High Plains Landowner Survey 2006: Farmers, Ranchers, and Conservation

Playa Lakes Joint Venture

Report Prepared by D.J. Case & Associates

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Final Report to Playa Lakes Joint Venture
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High Plains Landowner Survey 2006: Technical Report

Executive Summary

From March through May, 2006, a mail survey of landowners in six southwestern states was conducted at the request of the Playa Lakes Joint Venture (PLJV). A random sample of 1,800 landowners in Colorado, Kansas, Nebraska, New Mexico, Oklahoma, and Texas was polled using contact information for individuals likely to be commodity/production farmers and ranchers. The survey geography comprised the majority of the PLJV's administrative boundary and the short grass (18) and mixed grass (19) Bird Conservation Regions (BCR) (see Figure 1). After removing 148 refusals and undeliverable addresses, final response was 26% (429 respondents). Error tolerances for this sample are +/-2 to 5 percentage points (95% confidence level).

Key findings revealed:

- About 50% of farmers/ranchers in the PLJV region had heard of the term "playa" or "playa lake" which translates to about 115,000 individual farmers/ranchers in the PLJV region. Across BCRs, landowner awareness (heard of "playa") ranged from a low of 24% in BCR18CO to a high of 90% in BCR18TX.

- More revealing was the key question inquiring if respondents *had* playas on the lands they managed. Playa presence ranged from a low of about 8%--that is, 8% of properties had at least one playa lake—in BCR18CO, BCR19KS, and BCR19OK, to a high of 48% in BCR18TX. These survey data yielded an estimate of playa numbers in the PLJV region within the range of 41,000 to 127,000 playas, which easily encompasses playa numbers promoted by the JV of about 60,000.

- When asked about certain playa functions, about 50% of landowners did not know whether or not playas recharged groundwater. This indicates there is a need to continue to communicate about the link between playas and recharge of the Ogallala Aquifer.

- Of 13 possible resources that might warrant additional conservation effort, farmers/ranchers said they supported "more conservation than now" for only one—the Ogallala Aquifer. Their second-ranking conservation concern was the Conservation Reserve Program ("same support as now").

- When asked how willing they would be to implement certain conservation practices if given incentive, 28% of all playa landowners were "highly willing" and 46% were "moderately willing" to plant native grass buffers around playas/wetlands, indicating a significant landowner demand for playa conservation programs.

- A number of different incentives would be well received by landowners to help improve their management of playas and wetlands. Most popular among landowners—those who have playas, those that do not, and those that don't know—would be if "playa/wetland management helped my bottom line." In fact, the most popular incentive for all types of landowners would be some form of

financial remuneration, augmented by knowledge that their actions were helping the land/water resources.

- Predictably, landowners in BCRs in which playas were more common were better able to identify playas as a type of wetland. Moreover, landowners who said they actually had playas on their properties were much more knowledgeable about playa lakes than those who did not have playas on their lands.

- Looking at farmers/ranchers across the PLJV region, those who said they had playas on their lands said playas and wetlands constituted an *overall positive* feature (68%), while 25% said playa lakes/wetlands were an overall negative feature. A majority of respondents who indicated they did *not* have playas on their properties still were prone to characterize playas and wetlands as a positive feature (53%), though a large group (39%) said "don't know."

- For landowners who said they had playas on their properties—and thought playas were an overall *positive* presence—the highest-ranking benefit was "attracts wildlife." Ranking second was "recharges groundwater," third was "improves groundwater quality," and fourth was "source of water for livestock."

- For landowners who thought playas/wetlands represented an overall *negative* presence—and said they had playas on their properties—the perceived negative consequences were, ranking first, "reduces land available for production," then "crop-/ranch-land flooding," "unpredictable production in and around playas/wetlands," and "possible state or federal regulation." Even landowners who thought playas/wetlands represented on overall *positive* presence on the land said the most negative potentiality associated with playas was "possible state or federal regulation."

- Landowners would most prefer to receive word of conservation programs from federal and county agricultural sources. Somewhat surprising, however, is that ranking near the bottom of the list of preferred information sources was "Farm Bureau," only slightly more favored than "non-government group."

- Row-crops constituted the highest income source for farmers/ranchers in the PLJV region, followed by livestock production, then farm commodity assistance, and conservation assistance. Poultry production played virtually no role as an income source for these landowners. Income from fee recreation appeared similarly unimportant, except for landowners in Bird Conservation Region (BCR) 19OK and BCR19TX. The relative importance of agricultural income sources varied among BCRs within the PLJV region.

- On average, land "as a source of income" was "highly important" to landowners in the management of their farms and ranches. "Moderately important" to landowners was land management "in terms of the pleasure of farming/ranching," land "as a means of passing the rural life on to the next generation," and land "as a source of land/water resources." "Slightly important" was land "as a source of non-hunted wildlife species," land "as a source of hunted wildlife species," and land "as a source of outdoor recreation."

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Introduction

> ***"As a consequence of radically changing agricultural and forest land-use practices, and the increasing encroachment of urban life, few doubts can exist regarding the importance of private lands to the future well-being of this nation's wildlife."***

With this sweeping statement as prologue, renowned social theorist on wildlife values, Dr. Stephen Kellert, introduced, "Landowner and Public Perspectives," the first of five sessions comprising the 1981 conference, "Wildlife Management on Private Lands" (Dumke et al., 1981).

But Kellert continued by intoning a grave prediction; that unless U.S. agricultural and natural resource policies coalesced—a blending of public land-management incentives and private land ethics—"America will increasingly face the prospect of wildlife in visible and substantial numbers being found only in relatively isolated areas on our public lands—a reality already existing in many parts of Europe, India, and the Far East" (Kellert, 1981).

Would public and private interests find common ground in support of wildlife conservation, averting Kellert's future vision of "pockets of wildlife"?

A quarter century later, there's real excitement about conservation progress on private lands in the United States. Even optimistic predictions by futurists of the early 1980s likely would have fallen short of the actual conservation achievements since realized on private lands. Conservation provisions of several generations of the Farm Bill, North American Wetlands Conservation Act, Joint Ventures, and tireless citizen activism that propel non-government conservation groups--these exemplify premiere conservation achievements made possible when public policy and private interests coalesce.

But unchanged over the past 25 years is the absolutely pivotal role that private landowners or production agriculturalists play in implementing and defining success for these conservation programs. Unchanged is the hope that farmers and ranchers will seek balance in their agricultural businesses—a balance that promotes fisheries and wildlife as by-products of agricultural production, and perhaps on some occasions, a balance that foremost advances fisheries and wildlife benefits while yielding agricultural commodities as by-products.

Landowners—farmers, ranchers, "hobby farmers"—what they think and how they manage their lands, are crucial to wildlife conservation today and tomorrow.

Background

In January, 2006, the Playa Lakes Joint Venture (PLJV) contracted with D.J. Case & Associates (DJ Case) to conduct a survey of landowners in a six-state region

comprising the majority of its administrative boundary (Figure 1). The geography included portions of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, and Texas.

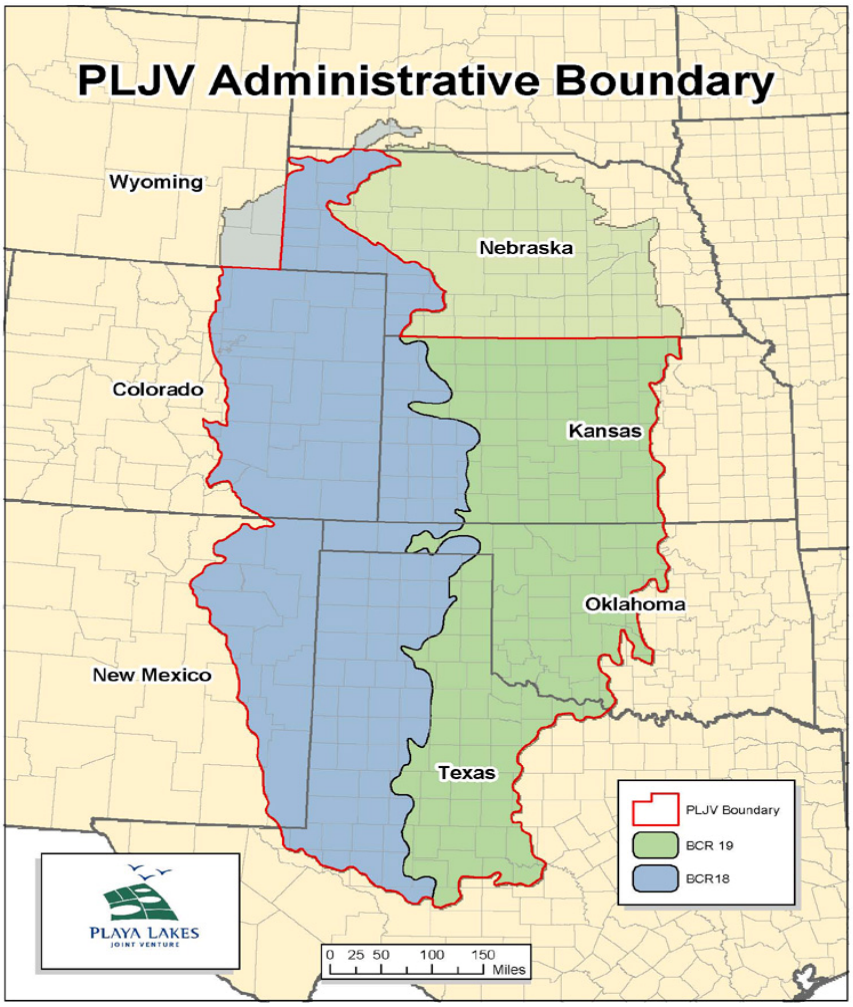

FIGURE 1. Playa Lakes Joint Venture Administrative Boundary (within red line), and Bird Conservation Regions 18 (blue - short grass prairie) and 19 (green - mixed grass prairie).

Objectives of the study were to assess:

- A baseline of landowner awareness and appreciation of playas, wildlife and conservation;
- Motives underlying landowners' management practices/decisions;
- Landowners' willingness to accept incentives for playa/wetland management;
- Current conservation practices of landowners, and willingness to consider conservation practices;
- Landowner perceptions of the need for additional conservation of wildlife, land, and aquatic resources in the region;
- Landowner preferences for sources of conservation information;
- Landowners' current participation in agricultural/conservation programs;
- Selected characteristics of landowners and the lands for which they were responsible.

Staff of PLJV and DJ Case collaborated to develop survey content, and well as refine survey methodology and review the questionnaire, cover letters, and reminder postcard (Appendix A). Questionnaire revisions continued until early-March, 2006, when the questionnaire was sent to printing at the Assessment Resource Center (ARC) at the University of Missouri, the organization that printed, mailed, tracked, and machine-scanned the questionnaires, then provided the dataset.

Methods

High Plains Landowner Sample Frame

PLJV provided DJ Case with a landowner sampling frame obtained from the Farm Service Agency (FSA). The landowners were selected by county groupings that approximated the nine Bird Conservation Regions (BCRs) within PLJV's administrative boundary (Figure 1 and Table 1). BCRs were designated in 1998 by the North American Bird Conservation Initiative, and are ecologically distinct regions in North America with similar bird communities, habitats and resource management issues. The PLJV boundary encompasses most of BCRs 18 and 19, covering the short-grass and central mixed-grass prairies.

Given the origin and composition of the sampling frame, a legitimate supposition was that landowners in the frame could accurately be characterized as commodity or production farmers and ranchers—those people who make a living through agriculture, and the intended focus of this survey.

DJ Case first eliminated 55,843 members of the frame that were categorized by FSA as "businesses," leaving 232,401 "individual" landowners (Table 1).

TABLE 1. Numbers of Agricultural Businesses and Individual Landowners in the High Plains Landowner Survey 2006 Sampling Frame.

	Businesses (Deleted)	Individuals	Total
BCR18CO	5542	23642	29184
BCR18KS	7405	18711	26116
BCR19KS	14821	60174	74995
BCR18NE	3228	12372	15600
BCR18NM	1345	5443	6788
BCR18OK	1323	5507	6830
BCR19OK	5603	41327	46930
BCR18TX	12164	38143	50307
BCR19TX	4412	27082	31494
Total	55843	232401	288244

From the remaining lists of individual landowners, 200 were randomly selected from each BCR, for a total sample of 1,800 landowners. Each address was individually checked to ensure all contact information was present before the address moved into the final sample.

As the individual address inspection proceeded, it became obvious that state mailing addresses of some landowners—predictably—differed from the states in which their properties were located (Table 2). However, because of the relatively large number of these state differences, non-resident (absentee) landowners were kept in the sample.

TABLE 2. State Mailing Addresses for Landowners in Sampling Frame, and Bird Conservation Regions in Which Landowners' Properties are Located, High Plains Landowner Survey 2006.

	18CO	18KS	19KS	18NE	18NM	18OK	19OK	18TX	19TX	Total
AR	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
AZ	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%
CA	2%	3%	2%	2%	2%	4%	2%	1%	1%	2%
CO	81%	6%	3%	7%	1%	3%	1%	1%	1%	10%
FL	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
IA	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
IL	1%	1%	1%	0%	0%	1%	0%	0%	0%	0%
IN	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
KS	4%	71%	81%	1%	0%	12%	3%	0%	0%	28%
LA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MD	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MO	1%	2%	1%	0%	0%	2%	0%	0%	0%	1%
MT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NE	2%	1%	2%	79%	0%	0%	0%	0%	0%	5%
NM	0%	1%	0%	0%	77%	1%	0%	2%	1%	2%
NV	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
OK	1%	2%	1%	0%	1%	51%	83%	2%	1%	17%
OR	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
SD	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
TX	2%	3%	2%	1%	14%	14%	6%	89%	93%	28%
VA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WA	1%	1%	0%	1%	0%	1%	0%	0%	0%	0%
WY	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Total	23642	18711	60174	12372	5443	5507	41327	38143	27082	232401

Did We Survey the "Right" Landowners?

A special challenge in any study of landowners is acquiring contact information for the landowner population of interest. In the pre-survey proposal to PLJV, DJ Case suggested that PLJV partner with the USDA Farm Service Agency (FSA) or National Agricultural Statistics Service (NASS) to acquire contact information for landowners, as PLJV eventually did.

At least three characteristics in the High Plains Landowner FSA frame provide encouragement that the sampling frame was a group that PLJV probably works with now, or if not, a group PLJV should quickly get to know.

1) The sampling frame used for the High Plains Landowner Survey originated by the FSA, and featured landowners presumably participating in some federally-underwritten assistance program—certainly, farmers and ranchers involved in production or commodity agriculture—or the "real" farmers and ranchers with

whom PLJV wants to develop conservation partnerships, and who are already predisposed to participate in commodity or conservation programs.

2) Estimating the acreage owned and controlled by landowners in the PLJV sampling frame is encouraging when comparing it to actual acreages in BCR18 and BCR19, or the PLJV region—about 160 millions acres in total (Mike Carter, personal communication).

   Table 3 can be used to estimate the land domain over which the landowner sampling frame has responsibility; by conservatively estimating acreages, one could project that landowners in the PLJV sampling frame control about 200 million acres in and around the PLJV region (perhaps more, perhaps less, depending on any number of assumptions that one might make); but 200 million acres is one reasonable projection.

   The point is, landowners in the PLJV sampling frame appear to own land domain in excess of the actual acreage of BCR18 and BCR19—simply, this survey may have dealt with most (or certainly many—by sample, of course) of the farmers and ranchers in the PLJV region, and slightly beyond. The actual distribution of "rancher" versus "farmer" versus "hobby or recreational farmer" may not have been duplicated, and may remain for the next PLJV survey frame to explore or establish.

TABLE 3. Ownership by acreage, PLJV sampling frame (population).

	q17: How many farm/ranch acres do you have management authority over?										
	640 or less acres		641-1,500 acres		1,501-3,000 acres		3,001-5,000 acres		5,001 or more acres		Total
BCR18CO	46%	9803	19%	4036	19%	4036	8%	1730	8%	1730	21335
BCR18KS	51%	8607	20%	3368	13%	2245	2%	374	13%	2245	16840
BCR19KS	52%	28317	29%	15928	13%	7079	3%	1770	3%	1770	54865
BCR18NE	38%	4713	19%	2357	10%	1178	17%	2062	17%	2062	12372
BCR18NM	44%	2196	10%	477	21%	1050	10%	477	15%	764	4966
BCR18OK	48%	2461	25%	1289	11%	586	11%	586	5%	234	5155
BCR19OK	63%	25829	25%	10332	10%	4133	3%	1033	0%	0	41327
BCR18TX	55%	19778	24%	8476	16%	5651	4%	1413	2%	706	36024
BCR19TX	53%	13194	22%	5555	8%	2083	3%	694	14%	3472	24999
Total	53%	114898	24%	51819	13%	28042	5%	10140	6%	12984	217883

3) The third encouragement from the High Plains Landowner Survey is from a finding that was never really a marquee objective of the survey, but has since emerged as quite a striking but empirical surprise—the seeming ability to estimate number of playas in the PLJV region based on the survey data—an estimate (to be described later in this report) that apparently is well within the bounds of numbers of playas thought to be in the region, or in fact, a projection that suggests there may be many more playas in the PLJV region than the current estimate of 60,000.

The fact that this group of landowners seemed to account for as many playas as they reported makes the group an eminently intriguing study population, and for the moment, makes moot concerns about "did we survey the right landowners?"

Survey Response

A 26% response (429 respondents) was achieved by May 26, 2006, the cut-off to accept surveys (Table 4). A total of 404 usable forms were scanned for an effective response rate of 24%; an additional 25 respondents provided comment, but no scannable responses on their questionnaires.

TABLE 4. Response to High Plains Landowner Survey 2005.

Fate of Surveys		Frequency	Percent	Adjusted Percent
	Not returned	1223	68	74
	Returned, Postal Wave1	130	7	8
	Returned, Web Wave1	24	1	2
	Returned, Postal Wave2	271	15	16
	Returned, Web Wave2	4	tr	tr
	Refused, Wave1	10	1	Removed
	Refused Wave2	64	4	Removed
	Respondent Deceased	16	1	Removed
	Undeliverable	58	3	Removed
	Total	1800	100	100

The survey consisted of two waves:

Wave 1: This first postal wave consisted of a questionnaire (Appendix A) sent by first class mail to each of the 1,800 in the original sample (postmarked, Columbia, MO, March 16, 2006). A separate cover letter (signed by PLJV's Debbie Slobe, with PLJV contact information, Appendix A) explained the importance of the survey, and solicited the landowner's participation. The questionnaire was typeset in 4-page machine-scannable (response-bubble) format, with a final open-ended "Any additional comments or suggestions." A postage-paid return envelope was enclosed. As an incentive, PLJV offered to send each respondent either a DVD or VHS of the film, "Playas – Reflections of Life on the Plains." A web option encouraged the respondent to complete the survey on-line (internet) if more convenient than responding by mail (www.playasurvey.com). A first class reminder postcard (Appendix A) was sent to each subject on March 23.

Wave 2: Because of very low response to the first mail wave (154 respondents), DJ Case proposed an additional incentive be added to the second wave; "Project One Dollar Bill" commenced (the cost of which was assumed by DJ Case). Each non-respondent received a personalized mailing, with name and address hand-written on the outgoing envelope, first class stamps individually affixed, and a $1 bill enclosed in each envelope as incentive (postmarked, Columbia, MO, April 21, 2006). The accompanying cover letter asked, "How much is a $1 bill worth in today's world? Some would say "not much," but we'd tell you the enclosed one dollar bill would be invaluable to us if it caused you to give a second look at the questionnaire we sent to you a few weeks ago"

(Appendix A). A replacement questionnaire was enclosed, as well as postage-paid return envelope. Encouragement again was given to complete the survey using the internet if that was more convenient for the respondent. This wave produced an additional 275 respondents, and a relatively large number of refusals (64), dramatically improving overall response to the survey.

Each survey was opened individually upon its return, examining the form to correct any data entry issues (mainly, ensuring response bubbles were completely filled-in by the respondent), and adding written comments that respondents volunteered in the open-ended final question to the data file.

In summary, the final tally of returned, usable forms was 404, with an additional 25 respondents providing comment, but no scannable responses on their questionnaires, for a final tally of 429. The adjusted sample total was 1,652 respondents that presumably received questionnaires (removing 148 "undeliverable," "deceased," and "refused")—for a final, adjusted response of 26%. DJ Case's pre-survey project prospectus to PLJV estimated a 28% response. (Indeed, 16 questionnaires were returned too late to be included in analyses, for an "actual" response of 445, or 27%.)

A first check of the degree to which respondents reflected the original sample was gained by comparing the state mailing addresses for the entire sampling frame with the response group (Tables 2, 5, and 6).

TABLE 5. State Mailing Addresses for Landowner Response Group, and Bird Conservation Regions in Which Landowners' Properties are Located, High Plains Landowner Survey 2006[1].

	Bird Conservation Region									
	18CO	18KS	19KS	18NE	18NM	18OK	19OK	18TX	19TX	Total
AZ	0%	0%	0%	7%	0%	0%	0%	4%	0%	1%
CA	5%	4%	0%	0%	0%	0%	0%	2%	0%	1%
CO	76%	8%	0%	2%	0%	2%	0%	4%	0%	10%
FL	2%	4%	0%	2%	0%	0%	0%	0%	0%	1%
IL	0%	0%	0%	2%	0%	2%	5%	0%	0%	1%
IN	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
KS	7%	70%	82%	0%	2%	2%	8%	0%	0%	18%
LA	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
MD	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%
MO	2%	2%	3%	0%	0%	0%	0%	0%	0%	1%
MT	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
NE	2%	0%	3%	79%	0%	0%	0%	0%	0%	9%
NM	0%	0%	3%	0%	88%	0%	0%	0%	3%	13%
NV	0%	2%	0%	0%	0%	2%	0%	0%	0%	0%
OK	0%	4%	6%	0%	0%	68%	78%	4%	0%	17%
OR	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
TX	0%	4%	0%	2%	9%	17%	5%	85%	97%	25%
VA	0%	0%	0%	0%	0%	2%	3%	0%	0%	0%
WA	2%	0%	3%	5%	2%	0%	0%	0%	0%	1%
WY	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Total	41	50	34	42	57	47	40	54	39	404

[1]Several state mailing addresses for respondents in Table 4 register "0%" in Table 2 (e.g., in Table 4, IN registers "2%" for BCR18CO but registers "0%" in Table 2 for BCR18CO). Simply, the number of Indiana mailing addresses in Table 2 was not large enough to register even 1% in the total tally, but an Indiana individual did indeed receive a questionnaire and responded; thus, the "2%" in Table 5.

In particular, Table 6 reveals close proportionality in state mailing addresses between sampling frame and response group.

TABLE 6. Percent of Sampling Frame and Response Group in Which State of Mailing Address is Same as "BCR State."

	Sampling Frame Mailing Addresses N=232,401	Response Group Mailing Addresses n=404
BCR18CO	81% "CO"	76% "CO"
BCR18KS	71% "KS"	70% "KS"
BCR19KS	81% "KS"	82% "KS"
BCR18NE	79% "NE"	79% "NE"
BCR18NM	77% "NM"	88% "NM"
BCR18OK	51% "OK"	68% "OK"
BCR19OK	83% "OK"	78% "OK"
BCR18TX	89% "TX"	85% "TX"
BCR19TX	93% "TX"	97% "TX"

That's the good news. But one might ask,

"Why such a low response?"

In actuality, the 26% response to this survey is extremely satisfactory, given contemporary challenges in encouraging response to polls.

Recent landowner studies reveal the challenge of engaging this constituency in a meaningful and *cost-effective* manner. A 1998 survey of landowners in the Prairie Pothole Region required 6,485 phone numbers to complete 490 landowner interviews (Ducks Unlimited, 1998).

A 2003 telephone survey of landowners contracted by the Ohio Division of Wildlife required the National Agricultural Statistics Service to call 3,093 landowners to complete 615 usable interviews, for an adjusted final response of 20% (Ohio Division of Wildlife, 2004).

Simply, people want their privacy in this age of electronic intrusion, and don't want to be bothered. And then there are general suspicions…the predictable, "Where did you get my name and address?"

In summary, then, the 26% response to this survey is acceptable—especially given that estimates based on the 404 respondents hold sampling tolerances of +/-2 to 5 percentage points (95% confidence interval).

Results

Data Treatment

Data were carefully handled to assure anonymity of respondents throughout all stages of the study. Data security and quality control were preeminent concerns of DJ

Case and ARC as they prepared the SPSS® dataset. DJ Case used SPSS® ver. 14.0 (and in particular, SPSS-Custom Tables 14.0) to analyze data and prepare manager-friendly tables that facilitate visual comparison of large numbers of distributions.

Tables of error tolerances for individual percentages are in Appendix B, and include sampling errors of percentages at the 95%, 90%, and 80% confidence intervals, as well as discussion of sampling error of a percentage, and guidance customized for PLJV on how to use the error tolerance tables for High Plains Landowner survey results.

Survey research is, frankly, very costly "business intelligence" for cash-strapped conservation organizations, representing a difficult trade-off in management priorities. Every dollar spent on this landowner survey was a *real* dollar that could not be devoted to "on-the-ground" playa conservation. Thus, there should be a willingness to explore survey findings and relationships—a willingness to explore "directional leanings" of data—at a lower statistical confidence than the traditional 95% confidence interval. For example, the PLJV may be interested in BCR-level trends, which have lower statistical confidence associated with them. The PLJV may want to use the lower confidences to gain insight into BCR-level tendencies.

Generally, percentages that follow are rounded to the nearest whole number, occasionally resulting in slight variations (1%) in reported percent totals (i.e., percent totals equally 99% or 101%). Missing data are excluded from tabulations in the following narrative, but explicit counts of missing cases are reported in item-by-item frequency analyses in Appendices C (unweighted sample), D (weighted sample), and E (population projections).

Two sets of weights were applied as needed to each respondent or case (Table 7). The first reestablished the proportion of each BCR's contribution to the total number of landowners in the PLJV region. Any unweighted data presentations are identified in the narrative.

The second weight was applied to the actual number of respondents to produce best estimates of the absolute number of farmers/ranchers exhibiting a certain characteristic, based on the original 232,401 individual landowners in the region and BCRs (that is, the population).

The effects of weighting are noticeable, and appropriate to proportionally and geographically (by BCR) reconstruct and represent the landowner frame from which the sample was drawn. For example, Table 8 and 9 show *unweighted* responses to Question (Q) 2, and Table 10, 11, and 12 show *weighted* responses to Q2.

Inferential statistics (chi square values) and probabilities are reported in Appendix F for *all items in the questionnaire*, crosstabulated by selected, intuitively appealing independent variables:

- Age
- Gender
- Residence (residing in state of land ownership versus absentee landowner)
- Whether or not landowners have playas on their properties
- Whether landowners see playas as an overall positive or negative presence
- Participation in any conservation program
- Number of years landowners have been farming or ranching

- Geographic presence in BCR18 or BCR19
- Geographic presence in the 9 BCRs

A detailed discussion of these inferential analyses is presented in Appendix F (specifically, see explanation at the first set of chi square values for "q1a"). Test statistics and probabilities thus are not reported in the following narrative.

TABLE 7. Weights to Re-establish BCR Proportionality to Total Sample (Wgt 1), and Expand Response Group to BCR and PLJV Region Estimates (Wgt 2).

	Number of Landowners	BCR Proportion	Actual Number of Respondents	Proportional Response Distribution	Case Weight to Re-establish BCR Proportions (Wgt 1)	Case Expansion Weight (Wgt 2)
BCR18CO	23642	.1017	41	41	1.002406	576.6341
BCR18KS	18711	.0805	50	33	.650535	374.2200
BCR19KS	60174	.2589	34	105	3.076616	1769.8235
BCR18NE	12372	.0532	42	22	.512075	294.5714
BCR18NM	5443	.0234	57	9	.166000	95.4912
BCR18OK	5507	.0237	47	10	.203686	117.1702
BCR19OK	41327	.1778	40	72	1.796045	1033.1750
BCR18TX	38143	.1641	54	66	1.227904	706.3519
BCR19TX	27082	.1165	39	47	1.207145	694.4103
Total	232401	1	404	404		

TABLE 8. Unweighted response to, "Have you heard of the term 'playa' or 'playa lake'?" (sample)—compare to Table 9.

q2: Have you heard of the term 'playa' or 'playa lake'?	Yes	58%
	No	42%
	Total	386

TABLE 9. Unweighted response to, "Have you heard of the term 'playa' or 'playa lake'?" by BCR18 and BCR19 (sample)—compare to Table 10.

	q2: Have you heard of the term 'playa' or 'playa lake'?		
	Yes	No	Total
BCR18	61%	39%	275
BCR19	48%	52%	111
Total	58%	42%	386

TABLE 10. Weighted response to, "Have you heard of the term 'playa' or 'playa lake'?" (sample)

q2: Have you heard of the term 'playa' or 'playa lake'?	Yes	50%
	No	50%
	Total	391

TABLE 11. Weighted response to, "Have you heard of the term 'playa' or 'playa lake'?" by BCR18 and BCR19 (sample)

	q2: Have you heard of the term 'playa' or 'playa lake'?		
	Yes	No	Total
BCR18	61%	39%	170
BCR19	42%	58%	221
Total	50%	50%	391

TABLE 12. Weighted response to, "Have you heard of the term 'playa' or 'playa lake'?" by BCR18 and BCR19 (population)

	q2: Have you heard of the term 'playa' or 'playa lake'?		
	Yes	No	Total
BCR18	61%	39%	97707
BCR19	42%	58%	127194
Total	50%	50%	224901

Findings and Discussion

As a reminder, human dimensions in conservation issues are best used to reveal clues—*not* "answers" or "votes" or "dictates"—but *clues* to better informed fish and wildlife management (Witter and Jahn, 1998).

Refusals

Almost as instructive as *responses* to survey items were landowners' reasons for *not* participating in the survey. Though anecdotal, these responses reveal the significant graying of ranchers and farmers in the United States, changes in life stage, as well as predictable hesitance among some to participate in the survey.

Selected reasons for not participating included…

"… We no longer own the ground…

… Addressee is deceased…

… I am no longer a land owner nor do I participate in ag-programs…

… Sorry, I am a retired farmer…

… I'm retired and in a nursing home…

… I have given away my 160 acres of farmland…

… We are not land owners…

… None of your business…

…. Could not use any toys [DVD/VHS incentive]…Could use $10 bills…

… As a farmer and land owner, many times I worked for nothing—send $25 and I will complete the survey…

…Property owned for investment purposes only…."

Most poignant, perhaps, was the farmer who answered, "…I can't help you. I'm ill and have to go to the cancer center in [city]. Sorry, but I have misplaced the [survey]--please understand."

Not as inspiring but just as interesting were those survey recipients who refused participation because their properties are for investment purposes only. Thus, most/all land management decisions are beyond their immediate purview, and probably well beyond the ability of any group like PLJV to influence.

Landowner Characteristics

Most respondents were male (71%), about half (51%) were 65 years or older, half had been farming or ranching for 30 years or more, and a majority (53%) had management responsibility for 640 or less acres (Table 13).

TABLE 13. Selected Background Characteristics of PLJV Survey Respondents. (sample)

q14: Gender	Male	71%
	Female	29%
	Total	387
q15: Age	24 yrs or under	1%
	25-44 yrs	9%
	45-64 yrs	40%
	65 yrs or over	51%
	Total	390
q16: For how many years have you been farming or ranching?	9 yrs or less	11%
	10-19 yrs	13%
	20-29 yrs	12%
	30-49 yrs	28%
	50 or more yrs	22%
	Not involved	15%
	Total	383
q17: How many farm/ranch acres do you have management authority over?	640 or less acres	53%
	641-1,500 acres	24%
	1,501-3,000 acres	13%
	3,001-5,000 acres	5%
	5,001 or more acres	6%
	Total	379

On several key background variables, High Plains farmers/ranchers were strikingly similar to the landowner response group in the 1998 survey by Ducks Unlimited in the Prairie Pothole Region (Ducks Unlimited, 1998) (Table 14).

TABLE 14. Comparisons of gender and farm/ranch acres managed from 2 landowner surveys. (sample)

		PLJV 2006	DU 1998[1]
q14: Gender	Male	71%	66%
	Female	29%	34%
	Total	387	497
q17: How many farm/ranch acres do you have management authority over?	640 or less acres	53%	42%
	641-1,500 acres	24%	32%
	1,501 or more acres	24	27%
	Total	379	483

[1]Ducks Unlimited, 1998

PLJV survey respondents were markedly older than the U.S. population (Table 15), but this affirms the common finding in landowner research that farmers/ranchers tend to be older males. This age distribution, in and of itself, isn't the issue—the question becomes, what happens to these lands and their management direction when the lands change hands? Simply, there's a large group of older landowners whose lands will soon be in transition.

TABLE 15. Age Comparison, PLJV Landowner Survey and U.S. General Population.

Age	PLJV Survey	U.S. Population
24 years or under	1%	14%
25-44 years	9%	38%
45-64 years	40%	31%
65 years and over	51%	17%

Noteworthy in the PLJV survey is the 15% of respondents (about 50) who indicated they were "not involved" in "farming/ranching" (Table 12, Q16), bringing to question the appropriateness of including these respondents in subsequent analyses.

However, analyses of responses by this group to Q1a-Q1g revealed that they had some strong reference to past land management experience; thus, they were retained in the sample (Table 16).

TABLE 16. Responses to Q1a-Q1g for Group Indicating "Not Involved" in Farming/Ranching (Q16). (sample)

	Highly Important	Moderately Important	Slightly Important	Not Important	Don't Know	Total
q1a: Your land in terms of the pleasure of farming/ranching?	23%	20%	25%	23%	9%	44
q1b: Your land as a source of hunted wildlife species?	4%	13%	30%	37%	15%	46
q1c: Your land as a source of non-hunted wildlife species?	16%	21%	23%	26%	14%	43
q1d: Your land as a source of income?	55%	19%	11%	9%	6%	47
q1e: Your land as a source of outdoor recreation?	2%	7%	22%	53%	16%	45
q1f: Your land as a means of passing the rural life on to the next generation?	32%	15%	19%	23%	11%	47
q1g: Your land as a source of land/water resources?	28%	17%	13%	24%	17%	46

Importance of Land Management Factors

Landowners were asked to indicate the relative importance of seven factors that might help explain what farmers and ranchers find personally rewarding in management of their lands (Q1a-Q1g). Region-wide, landowners placed highest management importance on their lands "as a source of income" (Table 17).

Data reduction must proceed cautiously, but another immediate method to summarize the foregoing data is to calculate and rank (and then "round") mean scores for each of Q1a through Q1g, using scores 1 to 4, with 1 = "Highly Important" and 4 = "Not Important" (and eliminating "Don't Know" for purposes of this analysis).

Based on central tendency, landowners characterized only one item as "highly important" in terms of management of their lands; their land as "a source of income" (Table 18). "Moderately Important" were their lands "in terms of the pleasure of farming/ranching, "as a means of passing the rural life on to the next generation," and "as a source of land/water resources." "Slightly Important" were their lands "as a source of non-hunted wildlife species," "a source of hunted wildlife species," and "as a source of outdoor recreation."

These data confirm that, as has been long proposed, the most effective method of incorporating fisheries and wildlife conservation into commodity agriculture is to somehow appeal to farmers' sensitivities to profit and financial sustainability. Next most effective would be to link wildlife conservation with the continuation of rural heritage.

And finally, for some farmers and ranchers, land management is important for the wildlife conservation benefits—viewing and hunting wildlife.

TABLE 17. PLJV Region—Q1a-Q1g: "How important is each of the following in the management of your land?" (population)

	Highly Important	Moderately Important	Slightly Important	Not Important	Don't Know	Total
q1a: Your land in terms of the pleasure of farming/ranching?	56%	22%	14%	7%	1%	219083
q1b: Your land as a source of hunted wildlife species?	21%	23%	26%	27%	3%	213764
q1c: Your land as a source of non-hunted wildlife species?	20%	29%	24%	24%	4%	211790
q1d: Your land as a source of income?	71%	15%	10%	3%	1%	217795
q1e: Your land as a source of outdoor recreation?	25%	13%	24%	34%	4%	212662
q1f: Your land as a means of passing the rural life on to the next generation?	63%	17%	10%	9%	2%	219989
q1g: Your land as a source of land/water resources?	51%	23%	13%	8%	5%	213769

TABLE 18. PLJV Region—Q1a-Q1g: "How important is each of the following in the management of your land?" (Ascending means ranked from Highly Important (1) to Not Important (4)). (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q1d: Your land as a source of income?	372	1 (1.45) Highly Important	.824
q1a: Your land in terms of the pleasure of farming/ranching?	371	2 (1.60) Moderately Important	.881
q1f: Your land as a means of passing the rural life on to the next generation?	372	3 (1.69) Moderately Important	1.018
q1g: Your land as a source of land/water resources?	345	4 (1.74) Moderately Important	.981
q1c: Your land as a source of non-hunted wildlife species?	351	5 (2.54) Slightly Important	1.097
q1b: Your land as a source of hunted wildlife species?	355	6 (2.72) Slightly Important	1.090
q1e: Your land as a source of outdoor recreation?	352	7 (2.73) Slightly Important	1.172

Landowners were asked to indicate the extent to which six possible sources of income contributed to their agricultural operations (Table 19).

TABLE 19. PLJV Region—Q13: "What are the high, medium, and low sources of income from your land operation?" (population)

	High	Medium	Low	Not Involved	Total
q13a: Source of income: Livestock (dairy, beef, hogs, horses, etc.)	31%	16%	12%	42%	210392
q13b: Source of income: Cultivated crops (wheat, soybeans, etc.)	50%	19%	9%	22%	209984
q13c: Source of income: Poultry	0%	0%	6%	94%	203323
q13d: Source of income: Fee recreation (hunting/fishing)	1%	6%	12%	82%	202447
q13e: Source of income: Farm Bill conservation programs	17%	21%	29%	33%	209479
q13f: Source of income: Farm Bill commodity assistance programs.	17%	25%	31%	27%	203623

As a group, landowners experienced the largest returns from a combination of row cropping and livestock production. Playing some role were subsidies from conservation and commodity programs.

Further refining of this landowner-income stereotype was achieved by calculating and ranking (and then "rounding") mean scores for each of Q13a through Q13f, using scores 1 to 4, with 1 = "High" and 4 = "Not Involved" (in effect, "none").

As a group (Table 20)—and relatively speaking—crops constituted the highest income source for farmers/ranchers in the PLJV region ("Medium income source"). Three sources—livestock, farm commodity assistance, and conservation assistance—were characterized as "low" income sources. (It might be proposed that respondents were slow to characterize any income source as "high," in the sense of "lots of money" or a *de facto* estimation or portrayal of their income or wealth.) Region-wide, poultry production played virtually no role as an income source for these landowners. Similarly unimportant was fee recreation, at least at the regional level.

TABLE 20. PLJV Region—Q13a-Q13f: "What are the high, medium, and low sources of income from your land operation?" (Ascending means ranked from High (1) to Not Involved (4)). (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q13b: Source of income: Cultivated crops (wheat, soybeans, etc.)	365	1 (2.04) Medium income source	1.221
q13a: Source of income: Livestock (dairy, beef, hogs, horses, etc.)	366	2 (2.64) Low income source	1.297
q13f: Source of income: Farm Bill commodity assistance programs.	354	3 (2.68) Low income source	1.043
q13e: Source of income: Farm Bill conservation programs	364	4 (2.78) Low income source	1.082
q13d: Source of income: Fee recreation (hunting/fishing)	352	5 (3.75) Not involved	.578
q13c: Source of income: Poultry	353	6 (3.94) Not involved	.247

These results emphasize the role that farm bill commodity and conservation programs play in supporting contemporary agriculture. However, not unlike any number of "entitlement" programs authorized by Congress, discussion of this role seems to inflame polar-passions. One extreme argues that contemporary farm subsidy programs cater to the rural gentry who are politically well-positioned, ignoring truly needy smaller family farms that are slowly disappearing off the landscape. The other extreme characterizes the subsidies as a critical underpinning of America's vast and relatively inexpensive food supply.

In recent years, the fish, forest, and wildlife benefits of the conservation provisions have acquired a supportive constituency, including conservation agencies and organizations. However, *if the conservation community wants these programs to continue, they must be present to argue their cases in the halls of Congress and in the offices of Washington staffers where policies are crafted and decisions made.*

Income sources were examined by BCR (Tables 21-26). Regional variability in income sources seemed apparent; row crops and livestock as sources of income traded preeminence, depending on BCR, but with cultivated crops appearing most important overall, as before. Farm product and conservation assistance programs appeared consistently important as low to medium income sources, again, depending on BCR. Fee recreation played some small role as an income source in all BCRs, but most importantly in BCR19OK and BCR19TX.

TABLE 21. BCR—Q13a: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13a: Source of income: Livestock (dairy, beef, hogs, horses, etc.)				
	High	Medium	Low	Not Involved	Total
BCR18CO	39%	9%	3%	48%	19029
BCR18KS	16%	5%	26%	53%	16091
BCR19KS	19%	16%	16%	50%	56634
BCR18NE	50%	5%	10%	35%	11783
BCR18NM	44%	15%	19%	22%	5157
BCR18OK	27%	13%	16%	44%	5273
BCR19OK	54%	24%	5%	16%	38227
BCR18TX	15%	19%	6%	60%	33199
BCR19TX	36%	17%	17%	31%	24999
Total	31%	16%	12%	42%	210392

TABLE 22. BCR—Q13b: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13b: Source of income: Cultivated crops (wheat, soybeans, etc.)				
	High	Medium	Low	Not Involved	Total
BCR18CO	41%	21%	6%	32%	19606
BCR18KS	76%	7%	2%	15%	17214
BCR19KS	55%	23%	13%	10%	54865
BCR18NE	62%	15%	3%	21%	11488
BCR18NM	26%	9%	15%	49%	5061
BCR18OK	40%	13%	16%	31%	5273
BCR19OK	46%	20%	6%	29%	36161
BCR18TX	52%	16%	10%	22%	35318
BCR19TX	33%	22%	11%	33%	24999
Total	50%	19%	9%	22%	209984

TABLE 23. BCR—Q13c: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13c: Source of income: Poultry				
	High	Medium	Low	Not Involved	Total
BCR18CO	0%	0%	6%	94%	19029
BCR18KS	0%	2%	2%	95%	16091
BCR19KS	0%	0%	9%	91%	56634
BCR18NE	0%	0%	6%	94%	10310
BCR18NM	0%	0%	12%	88%	4966
BCR18OK	0%	0%	2%	98%	5390
BCR19OK	0%	0%	6%	94%	34095
BCR18TX	0%	0%	2%	98%	33199
BCR19TX	0%	0%	3%	97%	23610
Total	0%	0%	6%	94%	203323

TABLE 24. BCR—Q13d: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13d: Source of income: Fee recreation (hunting/fishing)				
	High	Medium	Low	Not Involved	Total
BCR18CO	0%	3%	12%	85%	19029
BCR18KS	2%	2%	7%	88%	16091
BCR19KS	0%	3%	16%	81%	54865
BCR18NE	0%	3%	6%	92%	10605
BCR18NM	0%	4%	10%	86%	4870
BCR18OK	0%	0%	15%	85%	5390
BCR19OK	0%	12%	18%	70%	34095
BCR18TX	0%	2%	2%	96%	33199
BCR19TX	3%	14%	14%	69%	24304
Total	1%	6%	12%	82%	202447

TABLE 25. BCR—Q13e: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13e: Source of income: Farm Bill conservation programs				
	High	Medium	Low	Not Involved	Total
BCR18CO	29%	18%	21%	32%	19606
BCR18KS	17%	28%	24%	30%	17214
BCR19KS	10%	19%	39%	32%	54865
BCR18NE	13%	18%	39%	29%	11194
BCR18NM	26%	17%	8%	49%	5061
BCR18OK	26%	20%	28%	26%	5390
BCR19OK	18%	18%	38%	26%	35128
BCR18TX	22%	31%	14%	33%	36024
BCR19TX	11%	17%	25%	47%	24999
Total	17%	21%	29%	33%	209479

TABLE 26. BCR—Q13f: "What are the high, medium, and low sources of income from your land operation?" (population)

	q13f: Source of income: Farm Bill commodity assistance				
	High	Medium	Low	Not Involved	Total
BCR18CO	6%	26%	24%	44%	19606
BCR18KS	16%	37%	23%	23%	16091
BCR19KS	16%	23%	48%	13%	54865
BCR18NE	16%	24%	35%	24%	10899
BCR18NM	15%	15%	10%	60%	4966
BCR18OK	18%	20%	22%	40%	5273
BCR19OK	21%	21%	41%	18%	35128
BCR18TX	22%	35%	9%	35%	32492
BCR19TX	14%	20%	26%	40%	24304
Total	17%	25%	31%	27%	203623

Sources of income were examined by BCR18 versus BCR19, consolidating the nine BCR/state geographies to just two (Table 27). Livestock as a source of income appeared more important in BCR19 than in BCR18, with about equal importance assigned cultivated crops. Farm bill conservation programs appeared more important to landowners in BCR18 than those in BCR19.

TABLE 27. PLJV Region—Q13a-Q13f, Sources of Income, by BCR18 vs BCR19. (population)

	BCR18				BCR19			
	High	Medium	Low	Not Involved	High	Medium	Low	Not Involved
q13a: Source of income: Livestock (dairy, beef, hogs, horses, etc.)	27%	12%	11%	50%	34%	19%	13%	35%
q13b: Source of income: Cultivated crops (wheat, soybeans, etc.)	53%	15%	7%	25%	47%	22%	10%	21%
q13c: Source of income: Poultry	0%	0%	4%	96%	0%	0%	7%	93%
q13d: Source of income: Fee recreation (hunting/fishing)	0%	2%	7%	90%	1%	8%	16%	75%
q13e: Source of income: Farm Bill conservation programs	22%	25%	21%	33%	12%	18%	36%	34%
q13f: Source of income: Farm Bill commodity assistance programs.	16%	30%	19%	35%	17%	21%	41%	20%

The importance of types of income was examined based on landowner gender (Table 28). With the exception of “poultry”—(practically all men and women said “not involved” relative to poultry as an income source)—women were more likely to minimize the contribution of the other five possible income sources. Or another way, more women landowners were likely to indicate “not involved” for all of the other five income sources, suggesting some possible differences in life-stage needs, interests, and activities of male versus female land managers.

TABLE 28. PLJV Region—Q13a-Q13f, Sources of Income, by Landowner Gender. (population)

	Male				Female			
	High	Medium	Low	Not Involved	High	Medium	Low	Not Involved
q13a: Source of income: Livestock (dairy, beef, hogs, horses, etc.)	35%	18%	13%	35%	23%	11%	10%	57%
q13b: Source of income: Cultivated crops (wheat, soybeans, etc.)	54%	19%	10%	17%	39%	18%	7%	36%
q13c: Source of income: Poultry	0%	0%	6%	94%	0%	0%	6%	94%
q13d: Source of income: Fee recreation (hunting/fishing)	1%	7%	14%	78%	0%	2%	7%	91%
q13e: Source of income: Farm Bill conservation programs	16%	24%	30%	29%	18%	13%	25%	44%
q13f: Source of income: Farm Bill commodity assistance programs.	17%	27%	34%	22%	17%	20%	25%	38%

Playas on the High Plains

In all surveys—all good surveys—there are benchmark questions that tend to quickly cut to the heart of the study's purpose. Question 2 and 18 are two such items.

Q2 asked respondents if they had heard of the term "playa" or "playa lake" (Tables 29 and 30), and Q18 asked if they had playas on the land under their management authority (Table 31).

TABLE 29. PLJV Region—Q2: "Have you heard of the term 'playa' or 'playa lake'?" (population)

q2: Have you heard of the term 'playa' or 'playa lake'?	Yes	50%
		112585
	No	50%
		112316

Playa awareness across the PLJV region translates into about (~)113,000 individual farmers/ ranchers who have heard of the playa terms. Across BCRs, awareness (heard of "playa") ranged from a low of 24% in BCR18CO to a high of 90% in BCR18TX (Table 26).

TABLE 30. BCR—Q2: "Have you heard of the term 'playa' or 'playa lake'?" (population)

	q2: Have you heard of the term 'playa' or 'playa lake'?				
	Yes		No		Total
BCR18CO	24%	5190	76%	16146	21335
BCR18KS	53%	8981	47%	7859	16840
BCR19KS	35%	21238	65%	38936	60174
BCR18NE	31%	3829	69%	8543	12372
BCR18NM	81%	4202	19%	955	5157
BCR18OK	71%	3749	29%	1523	5273
BCR19OK	28%	11365	73%	29962	41327
BCR18TX	90%	33199	10%	3532	36730
BCR19TX	81%	20832	19%	4861	25693
Total	50%	112585	50%	112316	224901

Perhaps most curious was the relatively low proportion of landowners in BCR18CO who had even heard of the term playa (not dissimilar from the number of BCR18NE landowners who had heard of the term).

Why? Taking two geographies for comparison—and asking yet more questions—how is playa awareness now being communicated or promoted in BCR18CO, versus BCR18TX (where a stunning 90% of ranchers and farmers report playa awareness)? Are there literally differences in numbers of playas present in the two geographies, so that the water features are more obvious in Texas than Colorado? Are there differences in programmatic outreaches? Differences in how conservation agencies such as Natural Resources Conservation Service approach playa management?

Some answers were revealed by the key question inquiring if respondents *had* playas on the lands for which they held management responsibility (Table 31). Playa presence ranged from a low of about 8% in BCR18CO, BCR19KS, and BCR19OK, to a high of 48% in BCR18TX. Encouraging or discouraging—depending on one's point of view—were notable percentages within each BCR that said "don't know;" discouraging from the standpoint that they are uninformed enough about playas to be unsure, but encouraging from the view that they represent an educable group of landowners (and some of whom may actually have playas on their properties).

TABLE 31. BCR—Q18: "Do you have playas on the land under your management authority?" (population)

	q18: Do you have playas on the land under your management authority?						
	Yes		No		Don't know		Total
BCR18CO	8%	1730	49%	10379	43%	9226	21335
BCR18KS	21%	3742	53%	9356	26%	4491	17588
BCR19KS	9%	5309	42%	24778	48%	28317	58404
BCR18NE	20%	2357	46%	5597	34%	4124	12077
BCR18NM	35%	1719	55%	2674	10%	477	4870
BCR18OK	20%	1055	40%	2109	40%	2109	5273
BCR19OK	8%	3100	59%	23763	33%	13431	40294
BCR18TX	48%	16952	40%	14127	12%	4238	35318
BCR19TX	19%	4861	69%	17360	11%	2778	24999
Total	19%	40824	50%	110142	31%	69192	220158

An extremely insightful correlation—and ultimately useful for explanation and perhaps predictive purposes—and most assuredly a fairly strong indicator of the internal consistency of High Plains Landowner survey items—arises from the plot of point-estimate percents of landowners who said they had "heard" of the term playa (Q2, thus encountered by respondents early in the questionnaire) and those who said they actually *had* playas on their properties (Q18, encountered by respondents as they neared the end of the questionnaire) (Table 32).

TABLE 32. BCR—Q18: Plot of Percent Landowners Who Said "Yes" to "Do you have playas on the land under your management authority?", and "Have You Heard of the Term 'Playa' or 'Playa Lake'?" (population)

	q2: "Have you heard of the term "playa" or "playa lake?"	q18: "Do you have playas on the land under your management authority?"
	% "YES"	% "YES"
BCR18CO	24	8
BCR18KS	53	21
BCR19KS	35	9
BCR18NE	31	20
BCR18NM	81	35
BCR18OK	71	20
BCR19OK	28	8
BCR18TX	90	48
BCR19TX	81	19

The association (correlation) between percent (point estimate) of landowners who said they've *heard* of playas and the percent of those who said they *have* playas is a very strong 0.81 for Pearson's r, and a similarly strong 0.79 for Spearman's rho (the nonparametric analog for the parametric Pearson's procedure)—both test statistics significant at the 0.05 level or beyond (Tables 33 and 34).

TABLE 33. Correlation between Percent of Landowners Who Say They've "Heard" of "Playa" or "Playa Lake" and Percent of Landowners Who Say They "Have" Playa Lakes Under Their Management Authority (Pearson r).

Pearson Correlation

		Yes, Heard of Playa	Yes, I Have Playa/s
Yes, Heard of Playa	Pearson Correlation	1	.810**
	Sig. (2-tailed)		.008
	N	9	9
Yes, I Have Playa/s	Pearson Correlation	.810**	1
	Sig. (2-tailed)	.008	
	N	9	9

**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 34. Correlation between Percent of Landowners Who Say They've "Heard" of "Playa" or "Playa Lake" and Percent of Landowners Who Say They "Have" Playa Lakes Under Their Management Authority (Spearman's rho).

Spearman's rho Correlation (Nonparametric Procedure)

			Yes, Heard of Playa	Yes, I Have Playa/s
Spearman's rho uses the ranks of data to calculate the correlation coefficient.	Yes, Heard of Playa	Correlation Coefficient	1.000	.793*
		Sig. (2-tailed)	.	.011
		N	9	9
	Yes, I Have Playa/s	Correlation Coefficient	.793*	1.000
		Sig. (2-tailed)	.011	.
		N	9	9

*. Correlation is significant at the 0.05 level (2-tailed).

In summary, these foregoing correlations strongly suggest that there's virtually *no difference* across the nine PLJV BCRs in landowner's awareness of playas versus playa presence—that is, no gap in awareness of playas (versus presence) across the nine BCR geographies studied. Indeed, one might practically *predict the presence* of playas in a designated geography based on the proportion of landowners in that region who say they've *heard* of playas.

Continuing, it's perhaps timely to remind that, for purposes of analysis and illustration, population estimates presented here are being expanded from about 400 respondents; so caution is appropriate for interpreting estimates (percentages and point estimates) by BCR because of sampling tolerances. Need for caution perhaps is best demonstrated by presenting the sample distribution (Table 35) upon which Table 31 is based. Specifically, playa presence in Table 31 is based on a weighted group of 71 landowners that reported at least one playa on their lands.

Nonetheless, it is tempting, indeed expected, to use these survey data to attempt to actually estimate the number of playas in the PLJV region. One minimum estimate of number of playas in the region is, of course, the approximate 40,824 landowners who reported at least one playa on their properties—or ~41,000 playa lakes in the PLJV region (Table 31).

TABLE 35. BCR—Q18: "Do you have playas on the land under your management authority?" (sample)

	q18: Do you have playas on the land under your management authority?						
	Yes		No		Don't know		Total
BCR18CO	8%	3	49%	18	43%	16	37
BCR18KS	21%	10	53%	25	26%	12	47
BCR19KS	9%	3	42%	14	48%	16	33
BCR18NE	20%	8	46%	19	34%	14	41
BCR18NM	35%	18	55%	28	10%	5	51
BCR18OK	20%	9	40%	18	40%	18	45
BCR19OK	8%	3	59%	23	33%	13	39
BCR18TX	48%	24	40%	20	12%	6	50
BCR19TX	19%	7	69%	25	11%	4	36
Total (1)	19%	71	50%	191	31%	120	379

(1) Total is weighted to reestablish BCR proportionality; individual BCRs are unweighted, and include 85 landowners who reported having playas on their properties.

Another estimate would use answers to Q19, in which respondents who said they had playas were asked to indicate the number of playas on their properties (Table 36).

TABLE 36. BCR—Q19: "If you answered 'yes' to #18, how many playas are within the farm/ranch acres that are under your management authority?" (population)

	q19: If you answered 'yes' to #18, how many playas are within the farm/ranch acres that are under your management authority?								
	1-2		3-5		6 or more		Don't know		Total
BCR18CO	10%	577	0%	0	10%	577	80%	4613	5766
BCR18KS	19%	1123	25%	1497	6%	374	50%	2994	5988
BCR19KS	11%	1770	0%	0	11%	1770	78%	12389	15928
BCR18NE	20%	884	7%	295	7%	295	67%	2946	4419
BCR18NM	40%	764	20%	382	10%	191	30%	573	1910
BCR18OK	21%	352	43%	703	0%	0	36%	586	1640
BCR19OK	25%	2066	0%	0	13%	1033	63%	5166	8265
BCR18TX	50%	9889	29%	5651	11%	2119	11%	2119	19778
BCR19TX	50%	3472	0%	0	10%	694	40%	2778	6944
Total	30%	20896	12%	8527	10%	7053	48%	34163	70638

In this case, about 20,900 landowners said they have management authority over "1-2" playas; about 8,500 landowners said "3-5"; and about 7,150 said "6 or more." A conservative calculation of total number of playas using low ends of the response ranges thus would be:

[20,900*(1 playa)] + [8,500*(3 playas)] + [7,150*(6 playas)] = 89,300

A liberal calculation of total number of playas using high ends of the response ranges (except using "6" playas as the highest number possible) thus would be:

[20,900*(2 playas)] + [8,500*(5 playas)] + [7,150*(6 playas)] = 127,200

So, for purposes of discussion and debate—and stretching these survey data just far enough (or a bit beyond)—landowners' estimates of the total number of playas in the PLJV region range from around 41,000 to around 127,000.

Geographic information system (GIS) analysis would *much better* answer the question of playa numbers (and the PLJV website itself notes that "more than 60,000 playas are found in the western Great Plains" (www.pljv.org/whatare.html)). The wiser and experienced poll analyst would be thrilled that simple, common-sense projections from survey data even land one in the right ballpark, as this study apparently has.

But whether closer to 41,000 or 127,000, the salient point is NOT an absolute estimate of playas, but rather that landowners in the PLJV region think there are a lot of "playas" (or playa-like water bodies or wetlands) over which they have management authority.

Landowners were asked if it was their understanding that playas are a type of wetland (Table 37). About three-quarters (74%) of those who'd heard of playas agreed that playa lakes were a wetland type; the balance of answers were roughly split between "no" and "don't know."

TABLE 37. PLJV Region—Q2: Whether Landowners Heard of the Term "Playa" or "Playa Lake," by Q3, "To your understanding, are playas a type of wetland?" (population)

		q3: To your understanding, are playas a type of wetland?						
		Yes		No		Don't know		Total
q2: Have you heard of the term 'playa' or 'playa lake'?	Yes	74%	79445	14%	15318	12%	13306	108068
	No	11%	12549	10%	10759	79%	86398	109705
	Total	42%	91993	12%	26076	46%	99704	217773

Seventy-one percent of landowners who said they had playas on lands under their management responsibility agreed that playas were a type of wetland (Table 38); 20% answered "don't know," and 10%, "no."

TABLE 38. PLJV Region—Q18: Whether Landowners Said They Had Playas on the Lands Under Their Management Authority, by Q3, "To your understanding, are playas a type of wetland?" (population)

		q3: To your understanding, are playas a type of wetland?						
		Yes		No		Don't know		Total
q18: Do you have playas on the land under your management authority?	Yes	71%	27944	10%	3782	20%	7723	39449
	No	46%	47119	13%	12881	42%	43017	103017
	Don't know	19%	12745	11%	7674	70%	47153	67571
	Total	42%	87808	12%	24337	47%	97893	210038

Generally, landowners in BCRs in which playas were more common (proportionally) were better able to identify playas as a type of wetland (Table 39). A notable exception is BCR19TX, in which only 19% of landowners said they had playas on their lands, but fully 58% correctly identified playas as a type of wetland.

TABLE 39. BCR—Q3: "To your understanding, are playas a type of wetland?" (population)

	q3: To your understanding, are playas a type of wetland?						
	Yes		No		Don't know		Total
BCR18CO	28%	5766	3%	577	69%	14416	20759
BCR18KS	36%	5988	11%	1871	53%	8981	16840
BCR19KS	35%	21238	18%	10619	47%	28317	60174
BCR18NE	41%	5008	7%	884	51%	6186	12077
BCR18NM	52%	2578	17%	859	31%	1528	4966
BCR18OK	55%	2812	9%	469	36%	1875	5155
BCR19OK	24%	9299	8%	3100	68%	26863	39261
BCR18TX	71%	24722	10%	3532	18%	6357	34611
BCR19TX	58%	14583	17%	4166	25%	6250	24999

Respondents were given a list of 13 possible playa characteristics, and asked how often each characteristic applied to playas. Landowners who said they had playas on their lands, perhaps predictably, were much more knowledgeable about playa lakes than those who did not have playas on their lands (Table 40). In fact, a number of respondents were not shy in expressing their frustration in the final open-ended "comments/suggestions" section with their inability to participate knowledgeably in certain parts of the survey, especially sections that appeared to be quizzing them about playas. One of the survey objectives was, of course, to assess landowners' awareness and knowledge of playa lakes, but this proved to be a difficult task without appearing to put respondents to a test. In any case, these data provide excellent insights to what topics might be emphasized or clarified in PLJV outreach, and allow outreach and education to target the informational needs of those who have playas on their properties, and those that do not. For example, when asked about certain playa functions, about 50% of landowners did not know whether or not playas recharged groundwater. This indicates there is a need to continue to communicate about the link between playas and recharge of the Ogallala Aquifer.

Another effective and insightful question was Q5, asking respondents if *playas and wetlands* are "an overall positive or overall negative presence on the land?" Responses were analyzed first by BCR (Table 41). Landowners in BCRs where playas were more common were able to express an opinion toward playas and wetlands—generally positive. In BCRs where playa lakes were less common, respondents were more likely to answer "don't know" if positive or negative.

Looking at farmers/ranchers across the PLJV region, those who said they had playas on their lands thought playas and wetlands constituted an overall positive feature (68%) (Table 42), while 25% said playa lakes/wetlands were an overall negative feature. A majority of respondents who indicated they did *not* have playas on their properties also were prone to characterize playas and wetlands as a positive feature (53%), though a large group (39%) said "don't know." Extremely telling, however, is the total distribution; specifically, considering all landowners in the PLJV region (including those who didn't know if they had playas), 46% thought playas and wetlands constituted an overall positive presence, 44% said "don't know," the small balance said playas and wetlands represented on overall negative presence.

TABLE 40. PLJV Region—Q4a-Q4m: "To your understanding, how often does each of the following descriptions apply to playas?" (population)

		q18: Do you have playas on the land under your management authority?		
		Yes	No	Don't know
q4a: They dry up	Always	47%	17%	3%
	Sometimes	51%	47%	20%
	Never	1%	1%	3%
	Don't Know	0%	36%	74%
q4b: They fill with rainwater	Always	51%	20%	16%
	Sometimes	49%	51%	11%
	Never	0%	1%	0%
	Don't Know	0%	28%	73%
q4c: They are shallow (less than 5 ft deep)	Always	59%	31%	14%
	Sometimes	37%	32%	6%
	Never	0%	1%	1%
	Don't Know	4%	36%	78%
q4d: They have clay soil basins	Always	33%	15%	14%
	Sometimes	52%	25%	5%
	Never	1%	4%	0%
	Don't Know	15%	57%	80%
q4e: They produce wetland plants	Always	20%	15%	3%
	Sometimes	68%	42%	13%
	Never	7%	8%	3%
	Don't Know	5%	35%	81%
q4f: They are round	Always	20%	7%	1%
	Sometimes	72%	42%	16%
	Never	1%	8%	2%
	Don't Know	7%	43%	82%
q4g: They attract wildlife	Always	47%	39%	6%
	Sometimes	51%	34%	20%
	Never	2%	0%	0%
	Don't Know	0%	28%	74%
q4h: They fill with eroded soil	Always	28%	11%	2%
	Sometimes	69%	49%	20%
	Never	1%	4%	0%
	Don't Know	2%	36%	78%
q4i: They recharge groundwater	Always	41%	18%	3%
	Sometimes	49%	33%	14%
	Never	5%	4%	2%
	Don't Know	5%	45%	81%
q4j: They exist in their own watershed	Always	44%	26%	1%
	Sometimes	33%	25%	12%
	Never	3%	5%	1%
	Don't Know	20%	45%	86%
q4k: They are fed by groundwater	Always	14%	8%	4%
	Sometimes	29%	23%	11%
	Never	49%	20%	6%
	Don't Know	8%	49%	80%
q4l: They act to increase groundwater quality	Always	17%	15%	1%
	Sometimes	56%	23%	8%
	Never	6%	6%	5%
	Don't Know	22%	55%	85%
q4m: They act to decrease groundwater quality	Always	0%	1%	0%
	Sometimes	31%	18%	2%
	Never	45%	19%	7%
	Don't Know	23%	62%	90%

TABLE 41. BCR—Q5: "To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?" (population)

	q5: To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?			
	Overall positive	Overall negative	Don't know	Total
BCR18CO	29%	12%	59%	19606
BCR18KS	51%	8%	41%	14595
BCR19KS	34%	3%	63%	56634
BCR18NE	56%	10%	33%	11488
BCR18NM	70%	12%	18%	4775
BCR18OK	45%	12%	43%	4921
BCR19OK	39%	9%	52%	34095
BCR18TX	67%	15%	19%	33905
BCR19TX	59%	12%	29%	23610

TABLE 42. PLJV Region—Q5: "To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?" (population)

		q5: To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?			
		Overall positive	Overall negative	Don't know	Total
q18: Do you have playas on the land under your management authority?	Yes	68%	25%	7%	38226
	No	53%	7%	39%	96572
	Don't know	23%	2%	74%	63672
	Total	46%	9%	44%	198471

For landowners who said they had playas on their properties, a positive or negative view of playas appeared *unaffected* by the *number* of playas on their properties (Table 43). The distributions for "overall positive" and "overall negative" were very similar, when examined based on number of playas present.

TABLE 43. PLJV Region—Q5: Landowners' Positive/Negative Views of Playas, by Q19, "…how many playas are within the farm/ranch acres that are under your management authority." (population)

		q19: If you answered 'yes' to #18 [have playas], how many playas are within the farm/ranch acres that are under your management authority?				
		1-2	3-5	6 or more	Don't know	Total
q5: To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?	Overall positive	56%	21%	10%	12%	24180
	Overall negative	60%	18%	19%	3%	9588
	Don't know	29%	0%	71%	0%	2476
	Total	55%	19%	17%	9%	36244

Q6 in the survey allowed exploration of those factors that landowners considered positive about the presence of playas and wetlands—both for landowners who thought playas and wetlands were an overall *positive* presence, and for those who considered them an overall *negative* presence (in other words, for those who saw playas and wetlands in a negative light, was there *anything* good about their presence?) (Table 44).

Beyond mere frequencies, however, powerfully revealing was calculation and ranking (then rounding) of means for these possible benefits (items Q6a-Q6i), using scores 1 to 4, with 1 = "Highly Positive" and 4 = "Not Positive" (and eliminating "Don't Know" for purposes of this analysis). Understandably, landowners who thought playas and wetlands were a positive presence saw multiple benefits to them (Table 45). Striking, however, was the finding that these commodity farmers and ranchers thought the highest *positive* benefit of playas and wetlands was that they "attract wildlife." Second-most positive was the benefit that playas/wetlands "recharge groundwater," and third-most positive was "source of water for livestock." Least beneficial use of playas/wetlands in the minds of these landowners was "source of water for irrigation."

For landowners who actually had playas on their properties—and thought playas were an overall *positive* presence—the order of benefits was similar, with "attracts wildlife" ranking first, "recharges groundwater second, but with "improves groundwater quality" third, and "source of water for livestock" fourth (Table 46). The mean values for these benefits were, in an absolute sense, higher for this landowner group than for landowners at large (those thinking playas/wetlands were positive), showing that landowners who actually had playas and saw playas/wetlands in a positive light placed special value on the resource.

Considering landowners who thought playas/wetlands constituted an overall *negative* presence, this group, too, admitted some benefit to playas/wetlands, but clearly less than the "positive" group (again, Table 44). Calculating mean scores in similar fashion as above, landowners' highest ranking benefit ("moderately positive") was "attract wildlife." The only other benefit that barely qualified as "moderately positive" was "recharges groundwater." All other potential benefits were characterized as "slightly positive" (Table 47)

For landowners who actually had playas on their properties—and thought playas were an overall *negative* presence—the only benefit classified as "moderately positive" was "attract wildlife" (Table 48). Interestingly, a benefit that ranked higher for this group of landowners than for the "negative" group at large was "generates income from conservation programs," ranking third behind "recharges groundwater." Too, absolute mean scores for this group were more strongly in the negative direction than for the "negative presence" group at large; in other words, if landowners had playas on their properties, and viewed them as an overall negative presence, they *really* viewed them in the more negative light.

Q7 allowed expression of possible negative effects of the presence of playas/wetlands. For those landowners that indicated that they thought playas/wetlands were an overall positive presence, the possible negative effects of playas/wetlands were indeed minimal (Table 49). Narrowing focus on these possible negative effects by calculating, ranking, then rounding means revealed that the one factor they counted as least of their concerns (in fact, "not negative") was "attracts wildlife" (Table 50).

TABLE 44. PLJV Region—Q6: "In your opinion and experience, how positive a presence on the land are playas and wetland regarding each of the following?" BY Q5 "To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?" (population)

		q5: To your way of thinking, are playas and wetlands an overall positive or overall negative		
		Overall positive	Overall negative	Don't know
q6a: Source of water for livestock	Highly Positive	30%	18%	7%
	Moderately Positive	36%	23%	12%
	Slightly Positive	26%	10%	10%
	Not Positive	5%	38%	6%
	Don't Know	3%	12%	65%
q6b: Attracts wildlife	Highly Positive	54%	32%	14%
	Moderately Positive	38%	22%	13%
	Slightly Positive	7%	29%	11%
	Not Positive	0%	11%	2%
	Don't Know	1%	6%	61%
q6c: Improves groundwater quality	Highly Positive	23%	11%	9%
	Moderately Positive	32%	13%	6%
	Slightly Positive	22%	17%	5%
	Not Positive	7%	26%	4%
	Don't Know	16%	33%	76%
q6d: Source of water for irrigation	Highly Positive	9%	18%	6%
	Moderately Positive	25%	14%	4%
	Slightly Positive	26%	6%	4%
	Not Positive	26%	43%	12%
	Don't Know	14%	19%	75%
q6e: Recharges groundwater	Highly Positive	28%	24%	11%
	Moderately Positive	29%	9%	4%
	Slightly Positive	19%	19%	5%
	Not Positive	6%	21%	6%
	Don't Know	19%	27%	74%
q6f: Generates income from conservation programs	Highly Positive	14%	4%	8%
	Moderately Positive	18%	18%	2%
	Slightly Positive	27%	30%	5%
	Not Positive	10%	19%	6%
	Don't Know	30%	28%	79%
q6g: Attracts paying hunters/wildlife viewers	Highly Positive	21%	4%	4%
	Moderately Positive	21%	19%	11%
	Slightly Positive	27%	34%	9%
	Not Positive	18%	18%	11%
	Don't Know	12%	25%	65%
q6h: Use and enjoyment by family/friends	Highly Positive	31%	9%	10%
	Moderately Positive	27%	14%	9%
	Slightly Positive	25%	25%	10%
	Not Positive	8%	34%	4%
	Don't Know	9%	18%	67%
q6i: Increases forage for livestock	Highly Positive	16%	8%	7%
	Moderately Positive	31%	6%	7%
	Slightly Positive	32%	28%	7%
	Not Positive	9%	45%	6%
	Don't Know	13%	13%	73%

TABLE 45. PLJV Region—Q6a-Q6i: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL POSITIVE PRESENCE… "In your opinion and experience, how positive a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Positive (1) to Not Positive (4)) (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q6b: Attracts wildlife	162	1 (1.53) Moderately Positive	.627
q6e: Recharges groundwater	129	2 (2.03) Moderately Positive	.928
q6a: Source of water for livestock	156	3 (2.06) Moderately Positive	.886
q6h: Use and enjoyment by family/friends	147	4 (2.12) Moderately Positive	.986
q6c: Improves groundwater quality	135	5 (2.14) Moderately Positive	.917
q6i: Increases forage for livestock	141	6 (2.38) Moderately Positive	.898
q6g: Attracts paying hunters/wildlife viewers	141	7 (2.48) Moderately Positive	1.076
q6f: Generates income from conservation programs	113	7 (2.48) Moderately Positive	.976
q6d: Source of water for irrigation	134	9 (2.81) Slightly Positive	.987

TABLE 46. PLJV Region—Q6a-Q6i: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL POSITIVE PRESENCE (and who HAD playas on their properties)… "In your opinion and experience, how positive a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Positive (1) to Not Positive (4)) (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q6b: Attracts wildlife	26045	1 (1.50) Highly/Moderately Positive	.623
q6e: Recharges groundwater	25090	2 (1.93) Moderately Positive	.854
q6c: Improves groundwater quality	22910	3 (2.04) Moderately Positive	.971
q6a: Source of water for livestock	25339	4 (2.14) Moderately Positive	.924
q6h: Use and enjoyment by family/friends	25576	5 (2.16) Moderately Positive	1.068
q6i: Increases forage for livestock	25297	6 (2.19) Moderately Positive	.935
q6f: Generates income from conservation programs	17922	7 (2.55) Slightly Positive	1.006
q6d: Source of water for irrigation	23117	8 (2.59) Slightly Positive	.940
q6g: Attracts paying hunters/wildlife viewers	23162	9 (2.64) Slightly Positive	1.043

TABLE 47. PLJV Region—Q6a-Q6i: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL NEGATIVE PRESENCE… "In your opinion and experience, how positive a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Positive (1) to Not Positive (4)) (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q6b: Attracts wildlife	30	1 (2.21) Moderately Positive	1.050
q6e: Recharges groundwater	23	2 (2.50) Moderately/Slightly Positive	1.248
q6a: Source of water for livestock	27	3 (2.77) Slightly Positive	1.219
q6c: Improves groundwater quality	20	4 (2.86) Slightly Positive	1.136
q6g: Attracts paying hunters/wildlife viewers	22	5 (2.87) Slightly Positive	.853
q6f: Generates income from conservation programs	20	6 (2.88) Slightly Positive	.889
q6d: Source of water for irrigation	25	7 (2.93) Slightly Positive	1.280
q6h: Use and enjoyment by family/friends	25	8 (3.03) Slightly Positive	1.033
q6i: Increases forage for livestock	27	9 (3.27) Slightly Positive	.952

TABLE 48. PLJV Region—Q6a-Q6i: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL NEGATIVE PRESENCE (and who HAD playas on their properties)… "In your opinion and experience, how positive a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Positive (1) to Not Positive (4)) (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q6b: Attracts wildlife	9214	1 (2.37) Moderately Positive	1.103
q6e: Recharges groundwater	7604	2 (2.64) Slightly Positive	1.247
q6f: Generates income from conservation programs	5966	3 (2.75) Slightly Positive	.893
q6g: Attracts paying hunters/wildlife viewers	7801	4 (2.80) Slightly Positive	.814
q6a: Source of water for livestock	8507	5 (2.92) Slightly Positive	1.282
q6d: Source of water for irrigation	7813	6 (2.95) Slightly Positive	1.359
q6c: Improves groundwater quality	7027	7 (3.08) Slightly Positive	.991
q6h: Use and enjoyment by family/friends	7801	8 (3.13) Slightly Positive	1.041
q6i: Increases forage for livestock	8213	9 (3.31) Slightly Positive	.962

TABLE 49. PLJV Region—Q7: "In your opinion, how negative a presence on the land are playas and wetland regarding each of the following?" BY Q5 "To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?" (population)

		q5: To your way of thinking, are playas and wetlands an overall positive or overall negative presence on the land?		
		Overall positive	Overall negative	Don't know
q7a: General interference with farm/ranch management	Highly Negative	5%	38%	12%
	Moderately negative	20%	42%	13%
	Slightly Negative	46%	13%	9%
	Not Negative	23%	0%	1%
	Don't Know	6%	8%	65%
q7b: Possible state or federal regulation	Highly Negative	24%	45%	15%
	Moderately negative	27%	23%	9%
	Slightly Negative	17%	9%	4%
	Not Negative	10%	0%	2%
	Don't Know	23%	22%	71%
q7c: Attracts wildlife	Highly Negative	5%	11%	6%
	Moderately negative	9%	16%	4%
	Slightly Negative	9%	29%	11%
	Not Negative	72%	27%	14%
	Don't Know	5%	17%	65%
q7d: Promotes weed growth	Highly Negative	12%	37%	19%
	Moderately negative	25%	30%	4%
	Slightly Negative	32%	8%	8%
	Not Negative	22%	16%	1%
	Don't Know	9%	10%	67%
q7e: Damage to/loss of farm equipment	Highly Negative	7%	24%	10%
	Moderately negative	7%	22%	1%
	Slightly Negative	28%	18%	10%
	Not Negative	43%	17%	6%
	Don't Know	16%	18%	73%
q7f: Crop-/ranch-land flooding	Highly Negative	7%	41%	9%
	Moderately negative	15%	23%	4%
	Slightly Negative	29%	14%	15%
	Not Negative	34%	8%	4%
	Don't Know	15%	14%	68%
q7g: Reduces land available for production	Highly Negative	10%	75%	13%
	Moderately negative	21%	2%	8%
	Slightly Negative	36%	15%	11%
	Not Negative	24%	0%	2%
	Don't Know	8%	8%	66%
q7h: Unpredictable production in and around playa/wetland	Highly Negative	11%	62%	10%
	Moderately negative	23%	17%	13%
	Slightly Negative	37%	7%	6%
	Not Negative	19%	6%	2%
	Don't Know	10%	8%	69%

TABLE 50. PLJV Region—Q7a-Q7h: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL POSITIVE PRESENCE… "In your opinion and experience, how negative a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Negative (1) to Not Negative (4)) (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q7b: Possible state or federal regulation	122	1 (2.16) Moderately Negative	1.002
q7d: Promotes weed growth	140	2 (2.71) Slightly Negative	.988
q7h: Unpredictable production in and around playa/wetland	143	3 (2.71) Slightly Negative	.940
q7g: Reduces land available for production	146	4 (2.82) Slightly Negative	.955
q7a: General interference with farm/ranch management	150	5 (2.92) Slightly Negative	.823
q7f: Crop-/ranch-land flooding	133	6 (3.05) Slightly Negative	.961
q7e: Damage to/loss of farm equipment	134	7 (3.27) Slightly Negative	.923
q7c: Attracts wildlife	149	8 (3.56) Not Negative	.866

Only one factor qualified as even "moderately negative"—"possible state or federal regulation"—highlighting that even this forward- or positively-leaning landowner group was wary of government oversight of their farm operations that might accompany the presence of playas/wetlands.

And indeed, here was that actual "big brother" scenario that can sour ranchers/farmers, described by one landowner in the open-ended comment section at the end of the questionnaire:

> "I got a negative attitude about wetlands 15 years ago when the [federal agency] used aerial photos to designate dark spots (like water tanks) as "wet lands" on my _____ County Farms. After appealing to the regional level and on-site inspections by 2 state conservationists, I was able to reduce the "wet lands" to one "converted wetland"--a buffalo wallow with sand in the pivot tracks."

Often, there is indeed more than one side to any story, but the anecdote makes the point.

Landowners with playas on their properties—and who feel these playas/wetlands represent an overall positive presence—were even less prone to find fault with playas than the "positive" group at large; yet they too characterized "possible state or federal regulation" as the highest-ranking negative factor associated with wetlands, calling it "moderately negative" (Table 51).

TABLE 51. PLJV Region—Q7a-Q7h: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL POSITIVE PRESENCE (and who HAD playas on their properties)… "In your opinion and experience, how negative a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Negative (1) to Not Negative (4)) (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q7b: Possible state or federal regulation	23005	1 (2.08) Moderately Negative	1.039
q7h: Unpredictable production in and around playa/wetland	26045	2 (2.52) Slightly Negative	1.056
q7g: Reduces land available for production	26045	3 (2.56) Slightly Negative	1.116
q7d: Promotes weed growth	24575	4 (2.72) Slightly Negative	.973
q7a: General interference with farm/ranch management	26045	5 (2.83) Slightly Negative	.869
q7f: Crop-/ranch-land flooding	23914	6 (2.93) Slightly Negative	1.043
q7e: Damage to/loss of farm equipment	23877	7 (3.23) Slightly Negative	1.057
q7c: Attracts wildlife	24542	8 (3.49) Slightly Negative	.995

Landowners who saw playas/wetlands as an overall negative presence predictably offered unvarnished appraisals of playa/wetland shortcomings. The one factor qualifying as "highly negative" was "reduces land available for production" (Table 52). A variety of factors were characterized as "moderately negative," including "possible state or federal regulation" and "unpredictable production in and around playa/wetland." "Attracts wildlife" was the least negative factor, classified as only "slightly negative." In effect, the presence of wildlife really isn't the issue, but rather the perceived impact of playas/wetlands on lost productivity.

TABLE 52. PLJV Region—Q7a-Q7h: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL NEGATIVE PRESENCE… "In your opinion and experience, how negative a presence on the land are playas and wetlands regarding each of the following?" (sample)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q7g: Reduces land available for production	28	1 (1.35) Highly Negative	.760
q7b: Possible state or federal regulation	22	2 (1.54) Moderately Negative	.710
q7h: Unpredictable production in and around playa/wetland	28	3 (1.54) Moderately Negative	.913
q7a: General interference with farm/ranch management	28	4 (1.73) Moderately Negative	.698
q7f: Crop-/ranch-land flooding	25	5 (1.87) Moderately Negative	1.013
q7d: Promotes weed growth	27	6 (2.03) Moderately Negative	1.113
q7e: Damage to/loss of farm equipment	24	7 (2.34) Moderately Negative	1.140
q7c: Attracts wildlife	24	8 (2.85) Slightly Negative	1.042

Similarly, for landowners who thought playas/wetlands represented an overall negative presence—and the group that actually had playas on their properties—the perceived negative consequences were virtually the same (Table 53). However, joining "reduces land available for production" as highly negative was the second-ranking factor—and one that was "highly negative," "crop-/ranch-land flooding." Again, "attracts wildlife" was the least negative factor, and was characterized as only "slightly negative."

TABLE 53. PLJV Region—Q7a-Q7h: FOR LANDOWNERS WHO THINK PLAYAS/WETLANDS ARE OVERALL NEGATIVE PRESENCE (and who HAD playas on their properties)… "In your opinion and experience, how negative a presence on the land are playas and wetlands regarding each of the following?" (Ascending means ranked from Highly Negative (1) to Not Negative (4)) (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q7g: Reduces land available for production	8555	1 (1.30) Highly Negative	.697
q7f: Crop-/ranch-land flooding	7474	2 (1.41) Highly Negative	.592
q7h: Unpredictable production in and around playa/wetland	8555	3 (1.57) Moderately Negative	.860
q7b: Possible state or federal regulation	6768	4 (1.59) Moderately Negative	.691
q7a: General interference with farm/ranch management	9588	5 (1.67) Moderately Negative	.826
q7d: Promotes weed growth	8180	6 (1.80) Moderately Negative	1.136
q7e: Damage to/loss of farm equipment	7474	7 (1.98) Moderately Negative	1.044
q7c: Attracts wildlife	7474	8 (2.87) Slightly Negative	.998

Respondents were presented a list of possible incentives that might encourage them to improve their management of playas and wetlands (Table 54). Most obvious upon first examination of the frequency table is the relatively large number of landowners responding "don't know" to these items.

For those able to offer an opinion, a number of different incentives would be well received. Most popular among landowners—those who have playas, those that do not, and those that don't know—would be if "playa/wetland management helped my bottom line" (Table 55). In fact, most popular for all types of landowners would be some form of financial remuneration, augmented by knowledge that their actions were helping the land/water resources. Least motivating for landowners would be knowledge that their neighbors are already involved in playa/wetland management, and educational publications specific to playa/wetland management. Conventional wisdom continues to hold that attitudes and behavior of rural "neighbors" can sway ranchers' and farmers' thinking. Perhaps so, but this conventional thought may hearken to a now-passing (or passed) time when neighbors stayed in close touch, depended on each other to share equipment, and helped one another with farm tasks. Just as plausible is the notion that today's modern farmer might be every bit as isolated from (and unaffected by) his/her neighbor as a resident of a contemporary suburbia.

TABLE 54. PLJV Region—Q8: "How much incentive do you think each of the following would give you to improve your management of playas and wetlands?" (population)

		q18: Do you have playas on the land under your management authority?		
		Yes	No	Don't know
q8a: Publications specific to playas/wetlands	High Incentive	12%	6%	8%
	Moderate Incentive	24%	13%	11%
	Slight Incentive	32%	27%	16%
	No Incentive	26%	19%	10%
	Don't Know	5%	35%	55%
q8b: Cost-share payments	High Incentive	49%	18%	14%
	Moderate Incentive	29%	23%	19%
	Slight Incentive	14%	20%	10%
	No Incentive	6%	9%	6%
	Don't Know	2%	30%	51%
q8c: Loan of equipment	High Incentive	30%	14%	13%
	Moderate Incentive	17%	17%	14%
	Slight Incentive	26%	22%	11%
	No Incentive	19%	16%	10%
	Don't Know	9%	31%	51%
q8d: Free advice/visit by resource manager	High Incentive	26%	15%	8%
	Moderate Incentive	22%	19%	17%
	Slight Incentive	25%	21%	10%
	No Incentive	24%	17%	12%
	Don't Know	2%	28%	53%
q8e: Annual rental payment on land	High Incentive	52%	22%	26%
	Moderate Incentive	18%	27%	20%
	Slight Incentive	13%	15%	9%
	No Incentive	15%	8%	0%
	Don't Know	3%	29%	45%
q8f: If my neighbors were already managing their playas/wetlands	High Incentive	7%	9%	5%
	Moderate Incentive	29%	16%	17%
	Slight Incentive	31%	26%	5%
	No Incentive	25%	17%	16%
	Don't Know	8%	32%	58%
q8g: If playa/wetland management helped my bottom line	High Incentive	64%	28%	25%
	Moderate Incentive	14%	22%	17%
	Slight Incentive	13%	13%	6%
	No Incentive	7%	9%	3%
	Don't Know	1%	28%	49%
q8h: If playa/wetland management helped land/water resources	High Incentive	52%	22%	13%
	Moderate Incentive	31%	32%	17%
	Slight Incentive	9%	15%	18%
	No Incentive	7%	4%	3%
	Don't Know	1%	27%	50%
q8i: If playa/wetland management helped wildlife resources	High Incentive	34%	22%	17%
	Moderate Incentive	29%	30%	16%
	Slight Incentive	27%	17%	12%
	No Incentive	9%	8%	7%
	Don't Know	1%	23%	48%

TABLE 55. PLJV Region—Q8: "How much incentive do you think each of the following would give you to improve your management of playas and wetlands?" (Ascending means ranked from High Incentive (1) to No Incentive (4)) (population)

	"Have Playas" (N~33326) Rank (Mean) & Word Anchor	"No Playas" (N~52195) Rank (Mean) & Word Anchor	"Don't Know if I Have Playas" (N~23410) Rank (Mean) & Word Anchor
q8g: If playa/wetland management helped my bottom line	1 (1.63) Moderate Incentive	2 (2.04) Moderate Incentive	2 (1.74) Moderate Incentive
q8h: If playa/wetland management helped land/water resources	2 (1.69) Moderate Incentive	1 (2.01) Moderate Incentive	5 (2.22) Moderate Incentive
q8b: Cost-share payments	3 (1.76) Moderate Incentive	5 (2.30) Moderate Incentive	3 (2.15) Moderate Incentive
q8e: Annual rental payment on land	4 (1.91) Moderate Incentive	3 (2.11) Moderate Incentive	1 (1.69) Moderate Incentive
q8i: If playa/wetland management helped wildlife resources	5 (2.10) Moderate Incentive	4 (2.13) Moderate Incentive	4 (2.18) Moderate Incentive
q8c: Loan of equipment	6 (2.37) Moderate Incentive	7 (2.59) Slight Incentive	6 (2.39) Moderate Incentive
q8d: Free advice/visit by resource manager	7 (2.49) Moderate Incentive	6 (2.57) Slight Incentive	7 (2.57) Slight Incentive
q8a: Publications specific to playas/wetlands	8 (2.76) Slight Incentive	9 (2.92) Slight Incentive	8 (2.63) Slight Incentive
q8f: If my neighbors were already managing their playas/wetlands	9 (2.80) Slight Incentive	8 (2.73) Slight Incentive	9 (2.75) Slight Incentive

Q9 allowed landowners to indicate conservation practices in which they were currently involved, and if given an incentive, how willing they would be to consider implementing each of the practices (Table 56). Landowners were divided into those that have playas on their properties, those that do not, and those that don't know. Several practices already were being implemented by many landowners, including removal of invasive plant species, and grazing management plans. Landowners' willingness to implement practices related to playa/wetland management was, first and foremost, hinged upon the presence of those resources on their properties; but in any case, there appeared substantial opportunity (with proper incentives) to encourage selected practices, such as planting native grass buffers around playas/wetlands, and filling in pits in playas/wetlands.

For example, Q9aW asked "with incentive, how willing are you to consider implementing native grass buffers around playas/wetlands?" An overwhelming majority (74%) of landowners with playas under their management authority said that they would be "willing" (28% "highly willing" and 46% "moderately willing") to do so, indicating tremendous landowner demand for playa buffer conservation programs.

TABLE 56. PLJV Region—Q9: "Are you currently implementing the following conservation practices, and if given an incentive, how willing are you to consider implementing each of the following conservation practices?" (population)

		q18: Do you have playas on the land under your management authority?		
		Yes	No	Don't know
q9aI: Currently planting native grass buffers around playas/wetlands?	Already Implementing	24%	7%	22%
	Not Currently Implementing	76%	93%	78%
q9aW: With incentive, how willing are you to consider native grass buffers around playas/wetlands?	Highly Willing	28%	14%	13%
	Moderately Willing	46%	30%	18%
	Not Willing	14%	15%	0%
	Don't Know	12%	41%	70%
q9bI: Currently filling pits in playas/wetlands?	Already Implementing	5%	0%	0%
	Not Currently Implementing	95%	100%	100%
q9bW: With incentive, how willing to fill pits in playas/wetlands?	Highly Willing	16%	5%	5%
	Moderately Willing	40%	24%	12%
	Not Willing	23%	25%	10%
	Don't Know	21%	46%	73%
q9cI: Currently removing invasive plants?	Already Implementing	44%	22%	44%
	Not Currently Implementing	56%	78%	56%
q9cW: With incentive, how willing to remove invasive plants?	Highly Willing	41%	25%	23%
	Moderately Willing	29%	26%	17%
	Not Willing	19%	11%	0%
	Don't Know	11%	38%	60%
q9dI: Currently implementing grazing management plan?	Already Implementing	28%	20%	39%
	Not Currently Implementing	72%	80%	61%
q9dW: With incentive, how willing to implement a grazing mangement plan?	Highly Willing	42%	16%	14%
	Moderately Willing	28%	25%	28%
	Not Willing	15%	12%	2%
	Don't Know	14%	46%	55%
q9eI: Currently fencing playas/wetlands/river corridors?	Already Implementing	7%	0%	9%
	Not Currently Implementing	93%	100%	91%
q9eW: With incentive, how willing to fence playas/wetlands/river corridors?	Highly Willing	21%	3%	6%
	Moderately Willing	23%	24%	16%
	Not Willing	43%	26%	13%
	Don't Know	14%	47%	65%
q9fI: Currently removing sediment from playas/wetlands?	Already Implementing	4%	1%	0%
	Not Currently Implementing	96%	99%	100%
q9fW: With incetive, how willing to consider removing sediment from playas/wetlands?	Highly Willing	12%	4%	9%
	Moderately Willing	30%	23%	10%
	Not Willing	41%	22%	7%
	Don't Know	16%	50%	73%
q9gI: Currently entering into a conservation easement?	Already Implementing	6%	3%	13%
	Not Currently Implementing	94%	97%	87%
q9gW: With incentive, how willing to enter into a conservation easement?	Highly Willing	19%	9%	3%
	Moderately Willing	28%	26%	18%
	Not Willing	26%	18%	15%
	Don't Know	28%	46%	63%

Q20 asked landowners to indicate if they participated in any conservation programs sponsored by a federal, state, or non-governmental organization (Table 57). Seventy-one percent of landowners who had playas on their properties indicated that they participated in some program, compared to about half of landowners who either did not have playas or didn't know. Of course, one would have expected relatively high participation in some program, because this participation placed these landowners in the sampling frame in the first place. Unexpected, perhaps, is the finding that landowners with playas on their properties appear to participate in such programs at a higher rate than those without playas. Are these individuals what have been called "lead users" or "early adopters"—those who buy technology first, and then figure out how to improve on it even more? This being the case, it might be in the interest of FSA and NRCS to target playa landowners for all programs.

TABLE 57. PLJV Region—Q20: "Do you participate in any conservation programs sponsored by a federal, state or non-governmental organization?"

		q20: Do you participate in any conservation programs sponsored by a federal, state or non-governmental organization?			
		Yes	No	Don't know	Total
q18: Do you have playas on the land under your management authority?	Yes	71%	27%	2%	40824
	No	52%	43%	4%	108945
	Don't know	51%	30%	19%	69192

Q21 asked landowners to indicate the *specific* conservation programs in which they were participating (Table 58). Roughly half were involved in the Conservation Reserve Program (CRP), which is to be expected as the CRP is an FSA program. Participation was relatively low in other programs, with most involvement indicated in the Environmental Quality Incentives Program and Wildlife Habitat Incentives Program.

TABLE 58. PLJV Region—Q21: "Please list which programs you are participating in:" (sample)

	q18: Do you have playas on the land under your management authority?							
	Yes (n~71)		No (n~192)		Don't know (n~122)		Total (n~385)	
	Participate	Do not participate	Participate	Do not participate	Participate	Do not participate	Participate	Do not participate
q21a: Conservation Reserve Program	48%	52%	46%	54%	40%	60%	44%	56%
q21b: Wetlands Reserve Program	1%	99%	1%	99%	0%	100%	1%	99%
q21c: Grasslands Reserve Program	1%	99%	4%	96%	3%	97%	3%	97%
q21d: Environmental Quality Incentives Program	7%	93%	11%	89%	4%	96%	8%	92%
q21e: Wildlife Habitat Incentives Program	9%	91%	10%	90%	2%	98%	7%	93%
q21f: Farm and Ranch Lands Protection Program	2%	98%	3%	97%	3%	97%	3%	97%
q21g: Conservation Security Program	6%	94%	3%	97%	3%	97%	3%	97%
q21h: Bobwhite Quail Initiative (CP33)	0%	100%	4%	96%	3%	97%	3%	97%
q21i: Wetlands Restoration Non-Floodplain Initiative (CP23a)	0%	100%	1%	99%	0%	100%	0%	100%
q21j: Farmable Wetlands Program (CP27)	3%	97%	1%	99%	1%	99%	1%	99%
q21k: U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program	2%	98%	3%	97%	0%	100%	2%	98%
q21l: State Landowner Incentive Program	6%	94%	3%	97%	1%	99%	3%	97%
q21m: Ducks Unlimited Marsh Program	0%	100%	3%	97%	0%	100%	1%	99%
q21n: Others	12%	88%	7%	93%	8%	92%	8%	92%

Participants were asked who they'd most prefer to hear from regarding natural resource conservation programs (Table 59).

TABLE 59. PLJV Region—Q12: "Who would you most prefer to hear from regarding natural resource conservation programs?" (population)

	Highly preferred	Moderately preferred	Slightly preferred	Not preferred	Don't know	Total
q12a: Natural Resources Conservation Service?	36%	20%	15%	12%	17%	201277
q12b: Farm Service Agency?	34%	27%	14%	13%	13%	201880
q12c: US Fish and Wildlife Service?	16%	24%	18%	23%	18%	198115
q12d: State wildlife agency?	17%	22%	20%	22%	18%	198714
q12e: Non-government group?	12%	13%	23%	32%	20%	195276
q12f: Farm Bureau?	16%	17%	23%	27%	16%	192836
q12g: County Ag Extension?	31%	26%	17%	13%	13%	204238
q12h: Community/local meetings?	17%	19%	25%	19%	20%	195713
q12i: Neighbors?	15%	19%	21%	25%	20%	194772

Review of frequencies gives first indication that landowners most preferred to hear from agricultural organizations. Interestingly, however, by calculating, ranking, and rounding mean scores, results revealed that landowners most prefer hearing from agricultural organizations at the federal or county level (Table 60). Landowners have only a slight preference for hearing from state fish and wildlife agencies, the U.S. Fish and Wildlife Service, and even neighbors. Somewhat surprising, however, is that ranking near the bottom of the list of preferred information sources was "Farm Bureau," only slightly more favored than "non-government group."

TABLE 60. PLJV Region—Q12: "Who would you most prefer to hear from regarding natural resource conservation programs?" (Ascending means ranked from Highly Preferred (1) to Not Preferred (4)). (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q12a: Natural Resources Conservation Service?	167915	1 (2.03) Moderately Preferred	1.088
q12b: Farm Service Agency?	176546	2 (2.07) Moderately Preferred	1.057
q12g: County Ag Extension?	177055	3 (2.13) Moderately Preferred	1.055
q12h: Community/local meetings?	156499	4 (2.56) Slightly Preferred	1.068
q12d: State wildlife agency?	163381	5 (2.58) Slightly Preferred	1.101
q12c: US Fish and Wildlife Service?	162135	5 (2.58) Slightly Preferred	1.095
q12i: Neighbors?	156713	7 (2.70) Slightly Preferred	1.100
q12f: Farm Bureau?	161863	8 (2.74) Slightly Preferred	1.106
q12e: Non-government group?	156723	9 (2.94) Slightly Preferred	1.070

Landowners' perceptions of the degree to which selected natural resources are threatened were measured in Q10 (Table 61). Agreement existed that the Ogallala Aquifer was the most threatened resource on the list of 13 presented, with agreement extending among landowners with playas, those without, and those who didn't know if they had playas—all groups agreed that the Ogallala Aquifer is "moderately threatened." The second-most threatened resource varied among landowner types. Farmers and ranchers with playas thought that the Conservation Reserve Program was the second-most threatened; those without playas thought "wetlands" were second-most threatened; and landowners who didn't know if they had playas said "river corridors." Though landowners rated the threat to wetlands relatively high, the threat to playas was relatively low; indeed, even among landowners who said they had playas on their properties, playas ranked 8th of 13 resources listed—somewhat oddly, tied with "threatened and endangered species."

TABLE 61. PLJV Region—Q10: "To the best of your knowledge, how threatened are the following?" (Ascending means ranked from Highly Threatened (1) to Not Threatened (4)). (population)

	"Have Playas" (N~35000) Rank (Mean) & Word Anchor	"No Playas" (N~60000) Rank (Mean) & Word Anchor	"Don't Know If I Have Playas (N~48000) Rank (Mean) & Word Anchor	All Landowners (N~156000) Rank (Mean) & Word Anchor
q10d: Ogallala Aquifer?	1 (1.75) Moderately Threatened	1 (1.80) Moderately Threatened	1 (1.72) Moderately Threatened	1 (1.78) Moderately Threatened
q10a: Wetlands?	4 (2.68) Slightly Threatened	2 (2.50) Moderately/Slightly Threatened	4 (2.35) Moderately Threatened	2 (2.50) Moderately/Slightly Threatened
q10c: River corridors?	7 (2.81) Slightly Threatened	3 (2.57) Slightly Threatened	2 (2.27) Moderately Threatened	3 (2.55) Slightly Threatened
q10f: Native grasslands?	3 (2.58) Slightly Threatened	5 (2.63) Slightly Threatened	6 (2.42) Moderately Threatened	4 (2.56) Slightly Threatened
q10e: Conservation Reserve Program?	2 (2.52) Slightly Threatened	4 (2.59) Slightly Threatened	7 (2.59) Slightly Threatened	5 (2.58) Slightly Threatened
q10h: Reserviors/lakes?	5 (2.73) Slightly Threatened	7 (2.78) Slightly Threatened	4 (2.35) Moderately Threatened	6 (2.65) Slightly Threatened
q10i: Farm ponds?	6 (2.77) Slightly Threatened	9 (2.81) Slightly Threatened	3 (2.30) Moderately Threatened	7 (2.66) Slightly Threatened
q10b: Playas?	8 (2.82) Slightly Threatened	6 (2.71) Slightly Threatened	8 (2.59) Moderately Threatened	8 (2.73) Slightly Threatened
q10k: Threatened and endangered species?	8 (2.82) Slightly Threatened	8 (2.80) Slightly Threatened	9 (2.66) Slightly Threatened	9 (2.77) Slightly Threatened
q10j: Sand sage prairie?	10 (2.85) Slightly Threatened	10 (2.86) Slightly Threatened	12 (2.96) Slightly Threatened	10 (2.89) Slightly Threatened
q10l Hunted wildlife species?	11 (3.16) Slightly Threatened	12 (3.23) Slightly Threatened	11 (2.93) Slightly Threatened	11 (3.13) Slightly Threatened
q10m: Non-hunted wildlife species?	12 (3.18) Slightly Threatened	12 (3.23) Slightly Threatened	10 (2.90) Slightly Threatened	11 (3.13) Slightly Threatened
q10g: Prairie dogs?	13 (3.31) Slightly Threatened	11 (3.13) Slightly Threatened	13 (2.99) Slightly Threatened	13 (3.14) Slightly Threatened

Q11 inquired of landowners how much conservation they would support in their areas for each of 13 listed resources. Because of the implications for willingness of landowners to at least be receptive to expanded conservation programming, responses of landowners are considered individually by key groups; first, landowners at large in the PLJV Region (Table 62).

The only resource for which all responding landowners would support more conservation is the "Ogallala Aquifer." Following closely in second position is "Conservation Reserve Program;" yet, in an absolute sense, they indicated they would prefer "same amount" of conservation as now for CRP. Ranking third was "farm ponds," followed by "native grasslands."

Landowners who said they had playas on their properties suggested only slightly different priorities for their top 4 conservation concerns than landowners at large (Table 63). Highest ranking was "Ogallala Aquifer," which they said warranted more conservation effort than now. And ranking second, just as with all respondents, was "Conservation Reserve Program," warranting "same as now." "Native grasslands" were their third priority, and a noteworthy fourth priority, "playas." Notable, too, was what this group preferred "less than now"—conservation effort directed at prairie dogs.

TABLE 62. PLJV Region—Q11: "How much conservation would you support in your area for each of the following?" ALL LANDOWNERS RESPONDING. (Ascending means ranked from More than Now (1) to Less than Now (3)). (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q11d: Ogallala Aquifer?	147340	1 (1.45) More than Now	.564
q11e: Conservation Reserve Program?	161612	2 (1.61) Same as Now	.592
q11i: Farm ponds?	159913	3 (1.63) Same as Now	.631
q11f: Native grasslands?	162498	4 (1.67) Same as Now	.603
q11h: Reservoirs/lakes?	151361	5 (1.73) Same as Now	.608
q11c: River corridors?	125627	6 (1.77) Same as Now	.610
q11b: Playas?	112743	7 (1.79) Same as Now	.640
q11a: Wetlands?	143289	8 (1.83) Same as Now	.617
q11l: Hunted wildlife species?	155931	9 (1.87) Same as Now	.637
q11k: Threatened and endangered species?	150655	10 (1.92) Same as Now	.691
q11m: Non-hunted wildlife species?	153319	11 (1.93) Same as Now	.629
q11j: Sand sage prairie?	101372	12 (2.00) Same as Now	.644
q11g: Prarie dogs?	149415	13 (2.40) Same as Now	.732

TABLE 63. PLJV Region—Q11: "How much conservation would you support in your area for each of the following?" LANDOWNERS THAT "HAVE PLAYAS". (Ascending means ranked from More than Now (1) to Less than Now (3)). (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q11d: Ogallala Aquifer?	35045	1 (1.44) More than Now	.554
q11e: Conservation Reserve Program?	35031	2 (1.59) Same as Now	.613
q11f: Native grasslands?	35542	3 (1.66) Same as Now	.645
q11b: Playas?	35436	4 (1.73) Same as Now	.657
q11i: Farm ponds?	33739	5 (1.78) Same as Now	.675
q11h: Reservoirs/lakes?	33548	6 (1.82) Same as Now	.629
q11c: River corridors?	28826	7 (1.82) Same as Now	.640
q11a: Wetlands?	33431	8 (1.88) Same as Now	.591
q11l: Hunted wildlife species?	36200	9 1.96) Same as Now	.635
q11m: Non-hunted wildlife species?	34990	10 (1.99) Same as Now	.556
q11j: Sand sage prairie?	24463	11 (2.01) Same as Now	.671
q11k: Threatened and endangered species?	35446	12 (2.03) Same as Now	.650
q11g: Prarie dogs?	34717	13 (2.56) Less than Now	.671

Landowners without playas on their properties (Table 64) produced virtually the same list of conservation priorities as for landowners at large (perhaps predictable, because this sub-group accounted for the largest share of landowners in general).

TABLE 64. PLJV Region—Q11: "How much conservation would you support in your area for each of the following?" LANDOWNERS WHO DO NOT HAVE PLAYAS. (Ascending means ranked from More than Now (1) to Less than Now (3)). (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q11d: Ogallala Aquifer?	70985	1 (1.43) More than Now	.560
q11e: Conservation Reserve Program?	79785	2 (1.61) Same as Now	.585
q11i: Farm ponds?	82144	3 (1.65) Same as Now	.620
q11f: Native grasslands?	83859	3 (1.65) Same as Now	.583
q11h: Reservoirs/lakes?	76387	5 (1.74) Same as Now	.576
q11c: River corridors?	64035	6 (1.78) Same as Now	.616
q11b: Playas?	60912	7 (1.80) Same as Now	.588
q11a: Wetlands?	70064	8 (1.85) Same as Now	.621
q11l: Hunted wildlife species?	79450	9 (1.89) Same as Now	.622
q11m: Non-hunted wildlife species?	78660	10 (1.92) Same as Now	.623
q11k: Threatened and endangered species?	75033	11 (1.94) Same as Now	.711
q11j: Sand sage prairie?	50711	12 (2.01) Same as Now	.597
q11g: Prarie dogs?	75598	13 (2.35) Same as Now	.705

And finally, landowners who didn't know if they had playas on their properties (Table 65) would support "more" conservation effort than now for the Ogallala Aquifer, but placed this priority second to "more" effort than now directed at "farm ponds."

TABLE 65. PLJV Region—Q11: "How much conservation would you support in your area for each of the following?" LANDOWNERS WHO DON'T KNOW IF THEY HAVE PLAYAS ON THEIR PROPERTIES. (Ascending means ranked from More than Now (1) to Less than Now (3)). (population)

	N	Rank (Mean) & Word Anchor	Std. Deviation
q11i: Farm ponds?	43133	1 (1.46) More than Now	.579
q11d: Ogallala Aquifer?	40824	2 (1.48) More than Now	.580
q11e: Conservation Reserve Program?	45288	3 (1.62) Same as Now	.591
q11h: Reservoirs/lakes?	40625	4 (1.64) Same as Now	.641
q11c: River corridors?	32766	5 (1.72) Same as Now	.565
q11f: Native grasslands?	42200	5 (1.72) Same as Now	.608
q11l: Hunted wildlife species?	39479	7 (1.73) Same as Now	.637
q11a: Wetlands?	39700	8 (1.76) Same as Now	.626
q11k: Threatened and endangered species?	39257	9 (1.80) Same as Now	.681
q11m: Non-hunted wildlife species?	38867	10 (1.86) Same as Now	.686
q11b: Playas?	16396	11 (1.91) Same as Now	.759
q11j: Sand sage prairie?	25396	12 (1.98) Same as Now	.714
q11g: Prarie dogs?	37908	13 (2.35) Same as Now	.818

The final question in the survey asked respondents if they wanted to receive a free copy of the newly-produced film by the Playa Lakes Joint Venture, “Playas—Reflections of Life on the Plains.” About half of respondents requested the film (Table 66), representing about ~117,000 commodity farmers/ranchers in the PLJV region who would be interested in receiving the film, and learning more about playas—certainly one of the most elegant, telling, and persuasive findings in the study (Table 67).

Respondents were given a last opportunity to provide “comments or suggestions.” These are presented *verbatim* in Appendix G.

Item-by-item frequencies are presented in Appendix C (unweighted sample), D (weighted sample), E (population projections), and F (crosstabulations with selected independent variables, including test statistics and probabilities).

TABLE 66. BCR—DVD Incentive: “Yes, please send me a free copy of the film ‘Playas—Reflections on Life on the Plains.’” (unweighted sample (total is weighted))

	Yes! Please send me a free copy of the film "Playas-Reflections of Life on the Plains"		
	Film requested	Not requested	Total
BCR18CO	54%	46%	41
BCR18KS	40%	60%	50
BCR19KS	56%	44%	34
BCR18NE	43%	57%	42
BCR18NM	44%	56%	57
BCR18OK	49%	51%	47
BCR19OK	53%	48%	40
BCR18TX	43%	57%	54
BCR19TX	54%	46%	39
Total	50%	50%	404

TABLE 67. BCR—DVD Incentive: “Yes, please send me a free copy of the film ‘Playas—Reflections on Life on the Plains.’” (population)

	Yes! Please send me a free copy of the film "Playas-Reflections of Life on the Plains"				
	Film requested		Not requested		Total
BCR18CO	54%	12686	46%	10956	23642
BCR18KS	40%	7484	60%	11227	18711
BCR19KS	56%	33627	44%	26547	60174
BCR18NE	43%	5302	57%	7070	12372
BCR18NM	44%	2387	56%	3056	5443
BCR18OK	49%	2695	51%	2812	5507
BCR19OK	53%	21697	48%	19630	41327
BCR18TX	43%	16246	57%	21897	38143
BCR19TX	54%	14583	46%	12499	27082
Total	50%	116707	50%	115694	232401

Recommendations for Future Research

The High Plains Landowners Survey has established a very strong benchmark against which results of future PLJV human dimensions efforts can be measured. But therein lies a critical understanding…that this survey should be but the first in a series of studies of PLJV's constituencies.

When Should We Conduct the Next High Plains Landowner Survey?

The question of survey frequency has two elements—the first is simply budgetary and directed by priorities of PLJV Board and staff, and the second, a question of how often the survey needs to be conducted to register *changes* in landowners' perceptions or experiences, or perhaps measure the effect of some outreach or program that might be administered in the interim.

Landowner surveys, experience suggests, are perhaps best conducted ***every five years,*** hence the next High Plains Landowner Survey should take place in 2011. Five years is a good balance in budgetary commitment to landowner research, as well as a length of time over which any real changes in landowner characteristics or concerns could be detected.

Who Should We Survey?

To maintain strict comparability with the just completed High Plains Landowner Survey, the PLJV would be wise to use the FSA list again for the next survey. The landowner sampling frame obtained from the FSA for the 2006 survey has a number of strong advantages arguing for its use in the next survey in about 2011:

- Likely, a new list from FSA would be available again in five years. As FSA becomes aware PLJV used the current landowner list in responsible and scientific manner, FSA's trust will be solidified, and the process whereby landowner contact information was acquired perhaps simplified. Indeed, FSA likely will be very interested in the present data.

- Strict comparability in landowners' responses will be maintained, one survey to the next, ***particularly if practically the same set of questions is used, as well as the same sampling methodology***—strongly recommended by DJ Case so that there'll exist comparability not only in the sampling frame used, but also the questions administered.

DJ Case would be remiss in not suggesting that PLJV be prepared to incorporate Project One Dollar Bill into two full mail waves of the survey; DJ Case absorbed the cost of this significant readjustment of the mailing methodology as a matter of business responsibility and value-added service, but PLJV should be advised that realistic planning for future surveys should account for this need.

Concluding Remarks

There is no greater a compliment that a conservation organization can render its constituents than by asking, "What do you think?" Indeed, public sentiment has proven it

can be among the most innovative and compelling forces in fish, forest, and wildlife conservation.

PLJV's initiative to better understand its landowner clientele revealed that most landowners with playas and wetlands under their management authority not only see them in a positive light, but would entertain programs to enhance wetland management.

In fact, so many landowners in the PLJV region would welcome this help that PLJV (and allied state, federal, and private partners) will be hard-pressed to locate and identify landowners, then satisfy their interests—an enviable position for a Joint Venture charged with conserving part of this nation's rich natural heritage—but a huge challenge.

But there it is…PLJV's big challenge—succeeding with landowners who have virtually the last say on the fate of the natural landscape—a challenge that must be met if fish, forests, and wildlife are to be part of the cultural landscape of the U.S. through the 21st century and beyond.

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Appendix A: Questionnaire, Cover Letters, and Reminder Postcard

PLAYA LAKES JOINT VENTURE

High Plains Landowner Survey

Please completely and carefully fill in each chosen circle with a #2 pencil or blue/black pen.

1. How important is each of the following in the management of your land?	Highly Important	Moderately Important	Slightly Important	Not Important	Don't Know
a. Your land in terms of the pleasure of farming/ranching	○	○	○	○	○
b. Your land as a source of hunted wildlife species	○	○	○	○	○
c. Your land as a source of non-hunted wildlife species	○	○	○	○	○
d. Your land as a source of income	○	○	○	○	○
e. Your land as a source of outdoor recreation	○	○	○	○	○
f. Your land as a means of passing the rural life on to the next generation	○	○	○	○	○
g. Your land as a source of land/water resources	○	○	○	○	○

2. Have you heard of the term 'playa' or 'playa lake'? ○ Yes ○ No

3. To your understanding, are playas a type of wetland? ○ Yes ○ No ○ Don't know

4. To your understanding, how often does each of the following descriptions apply to playas?	Always	Sometimes	Never	Don't Know
a. They dry up	○	○	○	○
b. They fill with rainwater	○	○	○	○
c. They are shallow (less than 5 ft deep)	○	○	○	○
d. They have clay soil basins	○	○	○	○
e. They produce wetland plants	○	○	○	○
f. They are round	○	○	○	○
g. They attract wildlife	○	○	○	○
h. They fill with eroded soil	○	○	○	○
i. They recharge groundwater	○	○	○	○
j. They exist in their own watershed	○	○	○	○
k. They are fed by groundwater	○	○	○	○
l. They act to increase groundwater quality	○	○	○	○
m. They act to decrease groundwater quality	○	○	○	○

5. To your way of thinking, are playas and wetlands an **overall positive** or **overall negative** presence on the land? ○ Overall positive ○ Overall negative ○ Don't know

6. In your opinion and experience, how **positive** a presence on the land are playas and wetlands regarding each of the following?	Highly Positive	Moderately Positive	Slightly Positive	Not Positive	Don't Know
a. Source of water for livestock	○	○	○	○	○
b. Attracts wildlife	○	○	○	○	○
c. Improves groundwater quality	○	○	○	○	○
d. Source of water for irrigation	○	○	○	○	○
e. Recharges groundwater	○	○	○	○	○
f. Generates income from conservation programs	○	○	○	○	○
g. Attracts paying hunters/wildlife viewers	○	○	○	○	○
h. Use and enjoyment by family/friends	○	○	○	○	○
i. Increases forage for livestock	○	○	○	○	○

7. In your opinion and experience, how **negative** a presence on the land are playas and wetlands regarding each of the following?

	Highly Negative	Moderately Negative	Slightly Negative	Not Negative	Don't Know
a. General interference with farm/ranch management	○	○	○	○	○
b. Possible state or federal regulation	○	○	○	○	○
c. Attracts wildlife	○	○	○	○	○
d. Promotes weed growth	○	○	○	○	○
e. Damage to/loss of farm equipment	○	○	○	○	○
f. Crop-/ranch-land flooding	○	○	○	○	○
g. Reduces land available for production	○	○	○	○	○
h. Unpredictable production in and around playa/wetland	○	○	○	○	○

8. How much **incentive** do you think each of the following would give you to improve your management of playas and wetlands?

	High Incentive	Moderate Incentive	Slight Incentive	No Incentive	Don't Know
a. Publications specific to playas/wetlands	○	○	○	○	○
b. Cost-share payments	○	○	○	○	○
c. Loan of equipment	○	○	○	○	○
d. Free advice/visit by resource manager	○	○	○	○	○
e. Annual rental payment on land	○	○	○	○	○
f. If my neighbors were already managing their playas/wetlands	○	○	○	○	○
g. If playa/wetland management helped my bottom line	○	○	○	○	○
h. If playa/wetland management helped land/water resources	○	○	○	○	○
i. If playa/wetland management helped wildlife resources	○	○	○	○	○

9. Are you currently implementing the following conservation practices, and if given an incentive, how willing are you to consider implementing each of the following conservation practices?

Already Implementing	Not Currently Implementing		Highly Willing	Moderately Willing	Not Willing	Don't Know
○	○	a. Planting native grass buffers around playas/wetlands	○	○	○	○
○	○	b. Filling pits in playas/wetlands	○	○	○	○
○	○	c. Removing invasive plant species	○	○	○	○
○	○	d. A grazing management plan	○	○	○	○
○	○	e. Fencing playas/wetlands/river corridors	○	○	○	○
○	○	f. Removing sediment from playas/wetlands	○	○	○	○
○	○	g. Entering into a conservation easement	○	○	○	○

10. To the best of your knowledge, how threatened are the following?

	Highly Threatened	Moderately Threatened	Slightly Threatened	Not Threatened	Don't Know
a. Wetlands	○	○	○	○	○
b. Playas	○	○	○	○	○
c. River corridors	○	○	○	○	○
d. Ogallala Aquifer	○	○	○	○	○
e. Conservation Reserve Program	○	○	○	○	○
f. Native grasslands	○	○	○	○	○
g. Prairie dogs	○	○	○	○	○
h. Reservoirs/lakes	○	○	○	○	○
i. Farm ponds	○	○	○	○	○
j. Sand sage prairie	○	○	○	○	○
k. Threatened and endangered species	○	○	○	○	○
l. Hunted wildlife species	○	○	○	○	○
m. Non-hunted wildlife species	○	○	○	○	○

11. How much conservation would you support in your area for each of the following?

	More Than Now	Same As Now	Less Than Now	Don't Know
a. Wetlands	○	○	○	○
b. Playas	○	○	○	○
c. River corridors	○	○	○	○
d. Ogallala Aquifer	○	○	○	○
e. Conservation Reserve Program	○	○	○	○
f. Native grasslands	○	○	○	○
g. Prairie dogs	○	○	○	○
h. Reservoirs/lakes	○	○	○	○
i. Farm ponds	○	○	○	○
j. Sand sage prairie	○	○	○	○
k. Threatened and endangered species	○	○	○	○
l. Hunted wildlife species	○	○	○	○
m. Non-hunted wildlife species	○	○	○	○

12. Who would you most prefer to hear from regarding natural resource conservation programs?

	Highly Preferred	Moderately Preferred	Slightly Preferred	Not Preferred	Don't Know
a. Natural Resources Conservation Service	○	○	○	○	○
b. Farm Service Agency	○	○	○	○	○
c. US Fish and Wildlife Service	○	○	○	○	○
d. State wildlife agency	○	○	○	○	○
e. Non-government group	○	○	○	○	○
f. Farm Bureau	○	○	○	○	○
g. County Ag Extension	○	○	○	○	○
h. Community/local meetings	○	○	○	○	○
i. Neighbor	○	○	○	○	○

13. What are the high, medium and low sources of income from your land operation?

	High	Medium	Low	Not Involved
a. Livestock (dairy, beef, hogs, horses, etc.)	○	○	○	○
b. Cultivated crops (wheat, soybeans, etc.)	○	○	○	○
c. Poultry	○	○	○	○
d. Fee recreation (hunting/fishing)	○	○	○	○
e. Farm Bill conservation programs	○	○	○	○
f. Farm Bill commodity assistance programs	○	○	○	○

14. You are: ○ Male ○ Female

15. Your age is: ○ 24 yrs or under ○ 25–44 yrs ○ 45–64 yrs ○ 65 yrs or over

16. For how many years have you been farming or ranching?
○ 9 yrs or less
○ 10–19 yrs
○ 20–29 yrs
○ 30–49 yrs
○ 50 or more yrs
○ Not involved

17. How many farm/ranch acres do you have management authority over?
○ 640 or less acres
○ 641–1,500 acres
○ 1,501–3,000 acres
○ 3,001–5,000 acres
○ 5,001 or more acres

18. Do you have playas on the land under your management authority?
○ Yes
○ No
○ Don't know

19. If you answered 'yes' to #18, how many playas are within the farm/ranch acres that are under your management authority?
○ 1–2
○ 3–5
○ 6 or more
○ Don't know

20. Do you participate in any conservation programs sponsored by a federal, state or non-governmental organization?
○ Yes
○ No
○ Don't know

21. Please list which programs you are participating in: *Check all that apply.*

- ◯ Conservation Reserve Program
- ◯ Wetlands Reserve Program
- ◯ Grasslands Reserve Program
- ◯ Environmental Quality Incentives Program
- ◯ Wildlife Habitat Incentives Program
- ◯ Farm and Ranch Lands Protection Program
- ◯ Conservation Security Program
- ◯ Bobwhite Quail Initiative (CP33)
- ◯ Wetlands Restoration Non-Floodplain Initiative (CP23a)
- ◯ Farmable Wetlands Program (CP27)
- ◯ U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program
- ◯ State Landowner Incentive Program
- ◯ Ducks Unlimited Marsh Program
- ◯ Others_____

In return for your participation in this survey, the Playa Lakes Joint Venture would like to send you a free copy of the newly-released film "Playas – Reflections of Life on the Plains".

- ◯ Yes! Please send me a free copy of the film "Playas – Reflections of Life on the Plains".
- ◯ I prefer a DVD
- ◯ I prefer a VHS

Print your name and address below to receive the film. Your name and address will not be used in any way other than to deliver the film.

Name: _____

Address: _____

State and Zip: _____

Any additional comments or suggestions?

_____

_____

_____

_____

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_____

Thank you!

March 2006
Dear <First Name><Last Name>:

Private landowners and land managers, like you, are key to our country's agricultural productivity and natural resource conservation. Your opinion counts tremendously in the development of programs and incentives to maintain sustainable working lands and wildlife habitat.

We're seeking your opinions and experiences regarding the natural resources of the High Plains region. We'd be deeply grateful if you took a few minutes to fill out and return the enclosed questionnaire (postage-paid return envelope is included), giving us your thoughts as a farmer, rancher, landowner or land manager in the High Plains region (even if you reside in a state different than where your land is located). ***Your name and address will never be shared in any way or used for any other purpose.***

The Playa Lakes Joint Venture (PLJV) is conducting this survey about this unique part of the United States. The PLJV is a non-profit partnership of conservation groups, sportsman organizations, corporations, federal and state wildlife agencies and hundreds of private landowners working to conserve wildlife habitat in the High Plains. The PLJV operates in portions of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, and Texas.

If it's more convenient, you can complete the survey on the internet at:
www.PlayaSurvey.com

If you'd like, as a "thank you very much" for completing the survey, we will send you a DVD or VHS copy of the newly-released film, "Playas - Reflections of Life on the Plains."

If you have any questions about the survey, you can contact PLJV staff at the address below.

Thank you in advance for sharing your opinions and experiences. We sincerely appreciate your input.

Debbie Stobe

Communications Team Leader
Playa Lakes Joint Venture
103 E. Simpson St.
Lafayette, CO 80026

REMINDER POSTCARD

Playa Lakes Joint Venture Logo

March 2006
Dear High Plains Landowner/manager:

We need your feedback! Recently you received a questionnaire sponsored by the Playa Lakes Joint Venture (PLJV) in the mail. If you have completed and returned this survey, please accept our sincere thanks! If not, we hope you will consider doing so soon. We are especially grateful for your participation because we understand that the only way to truly understand the issues of landowners and managers such as yourself is to ask directly! If it is easier for you, you can complete the survey online at: www.PlayaSurvey.com

Sincerely,
Electronic signature of Debbie Slobe

Debbie Slobe
Communications Team Leader
Playa Lakes Joint Venture
103 E. Simpson St.
Lafayette, CO 80026

High Plains Landowner Survey Project
c/o Assessment Resource Center
2800 Maguire Blvd.
Columbia, MO 65211

April 2006
Dear [name inserted electronically]:

What's the value of a dollar in today's world?

Some would say "not much," but we'd tell you the enclosed one dollar bill would be invaluable to us if it caused you to give a second look at the questionnaire we sent to you a few weeks ago. Enclosed is a replacement questionnaire and postage-paid return envelope.

Private landowners and land managers, like you, are key to our country's agricultural productivity and natural resource conservation. Your opinion counts tremendously in the development of programs and incentives to maintain sustainable working lands and wildlife habitat.

You're one of only 1,800 ranch and farm operators chosen at random from a six-state region for your opinions and experiences regarding the natural resources of the High Plains region.

We'd be deeply grateful if you took a few minutes to fill out and return the enclosed questionnaire (again, postage-paid return envelope is included), giving us your thoughts as a farmer, rancher, landowner or land manager in the High Plains region (even if you reside in a state different than where your land is located).

Your name and address will never be linked to your answers nor shared in any way, and your answers will be tabulated only as part of a larger group.

If it's more convenient, you can complete the survey on the internet at:
www.PlayaSurvey.com

As an extra "thank you very much" for completing the survey, we will send you a *free* DVD or VHS copy of the newly-released film, "Playas - Reflections of Life on the Plains," a $10 value.

If you have any questions about the survey, you can contact PLJV staff at the address below. Thank you in advance for sharing your opinions and experiences. We sincerely appreciate your input.

Debbie Stobe

Communications Team Leader
Playa Lakes Joint Venture
103 E. Simpson St.
Lafayette, CO 80026

P.S. The Playa Lakes Joint Venture (PLJV) is conducting this survey about this unique part of the United States. PLJV is ***not*** a government agency, but a non-profit partnership of conservation groups; sportsman organizations, including Ducks Unlimited and Pheasants Forever; corporations; federal and state wildlife agencies, and hundreds of private landowners working to conserve wildlife habitat in the High Plains. PLJV has helped hundreds of private landowners get technical, financial and educational help for work on their land that promotes production/commodity agriculture and wildlife.

Appendix B: Sampling Error (Tolerance) of a Percentage

All surveys are subject to sampling error (or sampling fluctuations), or the difference between results obtained from a sample and results obtained by surveying the entire population. Sampling error of a percentage varies, (1) with the number of respondents ("base sample size"), and (2) with the division of opinion on a particular question. In other words, (1) when sub-sets of the total sample are studied, the amount of sampling error increases based on the *sample size* within the subset, and (2) it varies with the size of the percentage being estimated (as demonstrated in Table B1).

Apply these insights to real data from the High Plains Landowner Survey:

	q2: Have you heard of the term 'playa' or 'playa lake'?		
	Yes	No	Total
BCR18	61%	39%	97707
BCR19	42%	58%	127194
Total	50%	50%	224901

Note the above difference in percentage points between landowners in BCR18 that have heard of the term playa (61%), and landowners in BCR19 that have heard of "playa" (42%). The absolute difference is [61% minus 42%] or 19 percentage points. However, a confidence interval should be applied to both percent estimates (see Table B3)—in the case of the BCR18 estimate (that is near 60%), plus/minus 4 percentage points (57% to 65%, 80% confidence interval); and in the case of the BCR19 estimate (that is near 40%), plus/minus 7 percentage points (35% to 49%, 80% confidence interval).

In Easy English, we can conclude with considerable confidence (at least at the 80% confidence level) that landowners in BCR18 are, as a group, more likely to have heard of the term "playa" than landowners in BCR19—and that ***this difference amounts to at least 8 percentage points***; specifically, the low value of the BCR18 confidence interval (57%) minus the high value of the BCR19 confidence interval (49%)—the confidence intervals do not overlap!

Or, in more precise English, we can conclude that in 80 of 100 samples of BCR18 landowners, the true value of landowners who have heard of the term "playa" would be captured within the interval of 57% to 65%; and in 80 of 100 samples of BCR19 landowners, the true value of landowners who have heard of the term "playa" would be captured within the interval of 35% to 49%. Addendums:

1) Using Tables B1 and B2, we can conclude that real differences also exist between BCR18 and BCR19 landowners having heard of "playa" at the 90% ***and*** 95% confidence levels, but because confidence intervals are larger at both those levels (and move toward overlapping), the "real" difference decreases to 5 percentage points at the 90% confidence level, and 3 percentage points at the 95% confidence level.

2) Point estimates of the total absolute number of landowners (usually in the thousands) in response categories are reported, implicated from weights; effectively, these are subject to the same proportional sampling tolerance as percent estimates.

*TABLE B1. Recommended Allowance for Sampling Error of a Percentage (plus/minus in percentage points, **95% confidence level**); adapted from Arkin & Colton, 1963; and The Gallup Organization, 2002—Customized for High Plains Landowner Survey.*

Base Sample Size Near:	Response Percentage Near: 5/95%	10/90%	20/80%	30/70%	40/60%	50/50%
30[1]	8	11	15	17	18	18
40[2]	7	10	13	15	16	16
50[3]	7	9	12	13	14	14
60[4]	6	8	11	12	13	13
100 (BCR19)	4	6	8	9	10	10
200	3	4	6	6	7	7
300 (BCR18)	3	3	5	5	6	6
400 (PLJV)	2	3	4	5	5	5

[1]BCR19KS; [2] BCR18CO, BCR18NE, BCR19OK, BCR19TX; [3]BCR18KS, BCR18OK, BCR18TX; [4]BCR18NM

*TABLE B2. Recommended Allowance for Sampling Error of a Percentage (plus/minus in percentage points, **90% confidence level**); adapted from Arkin & Colton, 1963; and The Gallup Organization, 2002—Customized for High Plains Landowner Survey.*

Base Sample Size Near:	Response Percentage Near: 5/95%	10/90%	20/80%	30/70%	40/60%	50/50%
30[1]	7	10	13	14	15	16
40[2]	6	8	11	12	13	13
50[3]	6	7	10	11	12	12
60[4]	5	7	9	10	11	11
100 (BCR19)	4	5	7	8	9	9
200	3	4	5	6	6	6
300 (BCR18)	3	3	4	5	5	5
400 (PLJV)	2	3	4	4	4	5

[1]BCR19KS; [2] BCR18CO, BCR18NE, BCR19OK, BCR19TX; [3]BCR18KS, BCR18OK, BCR18TX; [4]BCR18NM

*TABLE B3. Recommended Allowance for Sampling Error of a Percentage (plus/minus in percentage points, **80% confidence level**); adapted from Arkin & Colton, 1963; and The Gallup Organization, 2002-Customized for High Plains Landowner Survey.*

Base Sample Size Near:	Response Percentage Near: 5/95%	10/90%	20/80%	30/70%	40/60%	50/50%
30[1]	6	8	10	11	12	12
40[2]	5	7	9	10	10	11
50[3]	4	6	8	9	9	10
60[4]	4	5	7	8	9	9
100 (BCR19)	3	4	6	6	7	7
200	2	3	4	5	5	5
300 (BCR18)	2	3	3	4	4	4
400 (PLJV)	2	2	3	3	4	4

[1]BCR19KS; [2] BCR18CO, BCR18NE, BCR19OK, BCR19TX; [3]BCR18KS, BCR18OK, BCR18TX; [4]BCR18NM