment is a systemic problem, and that the CAP reform was not actually an attempt at systemic reform.

Other PES programmes

Other PES programmes have histories different from the EU agri-environment schemes. CIFOR (Centre for International Forestry Research) defines a PES programme as “(1) a voluntary transaction in which (2) a well defined environmental service (or a land use likely to secure that service) (3) is “bought” by a (minimum of one) buyer (4) from a (minimum of one) provider (5) if and only if the provider continuously secures the provision of the service (conditionality)” (Wunder 2007). PES programmes are essentially an alternative answer to the questions about PAs that led to community conservation (Lele et al. 2010). PES “seeks to marry the efficiency of the market with conservation goals” (Lele et al. 2010). Enterprise-based community conservation projects, a pragmatic variety of PES programme, like other community conservation programmes “assume that an increase in communities’ economic returns from the use of a natural resource will create an incentive to protect the resource” (Lele et al. 2010). Some PES scheme supporters, however, criticise enterprise-based community conservation for decoupling income, which comes from selling the resource, from the real goal of conservation, which is producing/protecting biodiversity (Lele et al. 2010). Enterprise-based mechanisms are thus seen as inefficient and poor value-for-money, compared to a hypothetical PES mechanism in which people directly purchase the ecosystem services they want or need on the market (Wunder 2007; Lele et al. 2010). In reality, however, there is no market for biodiversity conservation. Wunder (2007) argues that such a market should be expected to emerge: “As wildlands and natural habitats shrink, environmental services previously provided for free are becoming increasingly threatened. This emerging scarcity makes them potentially tradable [through]... direct contractual quid pro quo payments...” PES are moreover seen as “a mechanism to translate external, non-market values of the environment into real financial incentives” (Engel et al. 2008). The stunning cynicism of the idea that there are no motivating values except market values points to a rejection of the Persuasion Model. The idea that nature shrinks up until its exploitation and can be directed by a market suggests that these researchers believe that prior to scarcity, behaviour is

unpredictable and uncoordinated. This sounds like a more energetic version of the Indolence Model with its basis in hypocrisy and randomness. There are, of course, major practical obstacles to financializing individual ecosystem services, which PES advocates believe can be overcome with technical improvements (e.g. Farley et al. 2010; Börner et al. 2017; Chan et al. 2017).

The theory about how PES should work sounds like a wild journey down the narrow rabbit hole of *Homo oeconomicus*. To an anthropologist of commodification and value, it is likely to read as dangerously naïve. While economics seems to be the only social science really being taken seriously at a theoretical level by conservationists, the theory is, arguably, being extended well beyond its range. Indeed, in practice, PES programmes are often not in accordance with theory: many are not voluntary, well-defined, or conditional (Wunder 2007), and they are mainly paid for by NGOs and government subsidies rather than market transactions (Lele et al. 2010). Existing PES programmes, like enterprise-based community conservation, also work through indirect payments: “...the link between forest ecosystem services and PES is largely indirect. The country-wide PES scheme rests on the assumption that forest land use, as prescribed by PES modalities... provides some or all of the services mentioned in the law: watershed services, carbon services, scenic beauty, and biodiversity-related services” (Daniels et al. 2010). While PES projects do not generally seek to change power relations within communities or to increase social equity, they may be seen as redressing global inequities: “the basic idea behind these mechanisms is that the beneficiaries of service provision compensate the providers” (Gómez-Baggethun et al. 2010; see also Lele et al. 2010).

PES programmes can be identified as, in theory, working according to involvement Model. Individuals can act freely and decide whether or not to enter a market transaction to buy and sell biodiversity protection and other ecosystem services. The biodiversity market acts as the context affecting choices about how to behave by setting prices. In practice, though PES programmes have not been able to financialize biodiversity protection in a market context, they continue to work according to a Involvement Model. The relevant context in which involvement is enacted is no longer a market: the programme, with its rules about what practices should be carried out, becomes the context for decisions about action. It is worth noting that this shifts the meaning of the payment from buying a service to rewarding loyalty. If a company offers me a \$50 coupon or air-miles as a reward for using its services, we do not consider this to represent the company paying me for services as a customer or offering to buy my future consumptive activity. The reward is a type of gift, and hence not a market transaction. Equally, when PES

payments are not actually via a market, they take on the quality of a gift that engages the future interactions—the loyalty or social debt—of the receiver to the PES programme and the context of resource use rules that it creates. Thus, it is easier to understand how one could design PES programmes that are neither voluntary nor conditional on results. If, in fact, the payment is not the key part of the context that affects behaviour (as a market price), but is a gift, then whether or not participants actively and freely choose to qualify for the payment becomes irrelevant. A gift can be given whether the receiver asks for it or not. Where PES programmes are not voluntary, they fit the Uniformity Model: some implicit or explicit cost to non-participation is imposed, resulting in a stable and defined context of rule following. Again, we see a kind of slippage regarding what kinds of power conservationists want to claim they have, and how they want to claim to conceptualize the actors they deal with—as autonomous agents making informed choices, or as subjects of arbitrary powers to demarcate and control social spaces. Even when considering PES schemes that are implemented as Uniformity Model programmes, conservationists continue to discuss the technical modifications required to make them revert to the voluntary pure market system in whose image they were created.

CONCLUSION

Asking why conservation interventions are supposed to work—what is their “theory of change”—proves to be somewhat surprising. While some interventions have relatively clearly articulated working models, others do not. Moreover, examining these different possible tacit working models together raises the question of why anyone would use one working model rather than another. Models are likely to be best performing when fitted to particular contexts, if only we could recognise and characterise both the models and the contexts. Attention to the features of each tacit working model, as well as how they fit together and blend into one another, may point to ways to assess the fit of different tacit working models to particular contexts.

Some working models appear to be less favoured, since those working with them seem to expect or wish for them to lead to other, presumably better performing, models. For conservation programmes working with an Involvement Model, there is a tendency to believe that participants will eventually become self-motivated through a shift in values (Persuasion Model), even though there is rarely any evidence of this. This may be understood as a way to imagine how it is possible, if context determines behaviour, to expand pro-conservation actions without expanding the physical space controlled by conservation programmes.

Only if all people everywhere come to value nature, can all of nature be protected. Of course, some authors propose dramatically expanding the space controlled by conservation (e.g. Wilson 2016), which is the other solution suggested by posing the problem this way.

A similar shift seems to occur between the Involvement Model and the Uniformity Model, as we saw for both the CBC/PA case study, and the ‘other PES’ schemes. In the first case, I suggest that an under-theorization of the complex heterogeneity of socio-ecological systems as choice contexts leads to a treatment of them as homogeneous normatively regulated spaces. In the second case, I argue that the non-feasibility of implementing a pure market version of the Involvement Model leads to a pragmatic work-around that takes on the qualities of a Uniformity Model. One possible explanation for this dynamic is that controlling the norms inside large areas of land is one of the oldest conservation tools, and conservationists gravitate towards it, despite a difficult history, because of its familiarity.

At the same time, the reframing of an entire socio-ecological system as the uniform area of normativity in the CBC/PA case study can be seen as a way to imagine how local-scale Involvement Model projects can scale up to have a greater impact on nature. As they scale up, they look more like Normative Models which are applicable everywhere the norm can be applied. However, Normative Models usually involve a thematic set of norms, and not the transformation of society as a whole: this is a kind of uber-Normative Model. But if everyone, everywhere, all the time, is using forms of evaluation that induce pro-conservation behaviour, this would seem to closely resemble the Persuasion Model (assuming that, indeed, the socially acceptable values enshrined in the Normative Model map closely onto the personal values of a Persuasion Model). As conservation dreams of transforming all of society and all societies, for all time, it circles back onto value-driven personal self-motivation.

Alternatively, much of this shifting from one tacit working model to the next may occur when programmes that arise to fix social or political problems are shoehorned into serving biodiversity goals. This shifting appears to result from academics and practitioners searching for a way to make sense of and improve these programmes. We can see this pattern both in the agri-environment schemes and in the CBC and PES programmes. In an ideal world, such policies would be made based on models of human behaviour in conservation contexts. Failing this, it would seem that effort could be saved by recognising that these programmes primarily serve other functions and should not be expected to deliver nature conservation. This might free researchers and practitioners to develop alternatives.

When considering the choice of tacit working models, I speculate that bundling of conservation approaches might be efficient (e.g. Hazzah et al. 2014). Behavioural and governance/management processes are socially and psychologically interrelated. For example, rather than hoping that an Involvement Model programme will spontaneously turn into a Persuasion Model situation, both models could be implemented at once, and could thus cover the full range of psychological theories of human behaviour. A more explicit reckoning of who has the power to decide—rule-making powers, rule enforcement powers, discretionary powers—and a careful distribution of these powers across forest-level and higher levels of governance might provide the flexibility to respond to different kinds of problems differently, moving between the Uniformity and Involvement Models. This is not to say that randomly implementing all tacit working models simultaneously is the answer, but rather that a careful articulation of how each of the models might be implemented so as to complement one another could cover a wide range of human motivational processes.

Finally, all of these points also point to two key weaknesses or failures of this set of tacit working models. The first is the systematic failure of conservationists to take into account power in social relations, or politics more generally. Conservation’s blind spot for the elephant in the room regularly forces it to come up with all kinds of theoretical vacillating and sleight of hand, while it tries to step around the thing it refuses to see. The insistence that diverse projects will eventually turn into Persuasion Model scenarios is an example of this desire to depoliticize theorization of projects. This desire is expressed through the implicit claim that the exercise of power leads inevitably to the cessation of the exercise of power, as its effects are spontaneously and voluntarily internalised. Conservationists themselves, and not just social scientists who study conservation (e.g. Paulson et al. 2003; Adams and Hutton 2007; Rocheleau 2008; Vaccaro et al. 2013; Bixler et al. 2015; Svarstad et al. 2018), would do well to develop explicit theories about the ways that they reorganize power relations and control individual decisions and social spaces. Adequate theories of change will be explicit about who has what kind of power over whom, and how that affects motivation and behaviour.

A second weakness of this schema of models is that the entire set of models focuses on individual behaviour rather than actually focusing on systemic factors. That is, the two systemic factors in fact consider the reaction of individuals to systemic conditions. This may be seen as validating a common attitude that scapegoats individuals rather than doing the hard work of transforming institutions and systems. However, a consideration of pre-existing contextual factors and their interaction with projects can help to

elucidate the role of systemic factors, and the limits of individual agency. For example, imagine a serious comparison of the merits of the Normative Model versus the Uniformity Model versus the Persuasion Model in designing a programme to affect e.g. the choice by farmers between sustainable and harmful farming practices. One might ask whether the regime created by multinational corporations setting incentives, structural costs, and prices for particular production methods limits the ability of farmers to be agentive fully autonomous decision-makers. One might further ask whether farmers' decisions occur within a delimited contextual regime that farmers can choose to leave, or whether it effectively impinges on evaluation universally across contexts. To what choice contexts do the farmers in question have access, and at what cost? That is, one should ask how existing conditions currently affect behaviour and motivation, and how this may interact with proposed projects. One may well realise, through this exercise, that where farmers have very little autonomy to choose otherwise or to escape the forced choice to farm unsustainably, the only project that can make a difference is a project that changes the system, i.e. the large-scale pre-existing political and economic factors constraining the power to choose a context, comply or not with a norm, or act or not on a value. The schema of tacit working models could demonstrate the limits of models that do not include systemic reform or transformation, and thus may help point the way towards a new set of working models and conservation theories that focus on systems-level issues.

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