TOWARDS A MULTIDIMENSIONAL FRAMEWORK TO ASSESS THE SOCIAL AND ECOLOGICAL FIT OF INSTITUTIONAL ARRANGEMENTS FOR PRIVATE PROTECTED AREAS

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ABSTRACT

Private protected areas (PPAs) are considered a promising governance conservation tool to complement public-run protected areas. Despite their promotion in national and international environmental agendas and increased adoption worldwide, there has been little research on the overarching implications of their implementation. This paper introduces a framework to explore the suitability of the institutional arrangements of PPAs to enhance nature conservation whilst meeting societal needs. To do so, we draw on the literature on socio-ecological systems incorporating insights from critical perspectives on agency and power. The resulting conceptual approach pinpoints the interplays between the ecological and social systems, providing a systemic perspective which underpins an interdisciplinary diagnostic framework. This draws on the concepts of social and ecological fit and integrates contributions from the literature on good governance; fine-tuning good governance principles to suit PPAs. We outline a multi-tiered tool for assessing PPAs. This is a first step to comprehensively addressing the match of PPAs' institutional models with the ecological and social dimensions of complex systems.

Key words: private protected areas, nature conservation, social fit, ecological fit, socio-ecological system

INTRODUCTION

Protected areas are central strategies in global endeavours aiming to conserve the biodiversity of our planet. In order to strengthen and extend protected area networks, nature conservation actions carried out by private landowners are increasingly common and actively promoted by international organisations (IUCN, 2016). Indeed, Private Protected Areas (PPAs), defined as sites under voluntary long-term conservation, owned and managed by private actors, are considered a promising complement to public-run protected areas (Kamal et al., 2014). PPAs are expected to reduce the burden on state actors, mobilise new sectors of society (Holmes, 2012) and leverage private actors' resources. Their voluntary nature is expected to reduce conservation-induced displacements and restrictions on the use of natural resources suffered by local communities in public protected sites (Langholz & Lassoie, 2001).

With their origins in hunting reserves, PPAs have proliferated rapidly over recent decades (Bingham et al., 2017) due to connected factors such as the growing acceptance of the neoliberal conservation narrative (Büscher & Whande, 2012), the rise of conservation NGOs and incentives resulting from the statutory recognition of PPAs (ELI, 2003). Nowadays, PPAs are mostly found in the United States, Australia, Canada, some Latin American countries and South Africa (Stolton et al., 2014), in a variety of institutional arrangements based on private legal tools or public law[1] (ELI, 2003).

The Faia Brava reserve, the first Private Protected Area in Portugal © Giulia Iannuzzi

The increase in PPAs worldwide has sparked multiple studies focusing, for example, on 'public versus private' governance, concerns about state rollback (Büscher & Whande, 2007; Drescher & Brenner, 2018) and landowners' motivations (Selinske et al., 2015). A recent study has assessed the conservation impacts of PPAs, analysing land cover changes (Nolte et al., 2019). Nevertheless, little attention has been paid to the combination of social and ecological implications of the implementation of PPAs (Slovak, 2017).

This paper proposes a framework to explore the suitability of PPAs' institutional settings to enhance nature conservation whilst meeting societal needs. We define institutional settings (hereinafter also referred to as institutional arrangements or models) as the formal institutions that structure social interactions (see North, 1991) and influence human–nature relationships. In the case of PPAs, these correspond to the rules established in law (e.g. law regulating the statutory recognition of PPAs), including the property rights regime, as well as the specific norms defined in contracts (e.g. contracts between public actors and the private actor managing the PPA).

Conceptually, we build on the literature on Socio-Ecological Systems (SES), incorporating insights from critical perspectives in social sciences regarding exploration into human agency and the understanding of power dynamics, to pinpoint the interplays between ecological and social systems.

This approach informs the interdisciplinary diagnostic framework in the second part of the paper, which draws on the concepts of social and ecological institutional fit, 'translated' into assessment criteria based on good governance principles and adapted for PPAs.

Our goal is to propose multiple assessment criteria to provide insights into the suitability of institutional arrangements for PPAs, informed by ecological and social dimensions and SES dynamics, in order to inform the design of more effective and fit-for-purpose institutions. Good governance principles are here used

as normative guidance for addressing the alignment of institutions with the social context, building on a growing body of literature (Turner et al., 2018; Turner et al., 2014). Governance, as it is understood here, is about the interactions of actors, power, processes and the way decisions are made and implemented (Graham et al., 2003), in both formal and informal institutions. Formal institutional arrangements influence governance quality, which is both a goal in its own right and crucial for successful nature conservation (Eklund & Cabeza, 2017).

Acknowledging the diversity of institutional models for PPAs, we pay special attention to those whose establishment and/or management involve actions by public actors (e.g. in monitoring actions, providing incentives), that is, PPAs resembling public–private partnerships.

SOCIO-ECOLOGICAL SYSTEMS FRAMEWORKS

Socio-Ecological Systems (SESs) are complex systems that are constantly changing due to interactions between actors, institutions and ecological dynamics taking place across temporal and spatial scales and shaped by social-ecological settings (Berkes & Folke, 1998; Ostrom, 2009). Driven by the urgency to address complex environmental issues, several interdisciplinary research frameworks have been proposed in recent decades. They are distinguished by their theoretical backgrounds, the scales they address and the distinct conceptualisations of social and ecological sub-systems (Binder et al., 2013). Notwithstanding, there are conceptual commonalities:

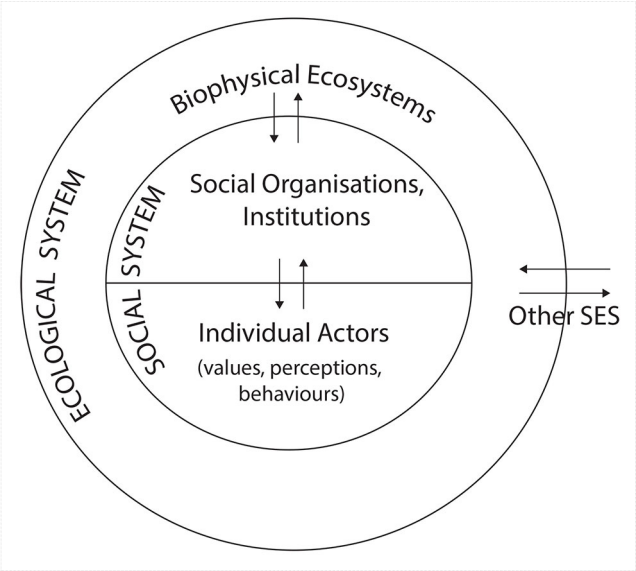

Figure 1. Socio-ecological system: a conceptual framework

a. SESs are coupled systems with ecological and social components that reciprocally interact. Each component encompasses numerous dimensions on different scales (e.g. temporal, spatial and jurisdictional).

b. SESs are open systems, embedded in broader socioeconomic, political and ecological settings. Each SES interacts with, and is nested in, other SESs.

c. SESs are complex and dynamic systems. They have broader and narrower scale interactions and the macro-level pattern is not inferred from the behaviour of their components. In particular, numerous system dynamics are characterised by non-linearity that hinders the ability to predict how SESs respond to change.

Political ecologists, anthropologists and other social scientists have highlighted the pitfalls of some SES frameworks, emphasising the importance of a critical understanding. In particular, they argue that a strong emphasis on the influence of the environment on human behaviour and livelihoods may overshadow the role of social institutions, cultural context and power (Fabinyi et al., 2014; Singleton, 2017). Another critique focuses on the epistemological drawback of implying that governance arrangements are rationally designed in order to solve ecological problems. Studies have revealed that many traditional practices have emerged not from conservation goals, but as a consequence of socio-political and cultural conditions. To exemplify, sacred forests, now labelled as indigenous protected areas, were established as places of cultural memory (Chouin, 2002). Furthermore, macro-level perspectives usually downplay differences of interests, power and expectations among social groups and single individuals (Fabinyi et al., 2014). A more refined analysis incorporating power conceptions (e.g. discursive and institutional forms of power) is expected to advance knowledge on the evolution of SESs, disentangling dynamics and contradictions (Coulthard, 2012; Clement, 2013).

Examining SESs from a critical perspective standpoint, we introduce our conceptual framework (Figure 1). It embraces the human-in-nature perspective, conceptualising human systems as an integral part of the biophysical world. We do not mean to give a full representation of the SES's function, rather an illustration of the main interactions among and within its components.

The social system is understood as multi-scale patterns of interactions between actors and organisations

influenced by issues of power (Galaz et al., 2008). The agency of individuals is acknowledged, in complex coevolution with social structures. That is, human agency and social structures are considered mutually constitutive.
In the ecological (sub)system, changes in one component could potentially impact the SES at a higher level. However, the interactions through which this subsystem evolves should be viewed differently in comparison to social systems, in which humans can exercise intentional conscious choice (Farrell, 2007).

Finally, the link between the social and the ecological subsystems is characterised by mutual feedback. All the non-human environment has to some degree been shaped by human activity, however it does not remain passive; it also shapes human actions and relations in a feedback loop. A growing body of studies examines the link between nature conservation and socio-economic development exploring, for example, the relationship between human displacements and land use changes (Miller et al., 2012), and the impact of conservation initiatives on the behaviour of actors (Hurst et al., 2013).

DESIGNING FIT-FOR-PURPOSE INSTITUTIONS TOWARDS A MULTI-CRITERIA FRAMEWORK TO ASSESS THE INSTITUTIONAL ARRANGEMENTS OF PPAS

Unpacking the complexity of institutional fit

The mainstreaming of SES approaches in conservation policies and practices is gaining momentum thanks to the growing literature on institutional fit – the match of institutions (defined as formal and informal rules[2]) with the socio-ecological problems they are meant to address, across temporal and spatial scales and institutional levels (Folke et al., 2007). Greater fit is expected to enhance institutional performance (Epstein et al., 2015). This concept is, thus, of central importance for exploring to what extent nature conservation institutions are effective, that is to say, fit-for-purpose (Clement et al., 2016).

Institutional fit is referred to and used with multiple interpretations. Epstein et al. (2015) distinguish three general types of fit in the environmental governance literature: ecological fit, social fit and socio-ecological fit (Table 1).

Table 1. Types of institutional fit

Type of fit	Dimensions	Evaluation of institutional match	Examples
Ecological fit	Spatial dimension	Alignment between the territorial scope of the institution and the geographical extent of the ecological issue	Fishing regulation beyond national boundaries
	Temporal dimension	Match of the institution with the progress of the ecological process/issue	Slow regulatory responses as temporal misfit
	Functional dimension	Management considering the linkages among the constituents of ecological systems	Practices for synchronous recovery of predator and prey
Social fit	Institutional acceptance	Social acceptability of rulemaking arrangements given people's expectations and psychological needs	Inclusive decision-making process that reinforces a sense of procedural justice enhancing social acceptability
	Interplay with values and social customs	Alignment of the institution with existing norms and values	Institutions for wildlife management able to support local social practices
	Interaction with scales of social organisation	Horizontal and vertical coordination of institutions across space and levels of social organisations	Cross-scale interplays of institutions for coordination and knowledge sharing
Socio-ecological fit	Institutions designed for coupled social and ecological systems	Match of institutional design with social and ecological circumstances in local contexts, associated with a desirable outcome	Higher performance of third-party monitoring of forest commons in intermediate-sized groups

Ecological fit is concerned with the alignment of the institution with the spatial, temporal and functional characteristics of ecosystem issues. In the polycentric and multilevel governance literature, social fit has largely been discussed in the context of governance failures.

Socio-ecological system fit proceeds from the acknowledgement that neither ecological fit nor social fit alone is sufficient to give us a comprehensive account of institutional performance as they each focus on just one component of a complex system. SES fit tackles more overarching questions: how can institutions be designed so that humans and nature can successfully coexist? How can we ensure an emphasis on the dynamic interplays of the components of SESs? To address these questions, researchers have explored how contextual attributes affect institutional performance. Hence, empirical studies have focused on combining data on the social and ecological outcomes of an institution, to understand under what conditions it is able to generate a desirable performance (Epstein et al., 2015). The ultimate aim is to properly inform the design of institutional arrangements for the unique combination of circumstances in local contexts.

From a critical standpoint, examining the ecological or social domain (or a single part of either) in isolation is insufficient and misleading. Likewise, the inclination to disentangle variables that interact at different scales in SESs and isolate causal relationships, makes SESs' fit an "intractable analytical problem" (Epstein et al., 2015: 37). Finally, defining, from a holistic socio-ecological standpoint, a common overriding goal (e.g. the sustainable use of resources; the system's resilience) may come at the expense of other criteria within nature conservation policies. In this case, the SES fit approach may fall short of addressing power issues.

We propose to reconcile ecological, social and socio-ecological system fit, combining their potentialities and attempting to avoid their pitfalls. To tackle the above-mentioned issues, we combined the three dimensions within the ecological fit approach (i. ecological, ii. temporal and iii. functional) with the three dimensions of social fit (i. institutional acceptance, ii. interplays with values and social customs and iii. match with scales of social organisation). Our aim is to integrate the evaluation of both the ecological and social fit of PPAs' institutional arrangements, without losing the holistic perspective given by the systemic conceptual framework of SESs presented above (Figure 2).

Additionally, based on the literature on good governance principles for protected areas, the six dimensions are 'translated' into assessment criteria adapted for the features of PPAs.

Good governance principles as measures of social fit

In the field of nature conservation policies, the shift from hierarchical to alternative approaches seeking the involvement of the private sector, local authorities and local communities has given rise to a debate on the suitability of new governance models.

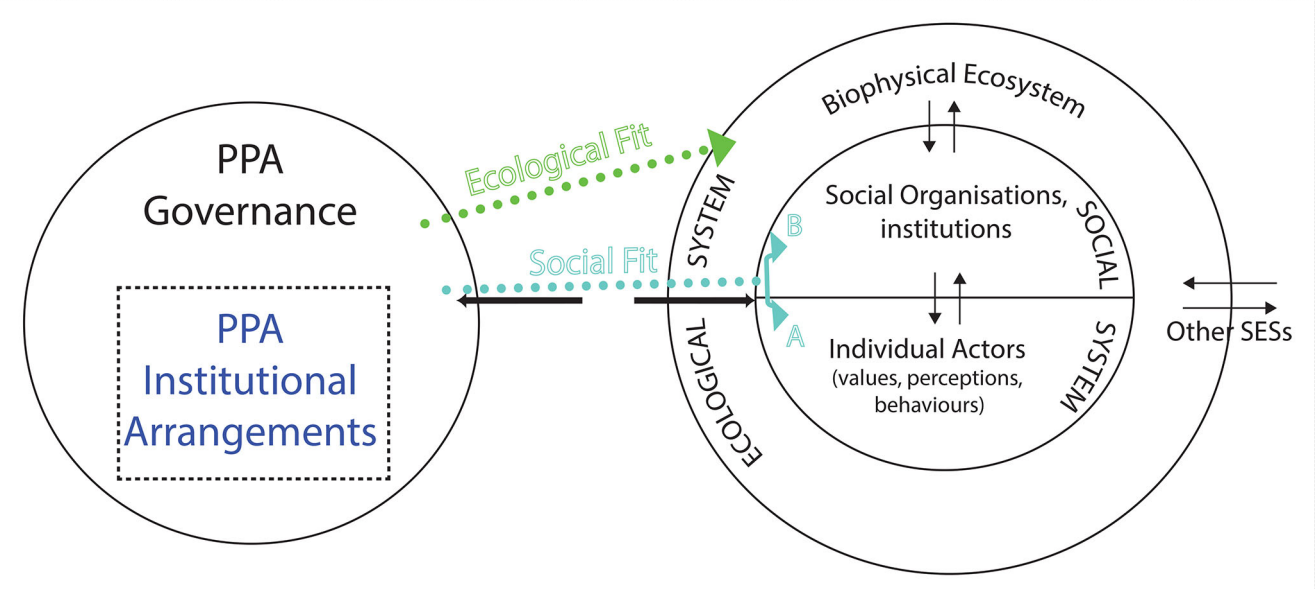

Figure 2. The assessment of ecological and social fit of PPAs

As briefly referred to above, we understand governance as a set of processes, resources, institutions and actors that determine how decisions are made and implemented (Graham et al., 2003); thus, encompassing informal rules and formal institutional arrangements. Whereas, in its prescriptive connotation, governance, specifically 'good governance', is about securing the collective interest, since it represents the embodiment of democratic and participatory traditions, grounded in human rights principles.

In particular, Graham et al. (2003) suggested a set of good governance principles based on those expressed by the UNDP (1997): (i) legitimacy and voice, (ii) direction, (iii) performance, (iv) accountability and (v) fairness. Conceptual and evaluation frameworks, based on minor variations of these principles, to assess the quality of the governance of protected areas have been successively proposed (Table 2).

While management effectiveness evaluation is a well-established practice, the assessment of governance quality is comparatively recent and does not yet offer a robust body of knowledge for the peculiarities of PPAs. We seek to fill this gap. Bridging the literature on good governance principles for protected areas with the literature on PPAs, we tailor each principle to the characteristics of PPAs, particularly those resembling public–private partnerships (involving state actions).
To outline good governance principles, their multiple facets and connections, we draw on Lockwood (2010), whose innovative work in this field first adopted 'connectivity' and 'resilience' and removed 'performance' as key governance principles[3].

Legitimacy refers to the acceptance of the governing authority exercised by a public or private actor and the perceptions of the integrity and responsibility with which it exerts power (Graham et al., 2003; Lockwood, 2010). We must however distinguish between input and output legitimacy.

Input legitimacy is conferred by democratic mandate and the processes through which institutions and governing actors are legitimised. For PPAs, land ownership and resources rights are generally legitimised through their recognition under national or sub-national law. However, customary laws and practices are still relevant in countries where legal recognition of tenure rights is not in place (Stolton et al., 2014). The legitimacy of PPAs' institutional settings, as public–private partnerships, is thus usually conferred by legal tools, such as contracts and protocols (ELI, 2003).

Output legitimacy reflects effectiveness and responsiveness; thus, it deals with problem-solving logics. Constructivist scholars highlight the relevance of the communicative ability of governing actors to build consensus (Schmidt, 2013). The output legitimacy of PPAs relates to institutional outputs and the capacity of the area manager to earn community support through performance success (e.g. the fulfilment of conservation objectives).

Finally, throughput legitimacy mirrors the inclusiveness of governance processes, and other procedural principles presented below. Participatory processes and communication between managers of protected areas and local communities have been found to enhance the perceived legitimacy of protected areas (Stern, 2008).

Table 2. Good governance principles for protected areas

Graham et al. (2003)	Abrams et al. (2003)	Hannah (2006)	Lockwood (2010)
Legitimacy and voice	Legitimacy and voice	Legitimacy	Legitimacy
Direction	Direction	Direction	Transparency
Performance	Performance	Performance	Inclusiveness
Accountability	Accountability	Accountability	Accountability
Fairness	Fairness	Fairness	Fairness
			Connectivity
			Resilience

Transparency refers to i) the availability of relevant and accurate information and its accessibility; ii) the visibility and clarity of policymaking processes. It is increasingly recommended that policymaking follows a transparent process grounded in citizens' and stakeholders' right to know about matters that affect them (Lockwood, 2010). Along with information on the actors and the decision-making process, the rationale underpinning a specific course of action and the resulting choices made should be readily available and easily understandable (Graham et al., 2003; Lockwood, 2010).

For PPAs, transparency means the accessibility of relevant information on the institutional settings that define the rights and responsibilities of public and private actors. Likewise, data reporting is also likely to motivate landowners to participate in conservation activities (Clements et al., 2018). The accessibility of performance assessment and monitoring (as in the Finnish Metso Programme[4]) is critical for evaluating whether PPAs continue to fulfil their criteria defined by law as tools for nature conservation. However, it is necessary to strike a balance between burdensome reporting requirements and transparency on PPAs' performance so as not to risk undermining their outcomes (Hannah, 2006). Similarly, transparency on data reporting may raise concerns regarding the risk of poaching or the location of areas with high natural values, making them attractive for property development (Bingham et al., 2017; Clements et al., 2018).

Accountability encompasses the i) clear and agreed allocation of roles and responsibilities among governing entities; ii) the answerability of governing bodies to constituencies (downward accountability) and to higher governance bodies (upward accountability).
People affected by protected areas should know to whom they can report their concerns to resolve issues related to protected areas' establishment and management (Zafra-Calvo et al., 2017). A clear assignment of responsibilities is paramount, as constituents have the right to question, and express approval or disapproval of processes, actions and inactions.

In officially recognised PPAs, a clear definition of roles and responsibilities among landowners, managers and state/public actors as parties of the public–private partnership is considered desirable. Legal contracts and administrative instruments convey accountability especially when landowners enjoy tax benefits (Hannah, 2006). Downward accountability in PPAs is multi-layered, as it concerns both the accountability of NGOs (if owner and/or manager) to their members, and that of public actors to their citizens (Lockwood, 2010).

Inclusiveness refers to the opportunities that actors have to participate and influence decision making. Inclusive public participation is equally about democratising and legitimising the decision-making process and improving its quality and effectiveness by incorporating different views (Stoll-Kleemann, 2010).

According to Silva et al. (2015), participation should occur from the early stages, to avoid a mere validation of decisions, and should promote the engagement of marginalised actors who usually bear the costs of conservation. Inclusiveness can be effectively achieved through diverse formal processes and informal interactions (Armitage et al., 2012).

For PPAs, inclusive governance is necessary to address concerns and resistance from local communities related to conservation grabbing (Ladle et al., 2014), that is the transfer of control over land and resources from local to outside actors for conservation purposes (Holmes, 2014).

To illustrate, a process promoting consultation between the public entity responsible for designating PPAs and the local authorities where the requested PPA is located, as provided by the Portuguese legislations (Iannuzzi et al., 2019), may help to enhance inclusiveness.

Fairness concerns i) the equitable distribution of costs and benefits; ii) the recognition of stakeholders' cultural values, views and identities; iii) the recognition of the intrinsic value of nature. Different criteria for distribution can be applied. For example, the egalitarian criterion requires costs and benefits to be shared equally among stakeholders. Costs and benefits can also be distributed according to needs, privileging the most vulnerable, according to the costs borne or to the efforts made to attain conservation goals (Pascual et al., 2010).

The concept of fairness is dynamically and contextually constructed (Martin et al., 2016). This requires recognition for individual and communitarian notions of social equity and fair compensation (Schokkaert & Devooght, 2003). It is also crucial to acknowledge that issues of unfair resource distribution and material harm are closely linked to questions of cultural misrecognition; these two concerns should be properly addressed in an integrated way (Fraser, 2000; Martin et al., 2016). Consequently, criteria to evaluate the fairness of PPAs deal with the perceptions of winners and losers

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and consider both aspects: economic distribution with social and cultural recognition.

In PPAs, land use and access to resources is not controlled from above; the landowner decides to apply restrictions and may voluntarily implement actions for conservation. This is expected to avoid issues related to social justice associated with exclusionary top-down approaches. Nevertheless, the existence of funding or economic incentives for the promotion of PPAs may raise issues of distributional fairness. Moreover, conservation grabbing can be socially harmful once it triggers tensions and local conflicts due to the benefits reaped by outsiders or powerful elites (Fairhead et al., 2012; Holmes, 2014). Conservation may also be a driver for the privatisation of publicly owned resources or common lands and shared resources. It may also cause the consensual yet not fully voluntary sale of land due to economic necessity (Edelman et al., 2013 *apud* Holmes, 2014).

Following the adoption of Aichi target 11 by the Convention on Biological Diversity, which promotes the objective of equitable management for protected areas, a three-dimensional definition of equity has been widely accepted. It encompasses i) procedural equity concerned with how decisions are made, ii) recognition and consideration of social and cultural diversity and of stakeholders' views, and iii) the distributional aspect (Zafra-Calvo et al., 2017). Thus, a parallel can be easily drawn: while the first dimension is linked with the procedural aspects of legitimacy, accountability, transparency and inclusiveness, the second and the third are included in the fairness principle of the proposed framework.

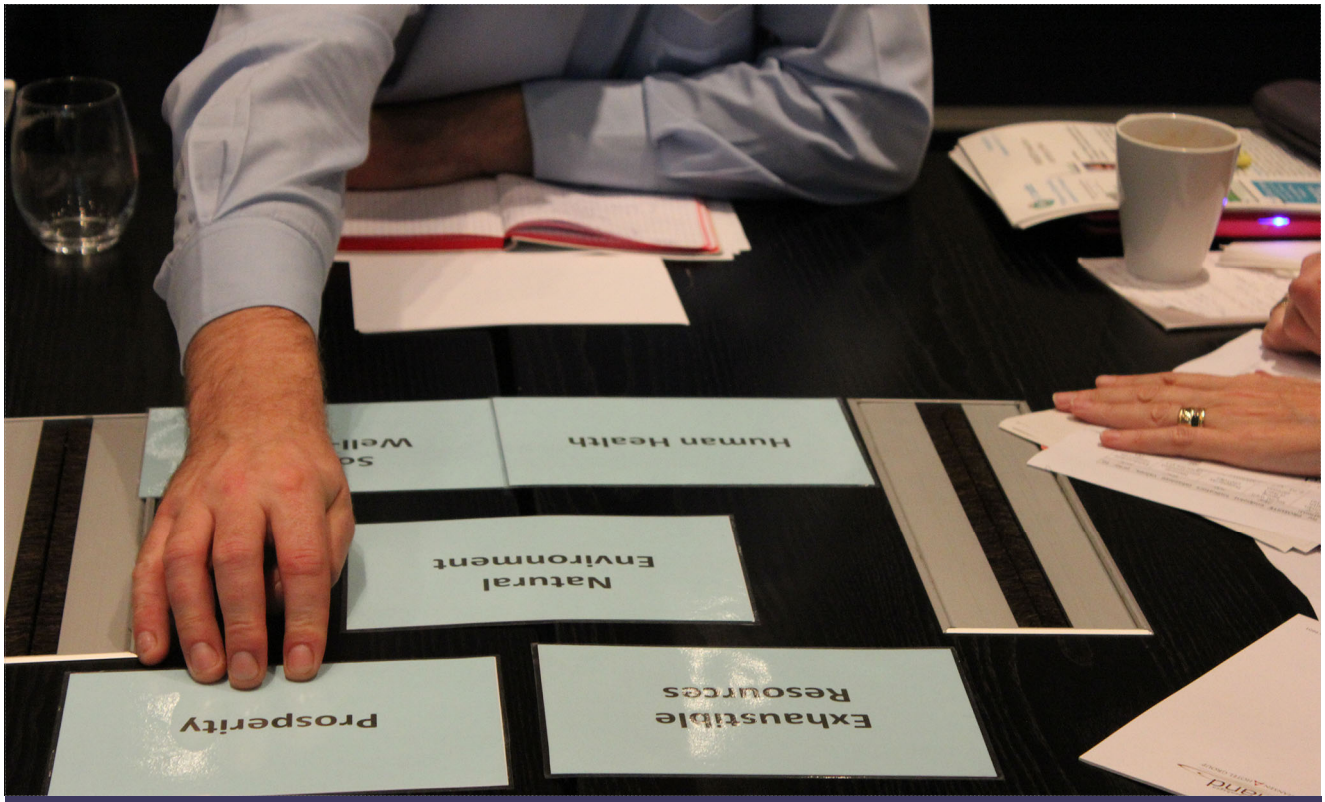
Connectivity encompasses i) connections and coordination between and across all institutional levels, ii) the combination of policy instruments for nature conservation and other public policies (e.g. agriculture and tourism). SESs and landscape approaches to conservation acknowledge the need for connectivity between actors to increase information sharing, trust building and to address shared problems (Brondizio et al., 2009). Indeed, it is widely accepted that each protected area, public-led or private, should not be managed in isolation. Networks of protected sites and transboundary protected areas are examples of cooperation efforts. However, the homogenisation of norms, knowledge and preferences that characterises highly connected contexts, can also be detrimental, e.g. leading to the reduction of actors' explorative ability and adaptive strategies (Bodin & Norberg, 2005). Additionally, the need to design a portfolio of conservation policy options that overcome sectoral approaches is increasingly recognised (see Doremus, 2003).

Consequently, this criterion can be assessed by evaluating both i) the effective inclusion of PPAs in a nature conservation policy portfolio in conjunction with other policy instruments (e.g. inclusion in national and/or regional strategies) and ii) the coordination of PPAs with other institutions existing in the same area (e.g. spatial plans for the protection of cultural heritage).

Resilience refers to the capacity of a governance system to cope with changes. It is strongly associated with the concept of adaptive governance in resilience scholarship. Adaptive governance is defined as having the capacity to manage complex cross-scale relationships between the social and the ecological, to cope with and adapt to unexpected changes and unpredictable feedback (Folke et al., 2005) and/or to allow a reconfiguration that permits the maintenance of SES functioning.

According to Lockwood (2010), adaptive governance systems for the resilience of protected areas require an institutional design able to i) reconcile institutions that provide long-term security and direction (e.g. legislation) with the flexibility necessary to respond to new dynamics; ii) acknowledge uncertainties related to complex SESs and implement strategic planning in order to reduce risks and guide opportunities; iii) facilitate the assimilation of new knowledge for decision making (e.g. through monitoring and evaluation). Dietz et al. (2003) emphasise the crucial role of inclusive dialogue, supported by formal and informal social networks, for information sharing and improving response diversity. The creation of a formal coordination panel or the promotion of networks between private landowners and other stakeholders (see for example the Finnish Metso Programme) are expected to enhance the resilience of PPAs.

Having outlined the set of good-governance criteria, it is important to note that a growing body of literature has demonstrated that the governance of protected areas affects their effectiveness and, more broadly, social and ecological outcomes (Eklund & Cabeza, 2017). Accordingly, good-governance principles have an ambivalent nature. Firstly, they are considered important per se, as far as they embody ideals of democratic traditions and human rights. As policy instruments for the protection of a common good, PPAs have a particular responsibility going beyond the interest of property rights holders, and concerning the



Workshop for collaborative design of protected areas © Inês Cosme

rights of present and future generations (Pieraccini, 2015). Secondly, adherence to good governance principles is also expected to be instrumental to effective outcomes (Dawson et al., 2018). For example, perceptions of inequity may undermine conservation efforts, reducing institutional acceptance and the level of collaboration from local communities (Pascual et al., 2010). Thus, procedural and substantive rationales for the fulfilment of good governance generally overlap with instrumental approaches. Consequently, it has been argued that the perception of good governance principles, such as legitimacy, transparency, accountability and inclusiveness, as well as the match with the principles of connectivity and resilience, may provide an indication of the social fit of governance arrangements (Turner et al., 2018).

Ecological fit

Improving the ecological fit is a key concern of conservation scientists, requiring institutions to align themselves with the spatial, temporal and functional dimensions of the ecological system. Regarding PPAs, the spatial dimension concerns the match of their territorial scope (in terms of location and area covered) with the conservation issues intended to be solved. The size of PPAs is generally smaller than other protected areas (Stolton et al., 2014). Whilst this is not a problem if the PPA is intended to protect a local habitat, concerns may arise in the case of more ambitious management goals, especially if the PPA is not well connected with other protected areas. Do formal institutions promote or hinder a location that improves spatial fit? For example, do they encourage PPAs' connectivity with other protected sites, such as requiring them to be situated on the boundaries of existing public protected areas? (Stolton et al., 2014). Furthermore, it is important to assess whether the criteria for statutory recognition favour PPAs which protect endangered ecosystems and species, or, conversely, a lack of systematic conservation planning makes their location in less threatened environments more likely (Ladle et al., 2014; Margules & Pressey, 2000).

The temporal dimension of ecological fit refers to the match of the governance systems' responses to an environmental problem (Epstein et al., 2015). Slow regulatory responses or the short-term timeframe of decision-makers (due to election cycles) are widely recognised as emblematic examples of temporal misfit; indeed, they lack the rapidity of action and the long timespan required to tackle sustainability issues (Munck af Rosenschöld et al., 2014). Regarding established PPAs, the crucial issue is the length of the protection they provide. According to IUCN guidelines, PPAs "should demonstrate an intent to conservation 'in perpetuity', or at least 'long-term' (a period of at least 25 years)" (Stolton et al., 2014: 10). Consequently, provisions for long-term contract or conservation easements recorded in the title of land, coupled with monitoring actions, are expected to improve temporal fit. Indeed, well designed long-term contracts are intended to make conservation interventions less dependent on electoral cycles. Also, the continuation of the PPA status, or the conservation intent of the private actor, should be ensured in case of changes to ownership (Mitchell et al., 2018).

The functional dimension concerns the suitable management of interlinked constituents of the ecological system (e.g. predators and prey) (Epstein et al., 2015). Monitoring actions to assess progress made in management goals and widely available technical support from public actors may be crucial to enhance the management capacity of private actors. The ecological fit dimension is highly intertwined with the resilience principle. In particular, in order to suitably address the ecological dimensions, private actors should ensure they have scientific and technical capacity, as well as the appropriate resources and motivations to fulfil conservation objectives. Over time, these attributes may lessen due to a reduction in private funding, or may fail to address increasingly demanding management goals while confronting, for example, new ecological threats. Therefore, compliance monitoring and public support for private actors are expected to improve the institutional fit (see e.g. Fitzsimons, 2015).

The diagnostic framework

Table 3 operationalises social fit through good governance principles in order to facilitate their analysis. The principles of legitimacy, transparency, inclusiveness, accountability and fairness are indicators of the dimensions of social fit that deal with institutional acceptance and, more broadly, with stakeholders' values. Connectivity and resilience are instead linked dimensions concerning the fit between institutions and temporal, spatial and jurisdictional scales of social organisations.

The three dimensions of ecological fit (see Table 1) are also integrated into the framework with the aim of providing a multi-tiered interdisciplinary tool.

The growing body of literature on PPAs has allowed us to develop tailored criteria for their assessment, relating

Table 3. The diagnostic framework

		Good Governance Principles	Definitions	Criteria for PPAs' assessment
SOCIAL FIT	Institutional acceptance interplays with stakeholders' values and customs	LEGITIMACY	Acceptance of the authority of an institution to govern *Input legitimacy*: e.g. conferred by the democratic mandate *Output legitimacy*: acquired through effectiveness and responsiveness	Perception of PPAs' institutional arrangements and of public and private actors' input and output legitimacy
		TRANSPARENCY	Availability and accessibility of information. Visibility and clarity of policy-making processes	Satisfaction regarding the availability of contracts, reports and information on policy-making processes
		INCLUSIVENESS	Opportunities to participate in and influence decisions	Perception of opportunities for the effective participation of stakeholders
		ACCOUNTABILITY	Clear and agreed assignment of roles and responsibilities Accountability of governing bodies to constituencies and higher governing bodies	Perception of clear definitions of actors' roles and responsibilities Perception of private actors' accountability to membership and public actors' accountability to citizens
		FAIRNESS	Equitable share of costs and benefits Consideration of social and cultural diversities	Perception of economic distribution (e.g. incentives, land grabbing, changes in local livelihood) and socio-cultural recognition
	Match with scales of social organisation	CONNECTIVITY	Coordination within and between levels of protected area governance Articulation with other policy instruments for conservation and other public policies	PPA connectivity with other protected areas in national and international networks The inclusion of PPA governance and management within e.g. agricultural, tourist policies
		RESILIENCE	Conciliation of long-term security with institutional flexibility to respond to new dynamics Management of threats, opportunities and risks Assimilation of new knowledge	Long-term security of nature protection Monitoring and evaluating processes in place Organisational flexibility Processes for new knowledge assimilation
ECOLOGICAL FIT		SPATIAL DIMENSION	Congruence between the geographical extent of the ecological problem and the territorial scope of the institution	Match between the PPA's location and the extent of the ecological issue
		TEMPORAL DIMENSION	Match of the activation of institutional responses to an environmental problem	Match between the temporal length of the legal tool and time needed for conservation actions
		FUNCTIONAL DIMENSION	Management of interlinked ecological system constituents	Interdependent management of ecological system constituents

especially to their nature as co-governance arrangements between public and private actors.

Finally, it is important to note that applying good governance criteria as benchmarks may be perverted as a technocratic exercise distracting from "how an output is achieved (...) to ask whether the outcome has been achieved" (Jenson & Levi 2013: 74). To avoid an apolitical approach, it is crucial to incorporate power, normative issues and the many values on which democracies depend (Dahl & Soss, 2014). Consequently, when assessing the social fit of a PPA (Part A), it is crucial to perform context-dependent validations of each of the principles and to pay special attention to the stakeholders' perceptions.

CONCLUDING REMARKS

The aim of this article was to inform the design of an assessment tool that would determine to what extent the institutional settings of PPAs enable their match with the connected dimensions of social and ecological fit. The interdisciplinary framework proposed is grounded in the theoretical and empirical research on social and ecological system fit and on the principles of good governance for PPAs. To sum up, we highlight the following potentialities as a diagnostic tool:

a. Underpinned by a conceptual framework of SESs, the tool is designed to take into account i) the core features and multi-dimensional dynamics of human –environmental interactions and ii) the co-evolutionary relationship between institutions and contextual settings.

b. This multi-criteria approach, which incorporates ecological and social fit dimensions, allows us to identify areas of poor performance and to negotiate choices around trade-offs.

c. By avoiding absolute definitions, each (social) principle can be operationalised on a context-dependent basis, incorporating different values and views.

Achieving a perfect institutional fit is, in practice, an almost impossible task due to the complexity of SESs, the limited research available and the existence of multiple (often conflicting) objectives. Indeed, some researchers prefer to prioritise a more realistic management of mismatches (Keskitalo et al., 2016). Under these circumstances, the proposed framework could be evolved to support complex decision-making and help to design more appropriate institutional models that are adaptable to dynamic settings.

ENDNOTES

[1] e.g. conservation easements, private reserves designations, land stewardship agreements and other forms of public–private partnerships.

[2] As explained in the Introduction, our framework will focus on the formal rules, referred to as 'institutional arrangements'.

[3] Lockwood (2010) argued that the capacity of a protected area to achieve its stated objectives (performance) should be assessed as input in a management effectiveness framework and should not be included in the process of the evaluation of governance quality. Put differently, performance intended as effectiveness is determined by, rather than a component of, good governance.

[4] https://www.metsonpolku.fi/en-US (accessed on 4/02/2020)

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RESUMEN

Las áreas protegidas privadas (APP) constituyen una prometedora herramienta de gobernanza en el ámbito de la conservación para complementar las áreas protegidas públicas. A pesar de su promoción en los programas ambientales nacionales e internacionales y de su creciente adopción a nivel mundial, son pocas las investigaciones desarrolladas en torno a las repercusiones generales de su implementación. Este artículo presenta un marco para explorar la idoneidad de los acuerdos institucionales de las APP para mejorar la conservación de la naturaleza al tiempo que se satisfacen las necesidades de la sociedad. Para ello, nos apoyamos en la literatura sobre sistemas socio-ecológicos que incorporan ideas y perspectivas sobre la capacidad de acción y el poder. El enfoque conceptual resultante señala las interrelaciones entre los sistemas ecológicos y sociales, ofreciendo una perspectiva sistémica que sustenta un marco de diagnóstico interdisciplinario. Esto se basa en los conceptos de adaptación social y ecológica e integra las contribuciones de la literatura relacionada con la buena gobernanza y ajusta los principios de la buena gobernanza para adaptarlos a las APP. Esbozamos una herramienta de varios niveles para evaluar las APP. Se trata de un primer paso para abordar de manera integral la armonización de los modelos institucionales de las APP con las dimensiones ecológicas y sociales de sistemas complejos.

RÉSUMÉ

Les aires protégées privées (APP) sont considérées comme un outil de gouvernance à fort potentiel pour la conservation qui peut apporter un complément utile aux dispositifs en place dans les aires protégées publiques. Malgré la promotion des APP dans les programmes environnementaux nationaux et internationaux et leur adoption croissante dans le monde, peu de recherches ont été menées sur les implications globales de leur mise en œuvre. Cet article présente un cadre pour examiner la pertinence des dispositifs institutionnels des APP pour améliorer la conservation de la nature tout en répondant aux besoins sociétaux. Pour ce faire, nous nous appuyons sur des études de systèmes socio-écologiques intégrant des points de vue issus de perspectives critiques sur l'agence et le pouvoir. L'approche conceptuelle qui en résulte met en évidence les interactions entre les systèmes écologiques et sociaux, offrant une perspective systémique qui sous-tend un cadre de diagnostic interdisciplinaire. Cela s'appuie sur les concepts d'adéquation sociale et écologique et intègre des contributions de publications sur la bonne gouvernance; affinant ainsi les principes de bonne gouvernance en fonction des APP. Nous décrivons un outil à plusieurs niveaux pour évaluer les APP. Il s'agit d'une première étape pour aborder de manière globale la concordance des modèles institutionnels des APP avec les dimensions écologiques et sociales des systèmes complexes.