



The economic benefits of the Katy Prairie Conservancy lands

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The Trust for Public Land
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This project was completed in partnership with the Katy Prairie Conservancy, with generous support from Houston Endowment.

The Trust for Public Land creates parks
and protects land for people,
ensuring healthy, livable communities
for generations to come.

The Trust for Public Land's Conservation Economics team has extensive experience measuring the economic benefits and fiscal impacts of land conservation. Partnering with The Trust for Public Land's award-winning GIS team, the Conservation Economics team has published over 40 economic analyses for jurisdictions throughout the country, including communities in Alabama, Arizona, California, Colorado, Georgia, Illinois, Kansas, Kentucky, Maine, Massachusetts, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Vermont, Virginia, Washington, and Wyoming. The Trust for Public Land has advanced this research working with leading academic partners and research institutions including Colorado State University, Dartmouth College, Georgia Institute of Technology, Michigan State University, University of California-Davis, University of Georgia, Texas A&M, University of Minnesota, University of New Hampshire, University of Vermont, University of Wyoming, and the U.S. Forest Service.

tpl.org/katy-prairie-economic-benefits

Table of contents

Executive summary4

Introduction7

Farming and ranching10

CASE STUDY: Warren Ranch14

Recreation for residents and visitors15

Community and economic development21

CASE STUDY: Pocket prairies29

Conclusion30

Endnotes33

Executive summary

THE KATY PRAIRIE CONSERVANCY (KPC) WAS FOUNDED IN 1992 IN ORDER TO PROTECT THE COASTAL PRAIRIE WEST OF HOUSTON KNOWN AS THE KATY PRAIRIE. Over 20,000 acres of the historic Katy Prairie have been protected thanks to KPC's efforts. Beyond providing natural goods and services, these lands and KPC's work in the region are creating significant economic benefits for residents in Fort Bend, Harris, and Waller Counties. Using new tools, this economic analysis by The Trust for Public Land demonstrates the extensive and varied values provided by the KPC's lands.¹ See [Figure 1](#) for a map of KPC lands and [Box 1](#) for the definition of preserved open spaces.

ENHANCING FARMING AND RANCHING: KPC's work in the region supports the agricultural industry by helping to maintain the working landscape on which this industry depends. KPC is the operator and majority owner of the historic Warren Ranch, a working cattle ranch that has been in continuous operation since the 1870s. The ranch runs cattle and leases pastureland to local ranchers for grazing. KPC also provides direct access for other members of the community to KPC's other agricultural lands for grazing cattle, growing rice, and producing other crops through its leasing program. In addition to the acreage leased on Warren Ranch, KPC leases over 6,000 acres for grazing, rice, and crops on other KPC preserve properties. KPC works with its lessee farmers and ranchers to encourage best management practices that include the dual goals of supporting prairie land restoration alongside new economic viability for farmers.

BOOSTING RECREATION FOR RESIDENTS AND VISITORS: Residents of Fort Bend, Harris, and Waller Counties enjoy hiking, birding, hunting, and many other activities on KPC's lands. Area residents value these assets, donating volunteer time worth more than \$61,600 in 2016 for upkeep and maintenance of the prairie land. KPC's unique native grasslands and migratory birds also attract tourists such as birders and hunters from across the region and from around the world. KPC provided 463 hunters with access to over 300 acres on KPC's Hebert Property alone during the 2016–2017 season, valued at \$106,000. Combined with an additional 1,560 hunting days on other KPC properties, KPC lands provide \$239,000 in hunting value through the facilitation of hunting access. Hunters, birders, hikers, and other users also spend money on food, travel, lodging, and other activities, generating economic activity on the Katy Prairie and throughout the surrounding counties.

SUPPORTING COMMUNITY AND ECONOMIC DEVELOPMENT: KPC's lands, as well as the conservancy's programming, education, and outreach efforts, enhance the quality of life in Fort Bend, Harris, and Waller Counties. KPC reaches an estimated 3,000 adult learners per year interested in conservation, native plants, and prairie restoration through workshops, guided tours, and other community events. Families also access KPC's lands through Unplugged Adventures and other

\$373 million recreation spending by area residents in 2017

Helping Texas's **2.24 million** birders and
4.38 million wildlife watchers
get outdoors



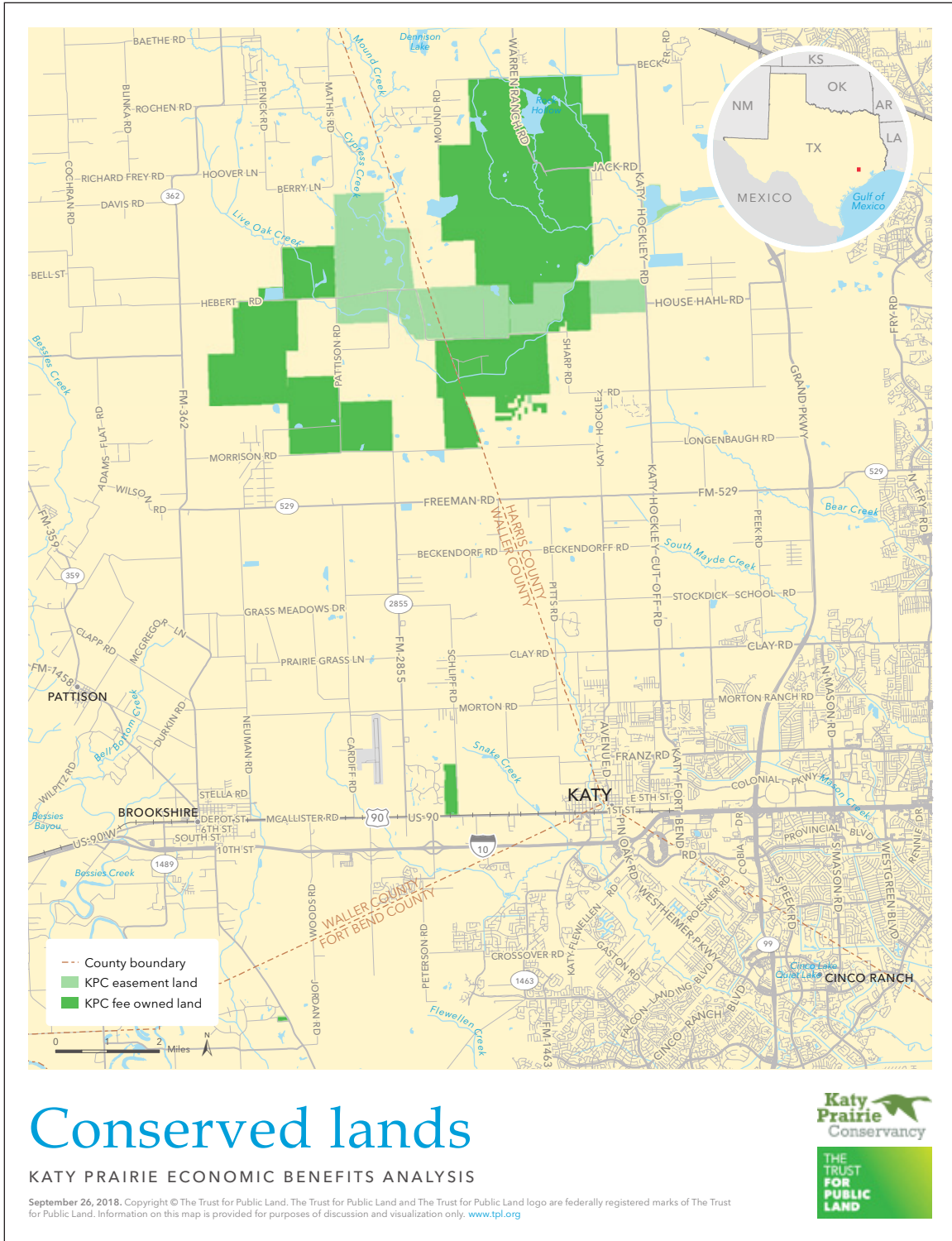
Keeping working lands working
12,000+ acres
in agricultural production



Facilitating
2,450 hours
of volunteer time annually,
worth
\$61,600



hosted events on the prairie. KPC educates an estimated 10,000 school-age children through programs such as hosted field trips to the KPC preserve and the Prairie Builders Schools + Parks program. It reaches an additional 10,000 children through its support to educators utilizing KPC-developed web-based environmental teaching tools and other programs such as Prairie Discovery Boxes. These efforts play an important role in attracting businesses and employees to the region. KPC's lands also enhance the region's robust recreation economy. There are limited opportunities for outdoor recreation in these counties, and KPC's lands help meet the community's high demand for outdoor recreation. Residents of Fort Bend, Harris, and Waller Counties spend significantly on sports, recreation, and exercise equipment, totaling more than \$373 million in 2017.




➔ **FIGURE 1** Map of Katy Prairie Conservancy's Lands. Copyright © The Trust for Public Land. The Trust for Public Land and The Trust for Public Land logo are federally registered marks of The Trust for Public Land. Information on this map is provided for purposes of discussion and visualization only.

Introduction

CONSERVED OPEN SPACES ARE VALUABLE COMPONENTS OF HEALTHY, FLOURISHING COMMUNITIES.

New economic research is helping reshape the view that such amenities are scenic luxuries only good for the environment. In fact, conserved spaces provide tangible—and measurable—economic benefits to local residents and governments. Through economic analysis, it is possible to isolate and quantify many of these benefits. For the first time, interested parties can gain a fuller understanding of the value of these lands.

This report analyzes over 20,000 acres of land on the Katy Prairie that the Katy Prairie Conservancy (KPC) has helped conserve and documents a partial selection of the significant economic benefits that these amenities provide to the community. Included in this analysis are amenities like the Matt Cook Memorial Wildlife Viewing Platform at Warren Lake; trails such as the Ann Hamilton Trail at Indiangrass Preserve; and working lands like the Warren Ranch. The benefits of KPC's lands reach outside the prairie and include community programs that take place throughout the region, including KPC's award-winning Prairie Builders Schools + Parks program. The impacts of these programs are also examined in this report. All lands owned by KPC on the Katy Prairie, as well as conservation easements held by KPC, are shown on the map (Figure 1 ) on page 6.

KPC's lands create significant and diverse benefits that can be quantified. Supporting farm and ranch lands through mechanisms such as easements is a critical tool for keeping working lands operational. In the **farming and ranching** section, The Trust for Public Land summarizes the economic impact that KPC's land protection programs have had on local farms in the region.

KPC's lands generate economic benefits within the community by providing access to an array of recreational activities. Residents of Fort Bend, Harris, and Waller Counties enjoy hiking, birding, hunting, nature photography, and many other activities on KPC's lands. KPC's amenities are also a draw for tourists. These users spend money on food, travel, lodging, and other items, generating economic activity throughout the region. Using a combination of qualitative and quantitative methods, the **recreation for residents and visitors** section analyzes the related economic benefits generated by KPC's lands and programs.

Conserved open spaces contribute to the quality of life in the Katy Prairie region, which plays an important role in attracting businesses and employees to the area. These amenities are assets that also support the area's robust recreation economy. The **community and economic development** section of this report describes the qualitative benefits of KPC's lands and programs in Fort Bend, Harris, and Waller Counties, and looks at annual spending by residents on recreation.



This report brings to light many of the previously intangible benefits of KPC's lands. Each of these economic benefits is described in detail and valued in the following report. In order to provide robust and grounded economic estimates, this analysis relied on the most conservative methods supported by comparable economic valuation studies. In any instance where multiple valuation methods were supported, or where a range of values were available for analysis, The Trust for Public Land selected the methods or values producing the lower bound estimate. As such, it is likely that the actual benefits are higher than what is reported in the following pages.

This is the first report to quantify the economic benefits created by KPC's lands; however, it does not capture the full benefits derived from KPC's efforts to protect the Katy Prairie. Discussing the number of schoolchildren reached through KPC's educational initiatives does not capture the full benefit of introducing urban students to the region's rich cultural history tied to prairie life. One of KPC's greatest impacts, though it is the most elusive to quantify, is

its creation of a sense of place and community for the next generation of residents. The full benefits of KPC's work goes beyond dollars and cents, and they must be considered alongside the other benefits explored in this report.

Katy Prairie Conservancy

The Katy Prairie Conservancy was established in 1992. Since that time, more than 20,000 acres of the Katy Prairie have been protected either directly by or through the efforts of KPC. As a nonprofit land trust, the Katy Prairie Conservancy works to protect green space for its conservation and recreational benefits, enhance wildlife habitat, restore tallgrass prairie and wetlands, sponsor scientific research, and offer public programming and activities to introduce the general and school-aged public to the sights and sounds of the prairie. It does this through land purchase as well as conservation easements. KPC's vision for the future is simple: Save prairie lands. Ensure healthy communities. Provide adventure. Safeguard wildlife.

BOX 1

Defining preserved open spaces

The Katy Prairie originally encompassed over a thousand square miles in the Texas coastal plain. It was bound by the Brazos River on the southwest, pine-hardwood forest on the north, and the center of Houston on the east. More than 20,000 acres have been protected within this historic prairie land through KPC's efforts since 1992. Both KPC's lands and the original boundary of the Katy Prairie lie across Fort Bend, Harris, and Waller Counties. KPC's lands span not only multiple counties but also multiple land-use and ownership types. This diversity necessitates a look at multiple geographic and municipal scales—defined below—in order to get a comprehensive picture of the economic benefits generated by KPC's work.

THE KATY PRAIRIE REGION includes Fort Bend, Harris, and Waller Counties and the current and historic extent of the Katy Prairie. Residents from these counties are able to visit KPC's lands (defined below) and receive benefits from KPC's community and educational outreach programs. As such, this geographic scale is considered throughout the analysis; the spatially based tools used in the community and economic development section specifically examine consumer behavior and quality-of-life impacts related to KPC's lands and outreach in this region.

KATY PRAIRIE CONSERVANCY'S LANDS include 17,900 acres that have been directly protected by KPC. This includes 14,000 acres that KPC owns and 3,900 acres that KPC holds in conservation easements. The economic impacts of KPC's lands are isolated throughout this report whenever possible.

Farming and ranching

AGRICULTURAL PRODUCTION DIVERSIFIES THE LOCAL ECONOMY AND PRESERVES A WAY OF LIFE THAT HAS A LONG HISTORY ON THE KATY PRAIRIE. Not only do working farms supply jobs and provide locally sourced agricultural products, these farms also support the region's high quality of life, sense of place, and cultural identity, which draw residents and visitors to the area. These same quality-of-life factors have led to tremendous population growth in the Katy Prairie over the last few decades, as Houston expands into surrounding areas. This growth pressures remaining agricultural lands by driving up property values and incentivizing the development of farmland.² Conservation of open spaces, including the use of agricultural easements, helps preserve the true value of agricultural lands in the Katy Prairie so they can continue creating benefits throughout the community for generations to come.

The Katy Prairie has a long and robust history of agricultural production. Although the amount of farmland in Fort Bend, Harris, and Waller Counties has been decreasing over the last decade, together these counties still contain 5,420 farms spanning 891,000 acres of farmland. This



KATHY ADAMS CLARK

land supports cattle and rice production as well as other agricultural products. There are 3,370 ranches in these three counties that raise 119,000 head of cattle and 22 rice farms that produce 894,000 hundredweights of rice.³ Ranching is a way of life for many Katy Prairie residents, like Raymond Dollins, whose family has been ranching—growing rice and raising cattle—for generations.⁴ There are large operations that span the Katy Prairie, such as the Warren Ranch, one of the largest working ranches still in operation in Harris County. Alongside these are smaller-scale farmers, like some of the vendors who attend the weekly farmers’ market on the Grand Parkway in Katy. Working lands contribute to Katy Prairie’s historical identity, but also to its present-day economy.

The work of the Katy Prairie Conservancy supports the agricultural economy in three main ways: holding conservation easements on agricultural land, leasing land for agricultural practices, and managing the Warren Ranch. Conservation easements are among the most effective planning tools to support the success of farming and ranching in the Katy Prairie. Conservation easements help relieve development pressure on farms, provide tax savings to farmers, and keep working farms intact.

Used as part of a balanced land-use planning strategy, conservation easements can also leverage outside investment to bring new funding to the county. As an example of this, KPC protected the Freeman Ranch on the Katy Prairie in 2005 with an easement funded through the Natural Resources Conservation Services’ former Farm and Ranch Lands Protection Program (FRPP). This project ensured the continued use of the Freeman family’s 900-acre farm as a cattle ranch and equestrian center. Because of the significance of this project, KPC and American Farmland Trust were able to leverage federal investment and bring this program to Texas for the first time. John P. Burt, a state conservationist for the U.S. Department of Agriculture, explained how the agency was “very pleased that Texas [was] now participating in this program. Implementation of the program protects landowners from being forced to sell agricultural land for development if the landowners wish to keep it in agriculture.”⁵

Even farms without agricultural easements benefit from nearby easement lands because they provide stability and ensure the permanence of agriculture and supporting industries in an area. Farm supply stores know they will have enough customers each season to remain open. Meanwhile, nearby farmers without easements can continue to invest in their properties because they know the industry will remain intact. In this way, easement benefits spill over across the entire agriculture sector.



In addition to easements, KPC supports farming in the region by providing direct access to agricultural lands for grazing cattle, growing rice, and producing other crops through its leasing program. KPC currently leases over 6,000 acres for grazing, rice, and other crops. Farmers leasing KPC’s lands grow commodity items, and having access to this acreage enables their businesses to remain economically viable. David Nelson is a farmer who has been leasing KPC’s lands for the last 20 years. He is the farmer who actually sold KPC its first major acquisition—the 554-acre Nelson Farms Preserve—in 1997, to ensure the lands would remain in rice farming. Nelson’s father moved out to the Katy Prairie in 1939 because of the productive soils that are easy to work. Nelson explains that “even back then, my father couldn’t understand why people would build houses on this fertile soil. Soil that was farmed for years is now covered in subdivisions full of concrete driveways and roofs. It bothers me because that land will never go into production again, and this is a big problem for Houston. The rice fields absorb rain. As agriculture goes out, flooding is going to get worse. KPC is working to keep the prairie open and was willing to listen and learn about agriculture. KPC always worked with me to ensure that I could continue farming in a way that made economic sense for my operation.”⁶ As part of Nelson’s agreement with KPC, he was able to lease back the property and has been leasing the land ever since, first for rice farming and cattle grazing and now for cattle grazing only.

KPC also owns and manages the Warren Ranch in Hockley, Texas, in partnership with the Warren Family.⁷ The ranch’s pastureland is used to graze its own herd of 450 cattle as well as those of other ranchers who lease from the ranch. KPC is rehabilitating the grasslands by

planting native grasses that have been chosen for their ability to sustain during drought and support numerous species. Learn more about the [Warren Ranch in the Case Study](#) on page 14.

Katy Prairie’s agricultural lands not only are significant economic producers in the region, but they also contribute to the quality-of-life and sense-of-place factors that have driven population growth in the region over the last decade. For instance, a recent article in *Edible Houston* describes how the prairie is central to Houston’s culture and the region’s agricultural identity.⁸ Ironically, the very attributes that have supported a high quality of life and helped drive this growth—working farms and open spaces—are at risk as the expanding Houston metro area puts pressure on remaining agricultural lands to be converted to residential development. This long-term trend is threatening the continued viability of the industry as a whole, as well as its many and varied contributions to the region’s economy and sense of place. Every acre of these farming and ranching lands, once omnipresent on the Katy Prairie, now plays an outsized role in keeping these benefits flowing to the region. These working lands, conservation efforts, agricultural easements, and agricultural leasing by KPC are key tools for the continued viability of this important piece of the region’s economy. As Jane Jacobs, author and urbanist, noted, “Big cities need real countryside close by.”⁹ KPC is working to ensure that the Katy Prairie remains real countryside.



Warren Ranch

Texas had been part of the United States for only 25 years when the Warren Ranch began operations in the 1870s. Located in Hockley, Texas, and spanning over 6,000 acres, the Warren Ranch has been in continuous operation ever since and is now one of the last sizable working ranches in Harris County. Thanks to its protection by KPC, the Warren Ranch can continue providing economic value by keeping land in agriculture and linking generations of ranchers to their heritage.

Nearby ranches have been converted to subdivisions, but the Warren Ranch has remained true to its Texas heritage and history. The ranch has been in the Warren family since it began operations and has been used for rice and cattle production for much of that time. In 2004, KPC purchased a majority interest and now owns just under 72 percent of the ranch with two Warren family members owning the remaining interest. KPC purchased the Warren Ranch to ensure the protection of this large piece of historic coastal prairie.

This partnership has allowed KPC and the Warren family to incorporate the latest in best practices and soil conservation so that the ranch's financial future and viability are ensured. These measures include initiating a nearly 80,000-foot stream restoration project, rotational grazing management for its 450 head of cattle, and the planned construction of a new dam and an expanded and improved Warren Lake. Well-managed agricultural land not only provides an abundance of food but also shelters wildlife, supplies scenic open space, helps filter impurities from air and water, reduces flooding, and offers a distinctive outdoor experience to children who might not otherwise have an opportunity to visit a working ranch. For example, KPC hosts an annual Ranch Adventure Day, which offers family-friendly activities including branding demonstrations, real cowboys working cattle, live animals, and roping demonstrations along with hands-on activities for everyone.

Warren Lake, a 170-acre lake located at the northern portion of the ranch, is a key birding spot that provides a great roosting and loafing spot for migratory waterfowl and shorebirds – especially a number of species of “Greatest Conservation Need,” including mottled duck, northern pintail, long-billed curlew, snowy egret, little blue heron, tricolored heron, and the state-threatened white-faced ibis and wood stork. The ranch contains numerous areas that support a diversity of other resident and visiting populations of grassland birds, such as the loggerhead shrike, sedge wren, and eastern meadowlark. The area around Cypress Creek at the southern end of the ranch also offers habitat for perching birds and rare migrants that fly over the Katy Prairie during their spring migration. Bald eagles, peregrine falcons, and white-tailed hawks, all state-threatened, can be spotted from KPC's two-story wildlife-viewing platform at Warren Lake, which is open to the public every day. KPC also offers special tours and workdays on a regular basis on the ranch. Hunting leases are offered for deer, migratory waterfowl, dove, and quail. These opportunities translate into the types of recreation benefits for residents and visitors discussed in previous sections of this report.

Although the ranch provides important natural goods and services as well as opportunities for recreation, its role as a working cattle ranch and its contributions to the agricultural economy are essential. According to Sam Reese, former manager of Warren Ranch, “we are striving to incorporate newer, conservation-minded methods of agricultural production and are working to use these methods to sustain a viable business. We're currently in the process of figuring out how to make the ranch a profitable and productive business. Our hope is that someday we can be a meaningful example for other agricultural producers in the region—helping show them these practices work and how they too can incorporate such practices into their own operations.” Times were simpler when the Warren Ranch opened its doors 150 years ago. As population growth and other pressures threaten remaining farmlands, it is taking new solutions to keep the region's farms working. As partners, the Warren family and KPC are finding those solutions to make sure ranching continues to be a part of the region's cultural and economic identity.

Recreation for residents and visitors

RECREATION AND TOURISM ARE IMPORTANT COMPONENTS OF THE ECONOMY IN TEXAS AND THE COMMUNITIES OF THE KATY PRAIRIE. The Katy Prairie Conservancy's work protecting and restoring prairie land supports these aspects of the region's economy in several ways. The Katy Prairie's unique native grasslands and migratory bird habitat provide recreation opportunities for residents and attract tourists such as birders and hunters from across the region and beyond. KPC also hosts educational events that encourage adults and children to engage with nature. KPC currently has two preserves that are available for public use and has plans to expand its ability to provide additional opportunities for recreation in the future. For example, KPC is exploring additional recreational opportunities such as working with the Texas Parks and Wildlife Department (TPWD) for a Kid Fish Program, expanding its public hunt program to include not only dove hunts but also waterfowl hunts, and working with the Texas Wildlife Association to increase hunting opportunities on the prairie for young people. This section discusses the economic impact of recreation and tourism on conserved lands in Texas broadly and the communities of the Katy Prairie specifically. These impacts are in addition to, and separate from, the impacts discussed in the community and economic development section. And though future investments by KPC will extend these benefits further, this section focuses on current benefits.

Tourism is essential to the economies of Fort Bend, Harris, and Waller Counties. Visitors to the area generate tourism spending, produce sales tax revenue, and support jobs. In 2016, the three counties together experienced \$11.4 billion in visitor spending. Combined with other direct travel spending, this spending supported 117,000 jobs with an associated \$5.4 billion in earnings and generated \$576 million and \$286 million in state and local tax revenues, respectively.¹⁰

Though not always recognized, land conservation is an important driver of this tourism spending and associated impacts. These spaces provide places for people to access nature, engage in outdoor activities, and enjoy wildlife. Even if tourists use parks or conserved lands without paying a user fee, they make purchases of food, lodging, fuel, and other items during their visits—purchases that filter throughout the economy. Looking at visitors to the Gulf Coast region, of which Katy Prairie is a part, 22.9 percent participate in nature-related activities such as visiting parks or viewing wildlife and 9.8 percent participate in outdoor sports.¹¹ Preserved lands, parks, and trails, including KPC's lands, provide amenities that are well used by tourists to the region. This is particularly true for wildlife-related recreation, such as birding and hunting.

Wildlife watching and birding are extremely popular recreational activities throughout the state of Texas, and KPC's lands are a hub of this activity. Statewide, 4.38 million participants



fed, observed, or photographed wildlife in 2011. Half of these participants, or 2.24 million people, observed birds. Birders and other wildlife observers have an impact on the local economy because they spend money on equipment and trip-related expenses. For example, in 2011, wildlife watchers spent \$1.8 billion on wildlife-watching activities in Texas.¹² Wildlife tourism benefits communities because visitors dine in the region's restaurants and stay in local accommodations. These visitors often also utilize wildlife guides, outfitters, and equipment retailers. For example, a recent survey of guide and outfitting businesses in the Gulf Coast states found that nearly 60 percent of these businesses each reported hosting over 200 visitors per year and many reported hosting several thousand.¹³ In addition, the Katy Prairie Conservancy utilizes local guides on its own lands for public hunts and other activities, thereby adding to the economy.

KPC's contributions are important to preserving the landscape and providing opportunities for tourism. The Katy Prairie is part of the Great Texas Coastal Birding Trail identified and promoted by TPWD. In a study of the central coast portion of the Great Texas Coastal Birding Trail, of which KPC's lands are a part, researchers found that travelers to the trail spent an average of 31 days per year viewing wildlife on the trail and spent an average of \$78 per person per day while traveling along the trail.¹⁴ The Great Texas Coastal Birding Trail's Katy Prairie

Loop includes stops at sites owned and maintained by Houston Audubon, Harris County Precinct 3, U.S. Army Corps of Engineers, TPWD, and KPC. KPC's Matt Cook Memorial Wildlife Viewing Platform at Warren Lake (site 099 on the UTC) is open every day and provides exceptional opportunities for wildlife and waterfowl viewing. Although it is not formally part of the Katy Prairie loop, KPC's Indiangrass Preserve in Waller boasts 32 acres of prairie and 21 acres of wetlands and contains the 1.5-mile Ann Hamilton Trail that is used by visitors to explore the area and discover birding. Ecotourism businesses rely on these resources to lead their trips. For example, Glenn Olsen, owner of GO Birding Ecotours, leads tours on KPC's lands. According to Olsen, these resources have been a true asset for his nature and photography tours. "The value of the Katy Prairie is priceless," notes Olsen, who has led tours on KPC's lands for several years, focusing on the birds, waterfowl, plants, and other grassland species that depend on the Katy Prairie.¹⁵

Similar resources nearby in Texas have been the subject of economic inquiry. Birding, photography, hiking, kayaking, wildlife watching, and hunting are common activities on the proposed Lone State Coastal National Recreation Area in coastal Texas, which currently experiences 2.6 million visitors each year. A recent economic impact analysis found that



KATY PRAIRIE CONSERVANCY

Brazoria, Galveston, Jefferson, and Matagorda Counties would experience substantial economic impacts from the area's designation as a national recreation area, increasing visitation by 994,000 and adding \$140 million in local sales in the ten years following its designation.¹⁶ These and similar analyses highlight birding and related activities as important economic drivers in the region.¹⁷ KPC's lands support these activities, and recreation spending related to KPC's lands is likely to grow along with regional investments enabling outdoor recreation.

Hunting is also an important component of the economy in Texas and to the communities of the Katy Prairie. Texas has more resident hunters than any other state in the United States, with 1.08 million hunters who generated \$1.95 billion in retail sales in 2011. The state also attracts hunters from out of state. In 2011, 1.15 million residents and nonresidents hunted in Texas for a combined 20.4 million hunting days, which generated \$2.12 billion in retail sales and supported 36,200 jobs with \$1.14 billion in salaries and wages.¹⁸

KPC's lands, including the Warren Ranch and Hebert Property, provide high-quality dove, deer, and quail habitat and offer opportunities for hunting by the public. Data are not available to quantify the total economic impact of KPC's hunting lands, but available user figures illustrate the level of activity on these lands. For example, TPWD currently leases the Hebert Property as part of the Annual Public Hunting Permit Program, formerly known as "Type II." Through this program, the public is able to hunt on privately owned land across the state through an arrangement that provides essential access to hunting that many Texans would otherwise lack. During the 2016–2017 season, an estimated 463 hunters utilized the Hebert Property alone, for a combined 1,630 hunting days.¹⁹ Hunters gain value from the use of these hunting grounds. This value exists even if individuals do not have to pay to access the property (e.g., pay an entry fee). The benefit accrues to the user in one of two ways: by providing cost savings to individuals who were willing to pay to hunt but did not have to, or by providing travel cost savings to individuals who do not have to travel to access a substitute site.

In order to estimate the value gained by hunters through their use of the Hebert Property, The Trust for Public Land applied a methodology that it developed using the framework of the Unit Day Value method, which the U.S. Army Corps of Engineers employs to assign recreation-related activities a dollar value. The Trust for Public Land first determined the value of hunting activities on the Hebert Property utilizing estimates of outdoor recreation value from Oregon State University's Recreation Use Values Database. This database contains values for more than 20 activities and comprises over 420 economic studies that estimated the use value of recreational activities, including hunting, in the United States and Canada from 1958 to 2015. In determining which values to use, The Trust for Public Land's economists then applied the values



that are most conservative and relevant to hunting on the Katy Prairie. In quantifying the benefits, The Trust for Public Land recognized that not every hunting day has the same value to the hunter (i.e., additional uses of the Hebert Property to hunt are less valuable than the first use). While the maximum value of a day of hunting in the applicable literature is \$104 (2017\$), the average value of \$65 is applied.²⁰ Following this methodology, The Trust for Public Land estimates that the total value to hunters of the Hebert Property is \$106,000 annually.

KPC has other lands open to hunting: 800 days that are single-day hunts, valued at \$104 per day, and 764 days that are made available through season lease agreements, valued at \$65 per day. Together these additional hunting opportunities provide an additional \$83,400 and \$49,800 of hunting value, respectively, resulting in \$239,000 in total hunting value for 3,190 days of hunting on KPC lands. This value is conservative because it does not include values for other recreation activities such as wildlife viewing, which is also very popular among users.

Aside from having lands open to hunting, recreation, and wildlife viewing, KPC also uses several of its preserves, including the Indiangrass Preserve and Rock Hollow Creek area on Warren Ranch, to host community events. This includes volunteer days, programming for children, adults, and families, as well as educational events that attract visitors from Houston. KPC hosts several events that attract hundreds of visitors to its preserves each year, such as



Unplugged Adventures, Restoration Roundup, Putting Down Roots, and Holiday Hikes. KPC's volunteer workdays, meanwhile, led to a conservatively estimated 2,450 hours of donated volunteer time last year.²¹ Based on the 2016 value of a volunteer hour in Texas, this translates into a value of \$61,600.²² This value underscores the importance of these lands for events, but it does not capture the full value provided through all of the diverse community events hosted by KPC.

The Katy Prairie preserves also draw travelers to adjacent roads, including bicyclists who are drawn to the country roads around KPC's lands, both because the roads are less traveled and because visitors are drawn to the viewscape—roadside wildflowers, wildlife, farming, and ranching.

Katy Prairie's preserves provide recreational value for residents and tourists alike. Through KPC's work protecting and enhancing habitat, the area is able to attract visitors who come to enjoy the bucolic scenery and observe wildlife. KPC plays a role in providing recreation for residents and visitors by providing habitat and protecting species that attract wildlife watchers, offering opportunities for hunting, and hosting educational events for adults and children to engage with nature. Although much of the once vast Katy Prairie has been converted to development, KPC's work is keeping a critical part the region's landscape intact and accessible.

Community and economic development

THE KATY PRAIRIE CONSERVANCY'S LANDS SUPPORT ECONOMIC AND COMMUNITY DEVELOPMENT IN FORT BEND, HARRIS, AND WALLER COUNTIES IN SEVERAL WAYS.

As part of the region's outdoor spaces, they are scenic amenities that provide diverse leisure opportunities for residents and visitors. KPC also has community programs that bring these benefits to residents who have not yet visited KPC's lands. Residents also take advantage of outdoor recreation opportunities created by KPC's lands. By purchasing equipment and gear to use while participating in those activities, residents support local recreation businesses and contribute to the area's recreation economy. New data by the Bureau of Economic Analysis suggest recreation spending is a significant part of a healthy economy. In 2016, such spending made up 2.2 percent of U.S. GDP.²³

KPC has conserved land in Fort Bend, Harris, and Waller Counties. This section explores economic development in these three counties supported by KPC's lands specifically, and by conserved lands, parks, and trails in the three counties more generally. This distinction is important because many indicators allowing economists to examine how outdoor amenities enhance the quality of life or boost the recreation economy are countywide or regionally based, rather than specific to KPC's lands. Part of this analysis uses location-based market insight tools from the GIS firm Esri to explore common household types in the region and related recreation and purchasing habits. Although certain indicators are regionally based, they are still applicable to KPC's lands because they are indicative of residents' preferences for recreation, spending, and outdoor activities.

Enhancing the quality of life

Fort Bend, Harris, and Waller Counties are attractive places for businesses and employees. Harris County, for instance, has been one of the fastest-growing counties in the nation for the last decade.²⁴ Further, Greater Houston, in which all three counties lie, added more than 48,000 jobs in 2017, outpacing the U.S. average despite negative job creation impacts from Hurricane Harvey.²⁵

Although employment opportunities and a favorable business climate are key drivers of this growth, multiple recent studies have demonstrated that quality of life is also an important factor for businesses and employees in determining where to locate.²⁶ Focus groups conducted by Carnegie Mellon University found that young creative workers, particularly those in high-technology fields, now consider lifestyle factors, such as environmental and recreational quality, more heavily than the job itself when choosing where to live.²⁷ Similarly, as national companies look to expand or relocate, high quality of life—including high-quality recreation and outdoor opportunities—is emerging as an important trait they look for in candidate cities.²⁸ In Houston, it has become clear that “the benefits of green space have become necessities in



attracting the kind of intellectual capital that sustains cities.” Greater Houston lags behind other metropolitan peers when it comes to quality of life. Despite the growth indices discussed above, U.S. News ranked Greater Houston 20th on its list of best places to live and work based on five subcategories, including job market, value, and quality of life. In these sub-rankings, Greater Houston’s lowest score was in the quality-of-life category.²⁹

Helping to turn this trend around, KPC’s lands and recreation opportunities are some of the amenities bolstering the attractiveness of the region and enhancing the quality of life for area residents. Families from across Fort Bend, Harris, and Waller Counties are able to engage in many activities on KPC’s lands, including walking, wildlife viewing, birding, nature photography, and hunting. This contributes to the region’s draw for new workers and businesses.³⁰ KPC-hosted events, ranging from “Coming Home to Roost” (sandhill crane event) to stargazing (“Lucky Stars”) to cowboy meet and greets, are regularly highlighted in local news sources as family-friendly activities for residents.³¹

It is not just people visiting KPC’s lands who receive quality-of-life benefits. KPC has developed a series of outreach programs designed to connect communities across Greater Houston to the Katy Prairie. KPC reaches an estimated 3,000 adult learners per year interested in conservation, native plants, and prairie restoration through workshops, guided tours, and other community events. Families also access KPC’s lands through Unplugged Adventures and other hosted events on the prairie. For example, KPC led a collaborative effort to create Houston Environmental



Resources for Educators (HERE in Houston), a web-based environmental education tool used by local educators. Through KPC's Prairie Builders Schools + Parks program (see [Pocket Prairies Case Study on page 29](#) 📄), KPC has acted as a catalyst for individuals, corporations, and public entities interested in restoring native prairie on their public and private lands. The pocket prairie at MD Anderson Cancer Center and restored prairies in several well-traveled parks continue to introduce others to the beauty and benefits of prairie plants. KPC's programs are making significant impacts, impacting more than 20,000 students per year.³² KPC reaches an estimated 10,000 school-age children through programs such as hosted field trips to the KPC preserve and the Prairie Builders Schools + Parks program. It reaches an additional 10,000 children through its support to educators utilizing KPC-developed web-based environmental teaching tools and other programs such as its Prairie Discovery Boxes. As growth and development continue, students from public schools across the region have fewer options for experiencing the outdoors. KPC's educational programs are enhancing student-learning opportunities and creating a sense of place for residents.

Households engage in outdoor recreation

Beyond enhancing quality of life, KPC's lands also support recreation-related spending in the region. The activities in which residents participate and the associated purchases they make determine the makeup of local economic impacts. Consumer behavior also gives insights into policy directions that residents may prefer. As such, it is important to understand these trends. How do community members spend their free time? What is their total spending each year on recreation? How does this compare to national averages? Esri Tapestry Segmentation³³ is a tool used to answer these questions by exploring the lifestyle choices of households and how they behave as consumers. In Fort Bend, Harris, and Waller Counties, outdoor recreation activities are in high demand across many household types.³⁴ KPC's lands provide an outlet for residents to pursue these interests and help meet that demand. The findings for Fort Bend, Harris, and Waller Counties indicate that many of the top household segmentations across the region value outdoor recreation activities, such as hiking and hunting.³⁵

Boosting the recreation economy

Participation in recreation generates economic activity through recreation-related spending and traveling. According to Esri Business Analyst, recreation is important to many Katy Prairie households. In the last 12 months, 30.0 percent, 25.1 percent, and 28.3 percent of households in Fort Bend, Harris, and Waller Counties, respectively, reported walking for exercise, the highest-reported activity. Other popular activities with residents in the region according to Esri Business Analyst include hiking, jogging or running, and hunting (see [Table 1](#) 📄). Residents interested in these types of outdoor activities have an outlet on KPC's lands where they can take



walks and engage in birding, nature photography, wildlife viewing, and hunting. Individuals who participate in these recreation activities purchase products to enhance their experiences, such as clothing, footwear, and other equipment, and thereby contribute to the local economy.

Residents use preserved lands, parks, and trails in Fort Bend, Harris, and Waller Counties for many types of activities. These activities generate economic activity and support businesses, including those that sell recreation-related equipment. The Trust for Public Land used Esri Business Analyst to examine and better understand the recreation-related economic activity occurring in these counties, which is fueled by the recreation opportunities provided by these amenities.

There is a strong market for recreation goods and services in Fort Bend, Harris, and Waller Counties. The market potential index (MPI) measures the likely demand for a good or service in an area compared to the U.S. average.³⁶ Esri Business Analyst estimates that for recreation activities in the Katy Prairie communities, the MPI is higher than the national average for some activities. This includes bicycling and walking for exercise in Fort Bend County and hunting in Waller County (see [Table 1](#)). These data also demonstrate that residents of Fort Bend, Harris, and Waller Counties are more likely to spend money on gear and equipment related to recreational activities when compared to households nationally. In addition, the residents who spend money on sports and recreation equipment are likely to spend a significant amount. Of the 23.6 percent of Fort Bend County households that purchased sports and recreation equipment in the last 12 months, 9.3 percent spent \$250 or more on sports and recreation

TABLE 1. PARTICIPATION IN RECREATION AND MARKET POTENTIAL, 2017

Activity	FORT BEND COUNTY, TX			HARRIS COUNTY, TX			WALLER COUNTY, TX		
	Number of households expected to participate	Percent of households that participated in last 12 months	MPI	Number of households expected to participate	Percent of households that participated in last 12 months	MPI	Number of households expected to participate	Percent of households that participated in last 12 months	MPI
Bicycling (road)	63,600	11.6%	113	343,000	10.0%	97	3,410	9.0%	88
Fishing (freshwater)	52,300	9.5%	79	332,000	9.7%	81	5,530	14.6%	122
Hiking	66,300	12.1%	116	345,000	10.0%	97	3,260	8.6%	83
Hunting with rifle	20,200	3.7%	83	119,000	3.5%	78	2,090	5.5%	125
Hunting with shotgun	17,200	3.7%	85	103,000	3.0%	81	1,740	4.6%	124
Jogging or running	101,000	18.3%	136	494,000	14.4%	107	4,660	12.3%	91
Swimming	95,500	17.4%	112	515,000	15.0%	96	6,290	16.6%	107
Walking for exercise	165,000	30.0%	111	863,000	25.1%	93	9,030	28.3%	88
Spent on sports and recreation equipment in last 12 months: \$1-99	37,600	6.8%	108	220,000	6.4%	101	2,380	6.3%	99
Spent on sports and recreation equipment in last 12 months: \$100-249	41,200	7.5%	119	213,000	6.2%	99	2,480	6.6%	104
Spent on sports and recreation equipment in last 12 months: \$250+	51,200	9.3%	120	243,000	7.1%	91	3,010	7.9%	102

equipment; 7.5 percent spent \$100–\$249; and 6.8 percent spent \$1–\$99. In Harris County, 19.7 percent of households made purchases of sporting goods, and in Waller County, 20.8 percent of households spent on sports and recreation equipment (see Table 1 [↗](#)).

Similarly, households in Fort Bend, Harris, and Waller Counties spend significant amounts on sports, recreation, and exercise equipment each year (see Table 2 [↗](#)). For example, residents in Fort Bend spent \$68.2 million in 2017, or \$278 per household. Of the total, 24 percent was spent on hunting and fishing equipment and 18 percent was spent on bicycles. Spending in Harris and Waller Counties is also significant, with \$302 million (\$187 per household) and \$2.59 million (\$163 per household), respectively. Esri Business Analyst compiles estimates of recreation expenditures and calculates a spending potential index (SPI) that represents the amount spent for a product or service relative to the national average.³⁷ The SPI for sports, recreation, and exercise equipment in Fort Bend is 162, which means that households spend 62 percent more on any type of sports, recreation, and exercise equipment compared to households nationally. This demonstrates significant demand for recreation. The SPI is above the national average in Harris County (109) and close to the national average in Waller County (95).

JAMIE GONZALEZ



TABLE 2. ANNUAL HOUSEHOLD SPENDING ON SPORTS, RECREATION, AND EXERCISE EQUIPMENT, 2017

Spending category	FORT BEND COUNTY, TX			HARRIS COUNTY, TX			WALLER COUNTY, TX		
	Average amount spent per household	Total spending	Spending potential index	Average amount spent per household	Total spending	Spending potential index	Average amount spent per household	Total spending	Spending potential index
Sports, recreation, and exercise equipment	\$278.00	\$68,200,000	162	\$187.00	\$302,000,000	109	\$163.00	\$2,590,000	95
Exercise equipment and gear, game tables	\$93.90	\$23,000,000	158	\$60.00	\$97,200,000	101	\$60.90	\$968,000	102
Bicycles	\$49.50	\$12,100,000	175	\$34.40	\$55,700,000	122	\$24.70	\$393,000	88
Camping equipment	\$27.50	\$6,730,000	167	\$18.40	\$29,800,000	112	\$14.80	\$234,000	90
Hunting and fishing equipment	\$67.60	\$16,600,000	159	\$48.00	\$77,800,000	113	\$40.00	\$636,000	94
Winter sports equipment	\$10.20	\$2,500,000	171	\$6.44	\$10,400,000	108	\$4.31	\$68,400	72
Water sports equipment	\$10.10	\$2,480,000	179	\$6.44	\$10,400,000	114	\$5.07	\$80,500	90
Other sports equipment	\$16.00	\$3,920,000	151	\$10.70	\$17,300,000	101	\$11.40	\$182,000	108
Rental and repair of sports, recreation, and exercise equipment	\$3.36	\$823,000	154	\$2.21	\$3,580,000	101	\$1.88	\$29,900	86

Pocket prairies

How do you connect people with nature in a rapidly developing landscape? If you are the Katy Prairie Conservancy, you find a way to bring the prairie to the people.

Walking across the prairie lands west of Houston as recently as the 1970s, one would have seen quite a different scene than today. In just the five-year period from 1978 to 1983, for example, 100,000 acres of the Katy Prairie were converted to urban use. Today, less than 1 percent of the once expansive prairie lands remain in pristine condition. The result? Ranching, rice farming, native species, and the cowboy culture have been slowly giving way to suburbs and strip malls. Greater Houston continues attracting new workers and new families, but increasingly, these new residents are not aware of the region's rich farming and ranching history.

"Neighborhood history, a sense of place—these are things that originated in the prairie," notes Jaime González, former Community Conservation director at KPC, who helped make these esoteric themes real again for the next generation of residents through KPC's incredibly successful Prairie Builders Schools + Parks program.³⁸ Since its establishment, this program has helped create 26 native prairies in 19 schools across five school districts and additional sites in partnership with three universities and four public green spaces. This work has directly reached more than 10,000 students across several area communities, giving them a link to the region's rich history. "We had two goals for starting this program: we wanted people, and especially kids, to get a living laboratory to learn about science and history.... It is part academic achievement and part knowing where you are in the world," says González. "Second we wanted to use the in-town sites to raise awareness of the Katy Prairie and its importance to the region."



CARDYNN FANNON

Just like the native species these miniature prairies are drawing back to the land, residents and businesses are being drawn in too. Businesses, seeing the attraction of these amenities for potential customers, have been working with KPC to fund and create pocket prairies at schools and other public locations in neighborhoods around the region. Meanwhile, everyone from patients to physicians to visitors has been benefiting from the pocket prairie at Texas Medical Center. A recent article in the *Houston Chronicle* describes how the 1.7-acre MD Anderson Prairie has been a resource to help patients and hospital workers lower blood pressure, de-stress, and bring a sense of calm to the often-hectic hospital environment.³⁹

The pocket prairies serve as local teaching tools, bringing urban dwellers into contact with native plant species and spurring additional interest in native plants and gardening in the region.

Pocket prairies may be small, their impacts have been anything but.

Conclusion

THIS IS THE FIRST TIME THE ECONOMIC CONTRIBUTIONS OF THE KATY PRAIRIE CONSERVANCY'S LANDS HAVE BEEN MEASURED. This study illustrates that these lands and the related work of KPC throughout the region are key economic drivers that contribute to the region's economy.

KPC provides direct access to farming and ranch lands for grazing cattle, growing rice, and producing other crops through its leasing program. Through collaborative relationships, such as with Warren Ranch, KPC is also working with farmers and ranchers to innovate farming best practices that are helping restore prairie land as well as ensure economic viability for farmers. KPC's work is helping keep working lands working both today, and into the future.

Community members enjoy hiking, birding, hunting, and many other activities on KPC's lands. Residents value these assets, donating volunteer time worth more than \$61,600 in 2016 for upkeep and maintenance of the prairie land. KPC's unique native grasslands and migratory





birds also attract tourists such as birders with access to over 300 acres, and hunters from across the region. The Hebert Property alone provided 463 hunters with 1,630 hunting days during the 2016–2017 season, valued at \$106,000. Combined with an additional 1,560 hunting days on other KPC properties, KPC lands provide \$239,000 in hunting value through the facilitation of hunting access. Hunters, birders, hikers, and other users also spend money on food, travel, lodging, and other activities generating economic activity throughout the surrounding counties.

KPC's lands, programming, education, and outreach efforts also enhance the quality of life in Fort Bend, Harris, and Waller Counties. Efforts such as the award-winning Prairie Builders Schools + Parks program and educational programs for adult learners and schoolchildren play an important role in attracting businesses to the region through enhancing the quality of life for area residents. Residents of Fort Bend, Harris, and Waller Counties also care about—and spend significantly on—sports, recreation, and exercise equipment, totaling more than \$373 million in 2017. There is clear demand for outdoor access, and KPC's lands and work help the region's residents engage in activities that support this demand.

This analysis does not capture the complete value of KPC's preserved lands or community programs. Looking at the quality-of-life indicators does not fully capture the value prairie lands play in creating a place that residents are proud to call home. Nor does measuring recreation benefits fully capture the value of KPC's lands in providing a place for a child's first clear look at the starry night sky or an introduction to Texas ranching traditions. Yet, understanding the tangible economic benefits in addition to these less definable values is an important part of the full story that makes up the Katy Prairie Conservancy's work. Such an understanding can help residents gain a broader understanding of their historic lands, and how these lands support the region's economy.

Endnotes

- 1 All numbers in the text and tables are rounded to three significant digits unless otherwise noted. Because of rounding, some report figures and tables may not appear to sum. The values of the economic benefits estimated in this analysis are reported in 2018 dollars unless otherwise specified.
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- 34 For example, *Boomburbs* enjoy sports such as hiking and bicycling. *The Great Outdoors* households enjoy outdoor activities such as hiking and hunting. *Soccer Moms* households enjoy outdoor activities and sports such as target shooting, bicycling, and jogging and *Up and Coming* households enjoy sports such as backpacking. Ibid.
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- 36 The MPI is tabulated to represent a value of 100 as the overall demand for the United States. An MPI of more than 100 represents high demand; a value of less than 100 represents low demand. For example, an MPI of 120 implies that demand is likely to be 20 percent higher than the national average. MPI is computed by Esri, using tapestry segmentation data with consumer survey data compiled by GfK MRI. Each respondent is identified by a tapestry segment, so a rate of consumption by tapestry segment can be determined for a product or service for any area. The consumption rate is then multiplied by the number of households belonging to a tapestry segment in an area and summed across all segments. This expected number of consumers is then divided by the total households in an area to obtain the local consumption rate. The MPI is the ratio of local consumption rate divided by national consumption rate, multiplied by 100. Esri, *Methodology Statement: Esri US—Market Potential Database*, 2015.
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FOR
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The Trust for Public Land
101 Montgomery St., Suite 900
San Francisco, CA 94104
415.495.4014

FRONT TOP: JAIME GONZÁLEZ; FRONT BOTTOM: KATHY ADAMS CLARK;
BACK: SCOTT WEBER.

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