Analyzing the Feasibility of Prairie Dog Hunting in the Northern Texas Panhandle

Prepared by:

DeDe Jones, Extension Risk Management Specialist III (SAEA)
Texas A&M University System
Texas AgriLife Extension
E-mail: dljones@ag.tamu.edu

Gid Mayfield, Extension Assistant
Texas A&M University System
Texas AgriLife Extension
DGMayfield@ag.tamu.edu

6500 Amarillo Boulevard West
Amarillo, TX 79106
Telephone: 806-677-5600

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Introduction

Prairie dogs are burrowing rodents located throughout the United States and Mexico. The black-tailed prairie dog is one of the most common species and primarily inhabits the Great Plains region, with a large population in Texas. According to the Texas Parks and Wildlife Department (TPWD), they can be found in approximately 75 counties over much of the northern and western areas of the state.

Prairie dogs have a unique burrowing system that descends at steep angles for seven to sixteen feet before leveling off. As rodents, their diets consist almost entirely of grasses and other forbs. Prairie dogs will keep the plants around their burrows clipped short, partly because they forage close to home and partly so they can see any potential predators. To a rancher, that "scorched earth" appearance means less forage for livestock (Rutherford, 2010). Many landowners feel that eliminating prairie dogs decreases the competition for pasture grasses. Thousands of dollars are spent each year toward eradication efforts. One rancher in Hansford County, Texas estimates a cost of $250,000 annually on prairie dog control. This attitude has resulted in a substantial drop in species population.

While these animals continue to thrive in many locations, there has been a significant reduction in prairie dog numbers over the past one hundred years. Currently, the TPWD predicts that black-tailed prairie dog colonies cover between 110,000 and 150,000 acres in Texas, less than one percent of the estimated 1905 population of 57.6 million acres.

Several conservation efforts have been initiated in recent years. The Black-tailed Prairie Dog Conservation and Management Plan is a long-term monitoring program between the TPWD and cooperating landowners. This plan's purpose is to develop a statewide strategy that conserves the species while simultaneously protecting personal and private property rights (Rutherford, 2010). One of the plan's recommended methods for keeping prairie dog populations at manageable levels is recreational hunting. This practice can provide the landowner several benefits that include population control as well as economic returns.

The following study explores three land use scenarios related to implementing a prairie dog hunting operation. It provides a ten-year financial impact and risk assessment for a typical producer in the Texas Panhandle.

Data and Methods

Study analysis is performed using the Texas AgriLife Extension Service's Financial and Risk Management (FARM) Assistance program. As described by Klose and Outlaw (2005), FARM Assistance is technically a 10-year pro forma financial analysis that incorporates the research methods of stochastic simulation. The program is aimed at helping farmers and

ranchers with strategic planning and risk management. It is a computerized decision support simulation model that uses both farm/ranch-level information supplied by participating producers and market price forecasts from the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri.

A model ranch is developed for this study through focus groups consisting of AgriLife Extension employees, local producers, and agribusiness representatives. Group participants are asked to identify certain characteristics representative of Texas Panhandle ranches. These parameters are combined with local producer database information to build a skeleton operation through the FARM Assistance program. The resulting model represents the Base (status quo) Scenario, which is then compared to two alternatives.

The model ranch is a Northern Texas panhandle cow/calf operation located in Dallam County, Texas. It has 275 mother cows and 8 bulls on 10,000 acres of both owned and leased native pasture. Approximately 7,000 acres contain established prairie dog towns. The calving rate is 85%, with 50% being heifers and 50% being bulls. All calves are sold as weaned or kept as replacements. The culling rate is 10% for cows and 15% for bulls. Heifer replacements come from the herd while bull replacements are purchased. Total cow costs are projected to be $140 per head per year. Estimated 2011 cattle prices are as follows: replacement cows - $800/hd; replacement heifers - $710/hd; cull cows - $0.70/lb; cull bulls - $0.85/lb; weaned calves - $1.30/lb. Overhead costs are $10,000 for labor, $3,500 for real estate taxes, $1,200 for accounting and legal fees, $15,000 for repairs and insurance, $15,000 for fuel and lube, $4,000 for utilities, and $38,000 for family living withdrawals. **The base scenario assumes that no prairie dog hunting operation is established.**

Alternative 1 presumes that in 2011, the ranch implements a prairie dog hunting service. The landowner hires a guide, but also contributes some of his/her time to the business. Packages incorporate a two-day hunt lasting from approximately 7 a.m. to 7 p.m. each day. Meals and drinks are provided during those hours. A spotter/guide, basic gear, and site transportation is also included. Hunters provide their own firearms, ammo, lodging, and transportation outside of the ranch. Based on estimates from several local hunting outfits in the Texas Panhandle, a ranch with 7,000 acres of prairie dogs should be able to support approximately 125 hunters over a 12-week period (a typical “season” for prairie dog hunting is late spring to early summer). The estimated hunting lease rate is $250 per hunter per day. On a two-day hunt, this totals $500 per trip. Individual hunting expenses and establishment costs are detailed below.

Estimated Per Hunter Expenses:

o Advertising/Marketing (Magazine ads, website maintenance)	$15.00/hd
o Fuel ($120/week X 12 weeks/125 hunters)	$11.52/hd
o Food	$25.00/hd
o Drinks	$13.82/hd
o Guide Services ($680/week X 12 weeks/125 hunters)	$65.28/hd
o Liability Insurance ($500,000 worth of insurance for $2,000/125 hunters)	$16.00/hd
o Miscellaneous (Includes Gear Replacement, Equipment Repairs, etc)	$153.38/hd
Total Per Hunter Expenses	**$300.00/hd**

Estimated Establishment Costs (Financed for 5 years @ 6% interest):

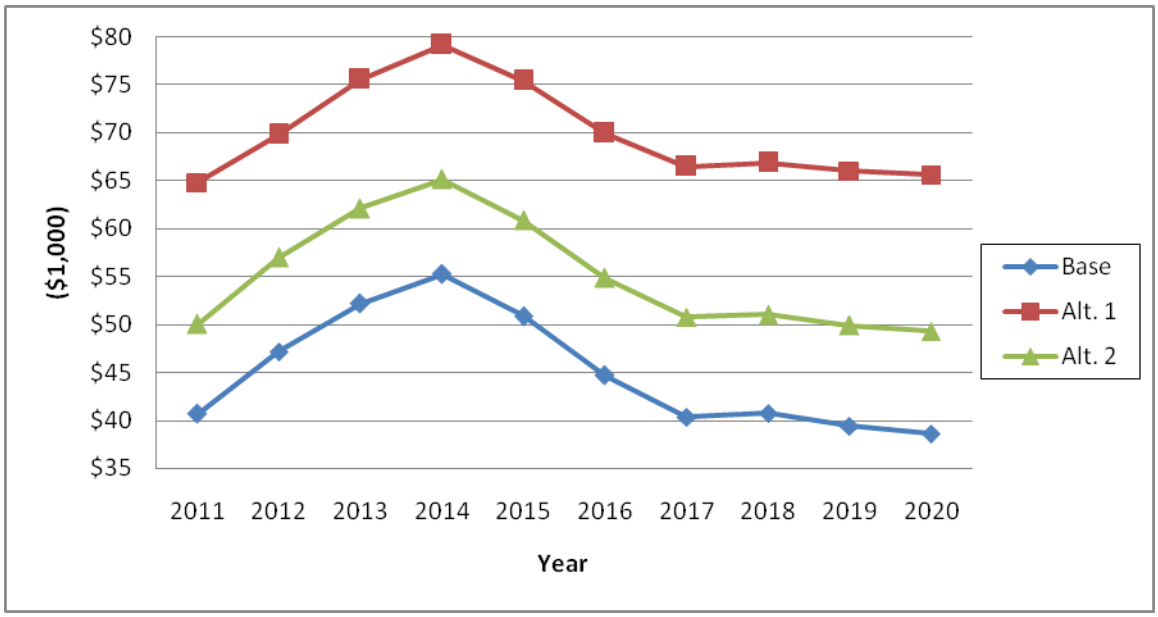
o Pickup	$35,000
o Shooting Benches and Bags (4 Benches X $500 each)	$ 2,000
o Trailer	$ 1,500
o Pickup Jacks (4 Jacks X $40 each)	$ 160
o Miscellaneous Equipment (Includes shell chillers, barrel coolers, rifle cleaning materials, binoculars, hunting gear, etc.)	$ 6,340
Total Establishment Expenses	**$45,000**

Alternative 2 assumes that in 2011, the ranch contracts with a local service that brings hunters to shoot prairie dogs. The hunting service pays $75 per hunter for land use. Approximately 125 people are projected to hunt over a 12-week period. There is no additional cost to the landowner.

Results

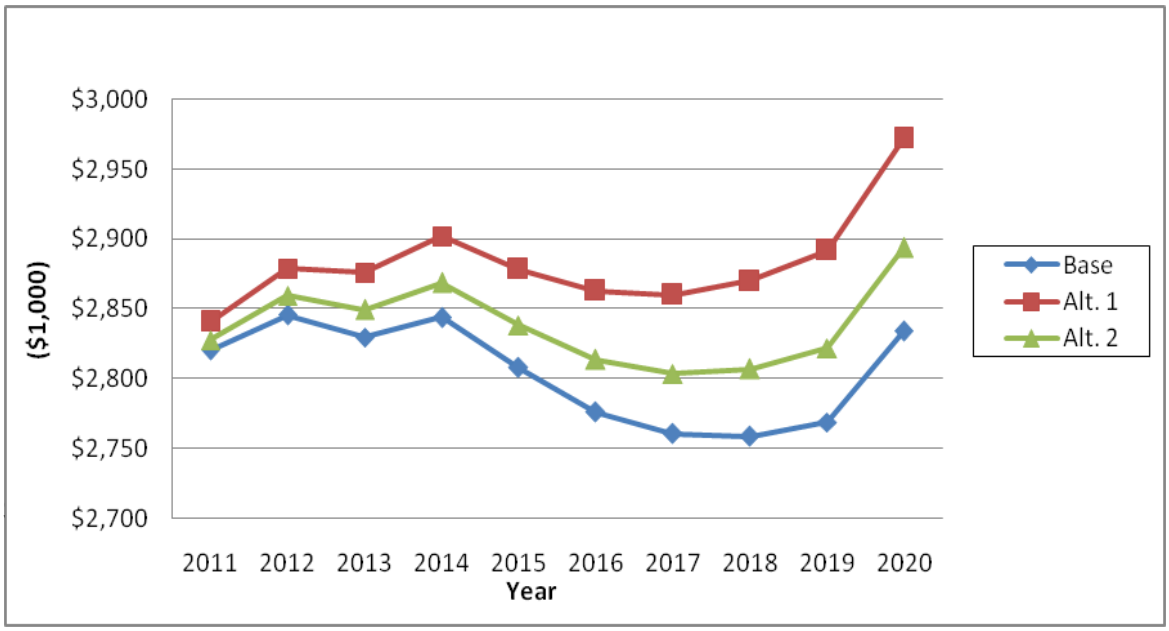
Based on current market conditions and analysis assumptions, the model ranch shows marginal profitability, weak liquidity, and acceptable equity. These results can be primarily attributed to volatile feed costs and rising fuel expenses. An analysis of Alternative 1 (establish a hunting operation) and Alternative 2 (contract with a hunting service) both exhibit an improvement in the ranch's overall financial position. The extra income generated from hunting fees improves operational profitability. Alternative 1 projects $24,970 in supplementary annual income over the Base scenario, while Alternative 2 estimates an additional income of $10,110. Figure 1 illustrates the average net income between all scenarios.

Figure 1. Average Net Income from 2011-2020 ($1,000)



Real net worth is calculated to determine the ranch's interest or equity in the assets of his/her operation. It is the dollar amount left over after all assets are sold and all debts are paid. Both alternatives show favorable changes in equity over the Base Scenario. Alternative 1 projects an average real net worth of $2.88 million, versus $2.83 million for Alternative 2 and $2.80 million for the Base. Ten year average equity for the three land use scenarios is exhibited in Figure 2.

Figure 2. Average Real Net Worth from 2011-2012 ($1,000)



Summary and Conclusions

FARM Assistance analysis results show potential improvement in overall financial position by implementing a prairie dog hunting operation. While both alternatives exhibit an increase in net income and real net worth, Alternative 1 (start own hunting operation) indicates the most desirable financial gain. However, a conclusion can be drawn that Alternative 1 would exhibit a higher risk profile than Alternative 2 in the form of income volatility and personal liability associated with establishing versus contracting prairie dog hunting services.

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