

REVIEW

A synthesis of knowledge about motives for participation in perpetual conservation easements

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Abstract

Perpetual conservation easements are a popular method in some countries for addressing conservation goals. Landowner participation plays a key role in the development of these agreements. Despite the importance of involvement by landowners, no recent efforts have been made to synthesize information about the motivations for participation in perpetual easement programs. As a result, the literature lacks a framework to guide future case studies that would facilitate comparisons and generalizations. To this end, we reviewed 43 studies that investigated individual motivations to participate in perpetual conservation easements, and categorized motivations using Ostrom's social-ecological framework. We identified a strong tendency among studies to focus only on local-scale processes involving landowners, with little consideration of broader-scale influences. We also highlight several cross-study trends and gaps in the literature where future research would prove valuable.

KEYWORDS

conservation planning, easement, landowner, privately protected area, willingness

1 | INTRODUCTION

Private land conservation is recognized by the IUCN for helping to achieve conservation goals like Aichi Target 11, which would not be attainable with public land alone (Mitchell et al., 2018). As a result, there has been a renewed focus on private land conservation as a supplemental means for reaching conservation goals (Kamal, Grodzińska-jurczak, & Brown, 2015; Mitchell et al., 2018; Stolton, Redford, & Dudley, 2014). Countries including the United States, Australia, South Africa, United Kingdom, and parts of Latin America have accepted programs that facilitate private land conservation through a variety of methods, including incentives for enrollment in short-

term programs, land protection through fee-title acquisition, or perpetual conservation easements (Bingham et al., 2017; Capano, Toivonen, Soutullo, & Minin, 2019; Kamal et al., 2015; Mitchell et al., 2018). Of these mechanisms, easements are one of the most frequently cited in the literature on private land conservation (Capano et al., 2019).

Perpetual private land conservation is commonly implemented through legally binding agreements such as covenants or easements, whereby a landowner concedes certain rights, such as development or recreation, to the easement holder to protect the natural landscape. While the legal definitions and applications of easements or covenants can vary (Kamal et al., 2015; Stolton et al., 2014), we

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reference only those perpetual conservation agreements for which biodiversity or natural value is one of the primary objectives. For these agreements, landowners will often, but not always, receive payment and/or tax benefits in exchange for the conceded rights (Bernstein & Mitchell, 2005; Iftekhhar, Tisdell, & Gilfedder, 2014; Parker, 2004). Easement agreements, and associated restrictions on land use, are usually in perpetuity and attached to the land and not the landowner, so future owners will be subject to the same restrictions (Clough, 2000; Figgis, 2004). Because of their perpetual nature and the option, in some cases, for purchasing partial rights to the land at a relatively low cost, easements are frequently perceived by conservation agencies to be a secure and fiscally responsible option for private land conservation (Figgis, 2004; Bernstein & Mitchell, 2005; Kamal et al., 2015; Hardy, Fitzsimons, Bekessy, & Gordon, 2017, but see Schöttker & Santos, 2019). However, it can be challenging to gain private landowners' acceptance and willingness to participate in programs such as perpetual easements because concerns, including their restrictive impact on future generations' decision-making, can act as major barriers (Bell, Markowski-Lindsay, Catanzaro, & Leahy, 2018; Cooke & Corbo-Perkins, 2018; Nielsen, Jacobsen, & Strange, 2018).

The challenges to achieving landowner participation in conservation programs such as easements have led to many targeted case studies highlighting motivations for landowner participation or willingness to participate. For consistency, we will reference all influences, psychological and nonpsychological, on participation as “motives” or “motivation.” While each study is valuable, part of the intrinsic utility of case studies is the potential for comparison to ascertain how context influences complex causal relationships differently, which is challenging without a common framework or vocabulary (Bennett & Elman, 2006; George & Bennett, 2005). Kabii and Horwitz (2006) presented a potential framework for individual participation in conservation covenants in perpetuity, considered by those authors as equivalent to easements. However, they noted that, at the time, there were few examples in the literature to draw from, forcing them to base most of their suppositions on studies of participation in soil and land conservation programs (Kabii & Horwitz, 2006). No other studies that we are aware of focus on amalgamating the literature examining motivations for participation in perpetual conservation easements under a broad framework.

We appraise the existing literature on motivations for participation in perpetual conservation easements from the broad social–ecological systems perspective of Ostrom's (2009) framework. In doing so, we aim to provide a common language for managers and scholars about this topic and to reveal gaps in our knowledge

(e.g., Bennett & Gosnell, 2015). Social–ecological systems at their most basic can be considered linked systems dealing with people and nature (Bouamrane et al., 2016). Frameworks for understanding these systems focus on connections within and between social, ecological, and economic components, which influence landowner decision-making and the successful implementation of conservation (Partelow, 2018). These frameworks are already being used to assess publicly protected areas (Cumming et al., 2015; Palomo et al., 2014), marine protected areas (Mascia et al., 2017), payment for ecosystem services (Bennett & Gosnell, 2015), and private land conservation (Quinn & Wood, 2017).

Conceptualizing perpetual conservation easements as parts of social–ecological systems might also underscore the importance of understanding scale mismatches and their effects on the resilience of agreements for private land conservation. Most case studies of landowner participation in these agreements occur at a local parcel or farm scale (Capano et al., 2019; Liu, Bruins, & Heberling, 2018). However, the decision-making by governments or other entities at regional or global scales might influence or even contradict values or long-standing traditions and attitudes of landholders (Cumming et al., 2015; Fishbein & Ajzen, 2009; Quinn & Wood, 2017). Where this mismatch exists, it can degrade system resilience or cause inefficiencies by creating challenges for conservation organizations to identify values or goals that align with and motivate landowner decisions (Cumming, Cumming, & Redman, 2006; Larrosa, Carrasco, & Milner-Gulland, 2016).

Our objectives in this article were threefold: (a) to provide an overview of the current state of knowledge regarding landowners' willingness to participate in easements; (b) within the context of social–ecological systems, to identify commonalities and/or gaps across studies about factors motivating landowner willingness to participate in easements; and (c) to provide recommendations for future research needs in this arena.

2 | METHODS

2.1 | Literature search

We conducted our final search via the online search engine Scopus on May 24, 2020. We limited our search to the years 1960–2019. We searched using the following string: *(ALL (motiv* OR accept* OR attitud* OR participat* OR adopt* OR pay* OR preference) AND TITLE-ABS-KEY (easement OR covenant OR “title deed” OR contract OR “private land conservation” OR “private conserved area” OR “privately protected area” OR “privately conserved*

area” OR “private protected area”) AND TITLE-ABS-KEY (perpetual* OR perpetuity OR permanent* OR conservation) AND ALL (landowner OR farmer OR landholder OR owner)).

We incorporated the terms “perpetual,” “perpetuity,” and “permanent” because short-term conservation practices have been reviewed recently (see Liu et al., 2018; Yoder, Ward, Dalrymple, Spak, & Lave, 2019) and the focus of our review was participation in perpetual conservation easements. We included alternatives to the term “easement” (covenant, contract, title deed) that might be used more frequently in some regions. We also included the more general search terms, “privately protected/conserved areas” which, in combination with the perpetual search terms, we hoped would cover any missing similes to “easement.” Terms like “motivation,” “attitude,” “accept,” and “participate” were all included to elicit literature that reflected factors motivating landowners’ decisions to participate in easement programs. Finally, because we were solely interested in the motivations for participation in easements by individual landowners, we

incorporated search terms to describe this concept: “landowner,” “owner,” “farmer,” “landholder.”

We limited our search to references that could be translated to or found in English. We developed a review protocol according to accepted standards in the literature (Moher et al., 2009). Our search resulted in 688 references. Figure 1 shows searching, screening, inclusion and exclusion criteria. References were downloaded to Mendeley and screened first at the title and abstract levels. In our first step, we excluded papers that failed to mention the adoption of a conservation practice by landowners or that were purely simulation-based studies ($N = 417$). We reread the remaining 271 abstracts to exclude 150 papers that focused on short-term conservation programs or best-management practices, reviews, and carbon sequestration, because the fundamental focus of our review was to gather information on landowner motives for participation in conservation easements. The remaining 121 articles we read as full-text. From these, we excluded articles if the dependent variable of the analysis could not be clearly identified as landowner participation or willingness to

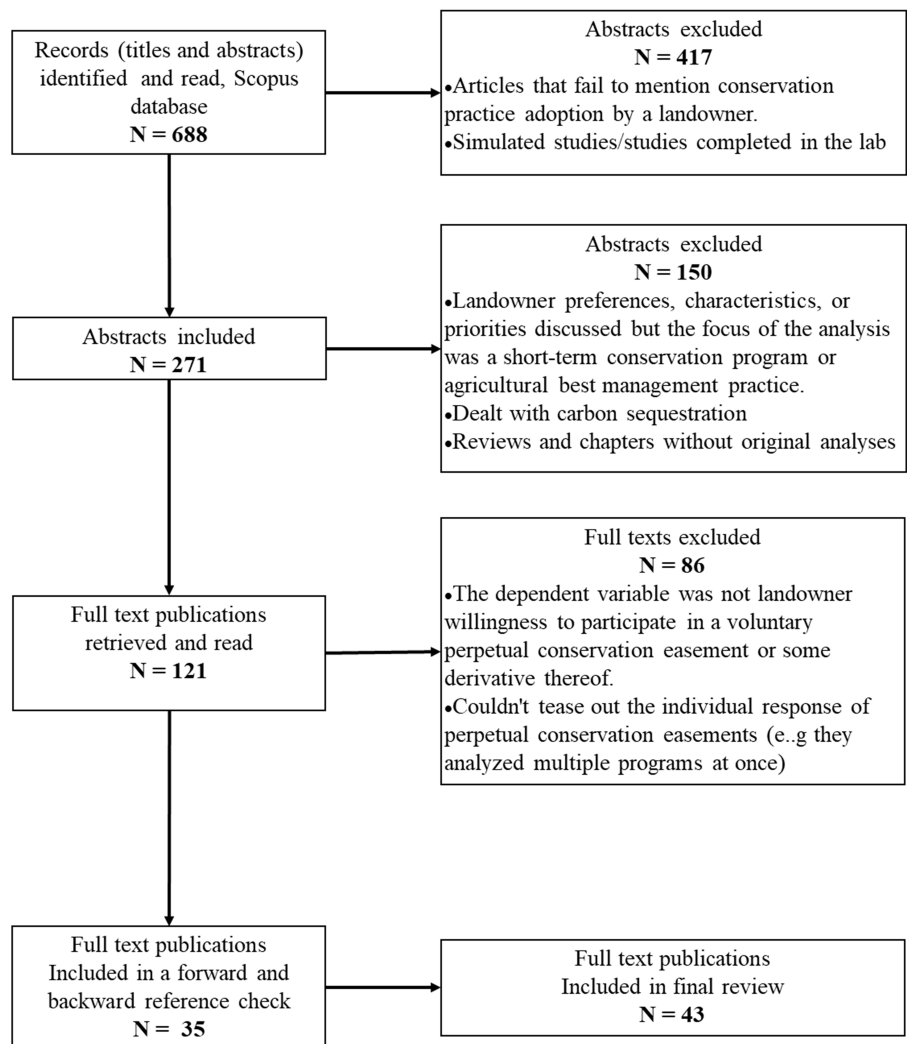


FIGURE 1 Description of selection and exclusion methodology for literature review of manuscripts focusing on motives for landowner participation in permanent conservation easement programs on private land, using the flow diagram suggested by PRISMA (Moher et al., 2009)

participate in perpetual conservation easements (86 articles). We also excluded papers that analyzed multiple programs together in a manner that precluded identifying the individual effects of variables on landowner participation or willingness to participate. The remaining 35 articles were included in our review and were also examined in a forward and backward analysis for further relevant publications (Gough, Oliver, & Thomas, 2017). Forward and backward searching resulted in the addition of 8 more full-text articles. We retrieved the articles in full-text from Google Scholar using our subscription from James Cook University (Figure 1: See Appendix S1 and S2 for more details on reviewed publications).

2.2 | Analysis

In our review of the 43 studies, we distinguished dependent and predictor variables. Dependent variables related to

landholders' participation in easements. Predictor variables were those that potentially influenced participation.

We reviewed papers within the context of a well-known social–ecological framework (Ostrom, 2009; McGinnis & Ostrom, 2014: Table 1, Figure 2). Ostrom's framework is a multitier hierarchy of interacting variables and has often been used for developing a cross-disciplinary vocabulary across multiple case studies (Binder, Hinkel, Bots, & Pahl-Wostl, 2013). The first tier in the framework differentiates the categories: *Resource Units*, *Governance System*, *Actors*, *Interactions*, and *Outcomes* (McGinnis & Ostrom, 2014). Sequential second-, and third-level tiers break down higher-tier categories into finer-grained concepts (2009; McGinnis & Ostrom, 2014). Thus, a first-tier category like *Resource Units* might be further described by a second-tier category detailing its size or type (McGinnis & Ostrom, 2014).

We grouped predictor variables into tiers based upon Ostrom's social–ecological framework, which can be

TABLE 1 Level 3 tiers within a hypothetical social–ecological system that demonstrated negative or positive trends across more than 7 analyses within a review of 43 manuscripts on landowners' willingness to participate in permanent conservation easements

Tier ^a : 1	2	3	Negative ^b	Positive	Total
Actor	Importance of resource	Dependence ^c	18 (12)	11 (6)	14
	Knowledge of SES/mental models	Perceived complexity**	9 (7)	2 (2)	9
		Presence of management knowledge	6 (5)	7 (6)	9
		Stewardship ethic**	2 (2)	40 (24)	24
		Attitude**	1 (1)	12 (8)	9
	Norms, trust, social capital	Legacy (bequest)	5 (5)	6 (5)	9
		Legacy (nature)**	0 (0)	11 (11)	11
		Sense of place**	4 (4)	24 (18)	21
		Subjective norms**	1 (1)	9 (8)	9
	Socioeconomic factors	Age	5 (5)	5 (5)	10
Education		3 (3)	11 (10)	13	
Income		6 (5)	7 (6)	11	
Governance systems	Private property rights	Collective choice**	31 (18)	0 (0)	18
Interactions	Investment activities	Payment**	3 (3)	24 (23)	24
	Information sharing	Technical**	0 (0)	13 (10)	10
	Harvesting	Agricultural land use (timber, animal husbandry, other)	12 (9)	6 (6)	13
	Networking activities	Recreation on own land (for self)	3 (3)	6 (6)	9
Social network**		1 (1)	8 (8)	8	
Resource unit	Distinctive characteristics	Size (area)	7 (7)	12 (10)	16

^aTiers describe different categories within the social–ecological system. Higher-level tiers are constructed of elements from the lower-level tiers (McGinnis & Ostrom, 2014; Ostrom, 2009).

^bNumbers represent counts of variables within each level-3 tier; number of associated analyses in parentheses and total number of analyses referencing each level 3 tier, regardless of ± associations, listed in the final column.

^cRows marked with a double asterisk (**) are those where a level-3 tier was determined to be dominant, with ≥80% of the tier occurrences positive or negative.

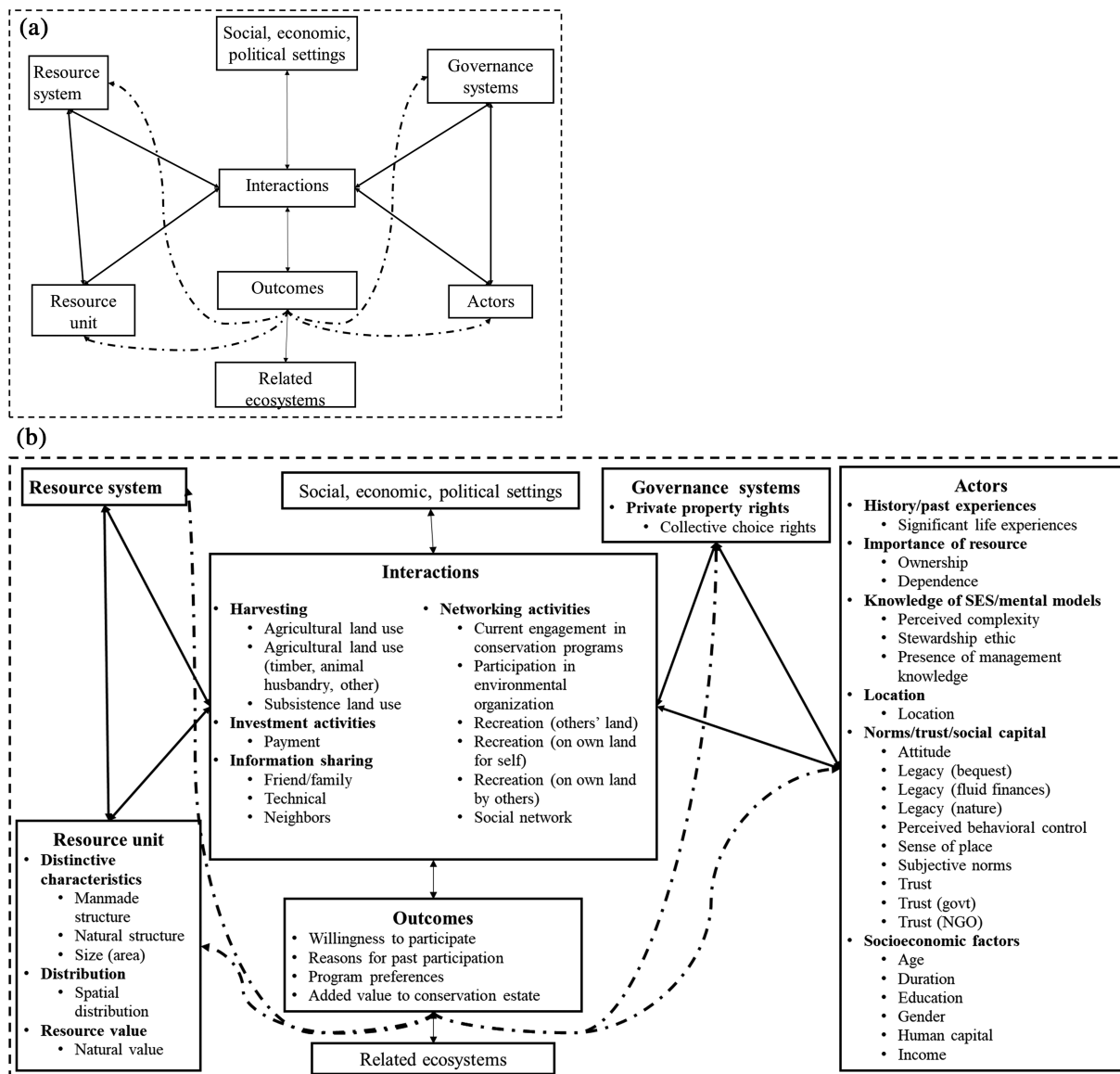


FIGURE 2 Social-ecological framework after Ostrom (2009) and McGinnis and Ostrom (2014) with first-level, second-level, and third-level tiers used to characterize variables in a literature review of landowner participation in permanent conservation easement programs. Tiers are represented by text in outlined boxes with processes relating the different portions of the system represented by arrows

found in Figure 2. Two co-authors coded 10 papers independently to cross validate interpretation of the predictor variables. Finding consistent interpretation, the primary author coded all other papers. She flagged potential ambiguities in these papers, which the co-authors reviewed and finalized coding for collectively.

Variables associated with an individual landowner's social, psychological, or economic characteristics were immediately sorted into the first tier *Actor*. Among others, these variables included age, gender, and psychological variables like nostalgia (Bell et al., 2018; Brenner, Lavallato, Cherry, & Hileman, 2013; Seaman, Farmer, Chancellor, & Sirima, 2019). The first tier *Governance System* included variables like easement length that dealt

with land ownership or property rights (Bastian, Keske, McLeod, & Hoag, 2017). Variables describing the amount of land on the parcel in question, or the quality of the land, were identified under the first tier *Resource Unit*. Finally, we identified variables that highlighted interactions between or within concepts under the *Interaction* tier. For example, payment represented an interaction between two *Actors* (landowner and conservation agency).

We grouped the predictor variables sequentially into the second and third tiers, which gradually increased in descriptiveness. Continuing with examples from above, a variable like age was grouped into *socioeconomic factors* (second-tier) and then given a final, third-tier grouping of *age*. Not all third-tiers were equivalent to the variable

names, though. Nostalgia, for example, was grouped under *norms*, *trust*, *social capital* (second-tier) and *sense of place* (third-tier; Seaman et al., 2019). The presence/absence of a unique third-tier title depended on the context in which the variable was used in the analysis and its initial level of descriptiveness.

For each study, we recorded the predictor variables, the associated dependent variable(s), and effect (positive [+]/negative [-]) of each predictor variable (see Appendix S1). Because this was not a meta-analysis but was rather intended to provide a synthesis of the topics and variables that the current literature has examined, all variables were included, regardless of significance. If more than one analysis was completed within a given manuscript with a different dependent variable, we treated these as separate analyses. In the resulting dataset, we made note of tiers that were commonly referenced in analyses. Here we define “common” differently for each tier (1–3), using the average number of analyses that were included in each tier. Tiers that were referenced more than this number of times were then considered common. For example, in the first tier, an average of 31.5 analyses out of the total analyses in our review were included in each tier-one category. Ultimately, only two categories in the first tier had more than 31.5 analyses and were thus labeled common. We focused our assessment of trends on those tiers identified as common. We considered a trend to be dominant across the surveyed studies if $\geq 80\%$ of the variables within the tiers were positive or negative.

Studies incorporated variables in different ways, which complicated trend assessment. Some studies split what we would typically consider to be continuous variables into categorical parts of their ranges (e.g., age < 30, 30–60, >60). In these situations, we identified the prevailing effect that the categories were having on the dependent variable in the analysis (\pm) and recorded this in association with the categories. For example, if there were three categorical variables in an analysis representing different age brackets and all indicated an increasing negative effect of age on probability of participation in an easement, we would record the categories “Age” once in relation to these variables and note a negative effect. Similarly, not all binary variables were treated in a standardized manner across the reviewed studies. For example, most studies treated gender as a binary variable with males being the reference category. To ensure that these types of variables were recorded in a standardized way for our review, we chose the most frequently used default variable. Thus, for those studies where female was the reference category, we assumed the opposite effect to represent males and include that effect in our final summaries.

3 | RESULTS

3.1 | Scope and extent of reviewed studies

Most studies were conducted in the U.S. (30/43) and the rest were conducted in Australia (6/43), Europe (6/43), or South Africa (1/43). Years of publication ranged from 2000–2019. The number of studies published on the topic each year did not show a consistent increasing trend with time, although we did see an abrupt jump in the number of studies between 2005 and 2011.

We identified a total of 437 variables and 51 analyses pertaining to participation in easements in the 43 studies examined. We placed these variables into a total of four tier-one categories, 14 tier-two categories, and 42 tier-three categories (Figure 2, see table and additional references in supporting information online).

The survey approaches varied widely, including methods and associated sample sizes. Methods of data collection included mail surveys (27), interviews (12), email surveys (2), the use of previous broad-scale survey data (3), and mixed method surveys (7). Methods of data analysis included logistic regression (11), qualitative descriptions (10), and logit (9), probit, utility, and econometric models (6), along with linear models, *t* tests, correlation values, and ANOVA (15). Sample sizes also varied substantially, from 8 to 9,585 (Welsh, Webb, & Langen, 2018; Mitani & Lindhjem, 2015, respectively), although most were below 1,000. The breadth of sample sizes reflected the diversity of methods. Qualitative studies typically had smaller sample sizes reflecting in-depth conversations with a surveyed population, whereas choice modeling methods had large sample sizes reflecting the computational needs to support statistical analyses.

3.2 | Summary statistics

Studies focused mainly on predictor variables that described the *Actor* and *Interaction* components of their respective social–ecological systems. These represented 58% and 27% of all variables that we identified, respectively. Predictor variables that we listed under *Governance Systems* and *Resource Units* each represented 7% of the total. Of the first-tier categories we identified only *Actor* and *Interaction* as common (>31.5 analyses associated). Neither of these categories appeared to have a distinctive positive or negative trend across the reviewed studies at the first-tier level.

We observed several cross-study trends among the categories in the second tier. Of the 6 categories listed

under *Actor*, we identified 3 as common within our review (17 or more analyses associated). Commonly referenced categories under the *Actor* tier varied in their influence on participation (\pm). Only 1 category had dominant cross-study trends, however, and it was almost always positively associated with a landowner's likelihood of participating in an easement (*norms, trust, social capital*: 85%).

In the second tier, only one category under each of *Governance System* (*private property rights*) and *Interactions* (*investment activities*) was defined as common and had dominant trends. We used *private property rights* to describe all variables that were related to the landowner's potential to, or past alienation of the right to, perform certain actions on their land (Schlager & Ostrom, 1992). For all the variables we listed under *private property rights*, there was a negative impact on individuals' motivations to participate in easement programs (100%). In contrast, *investment activities* demonstrated a predominantly positive impact on motivations to participate (89%). We did not define any second-tier categories under *Resource Unit* as common.

Looking at categories that we placed into the third tier, we identified 19 as common (8 or more analyses associated). Nine of these categories had dominant positive trends across the studies we reviewed. Five categories were focused entirely on the *Actors* within the system (Table 1: *legacy [nature], sense of place, subjective norm, stewardship ethic, attitude*) and two were focused on their interaction with other parts of the system (*technical information sharing, social networking*). *Payment* was the only third-tier variable under *investment* and was thus automatically considered a dominant trend as well. Similarly, *collective choice rights*, under *private property rights*, represented the sole third-tier dominant negative trend we observed (Table 1).

4 | DISCUSSION

We examined the literature on the motivations for individual landowners' participation in perpetual conservation easement programs within Ostrom's social-ecological systems framework (2009; McGinnis & Ostrom, 2014). We sought to assess dominant trends and potential relationships, identify gaps in knowledge, and provide a baseline vocabulary for future case studies to use in cross-comparisons. Results of this review highlight some similarities with previous evaluations but also underscore the need to consider social, economic, and political processes that contextualize the agreements at broader scales.

To our knowledge, our review is the first to focus on synthesizing information in the literature about the

motivations for landowner participation in perpetual conservation easement programs. The most comparable work was a review that examined the influences on landowner decision-making for conservation easement initiatives which proposed a framework for understanding and encouraging participation (Kabii & Horwitz, 2006). While this previous review was based upon literature regarding the uptake of soil and land conservation initiatives on private land, it is more comparable to ours than other reviews of best management practices (e.g., Liu et al., 2018) because it was geared towards easements and incorporates a discussion regarding private property rights. A more recent review by Capano et al. (2019) took a broader look at the overall topic of private land conservation and provides some material for comparison as well.

Overall, the variables and framework that Kabii and Horwitz (2006) prescribed were most like those labeled under *Actor* and *Governance system* in our review. Although we did not see a wide variety of variables discussed in our review that applied to case studies' governance systems, the permanent nature of easements and landowners' concerns about how it would affect their property rights were emphasized in many analyses (*Governance system: private property rights: collective choice rights*). The variables we placed in this category were always negatively associated with a landowner's likelihood of participating in an easement program and usually revolved around the rules within contracts restricting landowners and denoting the length of the program. While they examined the broader topics within private land conservation, Capano et al. (2019) also noted a similar focus on property rights in the context of easements in their review. Kabii and Horwitz's (2006) summary also depicted the deferral of certain property rights to governing entities as a deterrent to participation. Although relinquishing property rights was often a disincentive for participating in easements, it by no means precluded participation in all cases.

Kabii and Horwitz (2006) suggested several different combinations of socioeconomic factors might influence participation as well. While we noted ambivalent trends in socioeconomic variables like age, economic dependence on property, and duration (*Actor*), Kabii and Horwitz (2006) hypothesized that younger landowners with less time spent as owners would be more likely to participate in easement programs. However, because of the lack of distinctive patterns revealed by our review, we suggest that socioeconomic factors are likely too heterogeneous from a spatiotemporal perspective to support generalized hypotheses. Rather, these variables might prove more valuable for within-study comparisons.

Similarly categorized under *Actor*, but consistent with Kabii and Horwitz's (2006) predictive hypotheses,

landowners with mental models that included strong indications of ecological and conservation responsibility towards the land (*Actor: Knowledge of SES/mental models: stewardship ethic*) were more likely to participate in conservation easement programs. It is possible that these individuals had a better understanding of their surrounding environment and were more able to obtain and apply information about the programs (Abdulla, 2009; Addo, Wachenheim, Roberts, Devney, & Lesch, 2017). Equally likely, though, is a dependence of this outcome on how and from whom the landowner receives her/his information.

We found that information transfer, when facilitated by a technical advisor, or involvement in a stewardship social network had a consistent positive impact on the likelihood of participation in easement programs. Successful acceptance of a program or conservation message is more likely if communication is conducted by someone in the same social network as the target audience (Abrahamse & Steg, 2013). There is evidence that messages can be changed, in content and in quality, to be more convincing for different population segments (Blackstock, Ingram, Burton, Brown, & Slee, 2010; Kusmanoff et al., 2016). However, managers should also consider that the level of expertise and the trustworthiness of information sources about conservation programs are equally important in determining whether they will be motivators of behavioral change (Lankford, van Koppen, Franks, & Mahoo, 2004; O'Keefe, 2002; Robinson, 2006).

The messages or information landowners receive from their social network can also influence their sense of place. There is evidence that social capital (trust: Payton, Fulton, & Anderson, 2007) can mediate the relationship between sense of place and positive actions. Sense of place, for which we observed positive trends, is driven by the meanings and connections individuals develop with their environment (Larson, De Freitas, & Hicks, 2013). Although the cumulative results of past studies on sense of place have demonstrated inconsistent trends (Lewicka, 2011), some studies have corroborated the positive impact that a strong sense of place has on conservation behavior (Devine-Wright, 2009; Scannell & Gifford, 2010).

Kabii and Horwitz (2006) emphasized how landowners with a sense of place might also recognize that easements could provide protection for their heirs. In contrast to their suggestion, our summarized results regarding legacies and bequests were much more equivocal. Some analyses displayed a like-minded set of landowners who sought to provide a future legacy for their heirs (e.g., Ferranto et al., 2011; LeVert, Stevens, & Kittredge, 2009). Other results, though, indicated that landowners often refused to participate for this very

reason. For example, in one case study 42% of landowners cited this as a reason for declining an easement because they wanted their heirs to be able to make their own decisions about the land (Dedrick, Hall, Hull, & Johnson, 2000). Likewise, the results of Nielsen et al. (2018) suggested that landowners wanted to have the opportunity in the future to profit from exploiting the timber resources on their property.

Profit was also a motivator of landowner participation noted frequently in our review (Brain, Hostetler, & Irani, 2014; Hill, Monroe, Ankersen, Carthy, & Kay, 2019; Shultz, 2005), although this concept was emphasized by Kabii and Horwitz (2006) less as a motivator than as a risk. Specifically, those authors cautioned that landowners would require greater effort to be convinced if they perceived any possibilities of financial obligation or cost because of the easement. In a nod to the opportunity cost incurred by landowners, though, Kabii and Horwitz (2006) did include economic incentives as a variable in their final framework.

Despite their potential utility, financial incentives can present challenges. There is evidence from previous studies of conservation projects involving protected areas and ecosystem services that using payments as incentives can crowd out innate social conservation values (Agrawal, Ashwini, & Gerber, 2015; Fisher, 2012). Moreover, this approach is often viewed as a short-term solution for a long-term problem, and there are questions about its ability to provide conservation impact or additionality to a measurable degree (Börner et al., 2017; Yasué & Kirkpatrick, 2020) because, in some cases, economic factors are not motivating landowner decision-making at all (Cooke & Corbo-Perkins, 2018; Selinske et al., 2017). This again underscores the importance of examining local social-ecological systems within a broader regional and global context, given that social or political institutions might inform the observed heterogeneity between those systems.

Both Kabii and Horwitz (2006) and Capano et al. (2019) mentioned the importance of considering certain issues within a regional or global socio-political context. However, the conceptual model that Kabii and Horwitz (2006) developed was geared towards incentivizing participation rather than contextualizing case studies, identifying research needs, or facilitating case study comparisons. In contrast, the framework that we applied has general applicability and provides a standardized method for identifying gaps in knowledge. Further, the Ostrom framework's multitiered approach allows for detailed investigations of broader-scaled variables such as government institutions and the interactions among them (Partelow, 2018).

5 | FUTURE RESEARCH NEEDS

We were able to identify several cross-study trends that might prove useful for developing easement programs. Our review also allowed us to identify several areas within the literature that would benefit from additional investigation. In this sense, we propose the following two lines of research:

5.1 | An improved assessment of scale

Cumming et al. (2006) described how the scale of ecological variation and the scale of the social organization responsible for management could align or misalign to disrupt a social–ecological system and negatively impact its resilience. This scale mismatch can be spurred by changes in systems such as food production, demography, and governance, as well as human values and perceptions regarding nature (Cumming et al., 2006). To ensure the resilience of current and future easement programs, it is important that we continue to elucidate how the ecological and social aspects of systems are connected across different temporal and spatial scales.

Examining how financial incentive structures affect decision-making through time should also be a topic of future research. Recent investigations suggest that sustained participation in programs for private protected areas is not always motivated by the same factors that persuaded landowners to join originally (Selinske et al., 2019). Altruistic motivations might give way to more financially motivated goals, particularly if landowners begin to expect some form of economic return from the program (Rissman, 2013; Selinske et al., 2019). Considering the lifetime, perpetual commitment that easements require of landowners, a valuable endeavor might be to understand whether initial or adaptive financial incentives are needed for participation to sustain programs and how these can be applied to ensure equity across early and late participants.

5.2 | Relating landowner motivations and outcomes

Finally, we would recommend that future studies are explicit about desired outcomes and gain a better understanding of which incentive structures (financial and/or other) motivate the landowners who will provide programs with the highest additionality. Here, by additionality, we mean the outcome of a program relative to the counterfactual of what would have happened in the absence of the program (Ferraro, 2009). Few

real-world studies of additionality in the context of easements exist, likely due to the challenge of quantifying additionality on land that is protected in perpetuity. However, some have engineered methods to address these challenges, indicating that the problem is not insurmountable (Lawley, 2019). Yasué and Kirkpatrick (2020) have demonstrated that, in Tasmania, payment incentive structures, partially designed to attract those who are not autonomously motivated to participate in conservation, do not bring a significant number of these individuals to programs. Before that study, Börner et al. (2017) showed similar results with regards to ecosystem services. Both studies underscore the need for more investigation of what incentives will attract high-value, high-additionality landowners (e.g., Reynolds et al., 2017).

6 | CONCLUSION

Understanding the gaps in our knowledge about easements and other types of private land conservation is increasingly important as we extend the conservation estate. A growing body of literature demonstrates strong focus on characteristics of local actors, with investigation of some processes related to governance and payment systems. We recommend that future research expand upon the literature base under a common framework with an increased emphasis on governance structures and interactions at multiple scales. Differences in cultural norms, legal systems, and individual programs often challenge comparisons. However, the use of a shared vocabulary and methodology will encourage collaboration and facilitate the development of new theories and solutions (Madni, 2007).

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CONFLICT OF INTEREST

The authors have no financial or other conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Kaylan Kemink led the initial draft of this article. Vanessa Adams and Kaylan Kemink both addressed data analysis. Vanessa Adams, Bob Pressey, and Johann Walker contributed to initial drafts and organization. Vanessa Adams and Bob Pressey both contributed significantly to the editing and review process.

DATA AVAILABILITY STATEMENT


The data used in this review are provided in the supplementary files.

ETHICS STATEMENT

No ethics review for animal handling or human subjects was necessary for the analyses reported in this article.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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