

ENDANGERED SPECIES CONSERVATION AND PRIVATE LANDOWNERS:  
INVESTIGATING LANDOWNER PARTICIPATION IN A SAFE HARBOR  
AGREEMENT

by

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A thesis submitted to the Graduate Council of  
Texas State University in partial fulfillment  
of the requirements for the degree of  
Master of Science  
with a Major in Biology  
August 2020

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## **DEDICATION**

To Char, who loved me through the highest highs and the lowest lows, this would not have happened without your support. To Dr. Serenari, who took a big risk on his first graduate supervisee, it means the world.

## **ACKNOWLEDGEMENTS**

I would like to sincerely thank everyone that gave of their time and effort to make this document possible:

My advisor, Dr. Christopher Serenari

Dr. Kristy L. Daniel

Dr. Bob Fischer

My parents, Beth and Bobby Messick

My lab-mates, Rebecca Cavalier and Elizabeth Pratt

Ms. Jenn Idema, M.Ed.

Dr. Elizabeth Bates

Dr. Paul Crump

Mr. Mark Lange

Interview informants and focus group participants

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## **LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
ESC	Endangered Species Conservation
FWS	United States Fish and Wildlife Service
HCP	Habitat Conservation Plan
LPHCP	Lost Pines Habitat Conservation Plan
PLC	Private Lands Conservation
SHA	Safe Harbor Agreement
TPWD	Texas Parks and Wildlife Department
VIP	Voluntary Incentive Program

## **I. PRIVATE LANDOWNERS AND ENDANGERED SPECIES CONSERVATION**

Approximately 70% of lands are privately held in the United States (Burger et al., 2019). Similarly, private lands constitute the majority of many countries' land base (Powell, 2012). Accordingly, landowners will continue to play a critical role in achieving biodiversity conservation goals across increasingly fragmented landscapes (Selinske et al., 2015). As such, there is growing interest among researchers, practitioners, and decision makers in what drives conservation on private lands (Knight, 1999) (i.e., "land under private ownership of individuals, families or other non-public entities", Kamal et al. 2015, 577). Despite years of research on the subject, however, few conclusive findings are consistently evidenced as driving private lands conservation (PLC) behavior (Prokopy et al., 2019). This is especially the case as PLC pertains to endangered species conservation (ESC).

Over time, at least two consistent findings have emerged that pertain to ESC behavior by private landowners: 1.) federal involvement in private landowner decision-making threatens landowner's perceptions of autonomy, engendering discontent with and a lack of participation in endangered species conservation by private landowners (Sorice et al., 2013); and 2.) landowners are often driven to care for and responsibly manage their land according to an ethic of environmental stewardship (Bennett et al., 2018). Resultant of these two factors, ESC governance institutions have created mechanisms for landowners to voluntarily engage in incentive programs (VIPs) in the hopes of reducing landowner negativity towards ESC and encouraging actualization of their moral prerogative to steward the environment.

Despite these efforts, VIPs have been met with mixed success as landowners

struggle to balance distaste for ESC initiatives with a desire to steward natural resources amidst a mosaic of contextual factors dictating their motivations and resources (Bennett et al., 2018). In an effort to enhance landowner participation in ESC then, the following thesis research investigates the complexities of ESC as it pertains to environmental stewardship using research from a qualitative case study investigating landowner participation in a new VIP for the endangered Houston toad (*Bufo houstonensis*)

The remainder of this section contains a brief outline of the background and purpose of the chapters contained within this portfolio as well as a description of Bennett et al.'s (2018) environmental stewardship analytical framework. Each chapter entails a separate manuscript that investigates different elements of the nexus of landowners, endangered species, and VIPs.

## **Chapter 2**

This study sought to address the variety of factors that influence private landowners decision-making with regards to participation in the Houston toad Programmatic Safe Harbor Agreement in East-central Texas. We adopted a novel analytical framework (Bennett et al., 2018) to better explain the role of chronically understudied contextual factors on a landowners ESC decision-making process.

For this investigation, we conducted semi-structured interviews with landowners in Houston toad habitat to determine: a.) what factors influenced their involvement in the Houston toad SHA; b.) what criteria landowners use to balance the costs and benefits of SHA participation; and c.) participant perspectives on how strategic marketing and outreach can be used to enhance SHA enrollment. We also interviewed select agency personnel and conducted focus groups to ensure theoretical saturation from a wide range

of diverse perspectives.

### **Chapter 3**

Using the interviews from the preceding case study, we engaged in an exploratory analysis of landowner values to determine how a commonly stated ethic of stewardship resulted in a variety of outcomes for endangered species (VIP participation, non-participation, and no ESC). In this study, we used relational values to identify the variety of ways that human-nature relationships can be valued by landowners and influence how landowners actualize their stewardship ethic.

We also sought to understand how the Houston toad SHA conflicted or aligned with these values. The premise of this particular focal area was derived from nearly unanimous claims from case-study informants that they were obligated to steward their property in some fashion. However, less than half of these landowners participated in the Houston toad SHA or cooperated with other institutional ESC efforts, pointing to important value divergencies between stated stewardship goals and the implementation of VIPs.

#### **Environmental Stewardship Framework**

While actions of environmental stewardship are not limited to endangered species conservation behavior undertaken by landowners, Bennett et al.'s (2018) environmental stewardship framework (Figure 1) allows for the comprehensive integration of the variety of determinants of ESC behavior discussed throughout the literature. This framework integrates commonly studied demographic (age, residency status, socio-economic status, etc.) and cognitive (values, beliefs, morals, etc.) determinants of landowner behavior with social structures and processes, the capacity of landowners to engage in conservation, and

the agency of governance processes to promote it. Similar to the PLC and endangered species conservation literature, studies of environmental stewardship have spanned disciplines without conceptual consistency, leading to a lack of consensus in conclusions and policy implications (Enqvist et al., 2018). This framework was developed to combine the various elements of environmental stewardship and provide a conceptual starting point to enhance the validity and reliability of future research into environmental stewardship (Bennett et al., 2018). Investigations of ESC behavior also require such a consistent starting point, thus our application of the framework to a qualitative case study of VIPs for endangered species could be highly valuable.

To provide a holistic picture of the wide array of factors that influence landowner adoption of ESC behavior, we will use the framework to account for the social and ecological context underpinning the decision making process, the actors involved, the motivations of those actors, the local and institutional capacity of the involved actors, and the actions and outcomes that result from the decision making process. Specific leverage points are also included in the framework to show where extension or policy efforts can be targeted to influence landowner participation in conservation behavior.

## **Context**

Large scale social and ecological processes can enable or inhibit the capacity and motivations of landowners and institutions in conserving endangered species on private property (Sawitri et al., 2015). Contextual factors that occur outside of an individual, such as socio-cultural, institutional, economic, and ecological changes can help determine the social acceptability and applicability of certain management practices and governance efforts (Bennett et al., 2018).

## **Actors**

The individuals engaging in decision-making processes regarding PLC, determine the success of conservation efforts on private property (Cooke et al., 2012). Actors, in this case, refer to the private landowners who are engaging in the decision process of whether to conserve endangered species on their property. Characteristics of actors that will be considered under demographics herein include gender and age. Demographic characteristics often lack statistical significance as direct determinants of conservation behavior by private landowners (Sorice et al., 2012). However, researchers have found demographic variables to be indicative of differences in perceptions, motivations, and levels of willingness towards ESC (Sorice et al., 2014; Henderson, 2014), thus, necessitating their inclusion in an integrative conceptual framework.

## **Motivations**

Internal reasons and extrinsic incentive structures that drive landowner decision-making constitute the motivations of private landowners in this framework (Bennett et al., 2018). The type or amount of motivation that landowners experience can lead to various conservation outcomes. Types of motivation are usually discussed as either intrinsic or extrinsic and are separable by the drivers behind the motivation and the expected results of achieving that which one is motivated to do (Ryan & Deci, 2000). Intrinsic motivations are derived from within an individual that reflect ethics, value orientations, beliefs, and attitudes (Frey & Jegen, 2001; Bennett et al., 2018). The environmental stewardship framework also includes the needs for self-determination and self-actualization as important intrinsic motivations. Self-determination pertains to an individual's fundamental needs to feel autonomous in decision-making, competent in

carrying out those decisions, and connected to other individuals (Ramsdell et al., 2016). Self-actualization refers to an individual's internal drive to utilize their potential to the fullest extent of what they are capable of and the journey towards that actualization (Maslow, 1965). Extrinsic motivations are external drivers of behavior that can exist as tangible rewards or limitations (Cetas & Yasue, 2017). These drivers can include economic, social, legal, and physical incentives and sanctions. Extrinsic motivation, for the purposes of this framework, also includes the perceived outcomes of an individual's cost-benefit analysis for participating in stewardship because of the influence that opportunity costs, such as lost time and money, can have on behavior (Bennett et al., 2018).

### **Capacity**

The ability of an individual to participate in a given action and the assets and the institutional governance factors that influence these abilities are referred to as capacity (Bennett et al., 2018). Individual capacity can allow for the actualization of intrinsic motivations and can enable landowners to take action, however a lack of capacity can constrain intrinsically motivated behavior (Greiner & Gregg, 2011). Landowner assets within the environmental stewardship framework include social, cultural, financial, physical, human, and institutional capital. Social capital includes relationships between individuals that foster trust and positive feedback that support conservation behavior by private landowners and has been investigated globally as a significant determinant of PLC (Prokopy et al., 2008; Bennett et al., 2018). Cultural capital includes assets that hold cultural value and can be thought of as the connections and maintenance of these connections to values, worldviews, beliefs, and ideas that are culturally significant to an



individual (Throsby, 1999; Bennett et al., 2018). Financial and physical capital include the economic and technological resources that enable or constrain conservation behavior. Human capital refers to internal assets such as knowledge, experience, awareness, and skill of an individual that promote or hinder conservation behavior. Human, social, and cultural capital take time to develop and change, and can influence the resilience of social-ecological systems (Baral & Stern, 2011). Institutional capital and governance factors refer to assets available to landowners for PLC that are resultant of governance processes and structures relative to power, politics, and decision-making (Bennett et al., 2018). Important assets included in this framework as elements of institutional capital and governance factors are programs and policies that are available to landowners that offer assistance and/or guidance in the carrying out of PLC. Characteristics of these programs and policies, such as the obligations and requirements placed on participating landowners and the implementing agency, have been investigated as key determinants influencing the decision-making process of private landowners (Pannell et al., 2006; Baumgart-Getz et al., 2012).

## **Actions**

The environmental stewardship framework describes activities that are undertaken by individuals with the intention of stewarding natural resources as actions. For the consideration of the PLC literature, *Actions*, will include activities that private landowners engage in to conserve endangered species or some form of natural resources on their property. Trends in the PLC literature point towards an emphasis on the adoption of conservation instruments, such as conservation easements, and the drivers influencing a landowner's decision-making process (Capano et al., 2019). As a result, *Actions* here

will include instances of landowners adopting particular management practices, adhering to government policies, or participating in government or non-governmental organization (NGO) programs involving private property.

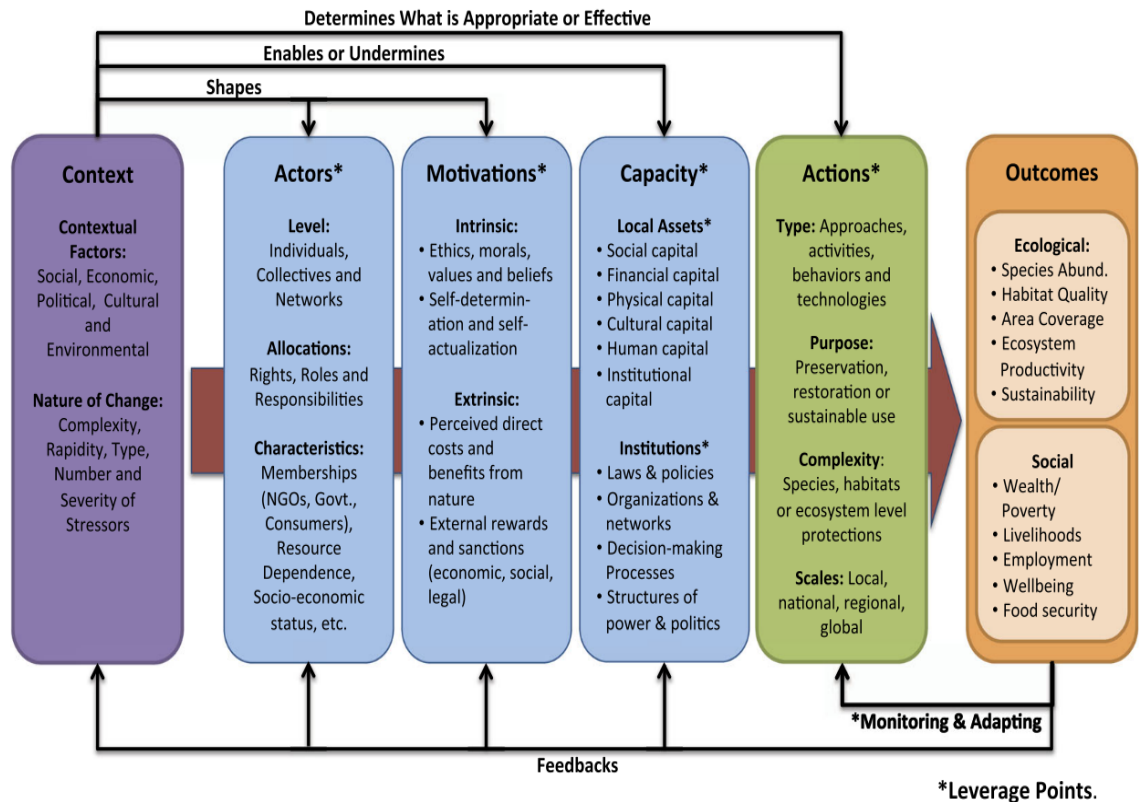
### **Outcomes**

The stewardship actions of actors result in ecological and social outcomes that warrant consideration within the environmental stewardship framework. Considering the outcomes of stewardship actions is important in determining the efficacy of conservation activities, the positive and negative consequences of these activities (including consideration of costs and benefits and who bore the costs and received the benefits), the potential effects, or feedbacks, that these outcomes have on the motivation and capacity of actors considered in the framework, and how the conservation actions of individuals can be influenced to increase the socio-cultural benefits actors experience from engaging in conservation (Kittinger et al., 2013; Bennett et al., 2018).

### **Leverage Points**

Outlining opportunities for policy makers and management officials to strategically influence the decision-making process of actors engaging in the PLC decision-making process through leverage points improves this framework's usefulness and applicability to future research and policy interventions. Leverage points allow for small scale changes in components of the decision-making system that can influence large scale outcomes (Meadows, 1999). Leverage points exist as feedback between outcomes and each individual component of the framework where government or non-governmental interventions, such as different programs and policies, can be promoted. Leverage points can include providing additional incentives to landowners, enhancing the

assets and institutional processes allowing for PLC, supporting desirable actions and outcomes, and by enhancing the monitoring and evaluation process of the actions and outcomes of PLC (Bennett et al., 2018).



**Figure 1**

### *Environmental Stewardship Analytical Framework*

*Note.* Each variable in the framework builds upon the preceding to encourage positive outcomes leading to feedbacks that can further increase environmental stewardship.

## **II. DETERMINANTS INFLUENCING RECRUITMENT IN THE HOUSTON TOAD PROGRAMMATIC SAFE HARBOR AGREEMENT**

### **Abstract**

The importance of endangered species conservation on private property continues to grow as endangered species populations are increasingly threatened by habitat loss and displacement. The importance of private lands conservation (PLC) for endangered species protection is an exercise in stewardship. However, much of the literature centers on specific species, government interventions, or geographic areas. A sizable knowledge gap exists regarding the factors that lead to the success or failure of environmental stewardship in the context of endangered species conservation on private lands. In Texas, nearly 98% of all property is privately owned, rendering PLC critical for protecting Texas-endemic endangered species across entire ranges. To understand how a novel agency-led intervention to promote endangered species on private lands can support and enable local efforts to protect Houston toads (*Anaxyrus houstonensis*) at the landscape scale, I situate findings from 24 interviews with key informants within a popular stewardship framework. My approach revealed that landowners may have a greater willingness to participate in PLC as social capital between agencies and landowners increases. Results also suggest that the prevalence of landowners' obligations to protect natural resources supersede culturally embedded myths and attitudes of anti-government sentiment associated with rural areas. Finally, the results highlight landowner preferences for educational and technical incentives in motivating and enabling PLC when financial incentives are lacking. In conclusion, agency inclusion of and communication with private landowners in the PLC process can remove disincentives associated with

endangered species on private lands and capitalize on landowner obligations to steward endangered species.

Keywords: Safe Harbor Agreement; landowners; endangered species; Texas; environmental stewardship

## **Introduction**

The U.S. Endangered Species Act (ESA) outlines the primary goal of endangered species conservation (ESC) as to conserve fish, wildlife, and plants facing extinction. The purposes outlined in Section 2 (b) of the ESA provide three primary ways in which these goals should be actualized: a.) conserve endangered/threatened species-supporting ecosystems, b.) provide programmatic conservation options for endangered/threatened species, and c.) take appropriate steps to ensure actualization of specified conservation treaties and programs. Achieving the goals of endangered species conservation (ESC) in the U.S. is increasingly a function of landowner participation in voluntary endangered species conservation.

In the United States, where roughly 74% of every state is held in private ownership (Morgan et al., 2019), conserving species of greatest concern requires the help of private landowners. A substantial proportion of endangered and threatened species partially (95% of all threatened and endangered species) or fully (19% of all threatened and endangered species) depend on private property to meet their habitat requirements (Wollstein & Davis, 2017). Since its inception in 1973, however, the ESA has been dubbed a “political lightning rod” (Kraft, 2017, p. 244) as bipartisan perceptions of the equitability of the ESA’s methods to involve landowners have snowballed into cross-scalar controversies. Resultantly, impasses between managers and private landowners have occurred for decades, hampering ESC (Langpap & Kerkvliet, 2012).

To ameliorate issues associated with preserving property rights while also conserving species the U.S. Fish and Wildlife Services (FWS) has resorted to “carrot” (coverage and flexibility) and “stick” (fines, land-use restrictions, imprisonment)

approaches. However, the “stick” of regulation has resulted in unintended negative consequences for endangered species (i.e. habitat destruction) (Byl, 2019). Introduced under Section 10 of the ESA in 1982, voluntary incentive programs (VIPs) for endangered species preservation are popular schemas offering “carrots” (i.e. incentives) to combat perverse incentives resultant of ESA regulations (Ruhl, 2004). However, VIPs can only contribute to FWS goals if they are adopted by landowners (Sorice et al., 2013). One example of such VIPs is Safe Harbor Agreements (SHAs); agreements where the FWS provides private landowners with assurances against increased regulatory burden in exchange for endangered species conservation (ESC) behavior (Byl, 2019). Although promising, SHAs have been implemented with mixed success over the last two decades. Programmatic agreements (SHAs using institutions outside of the FWS to facilitate partnerships between private landowners and the FWS) for the red-cockaded woodpecker were modeled as successes of the program. SHAs for the woodpecker spread across the American southeast and led to a substantial increase of 171 nest clusters (Bean, 2017). However, a programmatic SHA for the Hawaiian goose in Molokai was implemented in 2003 without substantial buy-in from landowners. Programmatic SHAs for the El Segundo blue butterfly and the Ocelot ended in similar fashion (Bean, 2017).

For several reasons, private landowners often are disinterested in VIPs. When faced with the decision to participate in voluntary private lands conservation (PLC) opportunities, a landowner’s evaluation of or attitude towards toward the program often predicts their involvement (Prokopy et al., 2019). This has also been the case in investigations of ESC as it’s common for researchers have to reveal, for instance, unfavorable attitudes and negative emotions towards ESC or the FWS as, precluding their

commitment (Olive & McCune, 2017; Henderson et al., 2014). While these findings do not necessarily foreshadow the extinction of a species, continued landowner disinterest in VIPs suggests that perhaps deeper-seeded causal factors are at work. Morality is one of many causal factors identified as research area that has been influential in guiding ESC behavior (Quartuch & Backley, 2013), however, its potential to boost interest in endangered species VIPs to actualize their purpose has been understudied.

We address this need to uncover drivers of involvement in VIPs with a case study investigating Texan landowners' potential participation in a Programmatic Safe Harbor Agreement for the critically endangered Houston toad (*Anaxyrus houstonensis*). The goal of this case study is to develop our understandings of why landowners do not participate in SHAs. This study will reveal the following:

- a.) What factors influence landowner recruitment into the Houston toad SHA?
- b.) What criteria do landowners use to balance the costs and benefits of SHA participation?
- c.) How do local landowners feel that outreach and marketing efforts can be enhanced to increase landowner buy-in for the SHA?

## **Background**

Landowners tend to associate burdensome costs with participating in ESC initiatives. Researchers have uncovered at least two primary costs that partly explain why landowners do not participate in ESC. First, landowners often perceive ESC efforts as a direct affront to their right and responsibility to manage their land free of government interference (Peterson & Horton, 1995). Most landowners agree that property ownership



is united with a freedom and right to manage the land as they see fit (Jackson-Smith et al., 2005). Part of this self-identification as a steward is dependent upon a landowner's ability to make independent decisions with complete autonomy over those decisions (Peterson & Horton, 1995). Thus, a challenge to a landowner's autonomy, as the ESA is frequently perceived, is a challenge to their identity as a steward of the land. This perceived cost of autonomy has led certain groups of rural landowners to express support for threatened species only under the condition that their management decisions not be regulated (Henderson et al., 2014). Subsequent negative evaluations of the intervention are, therefore, often not resolved with financial incentives (Sorice et al., 2013). Second, researchers have also cited a lack of social, human, and institutional resources as important barriers for landowner participation in ESC initiatives. For instance, some landowners do not trust or do not communicate with the implementing agency and are resultantly unaware of their legal obligations to threatened and endangered species (Olive & McCune, 2017). These deficiencies have been attributed to national, historic, and current conflicts surrounding ESA species protections (Womack, 2008), a general rural skepticism of federal regulations (Wollstein & Davis, 2017), and a lack of social considerations in VIP development and implementation (Wallace et al., 2002).

Disinterest in ESC contradicts widely supported claims that environmental stewardship can overcome the costs of ESC and enhance human-environment interactions (Bennett et al. 2018). Research investigating the factors influencing PLC and ESC behavior abound with claims of environmental stewardship as the unifying thread that motivates landowners to act pro-environmentally. Landowners protect natural resources and wildlife for biospheric and anthropocentric benefits to self, others, and nature, and

often express a moral responsibility to do so (Bennett et al., 2018). Investigators uncovered a competing norm of environmental stewardship motivating landowners' willingness to participate in select voluntary ESC actions despite strong property rights convictions (Olive & Raymond, 2010). Findings suggest that a stewardship ethic supplants inessential federal ESC governance because landowners already pursue the ends on their own (Peterson & Horton, 1995; Jackson-Smith et al., 2005; Olive & Raymond, 2010). In sum, environmental stewardship is critical to a landowner's participation in ESC efforts, but participation in ESC efforts is not critical to a landowner actualizing their responsibility to steward natural resources.

To enhance the success of voluntary ESC policy and associated programming, it is critical to remedy a perceived disconnect between morally obligated ESC and non-participation in VIPs. Past investigations on this nexus have identified how managers can bridge this gap and enhance participation in VIPs (Sorice et al., 2011). Studies have revealed that a combination of incentives (regulatory assurances and cost-share/compensation) are more effective than one incentive alone (Langpap, 2006). Other studies suggest that hegemonic (i.e., designed to gain consent) incentive structures of the past are unlikely to achieve adequate landowner incentivization today. Sorice et al. (2013) asserted that incentives designed by landowners may be more productive. Other researchers have observed that deficient landowner acceptance of VIPs is a function of a needed shift in the archetype ESC governance regime. These researchers advocate that the ESC paradigm move from authoritative and regulatory approaches mandated by the "pit-bull" of the ESA to cooperative, community-based approaches as a way to move ESC past historic gridlock with private landowners (Brook et al., 2003; Raymond &

Olive, 2008). Yet, despite the promise of SHAs to do some good for ESC, it is unclear how this governance tool interacts with morally obligated ESC stewardship.

### **Environmental Stewardship Analytical Framework**

Bennett et al.'s (2018) stewardship framework is an appropriate tool to investigate the interface of private landowners and VIPs. One reason that I find this framework advantageous is because it offers a more balanced micro and macro-scale level of analysis than other, frequently used frameworks used to explain landowner behavior. Frameworks used in investigations of ESC behavior tend to focus on individual characteristics at the expense of contextual considerations (Prokopy et al., 2008). And while certain studies do adopt a more large-scale unit of analysis, these studies run the risk of overlooking the nuance of individual circumstances and assets in determining ESC outcomes (Reimer et al., 2014). Another strength of the environmental stewardship framework is that it allows for the observation and consideration of synergistic relationships between each element affecting landowner decision-making. An important criticism of the PLC literature is that these interaction effects or multi-collinearities between independent variables are often overlooked (Pannell et al., 2006; Prokopy et al., 2008). Finally, despite its comprehensiveness, the environmental stewardship framework has yet to be tested in its application to a real-world dataset. This premier application of the stewardship framework will help evaluate and inform ESC decision-making.

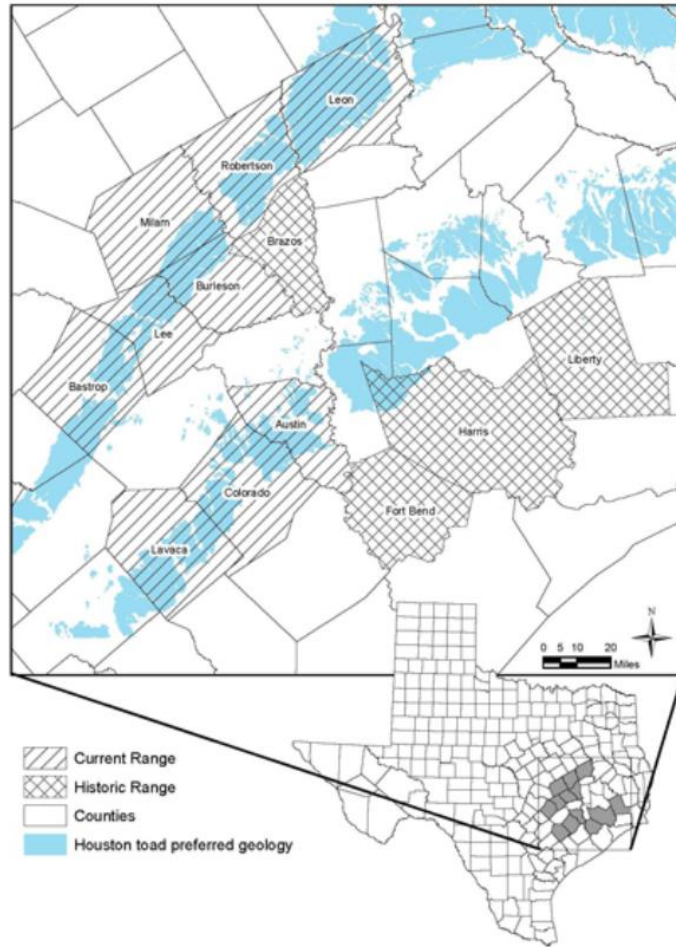
## **Methods**

### **Study Area**

Houston toads are habitat specialists that require sandy soils and ephemeral pools typical of pine and mixed post-oak woodlands (FWS, 2020). Historically, Houston toads

were found in twelve counties in East Central Texas (Figure 2. The toad is currently found in nine of those counties primarily due to rapid agricultural and suburban development (Duarte et al., 2011). It is unclear how many Houston toads are left in the wild due to inconsistent sampling throughout the nine counties where Houston toads may still exist (FWS, 2016). However, it is agreed upon that the species is declining throughout its increasingly fragmented/destroyed home range and mostly concentrated in the Lost Pines of Bastrop County (Brown et al., 2013).

Houston toad conservation began in the central coastal region of Texas with its listing as the United States' first endangered amphibian in 1970 (Allison, 2002). In 1978, the FWS designated critical habitat for the endangered toad but the species was not the target of sufficient preservation efforts (Peterson et al., 2006). The FWS's push to limit development in Bastrop Country, a key toad stronghold, has stoked socio-political conflict over the last three decades (Allison, 2002; Peterson et al., 2006). To quell discontent and assuage landowners, the FWS created the Houston toad Programmatic SHA in July 2017. Texas Parks and Wildlife Department (TPWD) administers the program through the nine-county range consisting mostly of privately owned property.



**Figure 2**

*Houston Toad Range Map*

**Sampling and Recruitment**

I employed selective sampling (Beebe, 2001), followed by chain referral sampling (Guest et al., 2013) to obtain perspectives of knowledgeable and experienced landowners 18 years of age or older living in Houston toad habitat in Austin and Colorado Counties. These counties contain valuable Houston toad habitat but have seen less ESC and institutional involvement from regulatory agencies compared to other range counties such as Bastrop. For interviews, sampling was aimed at interviewing people who could maximize the range of data elicited by providing diverse perspectives (Beebe, 2001;

Lincoln & Guba, 1985) rather than achieving representativeness. Key informants included landowners who owned property in Houston Toad habitat or who were a.) considering enrollment in the program, b.) enrolled in the program or similar SHA, or c.) not interested in the SHA. Landowner's in these counties were likely to have less experience with programmatic ESC efforts for the Houston toad than landowners in other counties, reducing the potential for bias developed during previous toad conservation efforts. I continued interviewing in each county until participants' responses to interview questions failed to provide novel insights (i.e., I reached theoretical saturation; Corbin & Strauss, 2008).

Once theoretical saturation was reached, I began recruiting participants for one focus group in each target county. My aim for focus group recruitment was to obtain a sample of landowners with little to no experience with Houston toad conservation. This helped balance the perspectives of well-informed individual interview participants with landowners who, in most cases, had no experience with the Houston toad.

I also interviewed FWS and TPWD agency staff to provide critical contextual information regarding Texan landowners, toad conservation, and perspectives on the strengths and weaknesses of the SHA. Staff members were recruited as their contact information was provided by a contact within the agency funding my research. Field notes, voice memos, and analytic memos taken during data analysis all served as secondary sources from which to validate interpretations of landowner responses and emergent themes from interviews and focus groups. This research was approved by Texas State University IRB protocol #6188 on November 18, 2018.

Recruitment began with agency staff involved in Houston toad conservation

alongside landowner key informants, contact with whom was facilitated by contacts within the respective agencies. The initial sampling frame consisted of 20 names provided by agency staff. These landowners and additional agency personnel were sent interview invitations via email (See Appendix B). I was able to schedule interviews with 17 email recipients. Initial respondents then suggested additional contacts that they felt met our search criteria, aiding in the recruitment of other participants via snowball sampling. As personal contact information was rarely transferred between participants and the interviewer, snowball sampling was accomplished by participants forwarding the original email invitation to landowners they felt may be interested in participating. To ensure the efficacy of recruitment efforts, snowball sampling from key informants was supplemented via contact with regional NGO's, such as Wildlife Management Associations (WMA), Master Naturalist chapters, and agricultural extension services (AgriLife).

I recruited focus group participants using mixed methods as difficulties presented themselves during the recruitment process. I used on-site recruitment at the 2019 annual Colorado County to engage potential participants from Colorado County (Dhanani et al., 2002). Recruitment for the Austin County focus group, however, was a more involved process that began with attending small TPWD workshops in the area and snowball sampling with individual interview participants. Initial attempts at recruitment failed to yield adequate participation leading to the recruitment of landowners using County Appraisal District (CAD) parcel data and the local White Pages. I randomly selected Austin County parcels from the CAD website, cross-referenced addressed with designated phone numbers using the White Pages, and screened landowners based on

their interest in wildlife conservation and endangered species management.

### **Administration**

I conducted semi-structured interviews with a pre-tested interview instrument, with interview questions pertaining to the following research areas: a.) what factors influence landowner participation in the Houston toad SHA; b.) how landowners negotiate government efforts to protect endangered species; and c.) how can strategic outreach and marketing efforts be improved to increase landowner participation in the SHA. Interview and focus group participants received similar questions with slight variations based on the landowner's status regarding the SHA. For example, I asked informants who rejected the program what factors contributed most to their decision to not participate, while informants who were currently considering enrollment at the time of their interview received questions regarding challenges they faced during their decision-making process. I did not limit discussions to just the questions on the interview schedule (i.e., list of questions) because I endeavored to keep interviews conversational. Informant validation took several forms, including designing clarification questions into the interview protocol and asking informants to critique conclusions drawn from preliminary analysis.

### **Analysis**

I converted interview audio files to text files and then employed thematic analysis (Draucker et al., 2007) using QSR International's NVivo qualitative data analysis software (Version 12.1, 2018) to examine the qualitative data. Initial coding was accomplished using a deductive approach according to the environmental stewardship framework. Initial deductive codes included: context, actors, motivations, capacity,



actions, outcomes, and leverage points. During this phase, continual movement between data collection and analysis enabled us to evaluate the precision of recorded explanations and encourage the reflexivity that is essential to any explanation of situated social action and encourage reflection on our own involvement in the study (Lincoln & Guba, 1985; Petty et al., 2012). I assigned excerpts (“references”) from interview transcripts to categorical nodes from the stewardship framework according to definitions included by Bennett and revised by co-authors (Bennett et al., 2018). To identify the topic of each reference, as opposed to the meaning, I then used an inductive approach to descriptively code references from the most densely populated deductive categories (Tesch, 1990). Resultant descriptive codes were denoted with the participants unique two-digit identification code and recorded in a separate document. This was completed for all references in the selected categories. Continuing my inductive approach to coding, I then applied concept codes to the descriptive codes to allow for larger units of meaning (i.e. thematic categories) that represented groups of descriptive codes that emerged naturally from the data (Saldaña, 2016). This process allowed for the development of themes and categories of descriptive references beyond the a priori assumptions of the environmental stewardship framework. Finally, the I applied axial coding to the extensive list of categories, concepts, and descriptions. Axial coding allowed for connections to be drawn between and within the most relevant emergent themes and enabled the identification of “conditions, interactions, and consequences” that connected the most dominant categories (Saldaña, 2016, p. 244).

The quality of the coding decisions made (i.e., the process of verification) was best evaluated through ways that proactively managed threats to trustworthiness both

during and after the coding process and accentuated the importance of meaning and context in the analysis (Lincoln and Guba, 1985). I engaged in the following acts to establish trustworthiness (Guba, 1981): one year of persistent engagement and observation – enhancing investigator responsiveness, post-interview debriefings between research team members, iterative analysis and recoding, triangulation (e.g., meetings, peer-reviewed papers, popular press, official reports), confirmability audits with stakeholders; and achieving negotiated interrater agreement (Campbell et al. 2013).

## **Results**

### **Sample Characteristics**

I engaged 32 landowners in 24 different semi-structured interviews and 10 focus group participants (5 at each focus group). Discrepancies between the landowner sample and number of interviews is due to marital couples preferring to be interviewed simultaneously, as well as one interview being conducted with two pairs of somewhat like-minded landowners. I also interviewed select agency personnel (n=6) with extensive experience with private landowners in Texas or with institutional Houston toad conservation efforts to validate or challenge insights developed from thematic analysis of individual landowner interviews.

The majority of interviewed landowners were over 55 years of age and achieved at least a college degree (Table 1). Most respondents had owned their property at least 15 years. In some cases, landowners' properties were multi-generational parcels that had been in the family for over 100 years. The acreage owned by participants was variable and ranged from roughly 21 acres to over 800 acres. Participants of the larger parcels frequently mentioned that they co-owned their property with close or distant relatives

(25%). Nearly all landowners described their land-use objectives as involving wildlife management (84%). Furthermore, 56% of participants expressed that conservation and associated natural amenities were the sole motivation for owning property in rural Texas. Only two participants emphasized their prioritization of cow-calf operations on site over wildlife conservation and natural amenities.

To accurately attribute the findings to subjects, I refer to key informants as informants (i.e., ID), focus group participants as participants (i.e., FG), and agency personnel as staff (i.e., AS). The themes overlap and are interwoven and, therefore, not mutually exclusive.

**Table 1**

<i>Informant and Participant Demographic Information</i>			
Variable	Variable Category	Landowner Informants	Focus Group Participants
Sample		(n, %)	
Sex <i>LI: (n=32)</i> <i>FG: (n=10)</i>	Male	(32, 69)	(10, 60)
	Female	(32, 31)	(10, 40)
Age <i>LI: (n=28)</i> <i>FG: (n=9)</i>	24-34	(2, 7)	(0, 0)
	35-44	(1, 4)	(0, 0)
	45-54	(4, 14)	(0, 0)
	55+	(21, 75)	(9, 100)
Education <i>LI: (n= 28)</i> <i>FG: (n= 8)</i>	HS/AA	(3, 11)	(2, 25)
	B.S/B.A	(14, 50)	(5, 63)
	M.S/M.A/PhD	(11, 39)	(1, 12)
Acreage <i>LI: (n=31)</i> <i>FG: (n=8)</i>	≤100	(16, 52)	(5, 63)
	>100	(15, 48)	(3, 37)
Length of Ownership <i>LI: (n= 28)</i> <i>FG: (n=9)</i>	≤5	(3, 11)	(3, 33)
	6-15	(3, 11)	(0,0)
	16+	(22, 78)	(6, 67)
Involvement with SHA <i>LI: (n=32)</i> <i>FG: (n=10)</i>	No Involvement	(17, 53)	(10, 100)
	Enrolled/Considering Enrollment	(9, 28)	(0,0)
	Enrolled in HCP/ Other SHA	(6, 19)	(0,0)

## **RQ<sub>1</sub>: Factors Influencing Recruitment**

### ***Deficient awareness and communication***

Informants expressed that a communal deficiency in human capital, primarily awareness, was a main contributor discouraging participation in the Houston toad SHA and ESC/PLC initiatives (53%). While most key informants were aware of Houston toads, associated endangered species restrictions, and responsible ESC behavior, they conveyed that their community was not. Informants specifically mentioned that community members were generally unaware of toads, ESA statutes (e.g., take provisions), and the Houston toad SHA (32%). Subjects commented that deficient awareness fostered negative attitudes towards Houston toads and ESC institutions and, thereby, landowner disengagement with ESC behavior. Additionally, 56% of informants, primarily landowners in Austin and Colorado Counties, expressed unfamiliarity with SHA requirements and the Houston toad. Focus group participants exhibited a similar lack of awareness of the SHA, what it required of landowners, and how the SHA could benefit them.

Informants also identified a lack of interaction about ESC within their community, between community members and implementing agencies, and between themselves and both parties (44%). Informants noted that deficient communication prohibited the effective dissemination of information that landowners relied upon to capacitate and motivate conservation behavior. Receiving this information from agency staff and local conservation professionals was an important motivation for ESC (41%). Informants also expressed that deficient relationships with wildlife agencies (28%) and landowner individuality (22%) were key barriers to effective information sharing.

Without effective content, communication strategies, and social capital to raise awareness about ESC programs and PLC initiatives, informants expressed that community members stuck to traditional land management practices (discussed below) and held negative attitudes towards anything that challenged traditional approaches to land management (i.e. Federal ESC initiatives and ES restrictions).

Staff attributed deficient awareness to unsatisfactory mechanisms (e.g., marketing) to promote the novel SHA (AS03). Staff also mentioned so-called traditional Texan views associated with defensiveness of property rights and agrarian practices (13%) as they were considered in the development of agency engagement strategies. In some instances, staff believed property rights and ESC were a nonstarter to engage landowners:

A perception that the landowners, especially in Texas, don't want to deal with a federally protected species that may, in one form or another [...] influence what they can and can't do on their property. So, our biologists don't push it. -AS04

Staff expressed that field biologists' relationships with landowners were critical and that introducing something they "[don't] want to be bothered by" (AS04), like ESC, was not worth jeopardizing that relationship.

### ***Infringement on civil liberties***

Personal and collective philosophies regarding personal property rights, land management practices, and adherence to cultural artifacts (e.g. identity) inhibited landowner participation in the Houston toad SHA. While they were not mentioned most frequently as direct barriers, the influence of this old-school frontier mentality was manifest in each of the most salient direct barriers that emerged from informant interviews.

Negative emotions, primarily fear and concern over government involvement and associated property rights infringements, were perceived as highly salient collective intrinsic barriers to participation (44%). Focus group participants confirmed these sentiments by expressing suspicion and misgivings towards government involvement on private property (FG04, FG05) and providing anecdotes of government overreach that incited personal and collective fear (FG08). The source of this fear was explained by a highly involved member of the Austin County conservation community:

When people realize that [they're] in Houston toad habitat, first thing they say is [...] I don't want the feds out here finding out that I've got Houston toads on my place. And that's just a fear that I don't know where that comes from other than the sensational articles they may see in the paper about a developer [...] They just don't want somebody coming on their property. And tell them what they can do and what they can't do. Probably in Texas more than any other state in the United States. We're proud of our property rights and we don't want anybody telling us what we can do on our property. So, I think that's the fear. -ID22

Similarly, some informants expressed that their community was staunchly protective of private property rights and other individual personal freedoms and would not be told how they should manage their property (38%). Informants also related traditional agrarian practices among neighboring landowners as “deeply entrenched” (ID02) barriers to collective ESC/PLC (38%). Informants frequently used these two cultural elements in conjunction with one another as they described their communities’ perspective on land-use as “production-value, property rights-oriented” (ID02).

Staff described agrarians as fearful of land use restrictions. They explained that agricultural producers are often the ones most constrained by land use restrictions. One staff member expressed that “the biggest turnoff” to the SHA is the “limitation of potential production from their land or what practices they can and can’t do” (AG05).

Informants often described an exceptional mentality among landowners with preconceived notions about ESC restrictions on private property. Landowners were deemed “old school” (ID24) or harboring a “frontier mentality (ID02)” that was common throughout “older generations” (ID03) of landowners. This “old-guard” (ID24) of landowners are resistant to agrarian change (ID11) and will not be told what to do on their land (ID29) and hold a general mistrust of government authority (ID17).

Commonly, these entrenched views stoked conflict and tensions with government agencies (ID23) as well as conservation-minded landowners (28%). Landowner 11, an avid agriculturalist with extensive farming experience described an adherence to the “over-grazing mentality like their dads [had]” (ID26) and how these traditions inhibited cooperation with ESC efforts by agencies and landowners:

“[The older generation says], ‘I’m not going to change. I’m going to fertilize it. I’m going to lime it. I’m going to make sure my babui grass doesn’t have any army worms, I’m going to kill them. And convert it to natives [i.e. native prairie], why would I want to do that?’” Introducing any of this, including Safe Harbor, goes against what they are trying to do to the land.” -ID11

He continued by telling of his personal interactions with old-school members of his community at a local farm supply store:

“When I walk in, they quit talking [...] I am an oddity [...] I’m the outsider [...] I have one guy tell me, ‘You and those liberal guys in Washington [DC] [...] are going to rape the soil and be the demise of the Texas Livestock industry if you keep this [native prairie restoration efforts] up’ [...] It’s just people resist change.” -ID11

One informant elucidated that similar tensions can manifest within co-owned parcels. When discussing challenges introducing conservation concepts, like the SHA, to her family members that “are afraid of government control”, she described the experience as akin to “beating [her] head against the wall” (ID27). When asked where this sentiment

originated, one informant commented: “The government is where it comes from. Are you kidding? Are you nuts? Have you been fucking blind these last two years?” (ID24). This landowner elaborated that increasingly restricted land use and news of federal prosecutions of private property owners created suspicion, mistrust, and an unwillingness to cooperate with institutional efforts. Whether or not these issues pertained to matters of the environment, they were enough to renounce any possibility of involvement in an institutionally facilitated ESC effort, despite self-identifying as an environmentalist. Participants similarly expressed that mistrust in the government spawned from prosecutions of private landowners. One landowner provided an example:

“He dug a little ditch for several shallow holding ponds and apparently that was illegal under WOTUS [Waters of the United States] because he didn’t have a permit. They took him to court, fined him, put him in jail. He was finally pardoned after he died in prison. WOTUS did that to him. WOTUS is one of the biggest things that scares me because I’m in an area that Floods [...] And it scares a lot of farmers and ranchers and property owners because you can do something you think you are perfectly okay to do and then find out you were supposed to get a permit for that.” -FG08

### ***Costs and benefits***

Informants cited negative collective attitudes towards ESC programs (primarily the Houston toad SHA) as a primary collective barrier to participation (41%). The most frequently mentioned driver of these attitudes was that the costs of SHA participation did not outweigh the benefits. Costs cited included demands on the time, energy, and money of participants as well as the business and development restrictions that landowners associated with endangered species. One cattle rancher discussed trepidation over tying his business activities to a binding SHA:

“So, you know, you’re boxed in on lots of sides of your business. And then, the thought of having another limit or restraint like the federal government saying you did the wrong thing, “We’re going to enforce [the]



Endangered Species Act, you committed a taking”, and you know you can’t say, “Well I didn’t mean to do it.” It’s a strict liability standard. It’s a hammer and I think I’d be a fool not to take it seriously.” -ID09

Similarly, informants expressed that their respective co-owners had concerns about restrictions on cattle operations and property sales challenging their ESC land-use objectives. These challenges and concerns with co-owners were the second most discussed intrinsic barriers to individual participation (38%).

Additional informants expressed similar, personal sentiments towards the SHA as they expressed discontent with perceived high opportunity costs and minimal realized perceived benefits (41%). This sentiment was the most frequently mentioned inhibiting intrinsic barrier to personal participation. Informants perceived little utility in the regulatory and financial aspects of SHAs and were simultaneously prohibited by liabilities associated with federal involvement on private property (ID30).

### ***Governance Capacity***

Informants stated that without regularly teeth, the SHA offered little benefit (9%) and the value of the SHA’s regulatory assurances incentive was diminished. This issue was largely attributed to the FWS, however some informants recognized local governance officials as being of a similar mind with traditional, agriculturally oriented Texan landowners (i.e. potentially anti-ESC) (ID05, 10, 15). This was said to result in a lack of enforcement of critical habitat designations, partly because local institutions prioritized development over conservation (ID15/16). One Colorado County landowner recognized this issue:

“Problem is, if no one's getting fined or prosecuted for doing anything, the likelihood that somebody's gonna go out of their way to get into this program [is] pretty much next to none unless they want to. [...] There's nothing there threatening the landowner to begin with. I mean, there is a

threat there, but it hasn't been executed.” -ID13

I detected a more general theme that landowners in rural Texas are unhappy with macro- and micro-scale governance processes (66%). The regulatory capacity of ESC institutions was linked with deficient ESA enforcement. Landowners 17 and 22 expressed having been personally told by select agency staff (non-interview staff) that institutions lacked the resources to enforce the ESA. Informants expressed a similar sentiment that institutional ESC goals were not supported by the appropriate resources and motivations to allow follow-through (25%). Staff explained rationale for deficient enforcement: “In Texas, the federal government is not going to tell you what to do on your property” nor will it prosecute for the “take” of Houston toads (AS04). Furthermore, informants felt that ESC was not a priority of federal (25%) or local (19%) governance institutions, reinforcing negative individual and collective attitudes towards regulating agencies. Negative attitudes towards the archetype ESC regulatory approach (19%) was another substantial contributor to informants’ issues with FWS governance. One landowner described it as a “command and control” (ID02) approach and followed that it is not viable in rural Texas.

Historical attempts by the FWS to enforce ESA statutes were largely to blame for the negativity towards ESC governance approaches. Participants recognized that historical regulations over ES created conflict between agencies and themselves and between agencies and their communities with far-reaching, persistent implications (22%). Three informants with extensive toad conservation experience specifically identified the Service’s initial approach at enforcing Houston toad critical habitat protections in Bastrop as “hard-nosed”, “onerous” (ID10), and “culturally ignorant” (ID02). An informant

elaborated:

[The USFWS said,] “This 168,000 acres has been designated the last viable habitat for the endangered Houston toad and you basically can't do anything. And no, we're not taking questions.” And they really pissed off everybody. It was really, really bad. And this was the first that we'd heard about it. [...] And, so, my wife and I came back up here going, “Well, that was ugly.” It was very, very poorly presented and then the fact that they didn't answer questions was ridiculous.” -ID17

Media coverage of ESC conflicts and regulations generated myths and misperceptions that spread throughout the community like wildfire (AS05). Informants reported receiving anti-ESC information through a variety of mediums (e.g. TV, newspapers, landowners, local professionals) that discouraged ESC participation (19%). Anti-ESC information sharing of restricted personal freedoms (i.e. government overreach [ID10]) reinforced collective and individual negative attitudes towards the government and ESC initiatives. These negative attitudes towards the government were important intrinsic barriers to participation expressed for community members (38%) and by individual informants (13%) and focus group participants (more so in the Austin County focus group). The media has been influential in shaping landowner views of ESC:

“It creates a negative cloud because you know, you hear so much [...] you turn on the TV every single day and the first thing you hear “California, Colorado, California, Colorado, regulation, regulation, regulation.”[...] So, there's so much you hear about so much government regulation Federal wise in these western states that you know, I don't think Texas wants to go there. You know, that's for sure. And that's probably where a lot of people are like, ‘the less we get involved with them the better, being the federal government.’” -ID23

Taken in aggregate, each of the mentioned inhibitions to collective and individual ESC led to undesirable stewardship outcomes. Individually, 41% of informants reported having no present or past involvement with Houston toad SHAs. Of these informants, only two reported no current effort to work towards ESC outcomes despite owning

parcels with desirable habitat for Houston toads.

### ***Stewardship resources***

Informants expressed that barriers to participation led to environmental contextual conditions that spelled trouble for habitats and species to which they felt connected. Cultural ties to the land, often developed through childhood exposure and lifelong immersion in environmental recreation were also important resources enabling intrinsic motivations to participate in ESC behavior (i.e. cultural capital; 34%). The majority of informants (59%) cited local development pressure, destruction and fragmentation of sensitive habitat, and mismanagement of agricultural lands as pressing challenges. Sense of awareness and a sensitivity to the mismanagement and observed destruction of the landscape served as critical tools that landowners wielded to pursue conservation action (50%).

Cooperative conservation experiences between landowners, informants, and implementing agencies developed social capital within the community that was expressed as critical to enabling and motivating ESC behavior and responsible land management practices. Informants also reported extensive experience working with local agencies, including TPWD and FWS, that resulted in positive attitudes towards these agencies, continued cooperation, and enhanced social capital (47%). Informants expressed having relationships with TPWD (n=44%), USFWS (25%) but landowners most frequently emphasized the importance of relationships with specific individuals (47%) as enabling ESC participation. Informants expressed that trust, faith, and personal friendships with individual agency staff members enabled conservation behavior by removing intrinsic barriers to participate including negative attitudes towards ESC initiatives (i.e. a

perception of high costs and low benefits). Relationships with individual staff members and agencies, as a whole, provided landowners with access to educated professionals that gave landowners the means to actualize their ESC or PLC land-use goals. Informants perceived this technical guidance as the most motivating extrinsic benefit associated with programmatic ESC options (41%).

Staff spoke at length to the importance of social capital between agencies and communities. Staff expressed that landowners with intrinsic interest in ESC frequently requested advice and assistance from USFWS and TPWD specialists (AS02, AS03, and AS04), using their relationships with like-minded officials to gain technical assistance. Staff also recognized the importance of social capital in reaching landowners without intrinsic motivation to pursue ESC. Reaching these landowners about ESC or PLC behavior was an important task accomplished by TPWD staff that have frequent interactions and long-standing relationships with individual community members (AS05). Staff members expressed that TPWD, as programmatic administrators, brought trustworthiness into discussions of ESC because “[we’re] not the federal government. We have these longstanding deep relationships with communities [...] we are a resource of trust” (AS04, p.32). This trust could be leveraged in the community to enhance SHA participation, or at least build potential for future participation in counties still culturally entrenched in federal mistrust (AS04).

### ***Community-based conservation***

Access to staff was largely available to landowners through community-based conservation (CBC) institutions. These institutions were often recognized by informants as an important facilitatory medium for themselves and for community members that

provided education, opportunities, and communications that enabled PLC/ESC behavior (44%). Informants specifically referenced four individual CBC institutions in rural Texas, the first two of which are directly involved with TPWD: Wildlife Management Associations (WMAs) (38%), the Texas Master Naturalist program (28%), landowner partnerships and local champions (25% & 22% respectively), and the Wildlife Habitat Federation (22%). In particular, individual informants and focus group participants alike viewed WMAs as a breeding ground for interactions and social capital between traditional Texan landowners, their communities, and regulating agencies:

“The idea is that if we're all concerned about the environment and the rest, we need to do things in a coordinated way somehow, not mandatory. That's the whole push for the WMA is to educate landowners on best practices so they can decide if they want to use the best practices. That's kind of cool. There's no commitment. You just were given education and then you decide if you're going to take the lesson or not.”-ID15

The Colorado County WMA, in particular, depended on their local field biologist to disseminate information and be present at meetings and workshops. By connecting small-parcel landowners and encouraging effective wildlife management practices, WMAs encouraged increased habitat connectivity across the landscape (FG04). Furthermore, informants expressed that CBC efforts allowed landowners to develop intracommunity relationships, an important medium for effective information sharing that motivated conservation behavior (28%). Landowner 08 suggested that WMAs are a community-based group of like-minded landowners that may provide opportunities for agencies to circumvent ESC inhibiting beliefs. Focus group participants, primarily those in Colorado County, were very involved in CBC initiatives and spoke to WMA benefits.

### *Extrinsic Motivations*

The technical guidance and support that informants received from access to agency professionals through SHA participation was the most highly ranked extrinsic motivations for ESC (41%) in addition to serving as a catalyst for stewardship resources (i.e., social and human capital). Landowner 14 expressed that this “access” and “exposure to professionals” (ID14) was critical to motivating her involvement in the Houston toad SHA.

Property enhancements that landowners expected from participating in responsible land management practices were secondary (38%). Landowners expressed that both PLC and ESC behavior were important ways to enhance the value of their property while providing benefits to nature, themselves, and other members of their community. Property enhancements and technical assistance or education (i.e. access to professionals) as well as financial incentives (25%) and the possibility of having Houston toads on (or reintroduced on) their property (19%) were the next most salient extrinsic motivations for participation.

Extrinsic motivations offered by the program, in addition to the human and social resources offered by these external benefits, alleviated some of the costs that landowners associated with participation, reducing negativity towards the SHA and ESC initiatives. Moreover, cooperation between landowners and implementing agencies to negotiate agreement over the specifics of their respective SHAs further enhanced social capital between landowners and implementing agencies. Landowners expressed that local administration (TPWD as the programmatic administrator) of the Houston toad programmatic SHA and TPWD’s willingness to be flexible with SHA requirements

promoted landowner participation (28%). Participants also perceived the program as having low administrative and upkeep requirements (25%) in addition to aligning with their current land-use goals (22%). However, participants most frequently referenced intrinsic motivations to participate as the drivers of their ESC and PLC behavior.

### ***Intrinsic Motivations***

Informants (72%) and agency staff offered that an affectual and attitudinal affinity for conservation behavior was a powerful motivation. Informants expressed interest, curiosity, and appreciation for wildlife and nature in addition to strong emotional sentiments of love, care, and passion for the land and responsible management thereof. Informants also expressed that their participation in ESC initiatives was fulfilling a desire to achieve benefits for the environment (69%), intrinsic benefits for themselves (47%), and benefits for other members of their community (38%). Informants primarily sought to restore and improve mismanaged wildlife habitat and protect the environment from degradation. An important avenue for actualizing this motivation was using SHA participation as a means to limiting subdivision and development. Informants also viewed ESC efforts, the SHA in particular, as a way to provide intrinsic benefits to themselves, including personal satisfaction, enjoyment, and excitement. An absentee owner with a weekend ranch in Colorado County expressed a motivation to feel the “[excitement] that we've got Houston toads on our property” and the “satisfaction of knowing that we have this biological treasure on our property” (ID01).

Informants expressed that their ESC behavior and protection of nature would allow future generations to enjoy nature as they had and could increase cooperation between implementing agencies and the local community (38%). Landowners sought



ways to prove to their community that ESC and sustainable agriculture do not have to exist in isolation of one another, and viewed a VIP for the Houston toad as a perfect medium to educate their neighbors and be a role model (ID05, ID07).

Informants expressed a moral obligation and responsibility towards their land and the plant and animal species found thereon (66%):

“I know there is no more land being made and if you don’t take care of it, it will die. And just like I feel responsible for the health of my children, I feel responsible for the health of my land.”-ID18

This responsibility was frequently endowed by the participants ownership of their property or ownership of sensitive ES habitat, such as the Lost Pines of Bastrop County and the Post-Oak Savannah preferred by the Houston toad. The sentiment of obligation to the land being comparable to caring for children was also expressed in the Colorado County focus group (FG03). Moral responsibility towards the land was also endowed by a recognition of humanities relationship to (ID02), or “inherent sense of duty” towards nature (ID03).

### ***Cultural and demographic changes***

Informants expressed that the motivations of landowners in Texas are changing in favor of conservation behavior (31%). They acknowledged that this was partially caused by increased awareness and education about environmental statutes and behaviors, but also because of an influx of new landowners moving into rural Texas. Informants perceived that these new landowners had less of a need to produce on their land, but also lacked the knowledge and experience to effectively manage their properties. Landowner 11 reported having been frequently contacted by less experienced, new landowners who lacked “pretty common knowledge”; he expressed that new landowners needed “real

basic stuff” about how to manage their land (ID11). Landowner 29 took particular issue with the management practices of new landowners expressing that “they probably don’t have a clue” when it comes to endangered species (ID29). These landowners then, inadvertently, contributed to the habitat destruction and development pressure previously described as common in rural Texas (see ID09) resulting in the need for increased agency intervention (28%).

Staff echoed a cultural and demographic shift in rural Texas. They expressed that larger tracts of traditionally used properties are being divided up and sold to absentee landowners who are converting the land to wildlife conservation practices (AS05). This shift in land use has resulted in a “mosaic of different types of people [i.e. landowners]” (AS04) in Austin and Colorado Counties, enforcing a dichotomy within the community between conservation minded, retired, financially endowed exurbanites and traditional, multi-generational landowners who rely on their property for income. Agency staff expressed that environmental stewardship transcends landowner demographics (i.e. traditional landowner versus ex-urbanite; AS05), however each of the agency staff that we interviewed suggested that new landowners were the ones with the money and interest to actualize ESC goals.

### ***Stewardship Outcomes***

The various motivating factors and enabling assets described above resulted in 10 informants becoming involved in the Houston toad programmatic SHA or an individual SHA for the Houston Toad with the FWS. Four informants similarly participated in some type of agency facilitated Houston toad conservation. Three informants expressed having decided to pursue Houston toad conservation independent of agency facilitation. Outside

of ESC, 100% of informants reported some form of PLC, including but not limited to rotational grazing practices, maintenance of wooded riparian areas, and allowing universities to test invasive species controls on their parcels.

## **RQ<sub>2</sub>: ESC Decision-making Criteria**

Out of the 32 landowners who were interviewed, 22 outlined specific criteria that they used to navigate the decision of participating in the Houston toad SHA or other ESC initiatives. The following results will be reflective of the proportion of the 22 participants that spoke to this specific prompt. Landowner criteria for involvement in the Lost Pines Habitat Conservation Plan were also analyzed to gain additional insight into landowner decision making about institutional ESC.

While navigating participation in the Houston toad SHA, two of the most frequently considered criteria were related to the costs associated with participation. Informants that spoke to SHA related criteria reported that the financial and administrative requirements of the SHA played a role in their decision whether to enroll in the program (32%). Landowners expressed a desire to know who had access to their property after enrolling in the SHA and were also concerned about the physical and financial burden associated with management practices obligated by SHA participation. Secondly, informants spoke to the risks posed to property and production value that they associated with federal restrictions around endangered species (27%). Older informants, concerned over the impending sale of their property, recognized that the discovery of an endangered species on site could lead to trouble selling their property. Production oriented landowners were similarly concerned that signing an institutional ESC agreement could add an additional constraint to their operation. For some informants

(ID24/25), these risks, primarily spawning from agencies having access to their property through legally binding agreements, were unacceptable conditions of participation.

Extrinsic and intrinsic motivations were also critical decision-making criteria. Informants expressed that the assurances against regulation that the SHA offered were attractive incentives (14%), but that funding and cost-share opportunities were the most sought-after incentives. Specifically, informants frequently mentioned the significance of wildlife tax exemptions (WTE hereafter) and agricultural tax exemptions (ATE hereafter) in Texas. The chance of compatibility between SHA requirements and required tax exemption management practices was a benefit that landowners hoped to see from SHA participation. Informants also expressed that to participate in the SHA, landowners must have interest in ESC, hold positive attitudes towards the implementing agencies, and prioritize ESC as a land-management objective.

Finally, informants expressed that landowners must have certain assets available to them before they can participate in ESC behavior. The most important resource enabling participation in the Houston toad SHA was the presence of Houston toad habitat on a landowner's parcel (23%). Human, social, and institutional capital were also mentioned by 14% of informants as mandatory prerequisites for landowner participation. Informants expressed the importance of trust with implementing agencies, education, and institutional approaches that respected landowners' ecological knowledge and property rights, as resources that would enable participation. Landowner 10, in contradiction to landowners 24 and 25, even expressed that landowners were willing to sacrifice certain amounts of their personal privacy in order to protect endangered species as long as agencies put in the effort to establish "goodwill" and "rapport" (ID10). These efforts then

further reinforced available resources by building trust between landowners and implementing agencies (ID10).

### **RQ<sub>3</sub>: Prescriptions to Enhance Participation**

During individual interviews, 22 informants prescribed solutions that could be utilized to enhance participation in the Houston toad SHA within their community. In this section, percentages are reflective of the respondents that offered prescriptions and not of the 32 total participants. Focus group participants and agency staff also contributed to this research question and will be addressed as previously noted.

The majority of landowners expressed that in order to persuade their community to enroll in a SHA, outreach and marketing efforts should be enhanced (86%). TPWD staff similarly expressed that this was a primary responsibility of theirs as programmatic administrators of the SHA. To enhance marketing efforts, informants and agency staff suggested new mediums through which information about SHAs and ESC could permeate communities. For instance, landowners were expected to be receptive of ESC information at WMA meetings and other community ESC events (e.g., workshops) sponsored by TPWD (32%). Informants also recognized that personal interactions between agency staff could be important mediums for community members to receive information about the SHA (23%). Informants emphasized the importance of face-to-face interactions to increasing community participation in the Houston toad SHA:

“You get a good local biologist like [AS05] that interacts with the community well, that's the most important thing right there. Working with [unidentified staff] over to the NRCS office is the next avenue. People like him that interact with the local community, because they're coming to Parks and Wildlife, they're coming to the NRCS to get help. So that's how you get it and spread it out further and if they get help and do a Safe Harbor agreement, then the neighbors might fall into place.”-ID23

Focus group participants supported the suggestions discussed above, but Austin County focus group participants put forth the suggestion that TPWD should use landowners who are enrolled in the SHA to promote the program. Participants suggested that word of mouth from participating landowners would be the best way to increase enrollment in the SHA (FG09, FG10). Furthermore, some participants desired experiential education: “You would have to show me...you would have to show me first and then I would have to talk to other people before you could talk me into it” (FG06).

The second most frequently prescribed avenue for increasing SHA participation in Austin and Colorado Counties was to increase the human and cultural capital available to community members (50%). Informants suggested that increased education, awareness, and exposure to nature could result in increased public acceptance of institutional ESC initiatives. Informants were keen on exposing and educating young people to nature was an important way to bestow motivating cultural and human capital in a new generation of potential conservationists (ID24, ID25, ID27), using schools as a vehicle:

“So many kids in urban environments, they never experience nature. Even going to a park [...] I guess I really think education is the key, and like you said earlier you’ve got to start young enough because kids naturally want to love [...] take advantage of that natural curiosity and that natural willingness to love and if you can make nature part of their experience, then you’re halfway there.”-ID25

“It would have to be part of the curriculum in schools to hit these topics, nature appreciation ya know, otherwise it would accidentally happen when a relative would teach a child to appreciate a butterfly.”-ID27

Agency staff similarly acknowledged that educating landowners would be important to increasing the efficacy of the SHA. Agency staff recognized that cultural myths and misperceptions surrounding ESC could easily be alleviated by outreach and educational events (AS03). However, agency staff also realized that landowners were not

the only ones in need of education about the SHA and how landowners should best navigate the enrollment process. AS04 suggested that ensuring that agency staff are prepared to discuss the program in detail would be an important way to enhance enrollment in the SHA; especially because, at the time of the interview, field biologists expressed unfamiliarity with the program (AS05). AS06 also suggested educating staff members outside of TPWD and USFWS by saying:

“Another thing that would be effective would be to sit down at the local NRCS offices in those counties and educate them about the opportunity. They deliver Farm Bill programs, they interact with a lot of private landowners...Give them a supply of handouts that they can provide to landowners who come in the door.”-AS06

Informants also expressed that community participation in the SHA could be increased by making fundamental changes to the program that resultantly could have a positive influence on communal perceptions of costs and benefits associated with the program. Informants offered that additional incentives, reduced costs, and otherwise altered SHA logistics could increase landowner participation in the program (36%). Most commonly, participants expressed that enhancing financial and technical incentives would increase the benefits that landowners perceived from participation.

Informants suggested changes to institutional ESC governance approaches were compulsory to enhancing landowner participation in ESC initiatives (23%). Informants expressed that past regulatory attempts at ESC governance had resulted in conflict and that new, cooperative approaches were required to at least improve communication (ID02) and build rapport (ID10) between landowners and agencies. Landowner 17 had personally witnessed FWS’s regulatory approach to Houston toad conservation in Bastrop and recognized how simple enhancements in communication could make

tremendous in-roads into improving landowner-agency relations:

“The first thing you do is talk about what it’s not: “This is not the government's attempt to get into your business at all. This is the government spending money to help you be good stewards of your land [...] We're not here to tell you what you can't do. We're here to tell you what you should do to help the habitat [...] We're on your team. We're here to help you. You're paying the government to pay us to help you. We're not here to tell you what to do. We're not here to take anything away. We're not here to tell you what you can't do. We want to help you stay in compliance with the regs.” That's basically it.”-ID17

Finally, informants recognized the importance of involving new actors in institutional efforts to engage Austin and Colorado County landowners (32%).

Informants specifically identified new targets for outreach and marketing efforts in addition to actors that could facilitate the implementation and actualization of SHAs in the area. Informants expressed that future landowners (i.e. children of current landowners) and landowners without pre-existing relationships with agency staff would be prime targets for information about ESC and SHAs (18%). Informants also identified the need for volunteers to facilitate landowners in implementation of SHA requirements and for a “centralized point of contact” (ID15) for landowners to discuss SHAs with.

## **Discussion**

A key to landowners accepting SHAs entails meeting landowners where they are because their stewardship orientation removes intrinsic barriers to participation in ESC. Our results suggest that this sentiment translates to cultivating a landowners’ interest in protecting endangered species but on their terms as much as possible because landowners do not view perpetual restrictions as compulsory to environmental stewardship (Sorice et al., 2011; Mir & Dick 2012). Landowners’ terms, in Houston toad range, are centered on receiving forms of capital that balance their interconnected, morally-grounded



responsibilities to the defense of civil liberties against the impacts of their actions on the greater good of their neighbors, community, and society. This is a well-noted dichotomy (Jackson-Smith et al., 2006) but is not inherently irreconcilable (Olive & Raymond, 2009). Intrinsic motivations work symbiotically with human capital to make the pursuit of balance possible. Cooperative and helpful experiences in the form of technical guidance, discussions, and learning events can facilitate internal motivations to engage ESC and may be preferable to regulatory assurances (Wilcove & Lee, 2004; Cearly-Sanders, 2005). However, governance institutions need to co-evolve to bridge intrinsic motivations and knowledge/awareness. As currently implemented, the Houston toad SHA may be headlining archetype strategies and inducements that do not align with their target demographic.

The accoutrements that come with other conservation programs are more attractive to landowners than existing SHA's carrots and sticks. Securing wildlife and agricultural tax exemptions were more valuable to participants in our study. Moreover, without tax breaks, subjects would not be able to afford land in rural Texas let alone the costs of ESC. Unfortunately, the SHA does not offer landowners a shortcut to a wildlife tax exemption -- a most attractive quality of previous Houston toad conservation programs (i.e., LPHCP; ID14, 15). How much if any financial assistance landowners receive under the SHA is dependent on the ability of FWS and TPWD to find competitive opportunities for grant funding and cost-share through the Landowner Incentive Program (Barry, 1999). Without addressing potential financial gaps and associated misperceptions about regulatory assurances, we expect disinterest in the SHA program will continue.

Shifting land ownership trends provide challenges and opportunities for exacting

positive change for Houston toads. Tensions within communities are rising due to the influx of so-called amenity landowners, suggesting a contest to shape the ideal landscape. The phenomenon playing out in Houston toad range mirrors the challenges of wildlife agencies facing community rifts due to amenity migration in the western U.S. (Jackson-Smith et al., 2006), nature tourism development (Liburd & Becken, 2017), and the unintended environmental consequences that result from these processes (Abrams et al., 2012). Wildlife agencies will need to consider the nuances of this shift in Houston toad range and how they might influence landowners' desire to steward their property and design and integrate effective governance tools into the inevitable changing social system (Peterson & Horton, 1995; Ryan & Deci, 2000).

If designed and administered well, CBC can infuse enthusiasm for the SHA and address the paradox associated with bridging the gulf between individual freedoms and endangered species protection as well as the socio-political riptide that is a shift in land ownership. Subjects expressed that networks of critical actors motivated them to engage in ESC by providing landowners with conditions (e.g., assets) that tipped the scales in favor of benefits over costs. Specifically, Wildlife Management Associations, the Master Naturalist program, and locally-embedded conservation groups could serve as gate keepers (Knight et al., 2010; Lubell et al., 2013) and facilitators by promoting landscape scale stewardship at the lowest levels of organization (Føllesdal, 1998; Bennett et al. 2018). They could similarly serve to generate cooperation and goodwill and, thereby, positive feedback loops and trust among critical ESC actors (Cvetkovich & Winter, 2003; Wagner et al., 2007). It is unclear whether the dire conditions facing the toad can be reversed as a rapid cultural shift (Sorice et al., 2014) or assembly of the considerable

amount of institutional capital required to establish and maintain social and human capital (Pretty & Smith, 2004) is unlikely. However, immediate changes in governance can start by iteratively contextualizing SHAs by attending to localized conflicts. Incorporating bounded conflict into ESC decision-making is a way to design a safe space for critical actors to collaboratively develop a viable and resilient processes, standards, and targets to create positive outcomes, and also to debate and air grievances (Peterson et al., 2004). Bounded conflict represents a departure from the current practices of promoting a homogenous SHA and shying away from conflict. Because Houston toad range covers nine Texas counties (approximately 7700 square miles) and thousands of parcels, future research will want to identify ways a bounded conflict process can achieve broad scale positive change.

The series of consequences (intended or unintended) that result from spatiotemporally specific historical acts by both ESC institutions and landowners influence SHA enrollment. Historical experiences were contextual boundaries influencing prospective enrollment in the Houston toad SHA. Interview data revealed that conflict over ESC in Houston toad range shaped tensions between critical actors for decades and continues to influence outcomes. The advent of the SHA was not intended to intentionally gloss over historico-cultural conflicts such as contests over the rights of private landowners, but to pay homage to them by putting these interactions into context through policy. However, results suggest that scars from increasing governmental involvement in land use to protect endangered species can run deep and fade slowly (Wollstein & Davis, 2017). Traditional landowners are often willing to voluntarily steward natural resources (Olive & McCune, 2017) but become resistant to conservation

legislation that they perceive as inequitable and inefficient (Cooke et al., 2012). As we try to demonstrate, these perceptions evolve with positive and negative interactions among ESC actors. Programmatic SHA's are an attempt by the FWS to decentralize the their historically negative role in ESC by introducing NGOs or local governance actors that landowners trust.

Normalizing landowners as anti-government, mischievous, or hostile property rights advocates can stymie development of novel efforts to save Houston toads and find common ground with landowners. Results revealed these staff tread lightly, which produced perceptions of lax enforcement of and weak communication with landowners, as well as notions that agencies are not committed to ESC. Individual property rights is a powerful socio-cultural artifact because they convey the ability to regulate access to and ownership of land and its natural resources (Jackson-Smith et al. 2006). However, the notion that Texas landowners are more protective of individual rights of ownership and fear erosion of these rights may be overstated as our results suggest that it is older generations of Texas landowners who represent the orthodox demographic. This is a novel appraisal of who cares about erosion of property rights because prior research revealed middle-aged landowners were most concerned with this possibility in a natural resource context (Jackson-Smith et al., 2006). We believe that breathing life into and fearing a caricature Texas landowner diminishes the influence of a strong stewardship orientation that will likely play a critical role in the evolution of effective governance strategies and tactics that produce enrollment in SHAs and other ESC programs.

To develop effective adaptive capacity to govern ESC in Texas and elsewhere where private property is involved, agencies must provide society with the means to cope

with the impacts of endangered species legislation and allow landowners to influence the process of governance (Gupta et al., 2010). Diminished adaptive capacity is a hallmark downside of the institutional ESC governance regime. Existing wildlife institutions have exemplified their adaptive deficiencies through democratically exclusive and hegemonic approaches to ESC that have limited innovation, rather than encouraged it (Jacobson & Decker, 2008; Ruhl, 2004). The SHA policy is no exception as governance officials developed the program based on a priori, reactive thinking and action rather than using an experimental and learning style of governance (e.g., learning from the failures of Habitat Conservation Plans and ITP's [Kishida, 2001]). SHAs represent ESC institutions that represent a preference to work around the problem rather than through it. To effectively work through landowner issues with ESA implementations and the negative carry-over to perceptions of endangered species VIPs, ESA implementation and policy development must consider the social factors that they've ignored thus far (Kellert, 1985); chiefly, how to align VIP goals with a landowner's moral prerogative to act as stewards of the environment.

This study demonstrated that one of the environmental stewardship framework's primary benefits is that it enables expounding on traditionally simplistic explanations for disinterest in VIPs. The utility of a framework is linked to its ability to describe phenomena of interest while providing the necessary theoretical assumptions to do so accurately (Creswell, 2014). In the case of the Houston toad SHA, application of the framework revealed a causal pathway between deficient awareness and disinterest in the SHA. The framework illuminated complex interconnections between one-dimensional concepts or observations that each have been singled out by subjects as a pathology or

remedy. For instance, we were able to trace how symbolic (e.g., identity) and material (e.g., mode of land use) livelihoods beget distrust for authority (Peterson & Horton, 1995) which can be moderated or fueled by mass media, social networks, or legal precedent to breed fear, concern, suspicion of ESC. Continuing along the pathway, we were able to observe distrust and, ultimately, disinterest in the SHA. Because of social capital's role in turning the tables in favor of VIP participation for long-time stewards with little interest in VIP programs, future research will necessitate investigating just how influential trust and CBC efforts can be in the face of authoritarian ESA implementation and challenged autonomy.

### **Conclusion**

Participants in our qualitative case study overwhelmingly supported that they were morally obligated to participate in environmental stewardship and often actualized this ethic through ESC behavior. Furthermore, this ethic obligated and was actualized through care for the environment, self, and others that resulted in relationships and emotional connections with each party. In many cases, environmental stewardship included caring for endangered species, but rarely revolved around them specifically. For landowners who expressed a more holistic sense of environmental stewardship, relationships with agency staff promoting VIPs and the benefits thereof and education through CBC initiatives were critical to transforming independent stewardship behavior into VIP participation. Unfortunately, providing the necessary amount of social capital required for landscape scale change may require resources that TPWD and FWS do not have. Furthermore, ample communication and information dissemination regarding VIPs may simply uncover more deeply entrenched barriers to participation.

Previous research into rural VIP participation for endangered species have arrived at likewise conclusions: that a large-scale lack of awareness is perhaps the most proximal barrier to VIP participation (Olive & McCune, 2017). However, we suggest that this is a “superficial” (AS04) barrier to participation. We acknowledge that positive feedback loops between social and human capital must be enhanced for landowners to have the resources to participate. However, this will likely only illuminate barriers to participation (e.g. fear and mistrust) that are deeply rooted in rural identity and culture that VIPs, as currently structured may do little to combat (Kreye et al., 2018). Thus, future investigations must seek to determine how to unseat culturally entrenched barriers to VIP participation that influence a wide array of negative beliefs and attitudes about government involvement on private property.

To these ends, we recommend that the VIP participation could be enhanced by reframing their goals to align with the values of environmental stewards that refuse VIP participation. Effective programs are justified by appealing to the values of their constituents (Busch, 2016), and as social considerations have been absent from VIP development and ESA implementation (Kellert, 1985), identifying stewardship values and adjusting VIPs accordingly could be a fruitful research endeavor. Such a re-framing of the goals of VIPs to align with the environmental stewardship ethics of rural landowners will require identifying what landowner values: a.) drive environmental stewardship for endangered species; and b.) which of these values are prohibiting environmental stewards from cooperating with institutional ESC efforts.

Environmental stewardship is no stranger to rural landowners, even as it pertains to endangered species. Recognizing that many landowners already care about endangered

species and the environment (Bennett et al., 2018) will move VIP efforts past antiquated efforts to motivate landowner ESC behavior towards initiatives to work and evolve with pre-existing ethics of human-nature relationships that have driven stewardship behavior across cultures and millennia (Knippenberg et al., 2018). Thus, future research now must endeavor to discover just what these human-nature relationships consist of and how they've driven environmental movements the world-over (Chan et al., 2016).



### **III. EXPLORATORY ANALYSIS OF VALUES DRIVING ENVIRONMENTAL STEWARDSHIP FOR ENDANGERED SPECIES**

#### **Abstract**

Research investigating landowner conservation behavior continues to arrive at conclusions of an environmental stewardship ethic as a thread uniting private landowners. What adherence to this ethic looks like though, and the values that drive it are not so widely accepted. This is especially the case when considering why landowners who report adherence to environmental stewardship do not cooperate with institutional policies aimed at the actualization of their stewardship goals for endangered species. Voluntary Incentive Programs for endangered species are designed to offer landowners incentives and decision-making flexibility in exchange for stewardship behavior but continue to fall flat of accomplishing their goals. To explain this non-participation and highlight potential misalignments between the stewardship values of private landowners and VIPs, I engage interview data from a qualitative case-study in landowner VIP participation in an exploratory analysis of landowner relational values. My approach revealed a variety of relational values driving environmental stewardship for endangered species that are similar among participants and non-participants including a sense of place and cultural heritage enacted through environmental management. My results also suggest that VIPs fail to appeal to salient landowner values and, in some cases, conflict with these values as VIPs do not procure value for the relationships that landowners most heavily prioritize but use single species conservation goals to justify stewardship. Finally, my results highlight the potentiality of reframing VIPs as environmental protections to landowner's most valued relationships with nature while avoiding conflicts over

autonomy. In conclusion, identifying the heterogeneous values driving diverse stewardship outcomes and incorporating them into VIP design and implementation is critical to enhancing cooperation, reducing value conflict, and accomplishing landscape-scale conservation goals.

Keywords: Environmental Stewardship; values; endangered species; landowners; relationships

## **Introduction**

Environmental stewardship is a far-reaching, normative ethic that confers value to the environment and obligates care and the responsible use of natural resources.

However, stewardship has a variety of meanings, usages, and outcomes and, therefore, adherence to an ethic of environmental stewardship varies widely among individuals (Enqvist et al., 2018). Furthermore, because the meaning of stewardship is highly variable so too are the values that environmental stewards receive and bestow upon relationships with different aspects of their surroundings (land, wildlife, general nature). For instance, agricultural producers may adhere to the wise-use of natural resources because of the monetary (“instrumental”) value that wooded, riparian stream banks confer to their operation via flood mitigation, whilst hunters may confer value to a game-rich forest and support active forest management practices as they provide instrumental value through opportunities for recreation and subsistence (Sandler, 2012). The variability described has given rise to an emergent area of research dedicated to defining which values produce different stewardship outcomes (West et al., 2018).

Scholars have made considerable in-roads toward understanding the theoretical relationship between values and stewardship behavior. In social-psychology, theoretical value orientations have been considered as foundational to norms, beliefs, attitudes, and stewardship behavior and investigated accordingly (Fulton et al., 1996; Kreye et al., 2018). Wildlife value orientations have emerged as popular mechanisms for researchers to explain landowner values as they relate to various behavioral outcomes for wildlife. Stern et al’s., (1999) Value-Belief-Norm theory, has also directed values research and emphasized the importance of values on behavior but may lack specificity and fail to

present a holistic account of landowner values (Raymond et al., 2011; Chapman et al., 2019). Steg et al., (2011) attested to the potentiality of Stern's theoretical value orientations (egocentric, biocentric, and altruistic) as they found biospheric values (focused on the value of nature and its parts) to motivate environmental activism more so than environmental worldviews (Steg et al., 2011). However, Steg et al., (2011) also found that values do not exist in isolation of one another, limiting the usefulness of theoretical value orientation categories to designing effective policies that align with the values of environmental stewards (Chapman et al., 2019).

Identifying the plurality of values driving environmental stewardship is critical to aligning environmental policy with the values of environmental stewards and the successful implementation of said policies (Chapman et al., 2019). Environmental policies can be costly in their aims to achieve specific goals, thus, the outcomes of said policies must be justifiably valuable in the eyes of those bearing the costs (Sandler, 2012). This is especially the case with U.S. endangered species policy because endangered species governance has inequitably placed the cost of providing society-scale values (protecting endangered species) on the shoulders of private landowners (Womack, 2008). Resultant distributional injustices have stoked socio-political conflict between the United States Fish and Wildlife Service (FWS) and landowners, resulting in unintended negative outcomes for endangered species (Langpap & Kerkvliet, 2012). In other words, endangered species policy outcomes have not been perceived as justifiably valuable to many private landowners, limiting private landowner participation in the stewardship of endangered species. This most certainly poses challenges for contemporary endangered species governance models predicated on stakeholder engagement (Sorice et al., 2012)

and endangered species that rely on private lands to provide critical habitat (Wollstein & Davis, 2017). To meet this challenge and influence landowner values or re-situate the goals of VIPs, it is critical to understand which environmental stewardship values are driving ESC while simultaneously inhibiting cooperation with institutional ESC efforts.

The goal of this study is to identify the plurality of values that Texan landowners navigate to arrive at different stewardship outcomes for endangered species and their required habitats. Using a relational values lens, I will seek to investigate what landowner relationships (i.e. relationships with nature, the land, wildlife, endangered species) are the most valuable to landowners participating in ESC. I will also attempt to use value divergencies between VIP participants and non-participants to illuminate value conflicts between stewards and VIPs and provide conceptual solutions that may enhance VIP participation. Through the following exploratory analysis of a qualitative case study investigating the drivers of environmental stewardship for the critically endangered Houston toad (*Anaxyrus houstonensis*), I will reveal a.) which values motivate endangered species stewardship as it adheres to a stewardship ethic and b.) highlight which of these values conflict with VIPs and how they are divergent between participants and non-participants. This study will inform the alignment and development of valuable policy goals with the heterogeneous values that drive stewardship decisions.

## **Background**

Historical attempts to justify the value of endangered species conservation (ESC) policy have relied on voluntary incentive programs (VIPs). These VIPs have traditionally attributed instrumental value to endangered species by attempting to compensate landowners for the potential losses incurred by endangered species conservation on

private land (Brown & Shogren, 1998; Sorice et al., 2010). One such innovative attempt at compensating private landowners for endangered species stewardship is through the provision of regulatory assurances. Under section 10 of the Endangered Species Act (ESA), Congress made available exceptions to the harsh penalties of ESA regulation in exchange for the stewardship of endangered species. Through Habitat Conservation Plans (HCPs) and Safe Harbor Agreements (SHAs), landowners are offered assurances that they will not incur future restrictions if appropriate action is taken to steward (mitigate damages to, or actively conserve) endangered species habitat (Langpap & Wu, 2004). Thus, the goals of VIPs for endangered species are being justified by appeals to instrumental values by ensuring no future economic losses resulting from endangered species stewardship (Sandler, 2012).

While extrinsic incentivization techniques can promote landowner participation in stewardship efforts, they are far from a panacea to ensuring landowner buy-in to VIPs (Sorice et al., 2010; Chapman et al., 2019). As appeals to instrumental values through the incentive structures of VIPs have not adequately ensured landowner participation in the past, new policies are necessary that appeal to and recognize the non-instrumental values that stewards ascribe to endangered species.

Appealing to non-instrumental values in endangered species policy issues is contentious in part because the ESA was founded by a network of governance officials who represented a dichotomy of conflicting intrinsic (“nature for its own sake”) and instrumental (nature for “human well-being”) valuations of nature (Chan et al., 2016, 1465; Busch, 2016). Despite disparate values, the ESA was passed with near unanimous support (Byl, 2019). This ethical “convergence” has been heralded by some

environmental ethicists (Minteer & Manning, 2000) as a pragmatic solution to the inherent conflict between proponents of intrinsic and instrumental valuation (Norton, 1991). Norton asserts, through the convergence hypothesis, that if environmentalists and anthropocentrists act rationally and consistently, the goals of both parties can be attained, or converged upon, as both ways of valuing nature are necessary for effective environmental policy (Norton, 1991; Keulartz, 2018). Ethical convergence empowered the U.S. government, conservationists, and other stakeholders to unite for anthropocentrically valuable endangered species protection and stewardship. However, Busch (2016) argued that ESA implementation does not adequately represent the ethical convergence upon which it was founded. Certain landowners and developers view economic impacts of ESA implementation as anti-development, pitting the needs of endangered species against their own well-being (Eisgruber, 1993), while endangered species advocates do not believe that the ESA adequately represents the intrinsic value of all species nor accounts for the dependencies and connections between man-kind and other species (Preheim, 2001).

The importance of “biophilia” (“the innately emotional affiliation of human beings to other organisms”; Wilson, 1996, 165) for which endangered species advocates often champion, is not, however, necessarily a recognition of solely intrinsic values of endangered species (Preheim, 2001). Valuing relationships (i.e. relational values) between humans and endangered species recognizes an important dimension of environmental stewardship that can be simultaneously anthropocentric and non-instrumental; transcending the dichotomy of intrinsic and instrumental values (Chan et al., 2016). Researchers of relational values recognize the value of nature in contributing

to human well-being in a variety of ways including eudaimonia, cultural heritage, and social cohesion (Arias-Arévalo et al., 2017; Himes & Muraca, 2018). This recognition of a tripartite environmental value system recognizes that instrumental, intrinsic, and relational values are totally different, but that considering one domain without the others limits the accuracy and usefulness of environmental value analyses (Himes & Muraca, 2018). Failure to understand relational values in this way would overlook any social (e.g., distributional) injustices perpetuated by the intrinsic -- instrumental dichotomy (Chan et al., 2016). Furthermore, failure to consider relationships between environmental stewards and natural systems in which values are embedded can perpetuate the value conflicts evident in the struggle between legally mandated and voluntary stewardship of endangered species.

Effectively articulating the wide variety of ways that humans can relate to, draw value from, and assign value to endangered species poses challenges to the successful implementation of VIPs. There is little consensus among scholars regarding which non-instrumental values are most relevant for promoting endangered species stewardship, or even how to classify non-instrumental values in general. Resultantly, endangered species policy, uninformed by social considerations (Kellert, 1985), are unlikely to adequately appeal to landowner values and justify their cooperation. For these reasons, Lam et al. (2019) asserted a need for value-based approaches to identify the plurality of values driving stewardship among different stakeholders and to determine how these values interact to influence policy decisions and outcomes. In what follows, I draw from Chapman et al. (2019) on relational values and endangered species stewardship to address this need with an exploratory analysis of the interface of a tripartite value system,



a SHA for the critically endangered Houston toad, and self-identified environmental stewards in East-central Texas.

### **Relational Values**

Categorizing values as resulting from complex, contextual interdependences of human-natural systems, moves the concept of values away from static ideologies within a person or culture towards a more nuanced understanding of dynamic values that can be influenced (e.g., undermined, or supported) by policy (Brown, 1984; Chapman et al., 2019). O'Neill et al. (2008) characterized value interdependencies between humans and nature as three distinct human-nature relationships: 1.) gaining from nature (instrumental value), 2.) living for nature (intrinsic value), and 3.) living in nature (relational values) (O'Neill et al., 2008). Arias-Arévalo et al. (2017; 2018) used these relationships to explain and develop a taxonomy of relational values that I sought to apply to the unique context of the Houston toad case-study (See Arias-Arévalo et al., 2018). While we found the value taxonomy valuable in identifying key relational values (sense of place, cultural heritage, eudaemonia), these three relationships are broad and lack specificity to the niche goals of the case-study (i.e., understanding the interface of VIPs, landowners, and endangered species stewardship). Chapman et al., (2019), however, similarly identified important relationships that landowners valued in the face of endangered species policy (e.g., Conservation Reserve Enhancement Program) and used similar value taxa to describe how landowner valued the following relationships: farmer-land, farmer-community, community-landscape, land-landscape, and farmer-landscape (Chapman et al., 2019). When taken in aggregate, these relationships and value taxonomies provided a fruitful starting point for developing our own application of relational values in an ESC

setting.

During a thorough review of the ESC and general private lands conservation (PLC) literature, we identified four landowner-nature relationships that specifically pertained to the interface of environmental stewardship and VIPs (landowner-endangered species, landowner-wildlife, landowner-land, and landowner-nature). Research uncovered that landowners were obligated to care for nature (landowner-nature; Bennett et al., 2018), held positive attitudes towards endangered species (landowner-endangered species; Henderson et al., 2014), and actualized these intrinsic motivations by stewarding the natural resources on their property (Landowner-land; Olive & McCune, 2017). Relationships with wildlife and endangered species were similar as protecting wildlife (i.e., imperiled wildlife or endangered species) could promote self-identity as a “protector of wildlife” (landowner-wildlife, landowner endangered species; Kreye et al., 2018, 261). However, relationships with wildlife were also valued through recreational processes, such as hunting, which could promote stewardship behavior (landowner-wildlife; Mir & Dick, 2012). While relationships were evidenced within the literature, they were rarely viewed through the lens of relational values, thus we drew from Arias-Arévalo et al.’s (2018) and Chapman et al.’s (2019) relational value identifications as they had both been applied to investigations of stewardship in different contexts. This application could lend credibility to contextually specific, interdisciplinary findings through naturalistic transferability (Guba, 1981).

To make sure that this analysis fully encapsulated these dynamic relationships, relational values were parsed into fundamental values (“partnerships”) and eudaemonic values (Arias-Arévalo et al., 2018; Knippenberg et al., 2018). These nuanced distinctions

allow for the differentiation of human-nature relationships that support life or promote cultural ecosystem services (i.e. fundamental values) or those that provide for human flourishing through cognitive development or recreation (i.e. eudemonic values). I also included instrumental and intrinsic values within this analysis, however, in order to capture the broad variety of ways humans can gain from nature, instrumental value was strictly related to monetary gain while relational values explained a host of non-instrumental anthropocentric values (Himes & Muraca, 2018).

This adoption and utilization of relational values to explore different landowner relationships as they relate to a plurality of values can provide future ESC researchers with novel ways to approach the value of nature as it pertains to endangered species. Recognition of these values as derivative of contextual relationships will hopefully explain how common claims of adherence to environmental stewardship lead to different outcomes for endangered species. This research endeavor is necessary step for informing effective, socially acceptable environmental legislation that can justify institutional ESC goals to private landowners through more effective appeals to their values.

## **Methods**

### **Study Area**

The Houston toad currently has suitable habitat in nine counties in the piney woods and post-oak savannahs of East-central Texas (TPWD). The species has highly specific habitat requirements, including sandy soils for estivation and shallow, ephemeral pools for breeding (FWS, 2017). Critical toad habitat has been designated in two of the nine counties (Burleson and Bastrop counties) (FWS, 2016) but little is known about the status of the Houston toad outside of the well-studied population in Bastrop County.

Urban and agricultural development, invasive species (Red-imported Fire ants [*Solenopsis invicta*]), and environmental stochasticity (fire and drought) have greatly reduced toad populations. Houston toad habitat protection is of immediate importance to FWS to accomplish toad recovery goals through landscape-scale conservation efforts (FWS, 2017). A variety of VIPs have been utilized in toad habitat to facilitate federal conservation efforts, including conservation banks, multiple HCPs, three individual SHAs, and a new programmatic SHA (FWS, 2016).

Unlike previous VIPs, the Houston toad Programmatic SHA is designed to reach landowners outside of the critical habitat designations where little is known about the interface of landowners and SHAs (or VIPs in general). TPWD is the permit holder and administrator for this SHA, actualized in 2017, and are responsible for enrolling private acreage's throughout the range of the Houston toad. Administering the SHA is an especially difficult task because of rural shifts in landowner demographics, parcel sizes, and land-use goals resulting from rapid population growth in rural Texas (Lund et al., 2017). In Texas, agricultural parcels are being subdivided, sold, and converted to recreational/residential purposes (Sorice et al., 2012, 2014). Resultant changes in landownership and management practices means that TPWD must make the SHA attractive to a heterogeneous conglomeration of stakeholders if they are to encourage Houston toad stewardship through this program and meet programmatic goals.

### **Sampling and Recruitment**

I utilized selective and chain referral sampling (Beebe, 2001; Guest et al., 2013) to identify landowners within the Houston toad habitat range that met at least one of the following criteria: a.) landowner owns a parcel with suitable toad habitat, b.) landowner

was referred as interested/involved in the Houston toad SHA, c.) landowner has Houston toad conservation experience, or d.) landowner has interest/experience in endangered species stewardship. I adopted a selective sampling method and search criteria to collect a maximum range of responses and to elicit a diversity of perspectives from members of a variety of different rural stakeholder groups (Beebe, 2001; Lincoln & Guba, 1985). I stopped informant recruitment when interviews failed to uncover unique responses to semi-structured prompts (theoretical saturation; Nascimento et al., 2018). The sampling methodology and interview protocol were approved by Texas State University IRB protocol #6188 on November 18, 2018.

### **Administration**

I conducted 24 semi-structured interviews with participating landowners with a pre-tested interview protocol designed to elicit the drivers of landowner participation into the Houston toad SHA. A thorough review of the Private Lands Conservation (“PLC”) and ESC literature informed the iterative development of interview protocols as I became more knowledgeable of the interface of private landowners and ESC. Specific interview questions aimed at uncovering landowner values included questions about a landowner’s moral obligation/responsibility towards their land (plants/animals/general natural resources), motivations for their land management behavior (including SHA participation), and barriers to their participation in the SHA. As the interviews were semi-structured, open-ended questions often resulted in discussions that elicited value statements and explanations were prompted by the interviewer accordingly.

I conducted all but two interviews face-to-face in locations picked by the informants (exceptions were conducted over the phone). I established initial contact with

key informants through a brief email that explained the aims of my case study and that ESC interest was not a mandatory prerequisite to participation. A copy of this email is available in Appendix B (See Appendix B). At the onset of the interview, I provided landowners with an IRB approved informed consent form that provided basic information about the aims of my research in investigating the variety of influences on landowner participation in the Houston toad SHA. I also requested participant permission to record the interviews. The informed consent form is available in Appendix C (See Appendix C). All interview participants provided informed consent and permission to record the interview. The ensuing interviews typically lasted 60 minutes, however interviews ranged anywhere from 30-150 minutes.

## **Analysis**

A contracted third party or the interviewer transcribed the audio files. I used a deductive approach to apply iterative codes in NVivo qualitative software (Version 12.1, 2018) and Microsoft Excel (Version 16.0, 2016). As interview questions pertained to a landowner's relationship with their land, the species thereon, and their communities, theoretically derived, a priori codes (Saldaña, 2016) from aforementioned value taxonomies explained participants articulated values well. Arias-Arévalo et al.'s (2018) plural value taxonomy (Arias-Arévalo et al., 2018) and Chapman et al.'s (2019) relational value identifications (Chapman et al., 2019) provided the basis for the a priori (deductive) codes used to identify landowner relationships. I also developed codes iteratively as landowners articulated values that were contextually specific to VIP participation that were absent the relational values literature ("sovereignty over property"; "sustainable agriculture"; "environmental action through policy").

I coded relational values according to the appropriate taxonomic designation and relationship from which the value was derived (landowner-nature, landowners-land, landowner-wildlife, landowner-endangered species). Landowners articulated a variety of relational values with endangered species, other wildlife species, wildlife habitat on their property, and the environment (mentioned holistically). Finally, I coded stewardship outcomes relative to the stewardship of endangered species as all respondents reported some type of general land management behavior. Outcome codes included VIP participant (i.e., informants with SHAs and HCPs), ESC participant (i.e., landowners engaging in independent ESC), and non-participant. By Identifying which values were attributed to each specific relationship and outcome, I was able to explore how the Houston toad SHA is aligned with or undermined the values of interviewed landowners.

Findings represent an exploratory investigation into the plurality of values that contribute to the stewardship of endangered species among a small sample of rural landowners. No claims are made to the generalizability of my findings to a broader rural population. However, I recognize the value nested in naturalistic inquiries wherein “working hypotheses,” or context specific knowledges, are developed and can be compared across case-studies (Guba, 1981). I also recognize the importance of ensuring that inherently objective qualitative data is analyzed and interpreted with trustworthiness. Truth value and credibility were assessed via member checks with key informants, personal correspondences with agency staff with a significant presence in the communities of interview participants, and by a thorough review of the endangered species stewardship literature (Guba, 1981). Furthermore, I was deeply engaged with the interview data and relevant literature through 15 months of analysis, data reporting, and

resituating the interview data within a variety of disciplinary frameworks.

## **Results**

### **Sample Characteristics**

I interviewed 32 landowners in six of the nine counties (Austin, Colorado, Bastrop, Lavaca, Lee, Milam) with Houston toad habitat in East-central Texas. I conducted 24 different interviews as three marital couples and two pairs of neighbors preferred to interview together.

Respondents were mostly college educated and over 55 years of age, 11 of which mentioned that they were approaching or had reached retirement. Property size and tenure were highly variable among informants; however, most had owned their parcel for at least 15 years. Parcel size ranged from 21 and 880 acres with informants expressing multiple uses for their land. Only two informants expressed cow-calf operations as their primary land-use while the remaining 30 landowners balanced wildlife management with other usages. Over half (56%) of informants expressed that their properties were solely used for residence and wildlife management or recreation.

To attribute landowner references to their respective speaker, I cited direct quotations from informants with their respective ID number (i.e., ID). I coded many references with multiple values because values were not mutually exclusive. A wide variety of values were important to landowners' human-nature relationships, but discussing each articulated value, relational or otherwise is beyond the scope of this paper. See table 2 for a full list of articulated values and value targets (endangered species, wildlife, land/habitat, nature). Regardless of the relationship or grouping being considered, I always presented percentages as a proportion of the 32 total participants.



**Table 2**

<i>Values Pertaining to Four Stewardship Relationships</i>						
Value Domain	Articulated Value	Stewardship Relationship of Value (n)				Key Words/Themes
		Endangered Species	Wildlife	Land/Habitat	Nature Holistically	
<b>Instrumental</b>						
	Enhanced property value	1	0	1	2	Increased property sale; Additional Revenue
	Cut property expenditures	6	9	3	0	Reduced maintenance cost; Tax exemptions; Compensation; Cost-share
	Maximize cattle productivity	0	0	1	1	Improved pastures; Forage value
<b>Intrinsic</b>						
	Inherent value	0	1	0	4	Upset to take life; All life deserves respect; All things thrive off each other
	Moral duty to nature	1	2	0	4	Inherent sense of duty; protecting biodiversity; conservation is the right thing
<b>Eudemonic / the "Good Life"</b>						
	Occupation	3	0	1	5	Land trust's mission; NWR employee; Park ranger; Rural real estate agent
	Aesthetic value	0	6	0	2	Watching wildlife; Seeing wildlife
	Recreational value	2	8	8	6	Enjoying nature; Deer and water-fowl hunting; it's our own little state park; Weekend ranch
	Cognitive development	7	3	6	6	"Natural curiosity about wildlife and being outdoors" (ID03); Scientific curiosity; Interest
	Altruism	5	1	7	4	future generations; Role model; serve as an example; dispel myths
	Satisfaction	5	1	0	1	Knowing they did the right thing; Satisfaction; Excitement about toads; This could be my own little refuge
	Environmental justice	1	1	4	3	The way others treat the environment isn't right; Neighbors clear-cutting; Unrestricted development

*Table 2 continued*

<b>Fundamental / Partnership with Nature</b>					
Sense of place and responsibility	3	5	10	16	Responsibility; Care; Love
Environmental management	10	6	18	4	Conserve nature; Leave it better than you found it; Preservation
Social cohesion	13	4	8	2	Like-minded individuals; Exposure to professionals; WMA's; Master Naturalists; Friends
Co-existence	5	4	1	0	Share property with wildlife; Harmony
Environmental action through policy	10	1	4	1	Restrict development; Stop pipelines; Conservation easements; Institutional aid in conservation
Parcel-specific knowledge	0	0	2	0	"We know better than you anyways" (ID10)
Sovereignty over property	4	0	11	0	sovereignty; sanctity of property rights; having control over operation and business; personal freedoms
Sustainable agricultural practices	1	1	6	1	Responsible cattle operations (rotational grazing/not overgrazing) can co-exist with conservation goals;
Identity	2	1	6	5	steward; environmentalist; conservationist; passive environmentalist; deep ecology
Sacredness	0	0	1	3	Nature is part of God's puzzle; the Good Lord; Spiritual; Blessed
Cultural heritage	7	3	9	5	Cattle is heritage; Grew up (with wildlife/woods/property/nature); "Piney east Texas";
Mental and physical health	1	0	9	9	Exercise; Fire mitigation; Keeps me going
Ecological resilience	0	2	3	3	Canebreaks reduce problem mice; Run-off; Water quality; Brush along the creeks
Symbolic value	0	0	4	4	Escape from the city; Pines of East Texas; be "in the country"

## **RQ<sub>1</sub>: Relational Values Motivating and Ethic of Endangered Species Stewardship**

Percentages presented under RQ<sub>1</sub> are a proportion of the number of landowners who participated in some form of ESC (VIP participant and ESC participant) from the total 32 participants.

### ***Fundamental Values***

Informants most frequently expressed fundamental values when describing their relationship to endangered species, wildlife, or the environment (i.e. partnerships with nature). Sense of place and associated responsibility (63%), environmental management (60%), and cultural heritage (56%) were the three most frequently articulated values expressed by those who were engaged in endangered species stewardship.

Landowners most often cited a link between sense of place and sense of responsibility to their land. This value represented a sense of awareness of one's obligation to the land they own. To describe their relationship with their property, landowners frequently referenced "care" and "love" (66%). However, this value was rarely directly attributed to relationships with endangered species and, instead, was derivative of relationships with a landowner's parcel (32%) and nature (50%). Describing his caring relationship with his property, one landowner stated, "It's our piece of Texas, and we're trying to take care of it" (ID01). Another landowner highlighted a link between scarcity and responsibility,

I definitely think we have an obligation to take care of this land, especially because it's such sensitive habitat and here in the Lost Pines, there's not very much of it left and we're lucky enough to own some of that property. And I think yeah, as an owner of, you know, sensitive habitat anywhere, you have a responsibility to take care of it as best you can. -ID03

Landowners also mentioned that they valued the land management activities (i.e.

environmental management) they were able to perform on their property (59%). Examples of ways that landowners engaged with their property in this way included brush-clearing, native prairie restoration, and invasive species management. This value was primarily derived from a landowners' relationship with their land (56%) and not specific to endangered species protection (32%). While landowners expressed that active habitat management was important, they also emphasized the importance of preservation, or "allowing natural things to take place" (ID02). The process of environmental management was valuable to landowners in and of itself, however it was also valuable as it secured other relationships and values.

Engaging in environmental management allowed landowners the opportunity to protect, preserve, or restore their property. These practices were keyways in which landowners engaged with their property and actualized the care and responsibility. One landowner discussed the link between managing the land and increasing its utility:

Well, we are both long-term environmentalists and we wanted a piece of land so that we could enjoy nature, and we feel like we have a responsibility to manage that land to try to make it as usefully natural as it can be, so it could be the best habitat as can be and make it more like it was before people interrupted all the natural processes here. -ID06

Landowners also expressed that their relationship with their property, specific habitats thereon, or inhabiting endangered species provided value through cultural heritage (56%). Landowners derived cultural value from their relationships with their property through their lived experiences interacting directly or indirectly with endangered or declining species and their habitats. Specifically, landowners mentioned the significance of being able to manage or preserve their land for entities that carried historical significance such as Houston toads (ID14), Bobwhite Quail (ID11), "piney

woods of the Lost Pines” (ID15), and Post-oak Savannah (ID04). One landowner mentioned having been raised on a farm with abundant and diverse flora and fauna (e.g., Bobwhite Quail, Ringtail cats, and wildflowers) (ID25). However, her father introduced improved pastures which lead to overgrazing and the disappearance of the wildlife she cherished. These events inspired her and her husband to preserve their Colorado county parcel instead of degrading it using harmful land management practices:

...cattle and spraying and cultivating just destroys all of that. It doesn't come back and of course the quail were gone for good. [...] My dad felt that he made good use of the land, made it productive [...] but there was a cost. I'm so glad that I was there when I was so that I could appreciate what had been there originally. That's one thing that I like about here is that we're not really doing anything to the land. We're sort of allowing it to be what it is. We're watching it go through whatever normal evolution that is occurring and you know we've had this place for almost nine years now, and every year we see a new wildflower. -ID25

Social cohesion was also an important fundamental value for landowners (41%).

Social cohesion was often viewed as deriving from landowner relationships with endangered species as VIP participation could offer opportunities to engage with and develop relationships with locally stationed TPWD biologists, Wildlife Habitat Federation technicians, and likeminded landowners. Landowner 02 expressed that the Houston toad SHA offered his family a way to come together and stay connected:

I saw that safe harbor bring my family together in a way that something else couldn't...and this [was] a really formative time for me. I was in college and grad school... but I could still connect with my family by talking to them about these practices that we were implementing because of the Safe Harbor Agreement. -ID02

Endangered species also offered landowners mechanisms to take environmental action through policy, adding value to informants perceptions of landowner-endangered species relationships (32%). Endangered species policy, particularly participation in the

SHA was a way for landowners to gain technical assistance from SHA affiliates (TPWD and FWS) and to protect a variety of important species and habitats under the umbrella of Houston toad conservation. Informants also expressed that endangered species on their property and associated legal restrictions allowed them the opportunity to limit development and habitat destruction threatening their “escape from Galveston [urban areas]” (ID04) and the “environmental infrastructure” (ID15) they cherished. Landowner 15 mentioned having previously witnessed subdivisions converting the “countryside” to city and valued the development restricting implications of an institutionally facilitated relationship with the Houston toad:

We didn’t want to move to an area that was mostly country to watch it infill and just become a city... and the light kind of went on. ‘Oh, this means that development will be limited’. We did not want to live in a dense urban area and we knew that the protections under the Endangered Species Act would limit development. -ID15

### ***Eudaemonic Values***

Well-being was a critical product of human-land relations. Landowners expressed how nature provided values contributing to their living of a good and fulfilling life (i.e. eudaemonic values). These values encouraged the stewardship of endangered species, which provided recreational value (47%), cognitive development (44%), opportunities for altruism (38%), and aesthetic value (22%).

Landowners adhering to an ethic of endangered species stewardship stated that wildlife species and the natural environment provided opportunities for consumptive and non-consumptive recreation. One landowner expressed that the state of his property offered recreational opportunities that he described as “hunting and fishing in paradise” (ID10). Consumptive recreation was also valuable as it contributed to the development of

greater interest and appreciation for conservation. Landowner 03 expressed how recreation revolutionized his appreciation for nature:

I do a lot of hunting and fishing...the interest in conservation just really came up around that and just realizing that in order for there to be abundant game to hunt and fish for, everything has to be in place. And so that kind of gives me a bigger picture. And so now I feel like I just have an appreciation for all sorts of everything. -(ID03)

All but three informants attributing recreational value to their relationships with the environment explicitly mentioned time out of Texas, most of which was spent in less-than-rural settings. Time in urban areas led some informants to declare that their property was a means “to have fun” or “be in the country, [and] get away from the city” (ID12). Landowners did not need to be urbanites to enjoy outdoor recreation, however. Indeed, Landowner 22, a key informant and life-long Texan expressed that extensive ESC and habitat restoration was “just a hobby” because he enjoys “watching” wildlife and “propagating” native grasses (ID22). Non-consumptive recreational value was closely tied to aesthetic values that landowner placed on local wildlife species and nature in general (25%). One landowner offered an example of how these two values coincide: “Having these windows is a blessing because we can *enjoy the wildlife* without them knowing we’re *watching*” (ID16).

Landowners viewed their relationship with endangered species as an opportunity to satisfy their scientific curiosities and educate themselves (44%) or members of their community (38%). Even a landowner without prior knowledge of the Houston toad’s potential presence on his land expressed that a primary motivator to get involved in the SHA would be his “scientific curiosity about these critters” (ID09). Informants also stated that cultivating a relationship with endangered species would be a way that they

could provide educational value to their communities.

Finally, landowners expressed altruistic values stemming from relationships with land and nature as they protected and preserved natural resources for future generations and provided opportunities for collective education (38%). Five (of 12) respondents specified the altruistic component to their stewardship ethic derived from landowner-endangered species relationships as they valued being able to educate about ESC. One landowner expressed that her enrollment in the SHA was a “teachable” opportunity to alleviate myths surrounding sustainable agriculture and VIP participation:

So, one of our big goals is to show that you can do agriculture and wildlife habitat at the same time especially endangered species habitat which is thought of so negatively by most people in the community. But we're going to restore that grazing habitat to native prairie and then eventually reintroduce the cattle and that'll be a great teachable project to show the public that you can do both... Most people feel like you can't do anything if you have endangered species. But I like to work a lot dispelling that myth. -ID05

### ***Instrumental values***

Informants primarily viewed their relationship with wildlife instrumentally. Wildlife and endangered species provided landowners with tax exemptions, compensation, or cost-share funding for management activities (47%). Specifically, landowners perceived endangered species conservation and other wildlife management practices as a way to receive substantial property tax breaks through wildlife tax exemptions (via County Appraisal District offices). Landowners frequently expressed a desire to remove cattle from their land while maintaining tax breaks through wildlife tax exemptions. One landowner articulated the importance of maintaining tax breaks after removing cattle: “It's important to have some kind of exemption if you own this much land. Otherwise you would just have to sell it because you couldn't afford it” (ID18).



### ***Intrinsic values***

Informants articulated intrinsic values less frequently than each of the other value domains. Informants described a moral duty to nature in a holistic sense (22%) as they saw conservation/restoration work as driven by “moral” reasons (ID09) and an “inherent sense of duty to the land” (ID03). Informants also expressed that nature was inherently valuable (16%). For example, one landowner acknowledged that “all living things deserve a certain amount of respect” (ID02). Landowner 02’s philosophical recognition of life’s intrinsic value encompassed the Houston toad as well: “I respect the toad as an integral part of the ecosystem” (ID02).

### **RQ2: VIP – Landowner Value Conflicts and Divergencies**

To determine how different value prioritizations of landowners’ relationships with the environment resulted in different outcomes for ESC (i.e., VIP participation or no VIP participation), I looked to value divergencies between VIP participants and non-participants and how VIPs influenced these divergencies. Table 3 displays a full list of value divergencies between stewardship outcomes. For the purposes of the following discussion, VIP non-participants encapsulate both “ESC participants” and “Non-ESC participants”.

Both groups of landowners highly valued sense of place and environmental management. The most influential relational values articulated by landowners who participated in VIPs were sense of place, cultural heritage, social cohesion, and environmental management (34% each). Likewise, non-VIP participants most frequently articulated value to environmental management (34%) and sense of place (32%). However, VIP participants next most articulated values were environmental action

through policy (32%), recreational value (28%), and altruism and identity (25% each). While non-VIP participants expressed the importance of cutting property expenditures, maintaining cultural heritage, and sovereignty over property (28% each). Sovereignty over property, environmental action through policy, and ecological resilience represented the most salient value discrepancies among landowners who engaged in institutional ESC initiatives and those who did not. Discrepancies were also noted, but less so, in values addressing social cohesion, identity, and satisfaction.

**Table 3**

Relational Values Viewed by Stewardship Outcomes				
Value Domain	Articulated Value	Stewardship Outcome (n)		
		VIP participant	ESC participant	Non-Participant
Instrumental	Enhanced property value	1	2	1
	Cut property expenditures	7	8	1
	Maximize cattle productivity	0	0	2
Intrinsic	All life deserves respect	3	2	0
	Moral duty to nature	5	3	0
Fundamental / Partnership with Nature				
	Sense of place and responsibility	11	9	1
	Environmental management	11	8	3
	Social cohesion	11	5	2
	Co-existence	4	5	0
	Environmental action through policy	10	3	1
	Parcel-specific knowledge	2	0	0
	Sovereignty over property	3	9	0
	Sustainable agricultural practices	5	2	1
	Identity	8	3	1
	Sacredness	2	1	1
	Cultural heritage	11	7	2
	Mental and physical health	6	4	0
	Ecological resilience	0	4	1
	Symbolic value	2	0	1
	Eudemonic / the "Good Life"			
	Occupation	5	2	1
	Aesthetic value	5	3	0
	Recreational value	9	6	2
	Cognitive development	7	7	1
Altruism	8	4	3	
Satisfaction	5	1	0	
Environmental justice	2	4	1	
Total respondents per category (n=)		15	13	4

While non-participants (28%) and participants (9%) both highlighted the role of sovereignty over property, this relational value was the largest value divergence between the two groups. Landowners valued their ability to make land use decisions, and they often viewed institutional ESC as a threat to their autonomy:

I will sign one thing and something else will happen and to me it's not worth losing my sovereignty over my own land and I'm not willing to take any risk whatsoever of losing that sovereignty [...] I don't want no stinking person whatsoever to ever tell me what I can and cannot do with my property. If I decided to clear-cut this whole area, I have the right to do it. I'm a big believer in property rights, individual property rights.  
(ID24)

This value could cancel out competing values such as self-identification, cultural heritage, and sense of place. However, SHAs and HCPs were not viewed so negatively by landowners who articulated this value and were driven to participate in institutional ESC by their stewardship ethic (aforementioned 9%). In fact, these arrangements allowed for retainment of sovereignty. Negotiable programmatic requirements and relationships with high levels of trust and respect between landowners and implementing agencies promoted value alignment between VIPs and autonomy, decreasing the hesitancy of independent landowners regarding VIP participation. One landowner described his initial hesitation to signing a SHA that was overcome by trust in a “special friend” from FWS:

What bothered me was the fact that [the] Safe Harbor...it was like ‘am I signing something that's going to commit me to do something I don't want to commit [to]?’ I wouldn't worry about it because I knew that I trusted [FWS]. He said you need to sign this and get on this program and you know, I would've signed it without him explaining because I trust him so much. [FWS] explained to me that if you've got threatened danger species on the place, then it won't keep you from doing what your regular activities require...but honestly my initial reaction was, “ooh” what am I signing in? -ID11

TPWD working as the programmatic administrators of the SHA was also an

important aspect of the VIP that encouraged the convergence of sovereignty values, VIP goals, and ethics of stewardship. Landowner 10 expressed that he was “open minded” with TPWD “more than [he] was with fish and wildlife” because “it’s a state run agency” that would monitor and manage the program “versus the federal government” (ID10).

Environmental action through policy was a closely related value for VIP participants (32%), three of which were landowners who also valued sovereignty over their property. Environmental action through policy was expressed less frequently by non-participants (13%). Landowners participating in VIPs for endangered species saw legal protections around the Houston toad as an important way to protect their sense of place and cultural heritage. Some landowners engaged the Houston toad SHA because they viewed subdivision and development as a threat to their land’s historical value: “[...] that’s like history, you can’t erase history. It’s there when they keep it alive. This property, I want to keep it alive” (ID04). Engaging Houston toad protection led to a high prioritization of the value that Landowner 02 derived from his relationship with the toad as it was an important tool to preserving aspects of the environment that he fundamentally valued:

From a policy standpoint, I see the toad as an important way of protecting land, minimizing and restricting developments, and allowing us to preserve land as open space, green space, and biodiverse space [...] From a policy perspective, the legal protections around the toad are a tool. They can be utilized to improve biodiversity and green space. (ID02)

Non-participants who valued environmental action through policy without participating in VIPs for endangered species either were not familiar with VIP opportunities or did not highly prioritize the values offered by the Houston toad SHA. Because SHAs did not offer financial incentivization they did not offer “any other

advantage” for landowners who already “had a good wildlife management plan in place” (ID22) and did not perceive development as an immediate threat to their land.

Only VIP non-participants articulated the value of ecological resilience that was provided through relationships with wildlife and well-managed land (16%). These landowners regarded their relationship with wildlife and their property in a way where the values of species and nature were realized through natural processes such as biological regulation, water quality enhancement, and flood mitigation. For example, some landowners recognized the role of non-charismatic flora and fauna on their property. Native grasses or protected riparian areas provided value through improving water quality and preventing soil erosion (ID 22, 29, 30), and Canebrake rattlesnakes (ID24, 25) controlled rodent populations. Improving water quality and preventing soil erosion allowed two landowners to secure instrumental values by maintaining forage quality (i.e., productive value; ID29) and TCEQ mandated legal stormwater runoff requirements (ID30).

Social cohesion, identity, and satisfaction were noteworthy divergent values mentioned more frequently by VIP participants than non-participants. Both participants and non-participants identified ESC as an important communication medium used for developing relationships. However, non-participants did not need VIPs to be “really involved in [their] community” (ID17) and were involved in decision-making committees (Lost Pines Forest Landowners Association [ID17], Mill Creek Watershed Protection Plan [ID22]) and various community-based conservation initiatives (Wildlife Management Associations [ID13, 23], Texas Master Naturalists program [ID18, 19, 20, 21], Native Prairie Society [ID20, 21]).

VIP participants identified themselves as stewards of the land, environmentalists, and conservationists with double the frequency of non-participants (eight participants versus four non-participants). VIP participants received and developed this value primarily through relationships with their land, but also through relationships with wildlife that provided social cohesion. One landowner expressed that his relationship with wildlife management and a local TPWD biologist provided him with the opportunity to enhance his stewardship identity: “We work closely with him [TPWD biologist], and know him well, and so we use that relationship to *be better stewards* of our land as well as animals that are on them” (ID01). Non-participants that expressed the value of environmental identities did not regard institutional cooperation as contributory to their stewardship identity.

Finally, VIP participants valued the satisfaction that they received from contributing to the recovery and conservation of an endangered species (16%). ESC efforts that resulted (or could result) in Houston toads on their land excited landowners (ID01, 26, 27) and validated their hard work and conservation identity (ID14). One landowner expressed that enhanced biodiversity was a source of satisfaction for the effort that she had put into conservation and that Houston toad occupation was the desired outcome of her stewardship:

So with regard to us, and this is selfish, there is a lot of personal satisfaction that comes with seeing a greater diversity of wildlife come to your property after your efforts to actively improve the habitat... Given all the work that we’ve been doing on the property over the years, I wish the damn thing would decide to occupy our place. -ID14

## **Stewardship Summary**

During individual interviews, all 32 informants articulated an obligation to steward the natural resources on their property in one way or another. However, this valuation did not always provide ethical guidance for the stewardship of endangered species. Of the 32 participants, three made no mention of actions taken to include endangered species in management decisions on their property. Furthermore, less than half of our participants (47%) expressed that they had participated in agency facilitated ESC (e.g. Houston toad programmatic SHA [32%], Lost Pines HCP [9%] , and individual SHAs for the Attwater Prairie Chicken [3%] or the Houston toad [32%]). Percentages may be discrepant as some landowners participated in multiple VIPs for the Houston toad (ID02, 10, 14).

## **Discussion**

The stewardship ethic among informants was comprised of a plurality of relational values that transcended ESC. Because some landowners developed their stewardship ethics through daily interactions with their land (Cooke & Lane, 2015) endangered species were often ancillary to a landowner's relationship with nature as they rarely interacted with these species. Limited interactions with endangered species did not always enhance values of high priority, such as sense of place, environmental management, or cultural heritage, but they did not diminish these values. Instead, the process of ESC was often valued as a means to reap the benefits of VIPs to non-instrumental ends (social cohesion, environmental management and environmental action through policy). Thus, ESC embodies the concept of relational values as its value is derivative of relationships between landowners and nature (Chan et al., 2016). This



recognition of ESC and VIP participation as a process to secure relational values with nature instead of just instrumental (i.e., compensation, protection from economic losses) and intrinsic values for humans, reinforces theoretical findings that intrinsic and instrumental values alone are not adequate to explaining how humans value nature (Arias-Arévalo et al., 2017).

Findings suggest relations with endangered species protection are rooted in the fulfilment of individual psychological needs. The process of ESC was a crucial way that landowners enhanced relatedness with their community (i.e., local professionals; social cohesion) and with their property (sense of place). Research demonstrates that landowners can actualize their desire for belongingness and connection to others (i.e., relatedness; Ryan & Deci, 2000) through endangered species protection because stewardship and VIPs can offer opportunities for enhanced social cohesion with implementing agencies (Ramsdell et al., 2016). Our results furthered the work of Ramsdell et al. (2016) by showing that not only does ESC offer relatedness with institutions, but that ESC also offers processes that can enhance inter-community relatedness through altruism (Ramsdell et al., 2016). Endangered species stewardship also provides opportunities for landowners to achieve higher order psychological needs such as self-actualization (Bennett et al., 2018). Processes of ESC allowed or enhanced fundamental and eudaemonic partnerships with the environment that allowed landowners to move towards self-actualization by demonstrating their stated stewardship values (Maslow, 1965; Bennett et al., 2018). The role of ESC in valuable partnerships with nature and the attainment of psychological well-being point to the anthropocentric value of endangered species as non-substitutable by external means or compensations (Himes

& Muraca, 2018), illuminating why extrinsically incentivizing VIPs may be missing the mark with private landowners.

Interview respondents that did not participate in VIPs valued ESC similarly to participants but did not view VIP participation as a valuable process contributing to environmental stewardship. Reframing VIPs, then will need to tackle the divergence in stewardship values between participants and non-participants instead of promoting stewardship ethics that landowners may already adhere to (Olive & McCune, 2017). My findings identified two key value divergencies between participants and non-participants as values regarding sovereignty over their property and environmental action through policy. VIP participating landowners recognized the benefits of taking environmental action through ESC policy (i.e., VIP participation) as it enhanced and protected valuable relationships with their property and nature whereas non-participants preferred to secure these relationships themselves. Previous work on environmental stewardship supports that landowners value sovereignty as the independence to make land-use decisions (i.e., property rights) and could be a critical component of what it means to be an environmental steward (Peterson & Horton, 1995; Jackson-Smith et al., 2006). Thus, VIPs that appeal to these values by offering landowners flexibility (Wollstein & Davis, 2017) and autonomy are more likely to be positively received (Farmar-Bowers & Lane, 2009) while VIPs conflicting with sovereignty (i.e., reducing decision-making autonomy) and identity are less likely to be adopted (Wollstein & Davis, 2017; Bennett et al., 2018). The framing and implementation of VIPs then must reflect a plurality of relational values to avoid conflict and appeal to the values, both relational and instrumental, that landowners seek from VIP participation and derive from human-nature relationships.

Future research must determine the feasibility of this conclusion by investigating the adaptive capacity of ESC governance institutions.

ESC institutions must incorporate the afore-mentioned value-divergencies into the development of ESA implementation strategies instead of prioritizing scientific over social factors. The historical approach to ESA implementation has offered little regard for relationships that landowners have with their land, and thus, has potentially delegitimized what many call, the most powerful environmental law in history (Kellert, 1985; Eisgruber, 1993; Evans et al., 2016). The omission of social considerations during policy design discourages landowners from vocalizing their issues and ideas and encourages acts of resistance (Holmes 2007), increasing negative outcomes for endangered species and both institutional and local actors (Wallace et al., 2002). These negative outcomes were evidenced in this case-study as a lack of cooperation with ESC efforts that can potentially perpetuate habitat mismanagement (Olive & McCune, 2017). Furthermore, compounding the issue of private landowner resistance to regulation, is the idea that ESC governance institutions may lack the adaptive capacity to change as the ESA serves as a barrier to adaptive governance (Gosnell et al., 2017). However, social learning has been investigated as an important potential precursor to institutional changes with the implementation and enforcement of the ESA (Gosnell et al., 2018). Thus, incorporating the values of landowners as they derive from and are attached to human-nature relationships can inform the framing of VIPs that circumvent historic ESC conflict and appeal to a plurality of values that drive stewardship of endangered species.

Value conflict between institutional ESC and landowners are perhaps, in some instances inevitable, regardless of how policies are framed to appeal to landowner values.

As evidenced in this case study, landowners, even those motivated to ESC by an ethic of environmental stewardship, value nature differently, limiting the efficacy of VIPs that use the homogenous mechanisms to reach a diversity of stakeholders. I suggest that capitalizing on the social cohesion offered by landowner relationships with endangered species will be critical to informing how to best implement VIPs. Social cohesion can facilitate trust and cooperation that will be critical to working through value conflicts when they inevitably arise (Henderson et al., 2014). My approach to identifying relational values, the relationships that they are associated with, and value-conflicts with VIPs can provide trusted agency staff starting points from which to work with landowners to reduce and avoid conflict. In the case of the Houston toad SHA, this means TPWD should frame the program as a means to protect autonomy and to take action to secure valuable emotional and cultural relationships with the land.

### **Conclusion**

Evaluating the relationships between landowners and nature versus endangered species specifically highlighted where VIPs must leverage their goals with the values of private landowners. Regardless of VIP participation, environmental stewards were driven to endangered species conservation by a variety of relational values with nature. Instrumental and intrinsic values were also important in driving environmental stewardship. We suggest that the importance of instrumental and intrinsic values and the frequency of environmental stewardship articulated by our sample may be respectively under- and over-represented as we engaged landowners with pre-existing interest in environmental stewardship and ESC. Future research should seek to compare and contrast the plurality of values between stewards engaging in ESC and a more

representative sample of rural Texans.

A relational values approach to understanding landowner values was critical to understanding the plurality of stewardship values that drive environmental stewardship for endangered species. By highlighting the various ways that landowners regard endangered species and nature as valuable through relationships and partnerships, new governance approaches can be informed and framed. Informing new governance strategies through the acknowledgement of human-nature relationships moves past traditional western ideologies of nature conservation and preservation (Himes & Muraca, 2018).

Relational values are critical to understanding, respecting, and learning from the way non-Western cultures view themselves as constituents of a complex web of interacting human-nature relationships (Himes & Muraca, 2018). This understanding will become more critical over time as rural environmental stewards have their own relationships with nature challenged as rural areas become more densely populated and are resultantly fragmented and developed. Relational values provide a way for understanding humans as “living with nature” (O’Neill, 2008); for understanding partnerships that have existed since the beginning of time; for “catching up with reality” (Knippenberg et al., 2018, 39), ideas that have been neglected by ESC governance. Relational values, then, may provide the key for determining how to protect America’s most vulnerable species, not only through partnerships with nature, but through partnerships with landowners, communities, and governance institutions.

#### IV. CONCLUSIONS

My goal with this research was to dive beneath the surface of the issues surrounding private landowners and endangered species conservation. A thorough review of a broad body of literature investigating the PLC phenomena left much to be desired as research uncovered variables that were mostly proximal to conservation behavior (i.e. demographics, incentive structures, attitudes, etc.) and that varied greatly between studies. The literature that I reviewed broadly provided that stewardship motivated a variety of conservation behavior (Bennett et al. 2018) but seemed to be inconclusive as to the underlying causes for why conservation goals are not being achieved. As we narrowed our vision of PLC research towards the focal point of ESC, it became clear that the same disparities between findings existed, but some researchers had asserted that there were deep-seeded factors (i.e. anti-government sentiment, moral norms of stewardship) at work. However, ESC research lacked consistency in the suite of variables that were investigated as determinants of ESC behavior.

One factor that remained consistent throughout the PLC and specific ESC literature, however, was that private landowners often felt morally obligated to care for and responsibly manage (i.e., steward) the abiotic resources and various flora and fauna on their property. Considering this consistency, I adopted an environmental stewardship analytical framework to attempt to explain how highly variable beginnings (i.e., contextual variability shaping actors, motivations, and resources) could arrive at a homogenous end: environmental stewardship.

The challenge of applying this framework to ESC specifically, was that environmental stewardship is not, indeed, a homogenous end. Environmental stewardship

for endangered species could be actualized through a variety of different outcomes that often did not include cooperation with institutional goals. As my qualitative investigation into landowner participation in the Houston toad SHA revealed, landowners overwhelmingly reported adherence to environmental obligations while less than half interpreted this ethic as driving VIP participation. The application of the environmental stewardship analytical framework allowed contextual contributors to this non-participation (e.g., habitat destruction, development pressure, deficient historical and current institutional capital) to float to the surface amidst the expected proximal factors influencing ESC behavior (e.g., attitudes, awareness, various demographic factors). The framework also helped elucidate potential causal feedbacks between available resources and motivations, however questions remained as to why some environmental stewards participated in VIPs while others did not.

Past research suggests that non-participation in VIPs is largely a function of landowner discontent with the implementation of the ESA. Characterized by authoritarian approaches that challenge western ideologies of property ownership and sovereignty over the land, the ESA was destined for conflict; and has surely lived up to this expectation. Bipartisan support diverged into a political maelstrom as the ESA was implemented, perpetuated by conflict between property rights advocates (arguing for instrumental values) and environmentalists (arguing for intrinsic values). Resultantly, ESC research points to this conflict as the scapegoat for landowner non-participation in even the most attractive VIPs. While this research has merit and was evidenced in our own study, this is an unsatisfactory conclusion as evidence has been put forth to suggest that landowners can, and often do, intrinsically value nature and endangered species despite

simultaneously valuing their anthropogenic contributions towards a sense of place, culture, and identity. Furthermore, instrumental values provided by wildlife and endangered species provided some landowners with the necessary financial resources to own and steward their own piece of rural Texas. What our research suggested then, was that new mechanisms were needed to identify the plural values of landowners that conflict with institutional ESC to illicit different stewardship outcomes for endangered species.

To these ends, we argue that identifying the multiple values driving environmental stewardship is best accomplished through the lens of relational values. By recognizing values as dynamic derivatives of contextual human-nature relationships we were able to move past arguments over nature's inherent or utilitarian value and recognize a host of ways that landowners valued endangered species, their property, and nature holistically. In the context of the Houston toad SHA, we found that nearly equal numbers of VIP participants and non-participants held the same relationships with nature in high esteem. However, landowner values diverged in a few key areas with drastic implications for improving VIP participation when considered with findings from our application of the environmental stewardship framework.

Reframing the goals of VIPs to highlight the protections that they are perceived, by some, to offer from ex-urbanization could be an important way to encourage VIP participation among even the staunchest valuers of property rights. Our application of the environmental stewardship framework evidenced shifting culture, demographics, and land-uses, suggesting potential challenges to the stewardship identity of rural Texans. However, we rarely uncovered instances of ESA implementation. Indeed, only



participants from Bastrop County that had direct experience with initial Houston toad conservation efforts were able to contribute anything more than anecdote to the idea that the ESA is something for rural landowners to be concerned with. As currently framed, the goals of VIPs do not suggest that they are a means to protect the land, but a means to protect the landowner; causing them to miss the mark of what landowners truly value (i.e., relationships with their land) and by what landowners are truly threatened by (i.e., habitat fragmentation and development). We suggest that reframing VIPs as mechanisms for conservation that offer the most effective protections against development, instead of offering protections for landowners and endangered species, could be a crucial step for enhancing VIP participation for landowners who oppose institutional cooperation.

In conclusion, our pilot test of the environmental stewardship framework evidenced the need for a deeper investigation into the interface of contextual processes and human-nature relationships via a relational values lens. Utilizing both of these approaches allowed us to uncover superficial problems and quick fixes while also providing potential avenues for how to converge the goals of institutional ESC governance with the values of private landowners. Through these investigations, it is my hope that we have evidenced the deep importance that landowners attribute to their natural surroundings that is, in-part, actualized by caring for rapidly declining native biodiversity. A landowners' intrinsic prerogative to steward the environment can be utilized to circumvent future conflicts between ESA implementation and, more importantly, as a means to resituate governance regimes with the values of their constituents.

## **APPENDIX SECTION**

### **Appendix A. Individual Interview Protocols**

#### **Considering Enrollment/Enrolled Protocol**

1. Do you feel any obligation or responsibility towards your land and the various plant and animal species that are found here/there?
  - a. Probe: Could you elaborate on those obligations/responsibilities?
  - b. Probe: Why do you feel this way?
2. What are your thoughts on the Houston Toad?
  - a. Probe: Would you consider yourself familiar with the species/habitat requirements/status as endangered species?
3. How does the potential presence of a critically endangered species, like the Houston Toad, on your property affect your day-to-day land-use decisions?
4. How did you hear about the Safe Harbor program?
5. If you enroll in the agreement, do you know what responsibilities you will have as a landowner?
6. Please describe the factors that are influencing your consideration in enrolling in the Houston Toad Safe Harbor Agreement?
  - a. Probe: Of these, which factors will be most important in your decision to enroll?
  - b. Probe: Which outcomes do you perceive as the most beneficial?
7. Please describe the factors, if any, that are discouraging your enrollment in the Houston Toad Safe Harbor Agreement.
  - a. Probe: Of these, which factors present the most significant barrier to your enrollment?
  - b. Probe: Are there any future challenges impacting your thoughts towards the program in any way?
  - c. Probe: Have these challenges affected how/whether you'd refer this program to a peer/colleague?
8. If you had any, tell me about your interactions with the US Fish and Wildlife Service and how those interactions impacted your views about this program.

- a. Probe: If you were to give USFWS advice regarding this program, what would be the most important thing you would want to tell them?
  - b. Probe: How should USFWS communicate to landowners about the Houston Toad Safe Harbor Agreement to get more people on board? (Increase technical assistance, elaborate on incentives, increased social marketing/information availability)?
- 9. If you had any, tell me about your interactions with Texas Parks and Wildlife and how those interactions impacted your views about the program.
  - a. Probe: If you were to give TPWD advice regarding this program, what would be the most important thing you would want to tell them?
  - b. Probe: How should TPWD communicate to landowners about the Houston Toad Safe Harbor Agreement to get more people on board? (Increase technical assistance, elaborate on incentives, increased social marketing/information availability)?
- 10. If you had any, tell me about your interactions with local landowners/peers/colleagues specifically involving your enrollment in this program and how those interactions impacted your thoughts on this program.
  - a. Probe. What is your understanding of the opinions and thoughts of other local landowners regarding enrollment in the Houston Toad Safe Harbor Agreement?
- 11. Are there any topics that I did not cover in this interview, or that need more elaboration, that are affecting your decision to enroll in the Safe Harbor Agreement?
- 12. Do you know of any other landowners similar to yourself, that did not participate/are considering participating in the Safe Harbor Agreement?
  - a. Probe: Do you think they would be okay with me contacting them? Would you mind sharing some of their contact information with me?

## **No Enrollment/Program Rejection Protocol**

1. Do you feel any obligation or responsibility towards your land and the various plant and animal species that are found there?
  - a. Probe: Could you elaborate on those obligations/responsibilities?
  - b. Probe: Why do you feel this way?
2. What are your thoughts on the Houston Toad?
  - a. Probe: Would you consider yourself familiar with the species/habitat requirements/status as endangered?
3. How does the potential presence of a critically endangered species, like the Houston Toad, on your property affect your day-to-day land-use decisions?
4. How did you hear about the program?
5. What do you know about your responsibilities as a landowner enrolled in a Safe Harbor Agreement?
6. Please describe the factors that influenced your decision not to enroll in the Houston Toad Safe Harbor Agreement.
  - a. Probe: Of these reasons, what factors were most important in your decision?
7. What outcomes from the program were considered when making your decision not to enroll?
  - a. Probe: Did you perceive any potential benefits to enrollment

If you had any, tell me about your interactions with the USFWS and how those interactions impacted your views about this program.

- a. Probe: If you were to give the USFWS advice regarding this program, what would be the most important thing you would want to tell them?
8. If you had any, tell me about your interactions with TPWD and how those interactions impacted your views about the program.
  - a. If you were to give TPWD advice regarding this program, what would be the most important thing you would want to tell them?

9. If you had any, tell me about your interactions with local landowners/peers/colleagues specifically involving your decision not to enroll in the Houston Toad Safe Harbor Agreement.
  - a. Probe. What is your understanding of the views/perspectives of other local landowners regarding enrollment in the Houston Toad Safe Harbor Agreement?
  - b. Probe: How should agencies communicate to landowners about the Houston Toad Safe Harbor Agreement to get more people on board? (Increase technical assistance, elaborate on incentives, increased social marketing/information availability)?
10. Are there any topics that I didn't cover in this interview, or that need more elaboration, regarding your experience with the Safe Harbor Agreement?
11. Do you know of any other landowners like yourself, that did not participate/are considering participating in the Safe Harbor Agreement?
  - a. Probe: Do you think they would be okay with me contacting them? Would you mind sharing some of their contact information?

## Focus Group Protocol

1. What is your primary goal for your property?
  - a. Agricultural production?
  - b. Recreation/Residence?
  - c. Do you have a wildlife/agricultural tax exemption?
2. Do you feel obligation or responsibility towards your land and the various plant and animal species that are found there?
  - a. Probe: Could you elaborate on those obligations/responsibilities?
  - b. Probe: Why do you feel this way?
3. Please describe the factors that influence your land management decisions on a day-to-day basis
  - a. Probe: Of these reasons, what factors were most important in your decision?
  - b. Financial considerations, risk vs. benefits, goal alignment, attitudes/values
4. Do you believe those obligations and responsibilities are fulfilled by your current management practices?
  - a. If not: in what ways could potential government programs help you meet your goals?
5. Would you consider yourself familiar with the United States Endangered Species act?
  - a. Do you know what your responsibilities are under the ESA as a private landowner?
  - b. Are you aware of potential Endangered Species occurring in your area?
6. How does the potential presence of a endangered species, like the Houston Toad, on your property affect your day-to-day land-use decisions?
7. What are your thoughts on the Houston Toad?
  - a. Probe: Would you consider yourself familiar with the species/habitat requirements/status as endangered?
  - b. Probe: If Houston Toad's were found on your property, would you be willing to work towards conserving them?

8. What are your thoughts and feelings regarding wildlife conservation programs with the local/federal government?
  - a. Are you aware of your program options as a landowner?
9. Have you heard of a Safe Harbor Agreement?
10. What outcomes could you expect from enrolling/not enrolling in Houston Toad Programmatic Safe Harbor Agreement?
  - a. If needed, supplement with information about the program before question 9. The next few questions can be based off their perceptions and ideas regarding the H.Toad SHA.
11. What challenges do you perceive for landowners who engage in the Safe Harbor Agreement?
  - a. Probe: Would you consider these perceived challenges to be disincentives to program enrollment?
12. What would make engaging in the program more appealing to landowners such as yourself?
  - a. Probe: How should agencies communicate to landowners about the Houston Toad Safe Harbor Agreement to get more people on board? (Increase technical assistance, elaborate on incentives, increased social marketing/information availability)?
13. If you've had any, tell me about your interactions with the USFWS and how those interactions impacted your views about this program.
  - a. Probe: If you were to give the USFWS advice regarding this program, what would be the most important thing you would want to tell them?
14. If you've had any, tell me about your interactions with TPWD and how those interactions impacted your views about the program.
  - a. Probe: If you were to give TPWD advice regarding this program, what would be the most important thing you would want to tell them?
15. If you've had any, tell me about your interactions with local landowners/peers/colleagues regarding the topics that we've covered in this discussion?

- a. Probe: What is your understanding of the views/perspectives of other local landowners regarding enrollment in the Houston Toad Safe Harbor Agreement?
  - b. Probe: Have you engaged other landowners/peers/colleagues about wildlife management on your property
  - c. Probe: Have you engaged other landowners/peers/colleagues about endangered species conservation on your property?
16. Are there any topics that I didn't cover in this interview, or that need more elaboration, regarding your experience with the Safe Harbor Agreement?



## Appendix B. IRB Approval Letter



In future correspondence please refer to 6188 November 28,

2018

Christopher ~~Serenari~~, Ph.D.  
Texas State University 601  
University Drive. San Marcos,  
TX 78666

Dear Dr. Serenari:

Your IRB application titled "Investigating Determinants Influencing Recruitment into Houston Toad Safe Harbor Agreements" was reviewed and approved by the Texas State University IRB. It has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that you need to orient participants as follows: (1) signed informed consent is required; (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data; (3) Appropriate safeguards are included to protect the rights and welfare of the subjects. (4) Participants will be offered food and non-alcoholic drinks at the venue for participation.

### **This project is therefore approved at the Exempt Review Level**

2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments, please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Research Integrity and Compliance.

**Report any changes to this approved protocol to this office. All unanticipated events and adverse events are to be reported to the IRB** within 3 days.

Sincerely,

Monica Gonzales  
IRB Regulatory Manager  
Office of Research Integrity and Compliance

CC: Dr. Kristy Daniel

Jennifer ~~Idema~~ Jared

Messick

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*This letter is an electronic communication from Texas State University-San Marcos, a member of The Texas State University System.*

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