

**An Analysis of Landowner Motivations and Perceptions Toward Conservation
Easements in the Illinois River Watershed**
Findings Report

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INTRODUCTION

Need for Study

Historically, the use of conservation easements (CEs) have struggled to gain popularity along the watersheds in the Midwestern United States due to lack of flexibility in term length, under payment in consideration of land valuation, and administrative complexity, among other reasons (Raeker, 2015). Landowner attitudes towards CE adoption in the Northwest Arkansas and Northeast Oklahoma watersheds are not currently described in academic literature. Anecdotally, Leif Kindberg, director of the Illinois River Watershed Partnership, reports an extremely low participation rate in current CE funding programs (personal communication, January 27, 2022). In general, across North America, barriers to adopting CEs include disjointed communications efforts, in addition to personal biases held by the landowners. Easement holding organizations in Northwest Arkansas and Northeast Oklahoma need to learn more about landowner attitudes in order to educate landowners, promote CE programs to them, and persuade them to adopt CEs for their land.

Minimal literature is available surrounding CEs along the watersheds in Northwest Arkansas and Northeast Oklahoma. Previous research has been done regarding landowners' communications preferences and personal opinions on CEs (Cross et al., 2011; Farmer et al., 2015; Leonard, 2020; Raeker, 2015; Reeves et al., 2020; Vizek, 2016). These studies were used to guide this study and help shape the survey and phone interview questions. Raeker (2015) analyzed historical trends of CEs along the Missouri River.

Researchers on this project expanded upon this previous research by further identifying trends in the region of Northwest Arkansas and Northeast Oklahoma. This study focused more on the communications preferences and methods to reaching landowners. Once their communication and education preferences are established, targeted communications efforts can take place. This will increase the likelihood of those landowners adopting a CE on their land.

Another study (Cross et al., 2011) analyzed the motivations driving landowners' adoption of CEs. Researchers working on this project in Northwest Arkansas were able to use that previous research to formulate survey questions that best answered questions about motivations and about the best communications and education practices to encourage

landowners to participate in CEs.

While there is little known about the success of CEs along the Northwest Arkansas and Northeast Oklahoma watersheds, there have been several documented successes of CEs providing meaningful environmental improvements. The Whychus Creek Watershed in Deschutes County, Oregon is primarily surrounded by privately owned land. The Deschutes Land Trust has helped to conserve over 2,000 acres surrounding the creek. This contiguous string of conserved land speaks to the commitment of the community within the watershed to the natural environment, which has been cultivated and strengthened over time (Vizek, 2016). Communities who as a collective work towards environmental improvements have a greater success with establishing CEs.

Purpose and Objectives

The purpose of this research was to characterize landowner perceptions of CEs and identify effective persuasive communications methods. This research effort included three objectives, beginning with characterizing landowners' perceptions of CE programs, followed by identifying their current and preferred methods of communications regarding CE programing. Lastly, easement condition preferences for landowners surveyed will be presented.

Objective 1: Characterize landowners' perceptions of easement programs, including:

- Awareness and knowledge levels related to easement holding organizations
- Willingness to participate in CE programs
- Determine the association between the reason for owning land and length of CE considered

Objective 2: Identify landowners' current and preferred methods of learning about easement options, including:

- What media landowners are using to learn about CEs?
- Perceived credibility of conservation information sources
- Methods of persuasive messages that would likely resonate with landowners

Objective 3: Identify landowners' preferred easement program structures, including:

- Perceived incentives and disincentives related to participating in easement programs
- Preferred technical and financial benefits, as associated with number of acres owned
- Determine differences in preferences between floodplain and agricultural (non-floodplain) landowners

Methodology

Participants for this study were contacted via assistance from a technical advisory committee created by the executive director of the Illinois River Watershed Partnership. The technical advisory committee was comprised of 10 members and represented the following organizations: Arkansas Farm Bureau, Arkansas Water Resources Center, Beaver Water District, Grand River Dam Authority, Illinois River Watershed Partnership, Natural Resources Conservation Service, and the Northwest Arkansas Land Trust. At the conclusion of the survey, respondents were asked to consent to an additional phone interview. Participation in both the survey and phone interview was voluntary. The target response rate for the survey was 90, and the target interview participation goal was 18. The survey aimed to determine landowners' perceptions regarding CEs, mostly through rating their opinions on Likert-type scales. Phone interviews with the selected participating landowners were conducted to gain more insights on their survey answers and perceptions toward CEs. After all surveys and interviews were completed and data were analyzed, initial recommendations for communications regarding CEs were made by the research team. Data were reported initially by demographic information and then correlational analyses were conducted to determine the degree of correlation between responses. The reported level of significance was decided *a priori* to be $p < 0.01$. After receiving feedback, the research team finalized the recommendations that appear in this document.

LITERATURE REVIEW

This review of literature focuses on previous research on landowners' participation in conservation easement programs across North America, education

and communications methods used to reach participants, as well as motivations that guided their participation. The first section, Conceptual Framework, represents concepts emanating from recent literature on these topics. Recent research exists (in varying abundance) on adoption likelihood and landowner perceptions of CEs, methods of communicating about CEs, and landowner motivations to adopt CEs. The Theory of Planned Behavior, described in the second section, Theoretical Framework, is a human decision-making theory on which research on public perceptions and landowners' potential to adopt CEs can be built.

Conceptual Framework

Adoption Likelihood and Perceptions of CEs

In general, studies have determined that CE adoption by landowners is driven by the advantages the CEs offer to the landowner/manager, such as financial incentives, improved conservation value, and a defense from land development (Hemby et al., 2022; Bastian et al., 2017). Landowners are also more likely to adopt CEs if others around them also have CEs on their land (Hemby et al., 2022). This was likely due to landowners' desire for community involvement and a need for landowners to be compatible with community-based social norms (Hemby et al., 2022; Horton et al., 2017).

Stroman et al., (2017) found that landowners in Texas who were willing to adopt CEs may have inherently different attitudes concerning property rights than landowners who are opposed to CEs. CEs are, by definition, a restriction of property rights. Landowners who have CEs on their property have intentionally given up some of the rights to their land to the easement holder. This alters the right of exclusivity that is contained within traditional property rights (Stroman et al., 2017). However, in the Stroman et al. (2017) study, landowners who did not have CEs on their property believed that their landowner rights have become increasingly restricted over time; this belief could contribute to their resistance to adopt them. Conversely, landowners who held stronger social responsibility and land stewardship beliefs were more likely to adopt CEs and other socially desirable land management practices (Stroman et al., 2017). These findings confirm that there are diverse attitudes regarding land ownership and responsibilities held by individuals who choose to adopt CEs versus those who do not. At the crux of the diverse attitudes is

landowners' willingness to relent property rights in the spirit of social responsibility and because of a desire to be compatible with locally accepted social norms (assuming adoption of CEs is the social norm).

Related to personal beliefs about both landowners' rights and social responsibility, Vizek (2016) suggested two distinct types of attitudes landowners hold toward CEs. Landowners have an internal attitude, which describes how they believe a CE impacts their private property. The other attitude is external. This is how landowners believe a CE impacts the public interest in the property (Vizek, 2016). These two attitudes work in tandem to determine the holistic belief a landowner has about CEs. Internal attitudes are more likely to be influenced by beliefs about financial incentives of CEs; this is an especially important influence for those landowners who have a strong monetary dependence on their land (Vizek, 2016). In contrast, external attitudes are typically developed based upon the perceived environmental benefits CEs provide. External attitudes are more subjective and malleable and can be influenced by public opinions and social norms. Attitudes and beliefs about CEs are complex and involve a myriad of moving parts, meaning landowners are continuously evaluating how these moving parts (including factors affecting both internal and external attitudes) connect in order to form their opinion on CE adoption (Vizek, 2016).

Methods of Communications

Within current academic literature, little is reported regarding landowners' communications preferences for learning about CEs and other environmental programs. Several recent, more broadly focused articles do, however, report on the value of conservation marketing, a concept that encompasses efforts to communicate about conservation easements. Conservation marketing is defined by Wright et al. (2015, p. 46) as "the ethical application of marketing strategies, concepts and techniques to influence attitudes, perceptions and behaviours of individuals, and ultimately societies, with the objective of advancing conservation goals." Ryan et al. (2019) explain the need to conduct research to improve environmental marketing:

"To design successful conservation marketing campaigns that increase community engagement with biodiversity conservation, we need to focus on human psychology—how

people feel, think about, or behave towards other species and the environment in general" (para. 2).

Still, there is much to be learned about how to use media to engage landowners to persuade them of the value of CEs and to learn more about their perception of environmental stewardship approaches like CEs.

Vizek (2016) and Drescher (2014) suggested communications from peers and indirect community interactions are vital for landowners learning about CEs. Vizek's study identified those two methods of communications as strong determinants of the landowners' internal attitudes toward CEs. Landowners whose first exposure to CEs was from a peer source were five times more likely to have a strong positive internal attitude. Drescher (2014) suggested that landowners who favor peer-to-peer communications have a deep appreciation for their land and the environment but may be uncomfortable with strong government involvement in their land ownership. This was confirmed by the results of Hemby et al.'s (2022) research in Virginia: a strong barrier to CE adoption is linked to a perception of external control of private property. There was also a relatively strong negative correlation between landowners who have owned larger properties for longer periods of time and their willingness to adopt CEs (Hemby et al., 2022). However, in the same Virginia study, the level of perceived effort by environmental organizations (EOs) to promote awareness, understanding, and adoption of CEs was the factor most frequently cited by respondents as influential on the likelihood of landowner adoption.

Additionally, locally embedded EO staff has been shown to be impactful, because "people trust the people they know" (Hemby et al., 2022, p. 12). In support of this concept, several studies have suggested that information provided to landowners by a technical advisor or by someone in the same social network is likely to have a positive impact on the likelihood of an individual to adopt a CE (Kemink et al., 2020). The positive acceptance rate was even higher when the information was shared by an expert who was also in the prospective adoptee's social network.

In addition to the value of having EO staff embedded in communities to build landowner trust and deliver messaging about CEs, the power of motivational messaging about conservation easements is critical (Kemink et al., 2020; Tanguay, 2021). Tanguay (2021) suggested that while messaging

focused on financial incentives may be most heavily focused upon in the literature, landowners may consider technical assistance/advice valuable as well. Technical assistance, as opposed to financial support, is often referred to as a part of the concept of “capacity building,” which is defined as “measures that reinforce landowners’ capacity to be conservation stewards” (Tanguay, 2021, p. 6). Capacity building may include access to expert professionals including agricultural and forestry experts, attorneys, and accountants; use of specialized equipment/tools; and/or direct technical assistance (including expert planning and labor) for implementing environmental solutions. Tanguay found that in existing literature, landowners showed a significant preference for capacity building over financial assistance, regardless of landowner values about conservation stewardship. These findings supported Kemink et al.’s (2020) findings, which suggested that financially incentivizing easement programs is a short-term solution for a long-term problem and can “crowd out innate social conservation values” (Kemink et al. 2020, p. 8). Both studies suggest that technical support may better address landowner needs and conservation goals but did not rule out the motivational power of financial incentives for some landowners.

So, it is especially important to consider audience demographic characteristics when developing promotional messaging and education strategies to promote CEs, and some literature provides theoretical support for face-to-face communications with locally embedded representatives of EOs who can also encourage peer-to-peer communications about CEs (Drescher, 2014; Hemby et al., 2022; Vizek, 2016). Generally, it has been shown that landowners typically have more positive attitudes toward receiving information from their peers, and even more so toward environmental experts who also happen to be in the landowner’s existing social circle. Additionally, there is a dearth of literature discussing effective communications media or tactics such as social media, websites, direct mail, or face-to-face communications. However, from findings that place a value on peer-to-peer communications and interactions with locally embedded CE representatives, there is an indication that face-to-face communications may be effective.

Motivations to Adopt

As Farmer et al. (2015) notes, variables including motive-values, in addition to other characteristics such

as residency status and monetary and non-monetary benefits related to land ownership, can impact the decision to grant a CE. Farmer cites studies by Brain et al. (2014), Miller et al., (2011), and Petrzalka et al., (2013) as examples of research supporting these variables as important. Regarding the development of motive-values, Farmer et al. (2015) listed the following influential factors: place attachment, environmental motives, witnessing land development, societal motives, motivation to protect open-space, family heritage (legacy property), cultural motivations, and financial motives. The identification of landowner characteristics such as these along with the collection of demographic information, then, can lead to the ability to characterize and identify landowners who could be most easily influenced to adopt CEs.

Leonard (2020) developed a modeling technique to predict Montana landowners’ willingness to participate in CE programs. Targeting landowners using this probability model, which was based on a variety of variable landowner characteristics similar to those mentioned above, with a peer-to-peer communications approach, was found to be an effective strategy for persuading landowners to adopt CEs. Leonard reported that the model can be utilized to plan for strategic communications about CEs to targeted landowner demographics most efficiently. In the study that tested the model, communities that already had some level of participation in CE programs were more likely to see an increase in landowner participation as a result of exposure to peer adoption and an EOs’ communications efforts about CEs (Leonard, 2020). The existence of commonalities among the perceptions of peers is referenced throughout the literature and represents homophily, or the human tendency to align with those who are similar in some ways to themselves. Leonard’s findings supported Vizek’s (2016) previous findings related to the power of homophily in persuasive communications and education, indicating that regions where CEs have already been adopted may be prime targets for pro-CE messaging. Prior personal experience with CEs as well as direct interactions with neighbors who have CEs on their properties were weighty factors among landowners who had developed strong external attitudes in favor of CEs, a finding which also corresponded with Vizek’s (2016) results.

In addition to landowners’ knowledge of successful CEs in the region, monetary incentives also drive participation. The availability of supplementary

financial incentives, including historic protection and county-level programs increase the likelihood of landowners adopting CEs (Farmer et al., 2015; Hemby et al., 2022). CEs are more likely to be adopted in communities and by individuals with a higher economic dependence on the land; however, willingness to adopt is also dependent on the attitudes held toward land stewardship by those communities (Farmer et al., 2015; Hemby et al., 2022). CE programs that build on existing pro-environmental attitudes and beliefs of private landowners, but that also offer a relatively small financial incentive, have been shown to be viewed favorably by the community (Drescher, 2014; Hemby et al., 2022). Effa's 2009 study conducted in Arkansas further supports these findings. She reported that only 37% of landowners saw a tax benefit as an encouraging reason to adopt a CE. While this percentage is obviously a minority, financial incentives were effective with some landowners. Still, Tanguay (2021) and Kemink et al. (2020) made strong cases that financial incentives can cloud the picture for some landowners, repositioning their motivations from being focused on altruism and stewardship to being focused on economic gain. Specific to Arkansas, survey participants typically reported feeling neutral toward most motivators meant to encourage CE participation. Effa's (2009) results suggest there is a need for further communications and education efforts to give landowners the confidence to make informed decisions about CEs.

Therefore, the literature clearly supports conducting a demographic analysis of potential CE adopters to allow for more targeted messaging, and there is some evidence that adoption is predictable by examining these demographics in combination with perceptions and attitudes toward CEs. Important variables to identify include the macro-variable of homophily within regions and the specific variables of place attachment, environmental motivation, witnessing of land development, societal motivations, desire to protect open space, farm heritage or legacy, and motivations related to local culture. In addition, the current use of land and determining if the land provides monetary benefit or not, could be important information to consider as well.

Existing Regional Programs in Northwest Arkansas and Northeast Oklahoma

Effa's (2009) study appears to be the only research focused on the state of Arkansas examining

the acceptability of CEs. It did not provide a list of easement organizations in existence at the time, and there still seems to be no single source listing such organizations in the state.

A review of information available on the internet about conservation easement organizations in the Northwest Arkansas region resulted in the identification of several existing organizations. Land trusts and other conservation organizations that hold easements in the Illinois River watershed include the Natural Resources Conservation Service, the Northwest Arkansas Land Trust, the Ozark Land Trust, The Nature Conservancy, Arkansas Natural Heritage Commission, the Grand River Dam Authority, Land Legacy, and the Humane Society Wildlife Land Trust (HSUS, 2022). All organizations but the Humane Society Wildlife Land Trust were contacted through phone calls to verify information found on websites and to gather more information than what was available online. Of the organizations contacted, all are primary easement holders. Unless otherwise stated in the descriptions below, easement terms do not require public access to land under a CE.

Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS), which has a physical office in Washington County, offers two CE programs, the Agricultural Conservation Easement Program (ACEP) and the Healthy Forests Reserve Program (HFRP) (NRCS, 2022). In addition to the two CE programs, NRCS also offers the Environmental Quality Incentives Program (EQIP), which provides financial and technical assistance to help landowners integrate conservation into working lands (NRCS, 2022). ACEP offers easements for both agricultural land and for wetland areas. Up to 50-70% of the conservation easement cost is covered by the NRCS for the agricultural land component of ACEP, and up to 100% of the cost is covered for easements on wetlands. Both programs offer easements of perpetual length, or the maximum term length allowed by law, with 30-year easements offered for wetlands. In addition, all fees associated with enacting an easement are covered by the NRCS for wetland easements (NRCS, 2022).

Although the NRCS has the highest capacity for funding the purchase of easements and providing landowners with technical assistance they hold no agricultural conservation easements in Arkansas, and only a couple wetland easements in Northwest

Arkansas. The NRCS offers the most extensive technical assistance to landowners, including soil sampling, water control structures, manure storage and application, development of nutrient management plans, exclusion fencing, and alternate livestock water resources. A lifespan is assigned to every technical solution put in place by the NRCS, and the landowner is responsible for maintenance until the lifespan has expired, at which point the landowner may reapply for continued NRCS funding (K. Neil, personal communication, July 18, 2022). Both the NRCS and the U.S. Forest Service offer easement programs for forested land, the Healthy Forest Reserve Program, and the Forest Legacy Program, respectively (USFS, 2022).

Northwest Arkansas Land Trust

The Northwest Arkansas Land Trust (NWALT) services 13 counties in Northwest Arkansas. NWALT currently holds perpetual easements in five counties with most of the land under easement in Benton and Washington counties. NWALT's primary focus is donated conservation easements, but in rare cases where state, federal or private funding is available, NWALT will consider purchasing easements that meet the requirements outlined by the funder or government program. As such, the primary incentive for enrolling a CE with NWALT is the potential for state or federal tax deductions. The non-profit status of NWALT and other similar organizations allows for donations of easements to be tax deductible for up to 15 years under the Conservation Tax Incentive if the easement meets eligibility requirements, providing a substantial financial incentive for landowners. There is no set minimum criteria such as number of acres or habitat type for NWALT to consider placing a property under an easement, but instead properties are evaluated for their unique conservation values, such as connectivity, quality wildlife habitat, riparian buffers, and agricultural viability.

Technical services that NWALT offers to landowners generally consist of professional advice and suggestions of best management practices tailored to the characteristics of the property. NWALT can then refer landowners to partner organizations such as Beaver Watershed Alliance or the NRCS, which can provide hands-on technical assistance through cost share programs. In general, one of the main concerns of landowners identified by NWALT in Northwest Arkansas is streambank erosion. NWALT

is an accredited land trust, meaning they are verified through Land Trust Alliance to adhere to high land protection standards, including having policies and financial resources in place to uphold easements in perpetuity (P. Nelson, personal communication, July 19, 2022).

Ozark Land Trust

The Ozark Land Trust (OLT) holds perpetual easements only. OLT is a land trust created to protect areas in the Ozarks region of Southern Missouri and Northern Arkansas, and according to their website, OLT holds 244 acres of CE land in Washington County, AR (OLT, 2020). Activity restrictions on OLT easements primarily prevent development, and most of the land targeted/acquired under easements are forested land. No payments or cost-share is available for landowners, and landowners generally donate the value of the easement/purchase the easement. Landowners submit applications to enter into a CE with OLT, and their properties are prioritized based on acreage and contiguous land, for example (A. Cyr, personal communication, July 11, 2022).

Nature Conservancy

The Nature Conservancy holds perpetual easements only. Easements are not typically purchased by the Nature Conservancy unless an outside source of funding is available, such as a federal grant or a private donor with a specific conservation area of interest. In general, the Nature Conservancy relies on conservation easement donations, or fee-simple acquisition of land. In some cases, the Nature Conservancy will refer landowners to the NRCS to seek funding for conservation easements and/or technical assistance. Little marketing of CEs is done by the Nature Conservancy to encourage landowners to participate in easement programs; easement donors generally come to the organization themselves. In special cases, the Nature Conservancy may approach a landowner with property of especially significant conservation value, but this is not generally the case.

Although the Nature Conservancy does not have strict eligibility requirements for CEs, properties with certain characteristics are prioritized. Riparian easements are of higher priority, as are properties with high quality habitat for a large range of species, as well as "climate change adaptation" areas. Limited technical assistance services are sometimes offered with easement agreements—this generally consists of

erosion control in various forms as the most popular form of assistance with landowners. Examples of services provided include streambank erosion control, assistance with road construction planning to limit erosion, and assistance in selection of plant species to meet various goals of the landowner. In general, no funding is available for maintenance of technical easement solutions (A. Metrailler, personal communication, July 15, 2022).

Arkansas Natural Heritage Commission

The Arkansas Natural Heritage Commission (ANHC) is a subset of the Arkansas Heritage Commission, a state agency with governmental authority. Existing easements in Northwest Arkansas are perpetual and have been purchased with a one-time payment to the landowner. Although the ANHC will occasionally provide land management assistance and maintenance funding for some easement grantees, these technical and financial services are somewhat limited and ANHC will direct landowners to other cost-sharing programs as well. Unlike most other easement organizations in the region, ANHC does require public access as part of their CE requirements (R. Spotts, personal communication, July 28, 2022).

Grand River Dam Authority

The Grand River Dam Authority (GRDA) operates in the Illinois River watershed in Oklahoma, where the river is designated a scenic river. Most of the GRDA's easements are 30-year easements, with a few exceptions of perpetual easements, and one 20-year easement. Although the majority of the easements held with GRDA are on riparian parcels, upland areas with unique conservation needs are also considered. Hunting, fishing, and existing forestry operations are permitted on easement land under the GRDA (within reason), and some landowners have experienced substantial financial gain from commercial hunting operations using the improved wildlife habitat under easement terms, especially wetland/riparian habitat for migrating waterfowl.

Payments for conservation easements under GRDA are generally \$75 per acre per year, and 100% of the easement payment is given to the landowner up front. For example, if a landowner enrolls 200 acres of land in an easement for a term length of 30 years, \$450,000 (\$75 x 200 acres x 30 years) is offered to the landowner up front. In the case that the landowner decides to terminate the easement, there is no financial

penalty; the landowner simply must pay the GRDA the remaining balance of the up-front lump sum based on how many years of the term length the easement was upheld. Technical services offered by the GRDA are primarily those of professional advice and referral to "sister agencies" that are able to provide assistance, such as the Oklahoma Conservation Commission. Obligation for maintenance for the services provided are then passed onto the sister agencies. Common easement solutions among landowners served by the GRDA include fencing for livestock, establishing off stream watering for livestock such as tire watering stations or a constructed pond, tree planting, soil sampling, and invasive species removal. These solutions also benefit the goals of the GRDA by improving water quality, erosion control, and wildlife habitat quality (E. Fite, personal communication, July 18, 2022).

Land Legacy

The Land Legacy is the only statewide land trust in Oklahoma, and they hold 24 perpetual conservation easements in Delaware County, Oklahoma. The Land Legacy targets land in the Lake Eucha and Illinois River watersheds in Delaware County, as Lake Eucha is a main drinking water source for the city of Tulsa. As such, the city of Tulsa has funded the purchase of many of the Land Legacy's easements in Delaware County, with all other easements having been donated. The Land Legacy does not purchase easements itself or offer landowners financial compensation at this time (J. Rhodes, personal communication, July 19, 2022).

Theoretical Framework

Using a theoretical framework to couch social science research is helpful in that the chosen theory can aid in both the development of methodology and interpretation of results. Several theories and theoretical models are useful in public perception research, and each has its strengths. For example, throughout the literature on adoption of CEs, Rogers' Theory of Diffusion of Innovations (Rogers, 1995) is commonly cited to provide context to the studies, especially in literature describing research describing landowners' willingness to adopt. When public perception research involves predicting behavior or targeting actors who are most likely to be persuaded to act, Ajzen's (1988) Theory of Planned Behavior (TPB) is often applicable in a similar way to Rogers' theory. This study will employ Ajzen's theory as its

foundation.

According to the Ajzen's theory, intentions and behaviors result from three basic determinant categories: personal attitudes, subjective social norms, and perceived behavioral control (Ajzen, 2005). These determinates work in a balance when an individual is forming an attitude, and then deciding to perform a behavior based on that attitude. According to the theory, an individual's intent to engage in a CE program will not be solely determined by communications and awareness efforts. Rather, landowners' intent to act on their attitudes will be a function of the combination of the three basic determinates (Ajzen, 1988).

Personal Attitudes Toward the Behavior

Behavior performance is assumed to reflect past experiences as well as anticipated obstacles (Ajzen, 1988). In relation to CEs, if landowners already hold positive attitudes toward the environment and/or have previously participated in other environmentally conscious programs, they will be more likely to hold a favorable attitude toward CEs. General attitudes and personal behavior, however, do not always align. The personal behavior factor is the individual's positive or negative evaluation of the prospect of performing the particular behavior (Ajzen, 2005). So, while a landowner may hold a favorable attitude toward CEs because they have had positive experiences with other environmental programs, this motivation is affected positively or negatively by the landowner's perceived value or lack of value of agreeing to a CE on their land. This personal behavior determinant is only one aspect of what determines an individual's behavior.

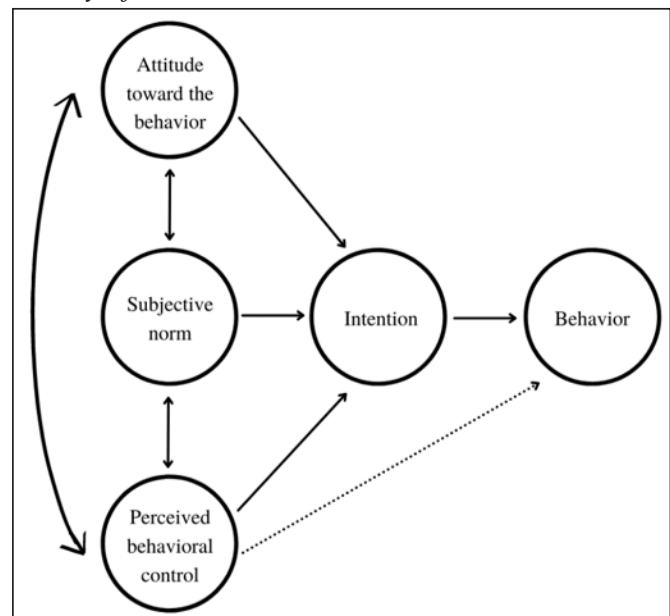
Subjective Social Norms

Generally, when a favorable positive attitude is combined with a positive social norm, likelihood is relatively high for an individual to perform a behavior (Ajzen, 1988). Social pressure, positive or negative, effects an individual's intention to perform a behavior (Ajzen, 2005). As seen throughout the literature on CE adoption, societal pressures have a strong influence on a landowners' willingness to adopt CEs. This concept can be applied to groups as well as individuals. The more importance a community places on environmental improvements, the more willing residents are to participate in programs that benefit the environment. This concept is clear in the results of Vizek's (2016) and Drescher's (2014) studies.

Perceived Behavioral Control

Perceived behavioral control considers some of the realistic constraints that might inhibit an individual from acting on a behavior (Ajzen, 1988). The TPB model assumes that perceived behavioral control has a direct tie to implications for intentions, as seen in Figure 1. According to the theory, even if an individual holds a favorable attitude and experiences positive social pressures, if they have neither the resources nor the opportunity, they will likely form a weak behavioral intention (Ajzen, 1988). An example of this regarding CE adoption is if landowners feel they would not receive an adequate financial incentive or monetary benefit, they may perceive a lack of resources as a reason not to act on their behavior intention. This supports findings by Farmer et al. (2015).

Figure 1
Theory of Planned Behavior Model



Note. Adapted from Ajzen, I. (1988). *Attitudes, personality and behavior*. The Dorsey Press.

Figure 1 highlights some important features of the TPB. The theory assumes that perceived behavioral control has motivational implications for intentions (Ajzen, 2005). This leads to an expectation that perceived behavioral control in association to intention, is not mediated by attitude or subjective norm (Ajzen, 2005). In the figure, this is represented by the arrow linking perceived behavioral control to intention. Additionally, the dotted arrow indicates there is a link between perceived behavioral control and behavior that is expected to emerge only when there is some agreement between perceptions of

control and the individual's actual control over the behavior (Ajzen, 1988).

Summary of Concepts and Theory

Several recent studies have examined the adoptability of CEs, and each of them has shed new light on the issue. Most importantly, the characteristics of landowners that indicate they are more likely to adopt become clearer with each social science research effort on this topic. Three key research efforts seem to stand out among the literature: Vizek's (2016) work, though focused on only one watershed in central Oregon, identified numerous key characteristics affecting internal and external attitudes toward CEs; Farmer et al. (2015) identified numerous important factors affecting motives to grant CEs; and Hemby (2022) highlighted the importance of community views (homophily) toward environmental efforts, local land use planning, and the influence of change agents and leaders as key characteristics affecting adoption. Additionally, Leonard's (2020) work to develop a model to predict the likelihood of CE adoption serves as a model to guide future social science research on this topic as well.

All of the CE adoption literature, some in small ways, others more obviously, fit within the realm of Ajzen's (2005; 1988) TPB, which provides an excellent framework to explain the context of CE adoption decisions.

Research on how best to communicate about CEs to and among landowners is not as prevalent as research on adoption, but within the adoption studies, two concepts are clear: communicators who are embedded in the community can be powerful influencers and peer-to-peer communications are impactful efforts to motivate adopters (Drescher, 2014; Vizek, 2016).

Ultimately, the literature contains numerous pieces of key information that should guide future social science studies on CE adoption in terms of identifying key variables to include in survey instrumentation and interview questioning routes. These works will also be excellent references against which to compare results of future research efforts.

RESULTS

Findings from the survey ($n = 77$) and interviews ($n = 18$) were analyzed to identify how landowners in Northwest Arkansas and Northeast Oklahoma perceive

CE program options, communications preferences, and preferred easement structures. Responses to survey questions were organized and analyzed by objective, preceded by demographic data. Interview responses were then used to supplement the findings from the survey and provide more detail to the statistical analysis. All information collected represents only the sample of participants from Northwest Arkansas and Northeast Oklahoma and cannot be generalized to the larger population.

Participant Demographics

Overall, the study participants were well-educated and had a high average annual income, as shown by the demographics data in Table 1. Majority of respondents owned land in Northwest Arkansas, with Washington County having the highest number of participating landowners.

Table 1
Survey Respondents' Demographics by Age, Gender, Income, Education, and Responses per County

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Age ¹	77	55.63	14.15
Gender ²	77	1.52	0.50
Education ³	77	5.78	1.88
Income ⁴	77	8.14	3.49
Arkansas ⁵	79		
Washington	49		
Benton	18		
Madison	9		
Carroll	2		
Crawford	1		
Oklahoma ⁵	9		
Cherokee	4		
Adair	3		
Delaware	1		
Sequoyah	1		

Note. ¹Age (self-reported numeric value) ²Gender (1 = male; 2 = female); ³Education (1 = less than high school; 8 = professional degree); ⁴Income (1 = less than \$10,000; 12 = more than \$150,000); ⁵Total county responses equate to greater than 77, due to multiple respondents owning land in more than one county.

The sample of landowners was split evenly between male and female respondents, with 37 male responses, and 40 female. Education information was collected on a 1-8 scale (1 = less than high school; 8 = professional degree), with most respondents earning a 4-year degree or higher ($M = 5.78$). Information

regarding annual household income was collected on a 1-12 scale (1 = less than \$10,000; 12 = more than \$150,000), with majority of respondents earning \$70,000/year or higher ($M = 8.14$).

Objective 1: Landowners’ Perceptions of Easement Programs

Findings related to the first objective of characterizing landowners’ initial perceptions of easement programs are shown below. Overall themes from both the survey and phone interviews indicated that landowners lacked an awareness-level knowledge of both CE program structures, as well as regionally local CE organizations.

Awareness and Knowledge Levels Related to Easement Holding Organizations

To identify landowners’ knowledge levels of CE organizations, survey participants were asked to identify the number of CE organizations they were aware of in their area. Based on the responses to that question, nearly every respondent lacked knowledge of regionally local CE organizations. Forty-five percent of respondents reported no knowledge of CE organizations in their area, while 40% reported knowledge of only 1-2 CE organizations.

Respondents were also asked to rate their level of understanding of the definition of a CE. A definition was not provided initially because researchers intended to gauge subjects’ existing understanding of their definition of a CE. Results are shown in Table 2.

Table 2
Knowledge of Local CE Organizations by Age, CE Understanding, and Perceived Credibility of Environmental Organizations

Variable	n	M	SD	Knowledge of CE orgs (r)
Age	77	55.6	14.15	0.17
Understanding of CE definition	77	3.78	1.30	0.32*
Credibility of NRCS	77	4.13	0.81	-0.33*
Local land trusts	77	4.00	0.89	-0.21
Peers	77	3.15	1.17	-0.13
Cooperative Extension	77	3.62	0.88	0.05
Watershed protection organizations	77	3.80	0.63	< 0.01
Commodity groups	77	3.39	1.26	-0.12

* $p < 0.01$

Responses were gathered on a scale of 1-5 (1 = strongly disagree; 5 = strongly agree) with how well the respondent agreed with the statement *I understand what a conservation easement is*. A majority of respondents, 70%, noted at least some level of agreement that they understood the definition of a CE ($M = 3.78, SD = 1.30$).

As shown in Table 2, a correlational analysis was done to determine the relationship between the knowledge of regionally local CE organizations, and the general understanding of the definition of a CE, as well opinions regarding the credibility of environmental organizations. There was a marginal positive correlation, with no statistical significance, between age and knowledge of CE organizations. This suggests that age-specific targeted messaging would not be beneficial to the landowners surveyed.

Nearly all responses for perceived credibility of the listed environmental organizations had a negative correlation to the respondents’ knowledge of CE organizations. As their confidence in how to define a CE decreased, their perceived credibility of the listed environmental organizations tended to increase. Respondents’ understanding of the definition of a CE and their knowledge of regionally local CE organizations had a moderate positive correlation ($r = .32; p < 0.01$). As respondents’ confidence in defining a CE increased, their knowledge of regionally local environmental organizations also increased.

Survey results found that majority of respondents were confident in their ability to define CEs. However, when interview participants were asked to provide a definition of a CE, it became evident that individual definitions of a CE were diverse and that many landowners held inaccurate opinions of what a CE is or lacked confidence in their understanding.

A few participants showed that they had an accurate understanding of how to define a CE.

...protection and water quality to riparian buffers and healthy forests, and stuff like that. And it’s a promise not to commercialize the use, not to develop it, and then you’re compensated a certain amount for that split. – Washington County

I think that there’s multiple choices for doing conservation easements. I cannot tell you—delineate the different

kinds. But my understanding is it protects your land from certain kinds of development and there's different kinds of ownerships. – Washington County

When the researchers asked the participants how much they knew about conservation programs in their area, many landowners said they possessed little to no knowledge.

With limited knowledge, I don't really have an informed opinion. I mean, just the word conservation, I'm a fan of. – Washington County

Many landowners noted that they are confused about the specifics of CEs, and some of those reported that as a result, they hold a low opinion of CEs in general.

I mean, my knowledge gap is huge, so I need to have more knowledge, and probably if I better understood the situation, I probably would be more friendly toward it. – Benton County

I know very little about conservation easements, but what I have heard, kind of through word of mouth, is negative. – Washington County

Perceived Benefit to Participate in CE Programs

After survey respondents were asked to identify their confidence level of defining a CE, they were then provided with a definition. Based on the definition given, respondents were then asked to identify their level of agreement with the statement *I feel that a conservation easement could benefit my land*. Subject were provided with a 1-5 scale to rate their responses (1 = strongly disagree; 5 = strongly agree). As seen in Table 3, respondents had an overall positive perceived benefit of adopting a CE ($M = 3.61$, $SD = 1.22$).

While the total survey response rate was 77 landowners, because multiple respondents owned land in more than one county, 88 total parcels of land were represented across the region. Respondents from Arkansas ($n = 70$) owned 79 total parcels of land and respondents from Oklahoma ($n = 7$) owned 9 total parcels of land. This did not change the overall survey response rate, and responses for this question only

were duplicated for respondents owning a parcel of land in more than one county.

Table 3
Mean Overall Perceived Benefit of CEs by County

State/County	<i>n</i>	<i>M</i>	<i>SD</i>
Arkansas	79	3.61	1.17
Madison	9	4.00	1.22
Washington	49	3.73	1.04
Benton	18	3.22	1.44
Carroll	2	3.00	0.00
Crawford	1	2.00	0.00
Oklahoma	9	3.67	1.66
Cherokee	4	4.75	0.50
Adair	3	3.33	2.08
Sequoyah	1	3.00	0.00
Delaware	1	1.00	0.00

Note. Total county responses equate to greater than 77, due to multiple respondents owning land in more than one county. Responses reported on Likert-scale (1 = strongly disagree; 5 = strongly agree).

As seen in Table 3, responses did not differ greatly between states. Majority of respondents owned land in Washington County, Arkansas and held a slightly higher opinion of adopting a CE ($M = 3.73$), as compared to the overall opinion of all respondents ($M = 3.61$). Respondents from Cherokee County, Oklahoma reported the highest overall benefit of adopting a CE on their land ($M = 4.75$).

Association Between Reason for Owning Land and Length of CE Considered

Survey respondents were asked to rate their primary reason for owning their land on a 1-5 scale (1 = not at all important; 5 = very important). Scenic value ($M = 4.46$, $SD = 0.88$), wildlife habitat ($M = 4.40$, $SD = 1.02$), and primary residence ($M = 4.39$, $SD = 1.30$) were rated as the top three most important reasons for the landowners sampled for owning their land. Responses from the reason for landownership question were then compared to multiple CE length options, as seen in Table 4.

Owning land for the purpose of wildlife habitat ($r = 0.35$; $p < 0.01$) showed a moderate positive correlation with the CE option of part of the land on a permanent easement. The other reasons for owning land showed weak or negligible correlations with the easement options given, meaning there is no significant relationship between the reason for owning land and the different length of easement options.

Table 4*Inter-Correlations Between Reason for Landownership (R#) and Length of CE Favored (CE#)*

Variable	R1	R2	R3	R4	R5	R6	R7	R8	CE1	CE2	CE3	CE4	CE5	CE6
Reason														
1. Land investment	1.00	-.05	.22	0.14	.52*	.001	-.04	-.05	-.17	-.07	.13	.15	.15	.14
2. Wildlife habitat		1.00	.07	0.14	.08	.07	-.02	.40*	.18	.35*	.12	.24	.07	.18
3. Agricultural production			1.00	0.54*	.18	.16	.32*	.08	-.03	.02	-.05	.08	.04	.12
4. Timber production				1.00	.30*	.01	.39*	.18	-.03	.22	.07	.26	.07	.23
5. Family estate					1.00	-.13	.24	.08	-.14	.01	-.02	.13	-.09	.08
6. Primary residence						1.00	-.07	.12	-.15	-.09	-.20	-.06	-.03	-.03
7. Hunting							1.00	.09	-.22	-.15	-.25	-.02	-.29	-.06
8. Scenic value								1.00	.08	.16	.04	.14	.01	.09
CE option														
1. All of land; permanent easement									1.00	.66*	.73*	.45*	.58*	.34*
2. Part of land; permanent easement										1.00	.64*	.77*	.54*	.62*
3. All of land; 30-year easement											1.00	.71*	.85*	.65*
4. Part of land; 30-year easement												1.00	.68*	.87*
5. All of land; < 30-year easement													1.00	.75*
6. Part of land; < 30-year easement														1.00

** $p < 0.01$

All of the CE options had moderate to very strong relationships with each other, meaning if a landowner would consider adopting a CE on their land, the variance between preferred term length was not significant.

Objective 2: Landowners' Current and Preferred CE Communications Methods

Survey respondents were asked to provide their opinions on various communications methods, as well as communication sources. Interview participants were then asked to expand upon their currently most used communications methods and provide insight to other desirable communications methods. These responses were used to make recommendations to environmental organizations in Northwest Arkansas and Northeast

Oklahoma to improve their targeted communications efforts.

Media Landowners are Using to Learn About Conservation Efforts

Survey respondents were asked to rate their current preferred communications methods used, regarding information about CEs as well as general conservation information. Respondents were provided a list of eight possible communications methods and asked to rate their frequency of use on a 1-5 scale (1 = never use; 5 = use every time). Responses varied across all ages of landowners, and no singular communications method had a mean rating of 4 or higher on a 5-point scale, as seen in Table 5.

Table 5
Preferred Communications Methods (Presented with Mean Age)

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Age	77	55.6	14.5
Communications method			
Email	77	3.67	1.05
Conversations with experts	77	3.07	1.24
Website	77	3.00	1.47
Peer-to-peer conversations	77	2.99	1.07
Printed items	77	2.89	1.20
In-person seminars/field days	77	2.67	1.15
Social media	77	2.40	1.06
Webinars	77	2.33	1.17

Note. Responses reported on Likert-scale (1 = use occasionally; 5 = use every time).

As seen in Table 5, email received the highest frequency of use ($M = 3.67$, $SD = 1.05$), followed by individual conversations with experts ($M = 3.07$, $SD = 1.24$). The use of social media to receive information/updates regarding CEs was rated with a lower frequency, ($M = 2.40$, $SD = 1.06$) which was to be expected as compared to the average age of survey respondents, which was 55.6.

In addition to communications methods identified in the survey, interview participants were asked how they would like to see CE information dispelled. In general, landowners noted a strong preference for more in-person communications efforts, as well as increased community and media presence overall.

I would like to see this information made more accessible for landowners through local events, county fairs, and farmer's market. I think that would be a good idea. – Washington County

I think any publicity would be good. – Washington County

Table 6
Frequency of Credibility of Source of CE Information (n = 77)

Credibility	Not at all credible (%)	Somewhat not credible (%)	Somewhat credible (%)	Extremely credible (%)	No opinion (%)
Watershed protection organizations	0	1	28	61	10
NRCS	1	0	19	44	36
Local land trusts	1	3	24	39	33
Cooperative Extension	1	7	37	39	16
Commodity groups	6	18	32	16	28
Peers	8	18	42	13	19

Town hall meetings kinds of things, where the idea of easements could be talked about and explained. – Washington County

In addition to in-person communications, an increase in print materials was recommended by the participants.

If it's there and I'm going through and I grab a brochure, that's more likely I'll take it home and read it. – Benton County

Participants were also asked to identify any communications methods that they would like to see, that are not currently being used by their local CE organizations. Radio communications were mentioned by two different interview participants.

Radio ads are interesting. On the actual radio, or things like Spotify. – Washington County

Specifically on NPR. – Washington County

Perceived Credibility of Conservation Information Sources

Survey respondents were asked to identify the perceived level of credibility associated with a list of environmental organizations. Respondents were asked to rate the organizations' credibility regarding receiving CE information from those sources, on a 1-5 scale (1 = not at all credible; 5 = no opinion). As seen in Table 6, overall, respondents identified the listed environmental organizations as having at least some level of credibility.

As seen in Table 6, watershed protection organizations and NRCS were rated as the two most credible organizations for CE information, with 61% and 44% of respondents rating them as extremely credible, respectively.

Persuasive Messages Likely to Resonate with Landowners

In addition to the respondents’ preferred communications methods and perceived credibility of environmental organizations, interview participants were asked to identify any persuasive messages that would be well-received. Participants noted that they believed the environmental organization should make the initial contact to the landowner. Some said this would simplify the process and eliminate the guesswork of the landowner.

Contact the landowners and let them know we have a program here and you know, call him up and say, ‘here’s our program and here’s what we’re offering and here’s what you gotta do. Would you like to meet?’ Take the paperwork out. – Benton County

Farmers will have no way of knowing that that’s a program that’s even out there. I think the organizations need to take the steps to make that communication though. The organizations need to communicate the availability of the programs. – Washington County

Objective 3: Landowners’ Preferred Easement Program Structures

Following questions about CEs in the general sense and communications preferences, respondents were asked questions about specific easement structures. In addition, respondents were asked to rate how specific incentives and disincentives would affect their decision to adopt an easement on their land. Responses to these questions were also compared across agricultural and non-agricultural landowners to determine if there are different motivations for different types of landowners.

Perceived Incentives and Disincentives Related to Participating in Easement Programs
Incentives

Survey respondents were asked to rate perceived incentives to participating in an CE program on a 1-5 scale (1 = not at all important; 5 = extremely important). The incentivizing factors were selected for inclusion in the survey based on the existing literature as well as conversations with CE experts. As seen in Table 7, internal motivators, related to protecting the natural value of the land, were rated higher in overall importance than external motivators, such as reduction in taxes or payments. However, the average income of respondents (*Median* = \$70,000 - \$79,000) was relatively high, which may have introduced some selection bias to these results.

As seen in Table 7, half of the respondents (50%) noted protecting scenic value as an extremely important incentive for adopting a CE on their property. Receiving a lump sum payment up front was the lowest rated incentivizing factor; only 12% of respondents listed this as an extremely important

Table 7
Perceived Level of Incentives for Adopting CEs

Incentive	<i>n</i>	<i>M</i>	<i>SD</i>	Not at all important (%)	Slightly important (%)	Moderately important (%)	Very important (%)	Extremely important (%)
Protect scenic value	77	4.16	1.00	1	5	20	24	50
Prevention of land development	77	3.84	1.33	9	9	14	24	44
Reaching conservation goals	77	3.75	1.06	5	3	31	33	28
Protection of family legacy property	77	3.12	1.52	25	9	20	21	25
Working with an accredited NGO	77	3.57	1.11	4	15	25	34	22
Reduction in state/federal income/estate tax	77	2.95	1.30	14	25	31	12	18
Technical assistance/advice	77	3.06	1.29	20	8	32	27	13
Lump sum payment up front	77	2.63	1.35	27	21	24	16	12

Note. Responses reported on Likert-scale (1 = not at all important; 5 = extremely important.)

Table 8*Perceived Incentive by Gender, Age, and Agricultural Land Ownership*

Incentive	<i>n</i>	<i>M</i>	<i>SD</i>	Gender	Age	Agriculture land ownership
Protect scenic value	77	4.16	1.01	0.15	0.08	0.08
Prevention of land development	77	3.84	1.33	0.01	0.10	-0.08
Reaching conservation goals	77	3.75	1.06	0.12	0.12	0.02
Working with an accredited NGO	77	3.57	1.11	0.06	0.02	-0.02
Protection of family legacy property	77	3.12	1.52	0.06	0.05	-0.01
Technical assistance/advice	77	3.06	1.29	-0.15	-0.01	0.23
Reduction in state/federal income/estate tax	77	2.95	1.30	-0.02	-0.30*	0.21
Lump sum payment up front	77	2.63	1.35	-0.12	-0.14	0.09

Note. Responses reported on Likert-scale (1 = not at all important; 5 = extremely important.)

* $p < 0.01$

factor. This suggested that landowners are less motivated by financial incentives than they are protecting the value and beauty of the land.

When comparing perceived incentives to demographic information, including whether the respondent owns or manages agricultural land, other relationships appear. As seen in Table 8, there was a negative correlation ($r = -0.30$; $p < 0.01$) between age and rating reduction in income/estate tax as important, which suggested that younger landowners may be less swayed with financial incentives.

As shown in Table 8, there was a positive correlation between both agricultural land ownership and importance rating of technical assistance ($r = 0.23$), and with reduction in income/estate tax ($r = 0.21$). While these two variables had the strongest correlation, the values were not statistically significant.

Owning agricultural land had a negligible correlation with the rating of the other incentivizing factors listed. These results may suggest to CE organizations that agricultural landowners could be most readily encouraged by information regarding tax benefits and/or technical assistance when learning about easement program options.

Disincentives

Survey respondents were asked to rate how important discouraging factors to participating in an easement program on a scale from 1-5 (1 = not at all important; 5 = extremely important), as shown in Table 9.

Results in Table 9 show that *loss of privacy* as a disincentive to participating in a CE program was rated as either very important or extremely important

Table 9*Perceived Level of Disincentives for Adopting CEs*

Disincentive	<i>n</i>	<i>M</i>	<i>SD</i>	Not at all important (%)	Slightly important (%)	Moderately important (%)	Very important (%)	Extremely important (%)
Loss of privacy	77	3.60	1.43	12	15	13	21	39
Financial obligation	77	3.63	1.23	8	9	25	28	30
Loss of property rights	77	3.13	1.55	21	21	11	18	29
Lowered property value	77	2.97	1.57	28	14	17	14	27
Inadequate compensation	77	3.25	1.37	14	18	23	20	25
Limiting heirs' decision making	77	3.11	1.41	17	20	21	20	22
Working with a governmental agency	77	2.65	1.37	28	15	37	4	16
Complexity of easement processing	77	3.13	1.23	13	15	33	25	14
Time obligation	77	3.00	1.22	15	16	37	19	13
Changes in agricultural practices	77	2.39	1.48	44	13	17	13	13

Note. Responses reported on Likert-scale (1 = not at all important; 5 = extremely important.)

by 60% of respondents, and *financial obligation* was rated as either very important or extremely important by 58% of respondents. The disincentive with the least amount of importance to respondents was *changes in agricultural practices*, which was rated as not at all important by nearly half of respondents (44%). This aligns with agricultural landownership reported as one of the lowest important reasons for the surveyed landowners owning their land ($M = 2.65, SD = 1.59$).

Similar to the perceived incentives, there was a difference in importance of various discouraging factors between the entire group of respondents and those who own/manage agricultural land, as seen by the results in Table 10.

As seen in Table 10, agricultural landowners' responses had a moderate positive correlation to both disincentive factors of changes in agricultural practices ($r = 0.34; p < 0.01$) and time obligation ($r = 0.26; p \leq 0.05$). This suggests that agricultural landowners specifically value these disincentives more

than the non-agricultural landowners. In addition, there was a negative correlation ($r = -0.22; p \leq 0.05$) between age and importance of *financial obligation*. As age of respondents decreased, the importance of this factor increased.

Preferred Technical and Financial Benefits

Table 11 illustrates the preferred technical solutions of respondents. Technical solutions are incentives that may be included in a conservation easement that do not consist of payment. But are instead services the easement holding organization may provide to meet a variety of landowner needs and conservation goals. Respondents were asked to rate the following services on a 1-5 scale (1 = not at all interested; 5 = very interested).

As seen in Table 11, the technical service rated most highly by respondents was invasive species removal ($M = 4.56, SD = 0.61$), followed by tree planting ($M = 4.37, SD = 0.61$) and streambank

Table 10

Perceived Disincentive by Gender, Age, and Ownership of Agricultural Land

Disincentive	<i>n</i>	<i>M</i>	<i>SD</i>	Gender (<i>r</i>)	Age (<i>r</i>)	Agriculture land ownership (<i>r</i>)
Financial obligation	77	3.63	1.23	0.02	-0.22	0.13
Loss of privacy	77	3.60	1.43	0.00	-0.19	0.14
Inadequate compensation	77	3.25	1.37	-0.03	-0.19	0.19
Loss of property rights	77	3.13	1.55	0.10	-0.21	0.08
Complexity of easement processing	77	3.13	1.23	0.06	-0.03	0.08
Limiting heirs' decision making	77	3.11	1.41	0.09	-0.12	0.05
Time obligation	77	3.00	1.22	-0.15	-0.16	0.26
Lowered property value	77	2.97	1.57	-0.03	-0.15	-0.11
Working with a governmental agency	77	2.65	1.37	-0.17	-0.09	0.12
Changes in agricultural practices	77	2.39	1.48	0.06	-0.04	0.34*

* $p < 0.01$

Table 11

Mean Preference of CE Benefits by Number of Acres Owned (n = 77)

Acres owned	Fencing for livestock		Soil sampling		Invasive species		Tree planting		Riparian buffers		Streambank restoration		Prescribed burns	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
0-99	2.31	1.54	3.74	1.39	4.52	0.64	4.29	0.99	3.78	1.38	4.00	1.31	3.41	1.47
100-199	3.29	1.38	4.43	0.79	4.63	0.52	4.38	0.92	4.25	1.16	4.50	1.07	4.29	0.76
200-299	3.60	1.14	4.80	0.45	4.80	0.45	4.80	0.45	5.00	0.00	4.80	0.45	4.75	0.50
300-399	1.00	1.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
400-499	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
500-599	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600-699	-	-	-	-	-	-	-	-	-	-	-	-	-	-
700-799	1.00	0.00	4.50	0.71	4.50	0.71	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
800-899	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900-999	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
Total	2.49	1.58	3.93	1.31	4.56	0.61	4.37	0.61	3.98	1.33	4.16	1.33	3.66	1.42

Note. Responses reported on Likert-scale (1 = not at all interested; 5 = very interested.)

restoration ($M = 4.16, SD = 1.33$). Soil sampling ($M = 3.93, SD = 1.31$) and fencing for livestock ($M = 2.49, SD = 1.58$) were the technical services for which respondents indicated the least interest, which could be explained by the low reported importance for agricultural land ownership.

Differences Between Floodplain and Agricultural Landowners

Survey respondents were first asked if they owned/managed any agricultural land, and the respondents who answered yes were then directed to answer a question relating to the different easement conditions in which they would consider participating. The choices of response were based on a 1-5 scale, (1 = not at all likely; 5 = extremely likely) to consider participating in the given easement program terms. Table 12 presents the preferred easement conditions (proportion of land and easement term length) among agricultural landowner respondents ($n = 20$).

Table 12
CE Term Length Preferences by Agricultural Landowners

CE option	<i>n</i>	<i>M</i>	<i>SD</i>
All of land; 30-year easement	20	3.50	0.89
All of land; < 30-year easement	20	3.00	0.94
Part of land; 30-year easement	20	2.85	1.14
Part of land; permanent easement	20	2.60	1.88
Part of land; < 30-year easement	20	2.53	1.22
All of land; permanent easement	20	1.00	0.00

Note. Responses reported on Likert-scale (1 = extremely unlikely; 5 = extremely likely).

As seen in Table 12, the easement terms rated most likely for agricultural landowners to consider was *all of my land; 30-year easement* ($M = 3.50, SD = 0.89$). Generally, this sample of agricultural landowners favored shorter easement terms that cover all their land. The least preferred term length was *all of my land; permanent easement*. Every respondent assigned that easement condition a score of 1, meaning this sample of agricultural landowners would be extremely unlikely to adopt a permanent easement on their

If landowners answered *no* to owning agricultural land, the survey continued, asking if they owned floodplain land. Answering *yes* to owning floodplain land redirected the respondents to the same specific easement option questions. Answering *no* concluded the survey. Table 13 presents results from a survey question asking floodplain landowners ($n = 30$)

which easement terms they prefer, using the same answer choices as the previous agricultural landowner question. The discrepancy in the total landowners surveyed ($n = 77$), and the reported agricultural or floodplain landowners can be explained by survey respondents responding either *no* or *unsure* to either question. Choices were based on a 1-5 scale (1 = not at all likely; 5 = extremely likely) regarding willingness to consider participating in a CE with the given program terms.

Table 13
CE Term Length Preferences by Floodplain Landowners

CE option	<i>n</i>	<i>M</i>	<i>SD</i>
All of land; < 30-year easement	30	3.45	1.20
All of land; permanent easement	30	3.27	1.26
All of land; 30-year easement	30	3.27	1.26
Part of land; < 30-year easement	30	3.07	1.67
Part of land; 30-year easement	30	2.87	1.33
Part of land; permanent easement	30	2.65	1.36

Note. Responses reported on Likert-scale (1 = extremely unlikely; 5 = extremely likely).

Preferences of CE program options by floodplain landowners can be seen in Table 13. In contrast to preferences of agricultural landowners, floodplain landowners rated easements involving all of their land (of any term length) higher than easements only covering part of their land. In addition, floodplain landowners generally had a more positive opinion on adopting an easement on their property, with the means of all condition options being higher than the agricultural landowners. While floodplain landowners overall held a more positive opinion on adopting a CE (pooled mean = 2.97), it was only a slightly higher overall value reported by agricultural landowners (pooled mean = 2.91).

CONCLUSIONS AND RECOMMENDATIONS

Recommendations for regionally local CE organizations were determined based on the combined results of the quantitative survey and qualitative phone interviews. Survey responses were organized by objective, and relationships were identified between survey questions and demographic information. Phone interview questions were developed based upon the initial survey results so that interviews served to provide more insight into various responses. Interview responses only correspond to objectives one and two,

because after beginning the interviews, it became obvious to researchers that participants lacked enough knowledge about CEs to have nuanced opinions on the different tactics and specific programs addressed in objective three.

Below are the conclusions related to each of the study objectives. Conclusions for each objective are listed, with related recommendations for practice and further research integrated into the narrative, denoted by bold italic text. Recommendations are supported by the results of this study, in addition to previous literature.

Objective 1: Landowners' Perceptions of Easement Programs

Following demographic questions, the survey began with questions that aimed to gather information on respondents' perceptions and attitudes related to CEs, before providing them with a definition. Results from these questions showed that respondents generally felt confident in their understanding of how to define a CE. However, when phone interview participants were asked, *In your own words, please provide a definition of a CE*, it became apparent that the participating landowners lacked confidence in their ability to provide a definition.

Due to the responses to this question, regionally local CE organizations should increase their awareness-level communications efforts before emphasizing persuasive messages. Landowners cannot make informed decisions regarding CE program options if they lack the base-level knowledge to do so. In addition, some phone interview participants noted misconceptions about CE programs within their provided definitions. ***In combination with increasing awareness-level knowledge, regionally local CE organizations should aim to provide clear communications about the CE program options they offer, as well as the typical rules (and flexibilities) associated with them.*** When asked about disincentivizing factors, related to objective three, landowners identified *loss of privacy* as a highly disincentivizing factor. This could be attributed to misconceptions held about a CE requiring public access to the land it is associated with, as also seen in previous literature (Drescher, 2014; Hemby et al., 2022).

Based on the existing literature (Stroman et al., 2017; Kemink, 2020), landowners' existing attitudes towards conservation are more influential in their

decision to adopt CEs than external motivating factors. Landowners surveyed were asked about their general attitude toward conservation efforts, as well as specific questions regarding their perceived incentives and disincentives of adopting CEs. When they were then asked to rate their perceived level of benefit to adopting a CE on their land, the responses were generally positive. There was little to no difference between landowners in the nine targeted counties. This suggested that the landowners surveyed have a positive association toward personal conservation practices. However, this could be biased towards the fact that the landowners who responded to the survey, and phone interviews, already possess a higher-than-average opinion on conservation efforts, and therefore are already more internally motivated to adopt CEs than the entire population. There was little to no difference in attitudes toward adopting CEs from the nine targeted counties, meaning, for this sample, geographic location had little effect on landowners' personal motivating factors.

In previous studies, a strong negative correlation between landowners who have owned larger properties for longer periods of time and their willingness to adopt CEs was found (Hemby et al., 2022). In this study, landowners' responses to the survey question *I feel that a conservation easement would benefit my land*, was correlated with the responses to the length of time the respondents had owned their land. There was no strong positive or negative correlation found. This suggested to researchers that this sample of landowners' motivational factors were shaped by reasons independent of the length of time they had owned their land.

A correlational analysis was also conducted to determine if reason for landownership had a significant relationship for length of CE preferred. Since no statistically significant correlations were found, it follows that landowners who would be motivated to adopt a CE would not likely be influenced by any specific messaging related to the reasons why they own their land. Within that same correlational analysis, easement conditions (length and proportion of land) were compared with each other. All easement options provided were substantially or very strongly positively correlated with each other. This suggests that if a landowner would consider adopting an easement on their property, they would not be heavily influenced by the program conditions. ***Of the landowners within this sample, if they already***

held the internal motivation to adopt a CE, they would do so without the need for additional strong external persuasion.

Objective 2: Landowners' Current and Preferred CE Communications Methods

Survey results related to objective two were heavily supported by responses from the follow-up phone interviews. The qualitative nature of the interviews allowed participants to expand upon their responses and provide more nuanced and detailed answers than the parameters of the survey allowed. Previous research suggested that communications from peers and indirect community interactions are vital for landowners learning about CEs (Drescher, 2014; Vizek, 2016). *Both survey results and interview responses confirmed that the sampled landowners favored in-person communications from regionally local CE experts.* This sample of landowners reported a lower-than-expected frequency of communications with peers about CEs, which suggests that more effort needs to be placed on building a network between the landowners who already have CEs on their property. *This effort to create a visible community of landowners who have adopted CEs could be persuasive for those who are considering CEs.* A previous study also found that persuasive messaging from locally embedded easement organization staff was more well-received by landowners as a result of the personal relationships between the staff member and landowners (Hemby et al., 2022).

The responses in the phone interviews directly confirmed this finding, as multiple participants said they wished to see an increased community presence of easement organizations. *Participants listed in-person tabling at events such as farmer's markets, county fairs, and local events as being particularly desired.* Based on the interview responses, interpreted in conjunction with previous literature, it appears that these casual in-person events will boost an organization's credibility and awareness, without the landowner feeling pressured into any decision. *Making the initial contact with an in-person interaction also allows the landowner to establish a connection with an individual and begin building a trusting, professional relationship.* Based on the findings from Hemby et al. (2022) and Kemink et al. (2020), locally embedded easement organization staff are most effective at providing

persuasive communications to landowners. Based on the Kemink et al. (2020) study, information provided to landowners by a technical advisor or by someone in the same social network is more likely to have a positive impact on the likelihood of an individual to adopt a CE. In addition to increased personal communications, landowners also noted a wish for a stronger digital media presence. *Among the participants, whose mean age was 55.6, email was a preferred method of electronic communications, and several phone interview participants noted that they would like to see specifically radio advertisements, as well as an improved social media presence.*

This study also aimed to identify landowners' perceptions of the credibility of environmental organizations who might provide them with information regarding land conservation messaging. Generally, the types of environmental organizations listed in the survey were rated with a high level of credibility from respondents, thus suggesting that the messaging produced by those organizations would be well-received from the landowners. Phone interview participants also responded positively to questions regarding known environmental organizations. This suggested that due to the positive association CE organizations have with some landowners, both awareness-level and persuasive messaging from regionally local easement organizations would be well received by landowners. *Any strategies involving preferred communication methods, whether in-person or electronic (e.g., email, social media, radio), stand a good chance of success as a result.*

Objective 3: Landowners' Preferred Easement Program Structures

Survey results found that a majority of respondents rated internal motivators, such as protecting scenic value and preventing the development of land, as more important than external motivators, such as tax reductions or payments, when considering whether or not to participate in a conservation easement program. These results may be partially due to the relatively high mean income range of respondents (\$70,000 - \$79,000); however, Tanguay (2021) and Kemink et al. (2020), also recommend focusing on these internal motivators more intently than financial gain to encourage landowner motivations more toward stewardship ideals.

Agricultural respondents indicated technical assistance/advice and tax reduction to be the most

incentivizing factors for adopting CEs on their property. Therefore, if agricultural land is a specific target for easement organizations, messaging focusing on tax benefits and/or technical assistance may be most helpful in persuading these landowners.

When asked to rate various disincentives to adopting a CE program, respondents rated *loss of privacy* and *financial obligation* as the two most disincentivizing factors. The concern about loss of privacy may be a misconception, as many CE programs do not require public access to be granted to the land. It is recommended that this distinction, as well as expectations of monitoring activities, be made clear in messaging to landowners to ease privacy-related concerns. In addition, concerns about having a financial obligation to enroll land in an easement may indicate that landowners are unfamiliar with various cost-sharing and payment benefits to CE programs, especially those that can help the landowner meet their own personal goals. Following awareness-level communications efforts, messaging specific to privacy and financial benefits should be produced to address landowners' concerns.

In contrast, agricultural respondents rated *changes in agricultural practices* and *time obligation* as the most disincentivizing factors to participating in a CE program. The disincentives rated most important to agricultural landowners were rated relatively low in importance by the entire respondent group, suggesting agricultural landowners have different priorities when deciding to enroll their land in an easement compared to the general population. If regionally local CE organizations are specifically targeting agricultural landowners, messaging should be focused on how a CE would impact their agricultural practices, as well as how much additional time the farmer/rancher can expect to have to contribute to the process.

Based on the survey results, both agricultural and floodplain landowners favored shorter easement term length options (30 years or less than 30 years). This is supported by respondents rating the disincentivizing factor of *limiting heirs' decision-making ability* as moderately high. This suggests that landowners would more readily consider easement options where the term length would not exceed their lifetime. Based on the responses, it is recommended that easement organizations focus messaging on shorter term easement options to reach the largest number of landowners.

Conclusions

All recommendations provided were based on existing literature and confirmed by survey and phone interview results. Landowners in this study were overconfident in their ability to define CEs in their survey responses. This was proven by interview responses that showed many landowners lacked the knowledge to understand or, at least, to explain CE programs. ***This conclusion guided much of the rest of the recommendations, because without an increase in awareness-level knowledge, landowners lack the ability to make informed decisions about the specifics of adopting a CE on their land. In addition, regionally local CE organizations should increase their personal connections to landowners to build trust and establish a connection.*** Based on both previous literature and the results of this study, this is the most effective way to provide persuasive communications regarding CEs.

Additional research should be done to gather results that can be generalized to the entire population of the geographic area surveyed. It would also be beneficial to repeat this study again in the near future, using these findings as a baseline, to determine if efforts made by the easement organizations were successful, as well as to determine if landowners' perceptions have changed. A similar future study could be done to also assess how landowners' value their kids'/heirs' opinions regarding long-term CE commitments. In addition, future studies should be done to identify changes in communication preferences as a new generation becomes landowners. Finally, this study could serve as a model for future studies in areas outside the Illinois River Watershed, including watersheds throughout Oklahoma and Arkansas.

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