

After the Conservation Reserve Program: Economic Decisions with Wildlife in Mind

Currently more than 4 million Texas acres are enrolled in the Conservation Reserve Program (CRP). This program, which began in 1985 as a part of the Food Security Act, is designed to reduce soil loss from highly erodible croplands by establishing permanent vegetation. As these contracts expire, landowners face the decision of whether or not to maintain the land in its current state.

When farm commodity prices are at high levels, some landowners may consider returning CRP land to its former use, cultivated crop production. The consequences of such a decision are numerous and varied. Deciding to eliminate existing permanent vegetation will adversely affect wildlife populations, depriving them of the habitat that currently supports them. Land that possesses quality and abundant wildlife populations is in increasing demand by current rural land buyers. Such land provides the potential for increased revenue through commercial wildlife-based enterprises. To help offset wildlife habitat enhancement expenses, several government cost-share programs are available.

Recommended Practices for Wildlife Enhancement

Landowners choosing to maintain and/or enhance former CRP land in permanent vegetation for wildlife can achieve this goal through a variety of practices. These include prescribed burning, controlled grazing, interseeding of perennial forbs—which are long-lived broadleaf herbaceous plants of known value to wildlife—fall/winter strip disking, managing invasive brush, and woody plantings.

Prescribed Burning

Prescribed burning stimulates new, more palatable and nutritious plant growth; recycles nutrients; and inhibits invasive brush species. Deer and pronghorns (pronghorn antelope) especially benefit from this practice due to the increased diversity and digestibility of vegetation. Upland birds benefit from the increase in forb and insect production. In much of Texas, prescribed burning is recommended on 20–33 percent of the acreage annually, with a 3- to 5-year re-burn schedule. Fireguards or fire retardants must be used to contain the burn and to protect desirable brush or trees. According to the Texas Parks and Wildlife Department in Lubbock, the cost of prescribed burning

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depends on location and size of the burn(s). The estimated cost of this practice is \$3 to \$6 per acre. Extra caution must be exercised in areas that experience high winds and low humidity, such as the Texas Panhandle and West Texas. Because burns can be difficult to control and must be closely monitored, only experienced personnel should implement this practice. Participation in a prescribed burn association such as the Texas Panhandle Prescribed Burn Association (<http://www.ranches.org/tppba.htm>) or the Edwards Plateau Prescribed Burning Association (<http://www.ranchmanagement.org/eppba/>) is recommended.

Controlled Grazing

Properly managed grazing can positively affect wildlife populations, while improper grazing will likely be detrimental. A cautious approach is recommended, using a light to moderate stocking rate of 75 percent of normal during wet years and 25 percent of normal during dry years. A rest-rotation grazing system should yield additional favorable results.

Landowners who choose to graze former CRP acreage might need to provide fencing and watering facilities for wildlife and livestock. These amenities often are lacking on former cropland. Existing livestock watering systems can be modified for wildlife. For example, windmill overflow can be directed to small, ground-level depressions for ease of accessibility. Table 1 shows the estimated costs for developing a well and its windmill at various depths and heights. The estimated cost of the well is based on 5-inch PVC casing and includes drilling, casing, capping, gravel, packing, and slush pit digging. Windmill expenses include mill, tower, sucker rod, pipe removal and replacement, and cylinder pump. Storage facilities are not included in the estimate. In some areas 4 gallons per minute production on a section—640 acres—is adequate, given a stocking rate of 8 acres

Table 1. Estimated well and windmill costs at various depths and heights

Well		Windmill			
Depth (ft)	Cost	Size (ft)	Cost	GPM	System cost
150	\$4,500	12	\$16,350	4	\$20,850
250	\$5,400	12	\$19,650	4	\$25,050
350	\$7,300	12	\$22,950	3	\$30,250
450	\$9,200	14	\$29,250	4	\$38,450
550	\$11,100	14	\$32,500	4	\$43,650

per head. Other areas and grazing strategies will have different water production requirements. The estimated life of a windmill is 75 years, with estimated annual repair costs of \$50 to \$75.

Perimeter and cross fences are essential to manage grazing. Permanent electric fences are a good option to save costs, usually lasting 20 to 30 years and requiring minimal maintenance. The estimated cost of electric fencing is \$693.24 for a one-strand electric wire and \$890.12 for a two-strand electric wire, as shown in Table 2.

Table 2. Estimated fencing costs for one- and two-strand electric wire.

1 Strand 1 Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	\$0.74	\$195.36
Wire (1 mile)	1	\$152.00	\$152.00
Insulators	264	\$0.17	\$44.88
Solar panel	1	\$190.00	\$190.00
Charger	1	\$111.00	\$111.00
Total			\$693.24
2 Strand 1 Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	\$0.74	\$195.36
Wire (1 mile)	2	\$152.00	\$304.00
Insulators	528	\$0.17	\$89.76
Solar panel	1	\$190.00	\$190.00
Charger	1	\$111.00	\$111.00
Total			\$890.12

Interseeding of Perennial Forbs

Interseeding of forbs into existing grass stands increases plant species diversity and nutritive value, enhancing wildlife habitat year round. Deer and pronghorns, for example, readily consume forbs, and birds benefit from the food and cover forbs provide. Legumes such as purple prairie clover, Illinois bundleflower, and partridge pea work well in much of Texas, fixing nitrogen in the soil and having minimal need for replanting. Seed cost is about \$10 to \$15 per acre. The estimated cost of custom interseeding forbs is \$15 per acre.

Fall/Winter Strip Disking

Light disking sets back plant succession, encouraging the development of annual forbs and promoting new growth in bare areas. Forage quality improves for wild-

life, and the more open canopy enhances brood cover by allowing less-restricted chick movement. Disking also provides for increased insect production because of the new plant growth. If soil moisture is adequate, disk strips every 2 to 3 years. No more than a third to a half of a given field should be disked annually. Disk in late fall or early winter for best results. The estimated custom rate for light disking is \$11 per acre.

Managing Invasive Brush

The lack of low-growing shrubs that provide suitable loafing and escape cover for upland game birds is a limiting factor on many former CRP lands. Brush species such as lotebush, sandplum, and littleleaf sumac, which are “invaders” on many fields, are useful and attractive to wildlife. However, mesquite, the primary invader of many Texas CRP fields, can be a less-than-ideal cover for wildlife. To enhance its usefulness for quail, half-cut smooth bark stems with a hand saw as shown on <http://teamquail.tamu.edu/videos.htm>. The cost of labor only—based on 10 plants per hour, 10 plants per acre, and a minimum wage rate of \$6.55 per hour—is 66 cents per plant or \$6.55 per acre.

When about 10-15 percent canopy cover of low-growing brush exists, habitat improves for most upland game birds compared to a brush-free landscape. In contrast, white-tailed deer generally favor brush canopy of about 40–70 percent cover. If brush canopy cover is too dense to meet land management objectives, herbicide can be used to remove less desirable woody plants. Custom spraying of herbicide costs about \$5 per acre. Chemical costs vary, based on the type of herbicide used and the amount of acreage sprayed. Broadcast rates for some of the more common chemicals are: Remedy Ultra, \$6.38 per acre; and Reclaim, \$22.50 per acre. Individual plant treatment allows selective removal of less desirable woody plants, saving the more desirable, and where feasible is generally more effective for improving wildlife habitat. Chemical cost per acre is often reduced, and application expense is \$6.55 per hour. Plants can also be selectively removed mechanically, using equipment such as a track excavator equipped with a modified rootplow-like bucket. The cost of this type of custom mechanical removal can be \$115 or more per hour, depending on terrain, brush type, and brush density.

Woody Plantings

Planting trees and shrubs on CRP land provides important habitat for wildlife. However, planting location, size, and configuration of woody cover must be carefully considered. For example, to benefit upland birds, plantings of woody cover must be interspersed with grassy nesting cover. Choose woody plant varieties according to desirability for wildlife habitat, adaptability, and the follow-up care and maintenance required. The Texas Forest Service provides “Wildlife Packets” of selected woody plant seedlings adapted to various parts of the state. These packets, which are available each spring, contain about 100 plants from four different species. In 2008, prices for wildlife packets were: deer, \$75 per packet; quail and pheasant, \$55 per packet; squirrel, \$75 per packet; and turkey, \$55 per packet. The cost of custom planting these wildlife packets is about \$15 per acre.

Seedling survival may require supplemental watering until plants are well established. Costs for irrigation systems vary widely depending on the number of trees to be planted and proximity to water sources. Hand-watering rates are primarily for labor, with a minimum wage of \$6.55 per hour. Weed control using barrier cloth, herbicides, or disking will also be necessary for seedling survival. Weed barrier cloth costs about 50 cents per running foot. The custom herbicide application rate on former CRP land is \$5 per acre. Chemical cost depends on the type of chemical used. For example, one application of glyphosate costs \$6.25 per acre. The estimated cost of disking is \$11 per acre. If necessary, fence woody plantings to protect them from livestock. Estimated fencing costs are \$693.24 per mile for a one-strand electric wire and \$890.12 per mile for a two-strand electric wire.

Summary of Wildlife Enhancement Practices

Habitat improvement practices such as prescribed burning, controlled grazing, interseeding of perennial forbs, fall/winter strip disking, managing invasive brush, and woody plantings offer significant benefits to many wildlife species. A summary of estimated costs for each practice is given in Table 3.

Available Cost Share Programs

Maintaining former CRP land in permanent vegetative cover for the continued benefit of wildlife instead of converting it back to cropland may not always be the best

Table 3. Implementation costs for selected wildlife habitat enhancement practices used on former CRP lands

Practice	Estimated cost	Recommended frequency
Prescribed burning	\$3–\$6/acre	Every 3 to 5 years
Rotational grazing		
Windmill system	\$20,000–\$45,000 for windmill and well	75 year life, maintenance \$50–\$75/year
Cross fencing	\$693.24/mile one-strand electric \$890.12/mile two-strand electric	20–30 year life, minimal maintenance 20–30 year life, minimal maintenance
Interseeding of perennial forbs		
Seed cost	\$10–\$15/acre	Replant as needed
Custom planting	\$15/acre	Replant as needed
Strip disking		
Custom disking	\$11/acre	Every 2 to 3 years
Management of invasive brush		
Half-cutting	\$0.66/plant or \$6.55/acre, labor only	As needed
Individual plant treatment	\$6.55/hour application, \$6–\$23/acre chemical (reduced to percentage of acreage actually sprayed)	As needed
Broadcast spraying	\$5/acre application, \$6–\$23/acre chemical	As needed
Track excavator	\$155/hour	As needed
Woody plantings		
Wildlife packets	\$55–\$75/packet	Replace dead plants as needed
Weed barrier cloth	\$0.50/running foot	Not necessary once plants are established
Custom planting	\$15/acre	Replant dead plants as needed
Herbicide (glyphosate)	\$6.25/acre	As needed
Custom application	\$5/acre	As needed
Custom disking	\$11/acre	As needed
Hand watering	\$6.55/hour	As needed
Fencing	\$693.24/mile one-strand electric \$890.12/mile two-strand electric	20–30 year life, minimal maintenance 20–30 year life, minimal maintenance

economic choice for a landowner. To make this option more attractive, the U.S. Department of Agriculture offers several cost-share programs that help offset wildlife development costs. These programs are listed below, based on the most recent information available concerning the 2008 Farm Bill. Check with a local Farm Service Agency or National Resources Conservation Service office for updates.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program allows landowners to apply for financial assistance for specific conservation practices. This program, administered by National Resources Conservation Service, allows continuous sign-up and pays a flat rate for eligible practices on a county-by-county basis. Program practices that may benefit wildlife include prescribed grazing, brush management, prescribed burning, range planting, cross fencing, water establishment, and windbreak and

shrub plantings. Some counties also qualify for special incentive programs for lesser prairie chickens, bobwhite quail, and Attwater’s prairie chickens. These agreements pay landowners a fixed rental rate for a specific time and number of acres.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program encourages the creation of high-quality wildlife habitats through plans developed by National Resources Conservation Service personnel and landowners. This plan becomes the basis for a 50–75 percent restoration cost-share agreement. The contract period is 5 or 10 years. Common practices include wildlife upland habitat management, brush management, use of range seeding, prescribed burns, use of fencing, livestock exclusion, and wetland development. Grazing and recreational hunting are allowed under this agreement.

Wetlands Reserve Program

The Wetlands Reserve Program is a program that provides incentives for farmers and ranchers to develop wetlands (playas, for example) for maximum wildlife potential; landowners are not required to have a history of growing crops. The National Resources Conservation Service administers this program, which provides three participation options:

- ▶ **Option One:** A 10-year cost share agreement with the program paying 75 percent of restoration expenses
- ▶ **Option Two:** A 30-year conservation easement with values determined by a professional appraisal, calculated by the difference in the appraised fair market value of the total land parcel before the easement is in place and the appraised fair market value of the land parcel after the easement is in place. This option pays 75 percent of the appraised difference and 75 percent of eligible restoration costs.
- ▶ **Option Three:** A permanent easement value calculated the same way as in the 30-year easement; in this plan the program pays 100 percent of the appraised difference and 100 percent of restoration costs.

Under all three options, landowners are granted use for recreational activities, such as hunting and fishing, and maintain the right to lease the recreational uses of their land for financial gain. Grazing is not allowed under normal conditions.

Grassland Reserve Program

The Grassland Reserve Program helps landowners restore and protect grass acreage while maintaining the area as grazing land. The program supports working grazing operations, enhances plant and animal biodiversity, and protects land containing shrubs and forbs. A landowner can apply at any time with Farm Service Agency or National Resources Conservation Service. Participants voluntarily limit future land use but maintain the right to graze their animals, produce hay, harvest seed, conduct fire rehabilitation, and construct firebreaks and fences.

The program offers several enrollment options:

- ▶ **Option One:** permanent easement. The USDA pays landowners the fair market value of the land, less the grassland value of the land encumbered by the easement.

- ▶ **Option Two:** 30-year easement. The USDA pays 30 percent of the fair market value of the land, less the grassland value of the land encumbered by the easement.
- ▶ **Option Three:** rental agreement. Participants choose a 10-, 15-, 20-, or 30-year contract; the USDA annually pays an amount not more than 75 percent of the grazing value of the land.
- ▶ **Option Four:** a restoration agreement that works in conjunction with Options One, Two, and Three. An approved grassland management plan identifies which required restoration activities will be incorporated within the rental agreement or easement. The USDA pays up to 90 percent of restoration costs on lands that have never been cultivated and up to 75 percent of the cost of restoring grasslands that were previously cropped.

Income Potential on Wildlife Land

Land managed for wildlife can provide additional income sources, such as nature tourism and commercial hunting, and may also improve overall land resale value. In the past, rural land buyers have favored fertile farmland and improved pasture. Today, however, nonagricultural buyers recognize the recreational value of rural lands. They are increasingly investing in such land and shaping the market. Availability of wildlife, established wildlife management plans, adequate fencing, and dependable water sources are some of the primary factors influencing current market prices. The Texas A&M Real Estate Center estimates that developing land for wildlife adds an average of \$75 per acre to the overall resale value.

The potential for capitalizing on nature-based tourism—including activities such as bird-watching, taking photographs, camping, and hiking—depends on the natural amenities of an area. Driving this market is the desire of many to experience nature, and observe plant and animal life. Nature-based tourism provides economic incentives for landowners to conserve the wildlife habitats on which the industry depends. According to the U.S. Fish and Wildlife Service's 2006 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, that year about 1.5 million Texans took trips away from home to feed, observe, and/or photograph wildlife. Trips averaged between 9 and 14 days, and expenditures such as food,

lodging, and land- use fees averaged \$816 per spender. The average amount spent on private land-use fees was \$32 per participant.

Hunting leases also provide income on many properties. One Tulia ranch operation estimates a profit of \$150 per gun during dove and pheasant seasons. According to personnel on a ranch near Canadian, more than \$10,000 net is brought in each year from deer hunting leases. The estimated costs and returns on an established deer hunting operation in the Texas Panhandle are shown in Table 4. This operation provides guides, meals, and lodging for six to eight hunters per year on 800 acres of rangeland. Income streams for hunting operations in other parts of the state vary and are largely influenced by game availability and proximity to major cities. Opportunity for wildlife-based recreation on former cropland such as CRP also will be influenced by overall habitat and game quality, nearness to rangeland with established wildlife populations, and topography.

Summary and Conclusions

Permanent vegetative cover afforded by the Conservation Reserve Program has proven valuable to Texas wildlife. Voluntary retention of these lands in permanent cover after CRP contracts expire will continue the long-term benefits to soil, water, wildlife, and wetlands, and provide a potential source of income for landowners. Wildlife species are dependent on abundant high-quality habitat for survival and reproduction, and are dependent on landowners

Table 4. Sample hunting lease budget for a Northern Texas Panhandle ranch

Income		
Hunting lease fees	7 hunters X \$2,750 per hunter	\$19,250.00
Expenses		
Liability insurance	\$200 premium + \$125 wildlife membership	\$325.00
Housing (trailer on property)	\$275 utilities/misc. per month X 3 months	\$825.00
Rent	Pay neighbors/partners \$500 for each buck killed	\$3,500.00
Meals	\$30 day X 3 days X 7 hunters	\$630.00
Feeders (8 total)	Replace/repair 3 per year X \$120 each	\$360.00
Feed – Pre season	8 weeks X 10 lb/week X 8 feeders \$0.18/lb	\$115.20
Feed – Season	8 weeks X 20 lb/week X 8 feeders X \$0.18/lb	\$230.40
Blinds (4 total)	Replace/repair 1 per year X \$700 each	\$700.00
Guide tips	Usually covered by hunters; may have to subsidize	\$500.00
Transportation/misc.		\$1,500.00
Total expenses		\$8,685.60
Net income per season		\$10,564.40

to make wise stewardship decisions concerning the land under their care.

Developing former CRP land to further enhance wildlife production can provide both environmental and economic benefits. However, the costs of habitat enhancement practices must be carefully weighed against the benefits gained. Landowners should consider the types of wildlife populations they want to foster and the associated tradeoffs with conventional agricultural operations. Using partial budget analysis for planning will help determine if a landowner's return on investment is greater than the proposed expenditures. Implementing a sound wildlife management plan that fits landowner objectives and long-range operational goals will provide sure guidance toward successful and wise land stewardship.

Sources for Selected Cost Estimates

Texas Forest Service
 Texas Parks and Wildlife Department, Lubbock
 U.S. Department of Agriculture's Natural Resources Conservation Service, Amarillo and Lubbock

Photos courtesy of Kenneth A. Cearley.

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