AN ANALYSIS OF THE INTERACTION AND CONSERVATION PRACTICES OF LAND TRUSTS AND PRIVATE LANDOWNERS

THESIS

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Corrie R. Colvin, B.A.

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1: INTRODUCTION

OBJECTIVE

The objective of this research is to analyze and evaluate the relationship between private landowners and land trusts and the contributing factors, both prior to and after conservation easement application, that promote better communication and a lasting relationship between the two. Evaluative factors such as Geographic Information Systems (GIS), education and outreach, landowner incentives, and best management practice will be included as well as a case study of Halls Bayou in Texas' Brazoria and Galveston counties south of the greater Houston area. Halls Bayou will be used as a study area for the potential application of the findings of this research. The research questions for this paper are two-fold. What are the Best Management Practices and conservation tools used by private landowners and land trusts? How can land trusts improve their communication and outreach to private landowners to create an effective conservation program?

JUSTIFICATION AND RATIONALE

According to the collaborative research on Texas Environmental Profiles, approximately 94.3% of Texas' open space lands are privately owned; therefore, private landowners are essential components of conservation practices (Texas Environmental

Profiles 2007). Between 2000 and 2005, conservation of private land in the United States through land trusts was on average 1,166,697 acres per year (Aldrich and Wyerman 2006). Land trusts in America are one of the "fastest-growing and successful conservation movements" in America today and thus their interaction with private landowners and the communication between the two is integral in land conservation (Aldrich and Wyerman 2006).

The purpose of this research is to analyze and evaluate recent examples conservation decision-making, land management, the application of Geographic Information Systems (GIS) and Best Management Practices (BMPs) in order to develop a framework that will facilitate conservation and BMPs among private landowners and land trusts. GIS has become a popular tool used widely by planners, geographers, biologists, ecologists and others wanting to better understand their environmental surroundings and the present or potential future outcomes of various environmentally influencing factors. GIS allows this type of analysis to occur in a timely manner by providing quantifiable data through the use of mapping, spatial analysis, and prediction modeling. GIS has become an essential tool for the variety of approaches used to develop best management practices that will embrace the conservation goals of both private landowners and conservation professionals.

This research is justified by evidence regarding the need for better understanding how land trusts can reach private landowners, as well as a need to understand why landowners choose to place their land within a conservation easement. Conservation easements are a conservation tool many private landowners have employed as a way to reduce assessed value that in turn protects the land and provides valuable open space, wildlife resources, and habitat management. Land trusts rely upon the cooperation of

private landowners through voluntary donation or sale of their land to accommodate a land trust's goal to protect and conserve what they deem as high priority land, either for watershed protection, critical habitat and/or species protection. Therefore, it is critical for land trusts to provide outreach and education in a manner appealing to private landowners.

GIS is a tool to help analyze how private landowners and land trusts can be educated in the importance of habitat and open space preservation by providing essential information for cost-benefit analyses to prioritize land preservation. Best management practices required by conservation easements are often applied to the land voluntarily by private landowners, prior to land trust or easement involvement. Understanding how these best management practices are applied by land trusts and private landowners will strengthen the communication and cooperation between the two parties.

The final incentive for this research is the situation with the Halls Bayou study area. A thorough GIS-based land use analysis has not yet been performed in this particular area. Halls Bayou serves as a poster child for what is occurring at a national and global level along rural-urban fringes, especially within small sub-watersheds in the coastal zone. Halls Bayou is located in Brazoria County, Texas. Although only 30 miles south of downtown Houston, Halls Bayou preserves major stands of landmark indicator species reflecting bayou health including water and live oaks, loblolly pine, elms, ash, hackberry, river reeds and bulrushes. Upon ground-truthing and field work, inquiry arose as to why Halls Bayou's pristine state and apparent health exist in relative proximity to one of the largest metropolitan areas in the state: the Houston metropolitan area. Understanding why Halls Bayou exists as it does leads to the purpose of this research regarding private landowners, land conservation and BMPs.

This research seeks to perform a sound land use/land cover analysis of Halls Bayou

and conduct interviews with conservation professionals and private landowners to determine the most effective types of management practices, private landowner and land trust communication. This study seeks to provide valuable information for applying this type of conservation tool for land use practices within this coastal zone sub-watershed and other open space habitats exhibiting similar characteristics.

LITERATURE REVIEW

The focus on conservation easements through land trusts lies in the fact that conservation easements serve as the single most successful conservation tool today and as of 2005, have conserved 37 million acres of land nationally (Aldrich and Wyerman 2006). A conservation easement is "a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values" (LTA 2007).

Conservation easements are just one of many conservation tools utilized by private landowners and are based on a voluntary donation of land to a land trust or the purchase of development rights (PDR). Although some rights on the land are removed once placed under the conditions of the easement, landowners still have ownership of the land, are allowed to pass the land onto their heirs, or sell the land, but the provisions of the easement must transfer with the land in most cases (LTA 2007). Landowners will often qualify for a tax benefit for the donation of their land based on the difference between the land value with and the land value without the easement (LTA 2007). This tax benefit, in many cases, alleviates some of the financial burden private landowners and their heirs are often forced to face (LTA 2007). A conservation easement may not be the best tool for every private

landowner, but the flexibility of this tool and the primary involvement of the private landowner make this a popular conservation tool (Merenlender et al. 2004; Aldrich and Wyerman 2006; LTA 2007). For this reason and for the purpose of this research, conservation easements will be the primary tool considered in land conservation practices.

According to Aldrich and Wyerman (2006, 5) of the Land Trust Alliance, "a land trust is a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements."

Best management practices are often employed by private landowners and encouraged by local, state, and federal governmental agencies to prevent soil loss and water degradation. The United States Army Corps of Engineers derives the definition of a BMP from the Federal Register (2000) which states that BMPs are "policies, practices, procedures, or structures" used to protect water quality from the environmental impacts of development.

The National Park Service (2000, 648) provides a more inclusive definition of BMPs that reflects the definition above, but can be applied more broadly to conservation practices. For the purposes of this research, the following definition of BMPs will be applied:

> [Best Management Practices are] effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts to natural and cultural resources. Best Management Practices may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

CONSERVATION STRATEGIES

Blaine and Lichtkoppler (2004) found that public and private stakeholders demonstrate a genuine concern for green space preservation and in fact, consider it a high priority. The authors' survey of Soil and Water Conservation District clientele and the general public found that most people are willing to pay for conservation on a monthly basis through higher taxes. Conservation easements are also publicly supported once the conservation goals, such as open space preservation and limited development, are explained. Various studies at this level have revealed that local citizens can conceptually place a monetary value on open space and the health of the environment including wildlife habitat, water quality, and aquifer recharge zones (Stone and Schindel 2002; Blaine Lichtkoppler 2004; Aldrich and Wyerman 2006). Various environmental bonds have passed based on citizens' willingness to pay for the hidden cost of the environment (Stone and Schindel 2002; Blaine Lichtkoppler 2004; Aldrich and Wyerman 2006). This research demonstrates the importance of public education and outreach regarding the environment.

Conservation easements hinge on private landowner involvement and participation; however, why landowners choose to participate in conservation programs is dynamic and often poorly understood (Merenlender et al. 2004; Aldrich and Wyerman 2006). An increase in tax incentives from the federal and some state levels, like Colorado and Virginia, is thought be a part of the reason why over the past five years in particular land conservation with land trusts has so greatly increased (Aldrich and Wyerman 2006). Aldrich and Wyerman (2006, 7) acknowledge, however, that the reasons for increased land conservation are "complex and myriad." Privately owned land has been found to be more ecologically diverse, suggesting that best management practices are often upheld by private landowners,

knowingly or not (Wright and Tanimoto 1998). Thus, there is a need for understanding private landowner interests, how they interact with and understand land trusts, conservation strategies, and land management.

Most negative views of conservation and green space protection stem from a misunderstanding of what conservation easements and best management practices seek to actually accomplish. Negative attitudes from the public towards conservation at the federal and state levels, as well as budget limits, have led to non-governmental and private environmental interests using and applying incentive-based conservation easements (Wright and Tanimoto 1998; Merenlender et al. 2004; Aldrich and Wyerman 2006). Land trusts or easement holders often resort to three major tools: conservation easements, pre-acquisition, and private reserves, with conservation easements being the most preferred method (Merenlender, et al. 2004). Conservation easements reduce development potential, but serve as incentives because they provide reduced property taxes to participating landowners (Merenlender et al. 2004; Daniels and Lapping 2005; Aldrich and Wyerman 2006).

Much of the financial burden of green space conservation occurs at the local level making these high environmental priorities, such as land acquisition for conservation easements and sustainable development, difficult to implement (Arendt 1992; Blaine and Lichtkoppler 2004; Stoms el al. 2004; Daniels and Lapping 2005; Aldrich and Wyerman 2006). Conservation easements have become a popular conservation tool due to the comprehensive nature of the plan (Blaine and Lichtkoppler 2004; Aldrich and Wyerman 2006). Conservation easements often have beneficial consequences unrealized at the time of implementation, including wildlife habitat conservation, soil and water quality protection, and open space preservation. Conservation easements also serve as a completely voluntary

program wherein the landowner voluntarily places their property under the easement while still maintaining ownership (Arendt 1992; Blaine and Lichtkoppler 2004; Merenlender et al. 2004; Aldrich and Wyerman 2006).

Most land trusts, for example, are created to acquire open space land through privately owned parcels (Aldrich and Wyerman 2006). Land trusts of a particular region cater to the needs of the private landowners as well as the conservation needs of the land, such as grazing rights, stream protection, tree preservation, and mineral rights (Merenlender et al. 2004; Aldrich and Wyerman 2006). Examples of landowner based land trusts can be found in the Colorado Cattleman's Agricultural Land Trust created by landowners in the Colorado Cattleman's Association and the American Farmland Trust advocating conservation tools for farmers (Merenlender et al. 2004; American Farmland Trust 2006; Colorado Cattleman's Agricultural Land Trust 2007). Easements most appealing to private landowners are those that are least restrictive and preserve exclusive landowner rights (Merenlender et al. 2004).

There is a limited understanding of the long-term benefits of conservation easements (Wright and Tanimoto 1998; Merenlender et al. 2004; Daniels and Lapping 2005). Merenlender et al. (2004, 6) use this lack of knowledge as the basis for their research to discover who and what is actually benefiting from these easements, arguing that the "inherent tension between the public and private benefits" of conservation easements is not understood, yet this understanding is extremely necessary and critical to the effectiveness of conservation strategies. The need for longitudinal research regarding conservation easements and conservation strategies is recognized by many academics (Wright and Tanimoto 1998; Merenlender et al. 2004; Stoms et al. 2004; Daniels and Lapping 2005).

When used on private land and based on private landowner management, conservation easements must be properly monitored by the easement holder or land trust. Landowner and land trust collaboration, enforcement, proper management and annual monitoring are critical to the success of easements, conservation plans and the perception of land trusts as a whole (Wright and Tanimoto 1998; Merenlender et al. 2004; Daniels and Lapping 2005; Statewide Land Trust Conference 2007). The concern for land trusts' credibility in the application and monitoring of conservation easements is prevalent not only at the local level, but at the regional and national level as well. The Land Trust Accreditation Commission has been created in response to this and is currently working on establishing an accreditation system for all United States land trusts, including Puerto Rico (Statewide Land Trust Conference 2007).

Longitudinal analysis and compilation of easement benefits, location, ownership, ecologic make-up, and proximity and connectivity with other protected land are needed, particularly within the United States (Wright and Tanimoto 1998; Merenlender et al. 2004; Daniels and Lapping 2005). With the broad application of this conservation tool, it is imperative that a better understanding of its benefits on a quantifiable scale be maintained and continually monitored. Land trust effectiveness is largely dependent upon local government and public support for the following reasons: financial support, an educated and receptive public, supportive policies, and competent conservation managers (Wright and Tanimoto 1998; Stone and Schindel 2002; Merenlender et al. 2004; Blaine and Lichtkoppler 2004). The landowner serves as the single most important component of a successful conservation easement. Monitoring and enforcing conservation easement goals and terms, as established in the conservation easement document, is futile without private landowner

support, cooperation and education (Wright and Tanimoto 1998; Merenlender et al. 2004; Statewide Land Trust Conference 2007).

BENEFITS OF LAND CONSERVATION

Land conservation and best management practices are often addressed as benefiting private landowners, land trusts, water quality or wildlife habitat. Public support of these conservation strategies often begs the question of who is actually benefiting from land conservation that is being funded through higher taxes (Arendt 1992; Merenlender 2004; Daniels and Lapping 2005). If the conservation easement does not allow for public access, is the public really benefiting? Studies have found however that everyone benefits from land conservation in congruence with Tobler's first law of geography wherein "everything is related to everything else, but near things are more related than distant things" (Sui 2004, 269). Property values adjacent to or in proximity to open space or conservation easements are consistently higher than properties not surrounded by open space (Arendt 1992; Merenlender 2004; Daniels and Lapping 2005). In areas where open space and agricultural lands have been preserved through conservation design, local agricultural economies have grown and are allowed to flourish in contrast to agricultural land bought out by development pressures and sprawl (Arendt 1992; Daniels and Lapping 2005; Statewide Land Trust Conference 2007). Monitoring these types of trends and making this knowledge available to the public will only increase support for conservation strategies amongst the public and private sectors of a community.

From a more ecological perspective, land conservation and best management practices have long-term benefits on wildlife and riparian habitat, stream influent and

effluent, and water quality. Halls Bayou is part of the West Galveston Bay hydrological system. Small watersheds such as Halls Bayou are sometimes a major pollution source to larger bodies of water due to intermittent flows throughout the year (Ernst 2004). The combination of intermittent flow and lack of sediment transport allows for the collection of pollutants and various refuse. During events that cause these smaller water bodies to become inundated, heavy concentrations of once stagnant pollutants are flushed into the larger water systems (Ernst 2004). Consequently, small water bodies within the larger watershed are the single greatest contributing factor for runoff and non-point source pollutants in larger bodies of water (Ernst 2004). Protecting the land around these small water bodies and creating sound management practices may reduce pollutant loading within these smaller water bodies (Wright and Tanimoto 1998; Ernst 2004). Understanding these long term benefits of land management and conservation along water bodies, tributaries, and coastal wetlands should increase support for a management plan along Halls Bayou.

Appropriate land management is considered to be the single best way to preserve and protect water quality (Ernst 2004). Concern in the Galveston area for overall bay health has led to a need for a better understanding of how land ownership and management practices affect the state of the Galveston and West Bay system (GBEP Strategic Planning Workshop 2006). Evaluating land use around Halls Bayou can serve to protect, conserve, and manage the wetlands into which the bayou flows, as well as the water quality.

Protecting the wetland habitat of Halls Bayou is pertinent to the bayou's role as a pollution filter, flood control, wildlife habitat, commercial, industrial and recreational use while also buffering the threat that urban sprawl and development on Texas' coast poses to this valuable resource (Dahl 2000; NOAA 2001; Lester and Gonzalez 2002; Holechek et al.

2003; Jacobs et al. 2003; NOAA 2005) . Of the land type most protected by conservation easements and land trusts, "water resources, especially wetlands" constitutes 26 percent (Aldrich and Wyerman 2006, 5). By protecting the land that drains the water into the bay system, coastal resources can be better managed and sustained. For the purpose and scale of this research, Halls Bayou serves as a manageable study area that will lead to an analysis of best management practices that, in the midst of development and its attending demands, may sustain the surrounding land and its resources.

LAND USE EFFECTS AND CONSERVATION STRATEGIES

Providing environmental managers with tangible data with respect to why these resources are worth protecting often determines the management practices upheld in these regions (Wright and Tanimoto 1998; NOAA 2001; Stone and Schindel 2002; Holechek et al. 2003; Merenlender et al. 2004; Stoms et al. 2004). In 1992, the State of California conducted a preliminary economic analysis of seven ocean-dependent industries and found that coastal and ocean resources provided $17.3 billion in revenue and 370,000 jobs. This quantitative assessment of the value of the coast and ocean resources resulted in California enacting 15 new laws the following year to improve management and protection of these coastal resources (NOAA 2001).

Estimating the economic value of the environment has been a challenge many academics and conservation professionals have sought to conquer. The term referred to as "hidden environmental costs" is used to describe the often hefty upfront cost of paying for or protecting a resource that in the long run will be more beneficial overall. Holechek et al. (2003, 104) use the term "conservation economics" to explain hidden environmental costs

wherein "environmental and natural resource management policies should produce the greatest possible total human benefits for present and *future* generations" (emphasis added). This often means asking the public to pay a price for which they may not directly benefit, but will directly affect the welfare of future generations by creating and maintaining such things as open space, wildlife habitat, improving water quality, and increasing outdoor recreational resources (Arendt 1992; Wright and Tanimoto 1998; Stone and Schindel 2002; Berke et al. 2003; Merenlender et al. 2004).

Wetlands support both the commercial and recreational fishing industries, as these landscapes function as the primary breeding and hatching grounds for many fish and other aquatic species (Lester and Gonzalez 2002). The marine economic specialist Dr. Doug Lipton of the Maryland Sea Grant argues that the environment may have a "nonuse value" -- that the mere existence of such places is substantial enough to provide value (NOAA 2001). Some argue that protecting non-market goods such as wildlife habitat or endangered species often results in benefits that far exceed any economic or monetary cost (Holechek et al. 2003; Merenlender et al. 2004).

SIGNIFICANCE OF LAND USE CLASSIFICATION

Classification of land use types and land cover can reveal crucial information regarding the development of open space lands and the pressures these areas may face (Wright and Tanimoto 1998; Lester and Gonzalez 2002; Stone and Schindel 2002; Stoms et al. 2004). Lester and Gonzalez (2000, 49) argue that "a strong relationship exists between land uses and pollution from rainfall runoff," and point out that along with water quality, valuable natural habitat greatly suffers from destructive land use (Lester and Gonzalez 2000;

Stone and Schindel 2002). Ernst (2004) argues that land protection is the single most effective way to prevent pollution of water and the surrounding natural resources. An analysis and assessment of types of land use and land cover can help implement best management practices and conservation strategies (Wright and Tanimoto 1998; Lester and Gonzalez 2000; Stone and Schindel 2002; Stoms et al. 2004; Ernst 2004).

Land uses that result in wetland infill, habitat fragmentation, rural and urban sprawl, and road construction can irreversibly effect the surrounding environment and such results call for a great need of conservation strategies (Wright and Tanimoto 1998; Lester and Gonzalez 2000; Wang et al. 2001; Stone and Schindel 2002; Stoms et al. 2004; Merenlender et al. 2004). Between 1986 and 1997, nearly 43 percent of national marine wetland loss occurred due to urban and rural development and the infilling that occurred in concert with such development (Dahl 2000).

Loss of habitat due to open space development results primarily from lack of enforcement of legislation, limited public education and knowledge of landowner incentives, lack of funding and enforceable conservation ordinances (Dahl 2000; NOAA 2000; Merenlender et al. 2004; Blaine and Lichtkoppler 2004). Studies throughout the United States have found that grassroots efforts and local incentives are the most effective way to implement conservation strategies (NOAA 2000; NOAA 2002; Stone and Schindel 2002; Ernst 2004; NOAA 2005; NOAA 2005). By allowing local people to implement and vote on conservation plans that cater to their needs, constituent voices are not overpowered by environmental professionals, scientists or politicians who are often considered by the public to have little concern for what the local community desires or needs (NOAA 2000; NOAA 2001; NOAA 2002; Merenlender et al. 2004; Blaine and Lichtkoppler 2004; NOAA 2005).

Local efforts and state authorities are often more effective in implementing and gaining speedier results than the federal government (NOAA 2002).

GIS APPLICATION

In the past ten years, the application of GIS in land use planning and conservation strategies has become common among conservationists and land trusts. The capabilities provided by GIS software allow for a more regional analysis of the land, provide tangible data for private landowners, and allow future projections of current land use trends (Wright and Tanimoto 1998; Stone and Schindel 2002 ; Stoms et al. 2004). GIS applications can also provide a more unbiased and objective analysis of the land and, in combination with ground truthing and fieldwork, help create a more effective conservation plan (Wright and Tanimoto 1998; Stone and Schindel 2002).

A growing program for communities concerned about the local water quality was created by the University of Connecticut wherein GIS is implemented as a tool to demonstrate water quality factors. The Non-point Education for Municipal Officials (NEMO) seeks to change public policy in regard to water quality and sustainability and does so through the local governments. This program has proven to be effective in areas ranging from urban storm water runoff to coastal non-point source pollution (NOAA 2001). NEMO employs GIS and remote sensing as the primary tools for illustrating runoff models and adapting them to the specific needs of the community and the drainage pattern of the particular watershed. Using GIS analysis as a tool combined with local knowledge and field work can result in more thorough analysis and understanding of the specific watershed or water source (NOAA 2001; Ernst 2004). NEMO gives planners and managers a visual and

conceptual image to work with, allowing them to effectively implement plans to improve water quality and create sustainable land use in fragile, threatened ecosystems (NOAA 2001).

One of the drawbacks of employing a GIS occurs when conservation planners become too consumed by the details of GIS application and begin to view it as a solution rather than as a conservation tool. Non-technical people are often left out of this component of conservation strategy, private landowners are not well informed of its function and the true purpose and benefit of GIS analysis becomes lost (Wright and Tanimoto 1998; Stone and Schindel 2002; Stoms et al. 2004). The gap between the conservationists, GIS technicians, biologists, ecologists, private landowners, and public and private stakeholders widens, creating miscommunication and a less than sound conservation plan. There is clearly a need for better communication between all parties, making the conservation plan and management practices a clearly collaborative effort.

FOCUS GROUPS

Focus groups are an effective qualitative research tool applied by social scientists to gather input on a small number of issues and include "individuals having a community of interest" (Stewart and Shamdasani 1990, 10; Edmunds 1999). Stewart and Shamdasani (1990, 10) describe a focus group as follows: "the contemporary focus group interview generally involves 8 to 12 individuals who discuss a particular topic under the direction of a moderator who promotes interaction and assures that the discussion remains on the topic of interest."

The use of a focus group is recommended to test new concepts, generate ideas or support brainstorming, or to position a product or service (Edmunds 1999). The main

criticism of the focus group method is the lack of "hard" data provided (Stewart and Shamdasani 1990, 12). However, focus groups can serve as very "useful for exploratory research where rather little is known about the phenomenon of interest" (Steward and Shamdasani 1990, 15).

A focus group interview should grow directly from the research question and provide direction for group discussion, while discussion questions should become increasingly more detailed as the interview proceeds and questions pertaining most to the research question should be placed in the beginning of the discussion (Steward and Shamdasani 1990). Based on the guidance of the focus group literature and the nature of this research exploring the needs of landowners and land trusts, a focus group will serve as the best tool to gather landowner input versus the time-consuming and costly process of mailed interviews or telephone surveys. A focus group will insure input from the individuals present and provide a more intimate and personal interaction between the researchers and the participants.

ADAPTIVE MANAGEMENT

A natural resource planning approach known as adaptive management is a concept that is applied to complex working systems be it within the biosphere, ecosphere, or human sphere. Holechek et al. (2003, 129) describe adaptive management as "an approach to natural resource management that promotes continuous scientific evaluation of management effectiveness and continual adaptation of management to conditions as new knowledge is gained." Adaptive management is often applied to ecosystem balance or watershed management, but the core of adaptive management is closely related to the same processes

and methods used in conservation management (Walters 1986; Lee 1999; Holechek et al. 2003; EPA 2006).

Conservation management is a form of natural resource planning that closely parallels the methods used in adaptive management. Conservation management is composed of conservation tools such as easements, purchase of development rights, transfer of development rights, best management practices, and a collaborative effort between a managing body, primarily a land trust, and the private landowner (Figure 1). In other words, this is conservation planning. Easements in particular are established in such as fashion that the document can be revised based upon land trust monitoring and private landowner needs or assessments. As seen by many academics and conservation professionals, there is much to be learned about the effects and practices of conservation easements and other conservation tools (Wright and Tanimoto 1998; Merenlender et al. 2004; Daniels and Lapping 2005). In this way, adaptive management methods will serve as a guideline for conservation management.

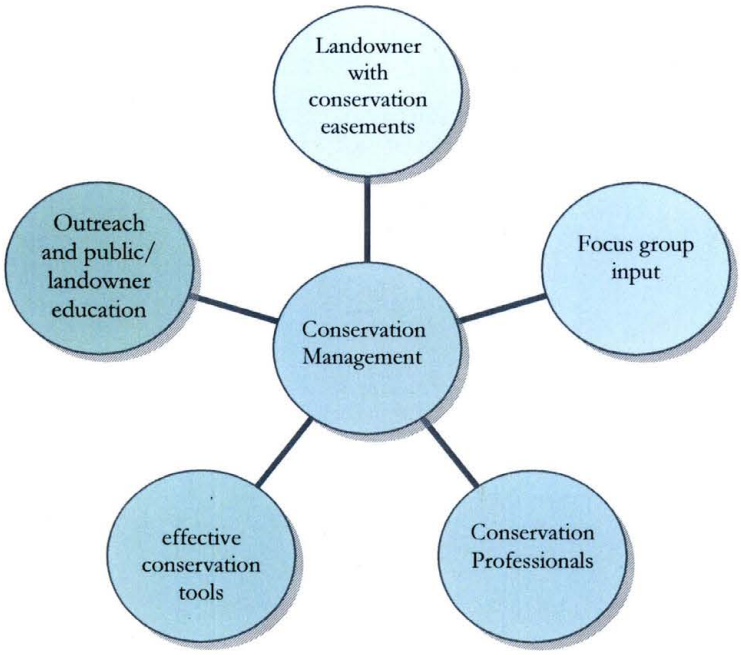

Figure 1: Adaptive Conservation Management Input

METHODS

The methods for this research are intended to help find the most productive manner by which land trusts and landowners can communicate and collaboratively achieve conservation goals and best management practices.

The first step was a thorough review of conservation literature ranging from GIS application and conservation tools to land trusts' interaction with private landowners. This review identified communication and information gaps between land trusts and landowners, in addition to various conservation and land trust techniques.

The second consisted of interviews with conservation managers and land trust personnel identifying the needs of those who are actually attempting to apply the conservation tools identified above. I selected these individuals based on their work with

land trusts in Texas.

The third step was a focus group of private landowners and the agricultural industry conducted in collaboration with the Texas Land Trust Council. The purpose of the focus group was to gain a better knowledge of how conservation and land trusts are viewed by private landowners and the agricultural industry who are either unaware of the conservation tools available to them or have not yet decided to employ a conservation easement on their land. The focus group input was combined with landowner input gathered from a session attended at the 2007 Statewide Land Trust Conference held January 27 in Austin, Texas where five private landowners with conservation easements shared the details of their conservation decisions. This step facilitated a better understanding of the perspectives of those landowners who actively employ conservation easements versus those whose decision and knowledge of these resources is still pending.

Fourthly, Best Management Practices (BMPs) based on input from conservation professionals, focus groups and landowners were selected. These methods were based on the ability to be carried out and sustained for a long period of time while being both practical and productive.

The findings from the previous steps were presented as a model to be applied to Halls Bayou study area to best determine if these environmental goals can be carried out logistically, financially, and socially in a real world setting. Finally, these findings will be discussed on a more regional level that can be applied to similar environments faced with static conservation management dilemmas.

2: ANALYSIS

The findings facilitated by this research have produced information regarding the many intricacies involved with private property, landowners, conservation practices and the use of conservation tools and outreach by land trusts. Each element contributes an integral factor into what ought to be considered each time conservation practices are employed, one of which involves the element of private property rights.

PRIVATE PROPERTY RIGHTS ADVOCATES

Amongst Texas private property rights advocates, there is concern about the implementation of conservation easements and the uncertainty of landownership and control. Fred Kelly Grant on a web based private property rights group (2007) discusses the concerns of conservation easements that private landowners ought to uphold (propertyrights.org). He warns that landowners should be leery of easements and should rightfully understand all of the intricacies involved. However, Grant's (2007) focus rests primarily on tax abatements for the private landowner and the consequent reduction in property value, but fails to mention the inherent environmental qualities and restorative power that conservation easements can give to the land upon which the easements have been placed.

Grant (2007) criticizes the reduced market property value when land is placed under

an easement and argues that this will affect how and to whom a landowner might sell their property: "The significant lowering of value of your property will result from the restrictions that have been discussed, and from the fact that the potential use of your property for subdivision and development for residential, commercial or industrial use will forever be prohibited" (Grant 2007, 10). Grant (2007) also criticizes conservations easements set in perpetuity and suggests a term easement for landowners who desire to set a conservation easement. This, Grant argues, will limit the control the easement holder has over the land for a period of time.

Grant (2007) urges landowners to become educated about the terms of a conservation easement and recommends legal counsel in all cases. Grant (2007) suggests that conservation easements are not only an infringement upon landowner rights, but that land trusts in general want to sell the landowners land once acquired for the trusts' benefit. Grant (2007) often refers to easements being under the control of the government and wants to warn landowners about "the true limiting nature of an easement and the dangers lurking behind the terms offered by the government" (2). Most functioning land trusts, however, are non-governmental entities serving in the non-profit sector. In Grant's (2007) view, conservation entities seek to exploit one's land when under an easement and states that "monitoring by an environmentalist organization could be intolerable" (11).

> It is one thing to be involved with a federal agency where at least some regulatory, statutory or congressional oversight over arbitrary actions is possible. It is another to be involved with a private extremist organization that is willing to expose you to unlimited litigation expense in order to expand the restrictions on your land use (11).

Grant's (2007) concerns echo those of landowners interested in conservation easements. Most, if not all, conservation entities will provide as much information and varying options

available to the landowner. Conservation entities like land trusts seek to eliminate any sources of misinformation that may misconstrue the true intent of conservation management. Carolyn Vogel of the Texas Land Trust Council suggests that misconstrued information, or sources of "misinformation," are the biggest hurdle to successful education and outreach (Vogel 2007).

The mission of most Texas land trusts is to protect the natural resources of the land for future generations through active conservation and best management practices. The concerns Grant (2007) outlines in his article are founded in a concern for private property rights and ownership. The recognition and acknowledgement of these concerns among conservation professionals and land trusts is necessary. Without understanding as many of the myriad factors that play into conservation decision-making, land trusts cannot effectively reach landowners nor implement the most effective conservation tools for land preservation. These concerns have also been voiced by the Hill Country Cattle Women (2006) in response to conservation easement use in the Texas Hill Country.

The Hill Country Cattle Women (2006) are concerned about the ownership and control of the land once under the terms of a conservation easement and management of a land trust. The organization believes that complete and total control is surrendered to the easement holder in turn becoming an infringement upon one's rights as a private landowner. Similarly to Grant's (2007) concerns, the Hill Country Cattle Women (2006) are concerned that the land, when under a conservation easement, will hinder future generations from any potential development assets the land might have. In the perspective of the Hill Country Cattle Women, conservation easements threaten to be the bane of Texas private landowners:

Conservation easements create negative easements, by restricting the original

> landowner from performing specific acts. Normal easements for roads, power lines, etc. are positive easements, and do not restrict the use or stop the landowner from using his land, constructing buildings, subdividing, putting up fences, etc. (2007, 1)

However, the Cattle Women concern echoes Grant's (2007) in landowner property value versus ecological benefits and increased community value that conservation easements and open space preservation have on the land. Conservation easements are created in congruence with the needs and desires of the landowner. If a landowner decides to set aside sixty percent of his or her land, with building allowances included, the landowner has, and is entitled to, that decision (LTA 2007).

The points made by Grant (2007), the Hill Country Cattle Women (2006) and other private property rights advocates (Texas Landowners Council; Texas Public Policy Foundation) find their ground for argument in that certain conservation decisions and tools suggested for conservation efforts might infringe upon a private landowner's rights and self-invested interest. Their criticisms of third party involvement create a foundation for proper research and educated decision-making when it comes to the integrity, protection and conservation of one's land. These very criticisms are most often recognized by land trusts and conservation professionals who encourage landowners to find the proper conservation tool(s) that best fit their needs and the needs of the land (LTA 2007; Focus Group 2007; Vogel and Ferguson 2007).

CONSERVATION PROFESSIONALS

In an interview conducted with Carolyn Vogel and Tommi Ferguson of the Texas

Land Trust Council, their own concerns for the conservation movement were voiced along with the recognition for the needs of landowners. Much of their concern for the conservation movement rests in the misinformation regarding land trust activity and conservation tools that exists in many landowners' minds. Due to a lack of education about conservation tools combined with misinformation, a divide between the agricultural community and land trusts exists and has done so for many years. Vogel (2007) attributes this divide to the skepticism and cynicism accompanying many landowners' ideas about the conservation movement. Vogel (2007) also pointed out that the source for this communication gap is hard to identify and that the responsibility lies not with one party or contributing factor. This gap however is beginning to narrow thanks to the efforts of a new land trust specifically aimed at building relationships with agricultural landowners in Texas appropriately named the Texas Agricultural Land Trust.

Particularly in Texas, it is important to understand the attitudes towards landownership, the pride that accompanies it, and the cultural aspects and views of the environmental movement, open space, ranching, and property rights (Vogel and Ferguson, 2007). A land trust's outreach mission must incorporate these factors tailored to the land trust's region of interest. In Texas, these factors will vary from region to region. For conservation professionals to understand landowners' needs, they must first recognize the existence of individual landowners' land ethic—what Ferguson (2007) refers to as "homegrown conservation." Seasoned private landowners who themselves or their family have been active landowners for generations, often out of consequence, have a strong land ethic instilled in them. They care for the land, understand and appreciate its beauty and wish

to keep it as open space within the family for as long as possible. Of course, this is the mission of land trusts.

However, Ferguson (2007) points out that effectively communicating this similar perspective on the land to skeptical landowners remains a challenge to the conservation community. Both landowners and conservation professionals are advocates of the land; yet the communication problem arises when one does not know that the other exists or sources of misinformation establish entrenched opinions. Vogel (2007) points out that the biggest advocacy that land trusts need is the landowners and public stakeholders. Vogel (2007) also places great emphasis on the fact that before successful conservation can occur, there must be good outreach and education with landowners. Through landowner testimony regarding personal experience with land trusts and conservation easements, other landowners will be more likely to become interested in the benefits and services provided by these conservation entities. One Texas land trust in particular, Hill Country Conservancy, has done just this.

DECISION-MAKING OF PRIVATE LANDOWNERS

The Hill Country Conservancy (HCC) of Austin, Texas has created a valuable source of knowledge; what the HCC has named "Reflections" (2007). Hill Country landowners provided HCC with their input and perspectives on the value of the Hill Country and the need to keep it protected. Ira Yates, a landowner whose family has been on the land for generations, reflects on the benefits of conservation easements. For Yates and his family, the conservation easement on their property provides a sense of peace knowing that the land they have loved and worked for years will be protected from encroaching development.

Although Yates understands the desire to move to the Hill Country, he states that the resources being sought to enjoy will inevitably become depleted. In an excerpt from Yates' comments, he states the following:

> From my perspective as a rancher, having grown up on a ranch and having had my development rights purchased under a conservation easement, it is the most wonderful experience to have grown up, knowing you wanted to preserve a piece of property [...] a conservation easement on my remaining portion of my ranch was an answer to dreams, but it is something that many people worked for through the years (HCC 2007).

Other landowners like Bob Ayres recognize the threats posed to the Hill Country region including urban sprawl, non-point source pollution, habitat fragmentation and poor land management (HCC 2007). He suggests community involvement and a combination of interests as ways to resolve the threats and protect the habitat.

Susan Combs, Texas Comptroller and landowner, also reflected on the value and importance of the Hill Country. Combs recognizes the emotional ties to the land many landowners possess. She mentions how the purchase of development rights on active farmland can lead to agricultural food development and present the farmer and rancher with other options besides "selling out" (HCC 2007). Others like Marcia Ball and Marshall Kuykendall recognize the need to preserve and protect the Hill Country's valuable resources. Landowner testimonies such as these will lend a trusted hand to other landowners in Texas who are faced with similar pressures and decisions.

During the sessions held at the 2007 Texas Statewide Land Trust Conference, a panel of five landowners discussed the decision-making processes in which they participated regarding conservation easements. All five landowners currently have conservation easements placed

on all or part of their property. All of the landowners had emotional and/or familial ties to the land and did not want to see the land subdivided or developed. Nearly every landowner wanted to be reassured that the land would be left untouched and would remain so for future generations. Each landowner, following some form of development pressure in the surrounding area, sought alternative answers for development or selling their property. Carolyn Vogel (2007) points out that it is nearly impossible to understand all of the issues facing landowners' decisions because each is very subjective to each person or family's experience. For these landowners though, their answer was found in establishing a conservation easement. The following chart (Table 1) displays the five landowners' conservation decisions, motives, total land under easement and overall satisfaction with the land trust and conservation easement.

Table 1: Landowner panel from 2007 Statewide Land Trust Conference, Austin, Texas.

	CONSERVATION DECISION	MOTIVE	LAND UNDER EASEMENT	OVERALL SATISFACTION
Art Wilson, Boerne, TX	Family ranch since 1880s; did not like rapid development trend in area; family decision	Federal government improved terms & conditions	105 acres with 5 acres of building permit	Very happy with easement; est. 8 years ago
Bob Ayers, Travis County, TX	Began conservation research and planning in 1987; family dynamics/involvement very important; contacted land use planner	Emotional ties to land; highway development threatened land	4600 acres to The Nature Conservancy; 1500 acres to City of Austin; 300 acres personal use	Very satisfied with easement; has a myriad of perks including ecological preservation, tax benefit, & development prevention
Dennis & Eva Jean Kestner, Caldwell County, TX	Wrote own conservation easement; chose to not receive tax benefit	Desire to protect native plants, animals, and springs; keep land undivided; no subsurface mineral extraction; no feedlots; tree limitations	214 acres	Happy with easement; est. through the Pines and Prairies Conservancy
Bob Putnam, Lufkin, TX	Avid birders; existing house built in 1920s tied to original Spanish land title; complete family involvement throughout process	Pressures on surrounding land triggered concern; wanted to provide habitat protection for 115 species of birds; birding magazine mentioned benefit of conservation easements	89 acres	Very satisfied with easement; enjoy bird watching and feel have guaranteed home for migratory bird species
Tom Kelsey, Waller County, TX	2-3 year decision-making process; initial concern with perpetuity of easement; however, created easement that holds a building allowance; cattle restriction placed on land	Land was family gathering spot/recreational hunting area	440 out of 632 acres	Very satisfied; est. in 1996

FOCUS GROUP SESSION

The Houston-area focus group was conducted in participation with the Texas Land Trust Council and was held on June 15, 2007. The attendees of the focus group consisted of conservation professionals from surrounding area land trusts like the Katy Prairie Conservancy, Wilderness Houston, and the Audubon Society of Houston; state agency employees from the Texas Parks and Wildlife Department and the Natural Resource Conservation Service (NRCS); and surrounding private landowners. The meeting was a three-part session, with the last session consisting of two break-out groups aimed at refining sources for outreach efforts. Tommi Ferguson of the Texas Land Trust Council posed all of the questions and fielded feedback from all participants. In total there were approximately 20 participants.

The details of the session are in Appendix A, but in summary the overall feedback from all parties was a greater need for outreach, education, and interagency cooperation. The landowners in attendance expressed concern that most had never heard of the Texas Land Trust Council prior to the meeting invitation nor did they know of the many land trust resources in their areas. The agency members in attendance expressed concern for acquiring more background knowledge and education on the function, purpose, and tools of land trusts. The agency members also pointed out that as employees of government agencies, they were not authorized to recommend resources to the public. They are, however, able to refer.

The agency staff expressed a need for more information and literature on conservation organizations that they could provide as part of their services. The land trust employees in attendance expressed concern for agency referral to the land trusts and the need for better

relationships with landowners.

There was an overall question from both land trust and agency employees about how best to reach the landowners and establish a growing and lasting relationship between them. In response, the landowners suggested using a media outlet such as a newsletter of land trusts' activities in the area. Other suggestions consisted of attending local meetings where landowners would be in attendance. When probed further however, it became evident that landowners most often trust other landowners over any other avenue of information gathering. A landowner with a similar experience, helpful advice, and proven knowledge is another landowner's best friend. Just as Carolyn Vogel and Tommi Ferguson (2007) pointed out, a land trusts best advocate is the public itself.

From the focus group feedback and final break-out session, it has become clear that there is no single best answer or method that land trusts can use to reach landowners. The methods are complex, time consuming and must involve interagency cooperation along with local community involvement on behalf of the land trusts. Landowners, if they are interested in land trusts, must be receptive to the education and resources that are available to them and must actively seek advice from their local conservation organizations. Clearly, the best method for building and ensuring lasting relationships between private landowners and land trusts is to create a foundation of trust upon which the relationship can be built. On this basis, education can overpower misinformation and helpful advice can conquer skepticism.

APPLICATION: HALLS BAYOU STUDY AREA MODEL

Halls Bayou is a small tributary to West Galveston Bay located in Brazoria and Galveston counties and is situated approximately thirty miles south of the city of Houston. The bayou feeds into the West Bay water system through Halls Lake to the south and provides an important resource for fish and wildlife habitat, recreational fishing, and the agricultural industry, primarily rice farming. Protection of these resources and the environmental integrity of the bayou are of great importance to conservation organizations like Ducks Unlimited, the Galveston Bay Estuary Program, and the Galveston Bay Foundation. Due to the bayou's recreational activities, the environmental protection and availability of the bayou is of importance to area residents. Texmati Rice located in Alvin uses the bayou's water resources to create and stimulate the agricultural rice production in the area.

The invested stakeholders of this region are from a myriad of backgrounds, each with their own interests at stake when conservation of Halls Bayou is in question. In light of the information gathered from conservation professionals, property rights advocates, private landowners and Houston-area focus group attendees, it is clear that the first and foremost step in creating a sound conservation plan is to educate the stakeholders. From the beginning of any conservation plan, it is imperative that a relationship be established between the conservation community and area landowners and the public. Given the feedback from landowners in the focus group, demonstrating to the public what each conservation entity promotes through the organization's history and mission leads to a greater educated and supportive public.

Carolyn Vogel and Tommi Ferguson (2007) noted, as well as focus group

participants, that effective information versus misinformation is the biggest challenge for conservation organizations to overcome. By generating a relationship from the beginning of the process and informing stakeholders of the conservation intent, much of the misinformation often generated by hearsay can be avoided (TLTC Interview 2007). This relationship will in turn lead to a building of trust between the community and the organization.

As mentioned by many landowner participants in the focus group session, Texas landowners are notorious for being independent and skeptical of outside sources of information. Upfront honesty and plentiful sources of information will only build community support for the conservation plan and will engage the community in upholding any type of implemented plan. An outline of options available to stakeholders is of great importance as well. Each possible scenario that can be outlined in the conservation plan ought to be outlined as well as the scenario for no conservation efforts. By presenting these scenarios or options, the stakeholders feel enabled to make an educated decision as opposed to being told what will take place.

Since the area of Halls Bayou is prone to flooding (Figure 2) due to the topography of the coastal region and nature of bayou wetlands in general, an option for landowners in the area might be the purchase of development rights. Much of land in the area, based on the Land Use/Land Cover classification used, consists of either pasture or agricultural land. This land use can be effectively maintained while the landowner receives a tax abatement based on the removal of development potential. A conservation entity would purchase these rights from the landowner, while the landowner still maintains ownership of the land and any agricultural practices that may take place on the land.

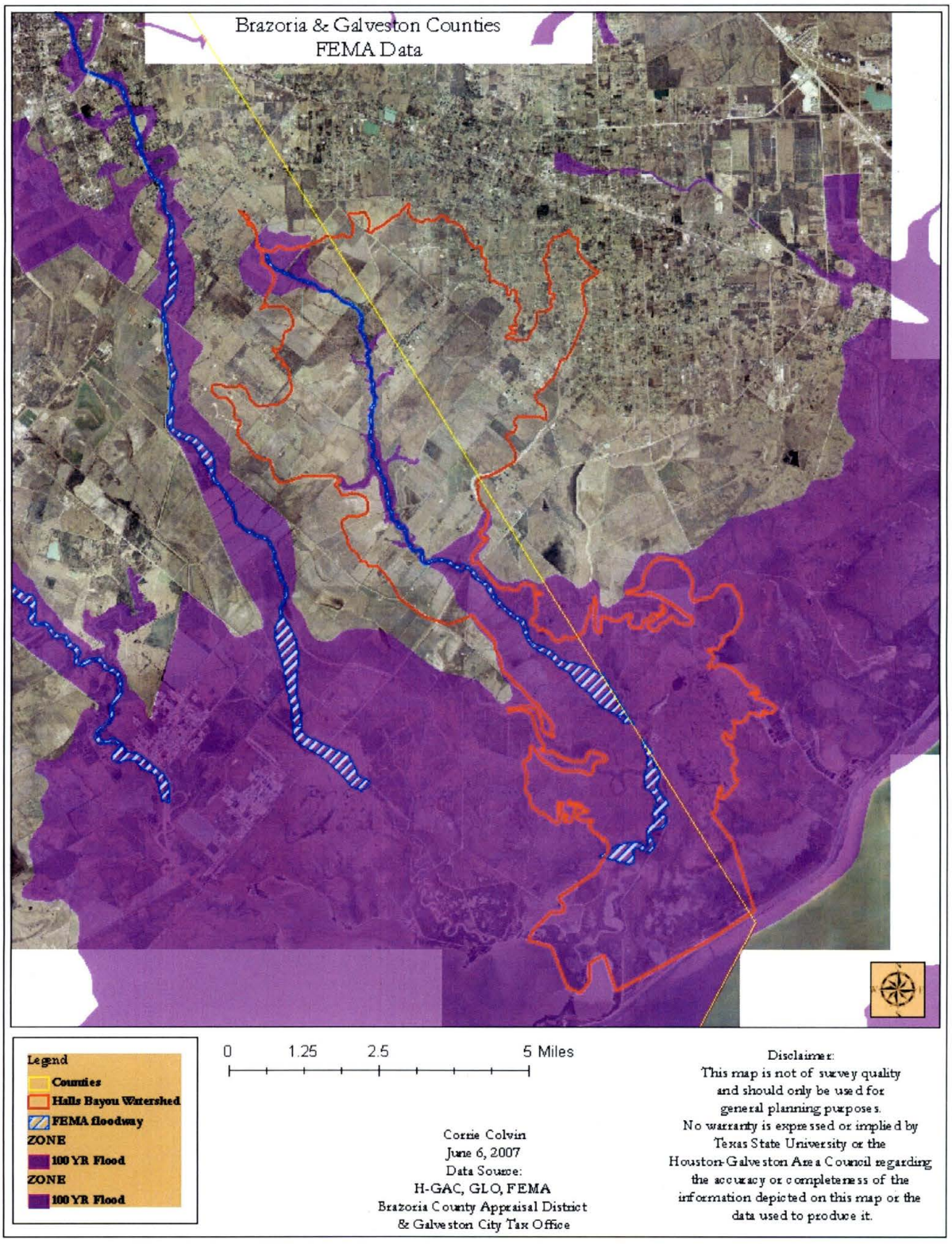

Figure 2: Map of Halls Bayou FEMA Data for Brazoria and Galveston Counties.

As opposed to a conservation easement, the PDR option might provide more flexibility for the agricultural landowner.

Table 2 displays the conservation options for a region like Halls Bayou to consider. The chart was created using the most widespread and applicable conservation methods. Many of the methods have been previously outlined including conservation easements, BMPs and adaptive management. The other five methods are outlined as follows.

Transfer of Development Rights (TDR) and Purchase of Development Rights (PDR) are two options offered in particular to agricultural landowners. A TDR allows for the landowner to perform a private transaction with a developer that allows for the development rights to be sold to the developer and transferred to a more developable, more ideal, piece of property (American Farmland Trust 2001). The American Farmland Trust (2001) outlines the TDR program stating that "in the context of farmland protection, TDR programs prevent non-agricultural development of farmland, reduce the market value of protected farms and provide farmland owners with liquid capital that can be used to enhance farm viability" (1).

The Purchase of Development Rights (PDR) differs in that transfer to a separate parcel does not occur. Unlike TDRs, PDRs do not occur in the private market. A PDR is an agreement between a conservation entity and landowner (Western Governors' Association 2001). The difference between a PDR agreement and a conservation easement rests in the purchase of development rights versus the donation of rights often occurring with a conservation easement.

Table 2: Methods Matrix. (high=highly feasible; moderate=moderately feasible with extensive planning; low=very difficult to implement without significant planning/support)

METHODS	Technical Feasibility	Political Feasibility	Economic Feasibility	Effectiveness	GIS Application
PDR/TDR	moderate (agricultural land)	moderate	high cost	high	beneficial
Fee Simple Purchase	high	moderate	moderate cost	moderate	beneficial
Conservation Development	low	low	high cost	high	necessary
Conservation on Industrial Land	moderate	low	high cost	low/moderate (brownfield mitigation)	beneficial
Conservation on Public Land	high	moderate	low/moderate cost	high (public support)	beneficial
Conservation Easements	high	low	low/moderate (donation based)	high	beneficial
BMPs	high	high	high cost	high	necessary
preserving natural vegetation	high	high	low cost	high	beneficial
permanent slope diversions	high	high	moderate cost (material dependent)	high	recommended (topography/slope analysis)
vegetated buffers	high	high	high cost	high	beneficial
Adaptive Management	high	high	high cost over time	high	necessary

Table 3: Conservation Easement Tool Assessment based on input from conservation professionals, private landowners, focus group, and property rights advocates.

Approaches to Conservation	Best Management Practices	Conservation Easement	TDR/ PDR	GIS
Conservation Professionals	supported and encouraged; possible step towards conservation easement; helps build relationship with landowner	best of fit; good choice for landowners who want land preserved in perpetuity; most often a volunteer donation	open space is maintained; more affordable purchase for land trust	used often to determine ecological value of land; technical language can often form barrier; main focus of land preservation gets lost in modern technology; arbitrary analysis towards goal
Private Landowners	no outside interest group; voluntary; may result in conservation benefit or tax benefit	flexibility in design; maintains ownership; tax benefit when in perpetuity; voluntary	tax benefit	technical language barrier; offense taken when land is analyzed without permission (aerial photo or data analysis)
Focus Group	private landowners wish to decide this on their own; land trusts help to implement these; governmental agencies can only refer	some confusion as to what the function is from both private landowners and agency employees; highly recommended by land trusts (best of fit approach)	recommended specifically for agricultural land; some landowners feel sounds too good to be true; allows for ownership and continued Ag practices	no mention of GIS technology at focus group session
Property Rights Advocates	ought to be determined by landowner alone	binding; infringement upon private property rights; limits land's selling capacity and development potential; government's way of controlling private property	giving up only true asset; ought to remain in the hands of the landowner; no such thing as "transfer"	big brother technology; infringement upon rights

Confusion between PDR and conservation easements arises when the two terms are interchanged, but according to the Western Governors Association (2001), "when people refer to 'PDR,' they are referring to the purchase and restriction of development rights using a conservation easement, and they are specifying that the development rights are to be paid for rather than donated" (7).

Conservation development, as outlined by Randall Arendt (1992), allows for the same amount of development to occur on the land, but does so in a manner that preserves local habitat, maintains agricultural space, and places houses on smaller tracts to prevent fragmentation of the area.

> The beauty of open space zoning is that it is easy to administer, does not penalize the rural landowner, does not take development potential away from the developer, and is extremely effective in permanently protecting a substantial proportion of every development tract. It does not require large public expenditures (to purchase development rights), and allows farmers and others to extract their rightful equity without seeing their entire land holding bulldozed for complete coverage by houselots (Arendt 1992, 4).

Conservation on industrial land can often be seen in areas where industrial zoned land must provide a land buffer between the industry and surrounding parcels of land. This land can be used for grazing or wildlife habitat, but may often have indirect beneficial effects on the environmental quality of the land due the adjacent industry.

Conservation on public land is a natural resource that is placed in the hands of the public. Conservation entities like the Bureau of Land Management and Trust for Public Land help local governments create and pass legislation that provides funds for public land conservation (TPL 2007). Often, these public lands will be set aside as parks or recreational areas that the public can enjoy and reap direct benefits (TPL 2007; National Geographic

2007).

In the case of a Halls Bayou conservation plan, implementing a GIS analysis with public input should be the last step within the conservation plan. Based on the input from the focus group, private landowners, and property rights advocates (Table 3), the primary concerns of each party were not with technical analysis. Providing a foundation of understanding and support will make the GIS technology and analysis much more effective. Based on previous case studies, presenting a GIS analysis from the beginning to stakeholders will likely result in confusion and frustration about what the analysis means and how it was achieved (Wright and Tanimoto 1998; Stone and Schindel 2002; Stoms et al. 2004). The helpful intent of the GIS will then be completely overlooked. Once the support and recognized need for conservation is established, explanation of the benefits and tools provided by a GIS analysis will result in a better use of the technology. As a result, input from all parties can be used and a sense of community ownership and involvement will surround the conservation efforts. The conservation goal will more likely be realized and not lost in confusing language and elaborate analysis.

CONCLUSION

The results facilitated by this research have proven to be multi-faceted and from a myriad of sources. However, education and outreach have proven themselves critical in establishing an effective and lasting relationship between land trusts and private landowners. The results show that by providing a sound foundation of education and knowledge first, resource conservation, open space protection and community support are more likely to follow. Due to the limited staff of most land trusts and the eagerness and desire to first protect and conserve natural resources and open space, the critical education and outreach is quite often overlooked. Carolyn Vogel (2007), in fact, places education as a top priority for land trusts and says that education, outreach and community support are integral to the success of a land trust.

The best tools that can be applied by conservation entities and used by landowners are also multi-faceted and are not necessarily intended to be used alone. Applying adaptive management techniques and reevaluating the success and implementation of each tool will result in a best-of-fit conservation plan for both the conservation organization and landowner. The research revealed that landowners can successfully commit themselves to land conservation without the aid of a conservation organization, but the perpetuity of that management comes into question when the land is passed on either through sale or inheritance. Some landowners may choose to hold complete ownership of the land until death, then deed it to a conservation group that will ensure the land's lasting conservation. Clearly, establishing a relationship between conservation organizations and landowners is a timely process; a process that takes patience, persistence, and understanding from both parties. A relationship based on principles of land stewardship, however, is the key to

conservation. Whether that relationship results in shared responsibility through a conservation easement or conscientious land management on behalf of the independent landowner, land conservation can only be strengthened by the support of both landowner and conservation organization. Based on this research, open space conservation and resource protection can hardly exist without that relationship of shared stewardship. Land trusts must become involved in the community and be receptive to the needs of all stakeholders. There is no single best way, however, to facilitate this relationship. Each approach is unique in its own fashion and by applying adaptive management, facilitating communication, and committing to the conservation and management of valuable land resources, a successful combination of methods and tools can be achieved.

APPENDIX:

Texas Land Trust Council Interview
Carolyn Vogel and Tommi Ferguson
Friday February 16, 2007

Carolyn:

- There is a divide between land trust and agricultural community that still exists after ~10 years of more interactive engagement
- Due to lack of education AND misinformation
- Need knowledge of others (private landowners and stakeholder's interest)
- Problem of skepticism and cynicism
- Myriad of sources for why communication gap exists; hard to really pinpoint any one contributing factor
- IMPORTANT TO CONSIDER:
  - Texas Attitudes
  - Response to conservation; environmental regulation
  - LAND PRIDE
  - Views of "environmentalism"
  - Cultural aspects
  - Emotions re: Open Space; Ranching; Property Rts.
- Beliefs in value of land/Land Ethic become catalysts for conservation concerns
  - Tommi calls this "Homegrown" conservation
- Rate of land trusts is increasing
- Building land trust capacity
- Statewide Agricultural Land Trust – agricultural land in Texas, clean air, clean water
  - -Seeking to create pivotal relationships and communications that are underway
  - -Seeking funding for Purchase of Development Rights (PDR) - possibly main tool
  - IF funding can be secured
- Question of HOW to apply the solutions to these issues facing conservation; CAN NOT know all of the issues because very subjective depending on each individuals own experience
- Land Trusts: EDUCATION should be priority in addition to all other conservation goals…how to reach landowners; often education and outreach are at the

bottom of the list for some land trusts, but education serves as a very integral tool and facet of land trust success
--Landowners inherently know these conservation tools/practices consistent with BMPs
--practices versus conservation: feeling of accusation by land trusts towards farmers/ranchers not being good land stewards

- --USFWS in early 90s with endangered species emphasis and land acquisition; abandoned cultural ideals => offensive toward land owner BEFORE good conservation can occur, must have good education/outreach with landowners; how to best fund these programs – fee for service – ecological tools/services
- Public Benefits of private lands conservation; BIGGEST advocacy land trusts NEED are the PEOPLE (politicians, tax payers, foundations; etc.)
- Education and concern for why conservation is important – PDR program; no public access; What are the Public benefits to private lands conservation?
- Public funding sources for land conservation from tax payers supported mechanism – nothing else/no other source will provide these funds

Tommi:

- Has been and remains a challenge to increase public awareness; how to increase awareness with landowners – they don't know what they don't know
- Land trust staff is often limited – have certain priorities
- Private property Rts. Advocacy groups opposed to easements – other end "propaganda"/misinformation
- Lack of knowledge + Misinformation = HUGE Challenge for Conservation world
- Tax benefits awareness at federal level has increased Conservation awareness at incentive level
- Blair Fitzsimmons contact:
  --Ecological services (BMPs); PDR legislation; permanent easements versus term easements – idea on temporary basis with landowner; does not require such a HUGE commitment ~10-15 years
  --building relationships; tension/stress/concern fades away
  --Agricultural Land Trust seeking to do this – term easements est. informed, comfortable, trust with landowners
  --"It's about trust." – Andy Sansom
- Approach demystifies land trusts by private landowners – based on relationship; heresay vs. education available
- Fort Hood, TX example: army buffer zone looking to PDR; running operations/Blackhawk; legitimate reasons for why people have concern with PDRs, conservation, land trusts, etc.

- Right of Right – Private Property Rights program; sell legal services to landowners through workshops – focuses on landowners with "bad" experiences with govt., TNC, or other land trust => capitalizes on those issues to create "fear and paranoia" within landowner community

- HOWEVER, important to remember that conservation easements are NOT best solution for all landowners – "goodness of fit" for easements; what are the options available?
- ALSO important that these "options/methods" are appropriate, tested and well-funded (NRCS restrictions?)
- "Do these options work in Texas? Have we embedded them and are the going to work?" - Carolyn Vogel
- What about the next generation? Inheritance – hope to meet the needs of most folks
- A change in industry and ecology – change in farming and ranching in Texas
  - high rate growth in pop./money; development pressures are extreme on many lands ETJ areas lack development limits/zoning regs.
  - exurban areas; lack of guidance for dev. & intensity
  - different groups and different interests
  - rooftops => retail
- housing affordability in cities (priveledged market) – Buda, Kyle, Dripping Springs; more affordable to live outside of city
- Jim Heid presentation Urbangreen – New Urbanism; stats & data demonstrating what is happening so far as development is concerned

Wildflower Center each August – sustainable development symposium

- Planning web similar to ecological web : meshed issues; article in planning journal "Wicked Problems"

PREDICTABLE:

- Land trust hit with myriad of situations; passionate about conservation, possibly economic diversity
- Goal of saving land – has to be more INVOLVED; can't be all about saving land – too much of a singular focus on land trust conservation can inhibit a land trust from becoming strong force
- Spend time developing land trust foundation; abiding by Standards and Practices mission, code of ethics, operating

Agricultural Interest Focus Group – Houston area

- Self-selected group to come extent – presence at focus group demonstrates peeked interest
- Ag. Industry (beef council, rice farmers, NRCS) vs. landowners
- Possible break-out groups with specific topics – landowner, NRCS table

Texas Parks and Wildlife Program – list of names of private landowners
findings (landowner survey)

The Nature Conservancy – Carter Smith "public trust" speech

BIG GOALS:

- 10-15 yrs. Projection
- TNC eco-regional planning
- TPWD 10 yr. plan
- Texas Farmland Trust, Texas farmland study – Land trends-land Fragmentation www.landinfo.tamu.edu

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VITA

Corrie Ruth Colvin was born August 10, 1982 in New Braunfels, Texas, the first daughter to Dr. James Thomas Colvin, Jr., M.D. and Pamela Hoff Colvin. Corrie was raised in Seguin, Texas and upon graduation from Seguin High School in 2001, she attended the University of Texas at Austin where she received her Bachelor of Arts degree in Geography in May 2005. In August 2005, she began her graduate career at Texas State University-San Marcos where she received her Master of Applied Geography in Land/Area Development and Management in August 2007.

Permanent Address: 1555 Still Meadow Rd.

Seguin, Texas 78155

This thesis was typed by Corrie R. Colvin.