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Chelsea Forehead

University of Nebraska-Lincoln

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**DEMOGRAPHIC INDICATORS OF REPORTED VALUE OF
NEBRASKA'S NATURAL RESOURCES**

by
Chelsea Forehead

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DEMOGRAPHIC INDICATORS OF REPORTED VALUE OF NEBRASKA'S NATURAL RESOURCES

Chelsea Forehead, B.A.

University of Nebraska at Lincoln, 2012

Advisor: Wayne Babchuk, Ph.D

Abstract

This research was conducted in various towns of eastern and central Nebraska using a survey which asked respondents about how valuable the resources and ecological benefits are that were to be involved in the construction of the Keystone XL pipeline. Surveys were administered in public locations using a combination of convenience and snowball sampling. A total of 38 respondents from the eastern region and 40 from the central region were surveyed. The research seeks to investigate if there is correlation between certain demographic categories and high value placed on the environmental facets in question. Do males or females place higher value on these resources? Do respondents who live nearer to the resources in question (those from the central region) place a higher or lower value on them? Is there a particular resource that ranks highest in

value to Nebraskans? And finally, does the value place upon the ecological benefit rank higher for the respondents personally, or for their understanding of the needs of the state as a whole? Statistical analysis was conducted regarding variation between gender and region of the interviewees and no significant difference in their means was found. A more simplistic analysis of the mean valuation levels for each resource was conducted and found that respondents from Eastern Nebraska place higher value on average on every resource except agriculture.

Introduction

The purpose of this research is to gather and analyze quantitative data from surveys that ask Nebraska residents, 18 years or older, their opinions on the value or importance of the natural resources and ecological functions potentially affected by the construction of the proposed Keystone XL pipeline. The issue of the natural environment in the area of the proposed route had been recently popularized via news coverage, television ads, proposed legislation, activism, and local discussion. Due to the high degree of relevancy to current issues it is an opportune time to conduct survey research into local sentiments about the Nebraska natural environment along the proposed routes. Environmental facets of the central region that may never have entered the day to day thoughts of Nebraskans have now more than ever been brought to their attention since the construction was proposed. In addition, while research has been done on the local sentiments and valuations regarding the environment and natural resources of native peoples and in many parts of the world and the United States, little-possibly none- has been conducted regarding Nebraskans' value of their state's ecological components.

The first emergence of the pipeline proposal was in 2008 when TransCanada, a North American energy company, presented an application for a permit to construct the pipeline to the

Department of State (U.S. Department of State, 2009). The purpose of the proposed project would have been to transport diluted bitumen, a tar sands petroleum product, from the extraction point in Alberta, Canada to refineries near the gulf coast of Texas. The route was to run 1,700 miles and transport an estimated 830,000 barrels of diluted bitumen or “DilBit” each day (See Figure 1, Appendix A). By federal law construction cannot begin until all necessary permits are obtained signifying that the eight federal agencies see the project as beneficial to the nation as a whole (U.S. Department of State, 2009). Although the company had already constructed a pipeline that transports their petroleum products from Canada to as far south as Cushing, Oklahoma the new proposed route raised controversy and opposition due to the environmentally sensitive areas through which the expanded Keystone XL pipeline would have run. Opponents to the expansion were, and still are, concerned that the underground Ogallala aquifer and ecologically unique Sandhills region as well as other floral, faunal, hydrological, and terrestrial aspects of the route area would have been put in jeopardy of contamination by the possibility of a leak in the pipeline.

Since specifying the research questions for this project circumstances surrounding the pipeline have changed but have not reduced the relevancy of the survey data collected. After holding a special legislative session in Nebraska’s capital which gave residents a chance to voice their opinions regarding the pipeline TransCanada voluntarily released their decision to reroute the pipeline so as not to disturb the ecologically fragile and unique Sandhills region. In early 2012 after being given a short time span in which to consider the distribution of permits for the construction project President Obama rejected TransCanada’s application. This, however, does not mean that the company has not continued with full force their research and planning for such a route. In fact, in Oklahoma and Texas they have begun preliminary construction procedures for

the latter half of the pipeline and TransCanada plans to re-apply after further investigation of landowners' rights and potential environmental damages.

Although the route may have been changed the data gathered on the responses based on the ecology of the originally proposed route is still relevant for two reasons. First, all of the environmental facets selected for this survey, with the exception of the Sandhills, would still be potentially affected by a leak if any pipeline were to cross the state from north to south. Secondly, even though the Sandhills will not be crossed data on the respondents' value of that habitat could demonstrate whether or not the concession by TransCanada reflects the real priorities of Nebraska residents. Despite slightly more distancing by the public media from the topic of the potential contamination of resources interviewees are still likely to have heard more about the ecological topic than about other environmental issues in the state. This controversy is still the greatest environmental consideration by the public in the state's recent history. Potential damages by the pipeline have incited louder and more fervent public opinions about Nebraska's ecology than any other issue in the last 20 years.

Information on demographic trends in high or low reported ecology importance could be useful in several ways. First, if the state were ever to conduct an advertising campaign to bolster residents' pride in, and promote conservation of their local resources survey data such as this (if gathered in greater magnitude) could direct advertisers to the particular demographic groups who perceive the resources as less valuable. This in turn would be helpful in attempting to reach and speak to those groups in promoting Nebraskan pride in and value of the state's ecology. Secondly, marketers could use data on which resources were most highly valued in order to develop a publicized, logical connection between the vitality of those highly important to residents and those placed in lower value ranks. Take for example if respondents consistently

reported higher importance of crane migrations. One might then be able to educate and speak more efficiently to the public by using this knowledge to relate the importance of the health of the Platte River to the vitality of crane populations

Supporting Literature: Risk of Contamination and Selection of Resources for the Study

In his personally conducted and published report UNL environmental engineer John Stansbury (2011) highlights the probability that a leak of significant volume would occur in the proposed Keystone XL in its projected 50 years of use. Stansbury analyzes past pipeline spill causes and frequencies and using the consistency of the bitumen, volume transported, and length of the pipe he gives his own estimate of the number of leaks that will probably occur. While the energy company itself released an estimate that predicted 11 leaks in 50 years Stansbury criticizes this estimate for not taking into account almost one quarter of past pipeline leaks and assuming that their construction techniques will bring leak numbers to half the normal level for such projects (2011: 1). Stansbury's own estimate is that more like 91 leaks (a leak is defined as a spill greater than 50 barrels with one barrel containing 42 gallons) will occur in the pipeline's lifetime. Recent totals of leaks in similar pipelines have also been totaled and reported. For example the current Keystone pipeline has experienced 12 leaks just in its first year of operation (Stansbury, 2011) and the Alberta pipeline system has experienced 218 spills greater than 26 gallons in the last eight years (Swift, 2011). These estimates imply that the risk of a spill is relevant to construction due to its probability of occurrence. The facets of Nebraska's environment through which the pipeline would pass are then also at risk of contamination due to such high probabilities of leaks. While these numbers may seem especially frightening and though they have been released to the public TransCanada was doing a thorough job of

reassuring the public through television ads that there was no probable chance of a hazardous leak (TransCanada website, “Know the Facts”).

The components of the proposed route’s ecology that were chosen for this investigation are those that are geographically related to the proposed pipeline as well as those that have been highlighted as especially vulnerable to oil contamination. The costs of a leak and the remediation of such have, like those of the groundwater leak in the Los Angeles river basin, proven to be so high as to require a shutdown of the entire system, and to cease use indefinitely (McKee, 1972). In a comparison of market values for land in Nebraska Torell concluded that the area of the Ogallala aquifer has especially high prices due to the high water table levels (Torell, 1990). While this doesn’t necessarily point to higher ecological value in the eyes of market, it does show us that aquifer’s water is valuable enough to effect the price of the land above it. In one examination of the landmarks that serve as symbols for the region of the Midwestern United States, the Ogallala aquifer was described as a historical symbol of the Great Plains (Mather,1972). One of the most notable uses of the aquifer’s water is irrigation for the state’s agriculture (Kovaaks, 1977). Because of this vitally important benefit of the aquifer, respondents will not only be asked to rate their value of the Ogallala aquifer but also of agriculture in Nebraska. Responses to these two questions will show if the interviewees value the benefit of the ecology as much as the source of that benefit.

In addition to Nebraska agriculture and the Ogallala aquifer the Platte River was also selected as a natural resource for the survey. The Keystone XL was planned to cross the Platte River and will still almost inevitably cross it if a pipeline runs through the state from North to South. This riparian system is an important water resource for the state and an important habitat for many native species. Additionally, the central section of the river serves as a crucial

migratory stopping point for the Sandhill and Whooping crane populations. In an article called “What to Preserve?” the author compares and contrasts various crane species in their value to overall bird biodiversity based on rarity, habits, and habitats. The Sandhill crane was found to be important due to a special genetic distinction among cranes. Whooping cranes were also found to be of importance due to their extreme rarity and dwindling populations (Weitzman, 1993). In light of research that has shown that chemicals released with diluted bitumen during a leak can be toxic to both flora and fauna (Tennebaum, 2009), the use of the Platte by these cranes could mean especially high environmental costs in the event of a leak in to the river.

Although the possible danger of an alteration to the Sandhills region of the state has seemingly passed with TransCanada’s recent agreement to reroute the pipeline out of the area, questions on the survey will address the value of that environmental feature as well. Data can then be analyzed to see if the political and public defense of the feature is a reflection of the sentiments of the Nebraska residents surveyed.

Supporting Literature: Possible Trends within Demographic Groups

In her 2007 article “Community Attachment: The Complexity and Consequence of the Natural Environment Facet” Joan Brehm discussed her research related to the role of the natural environment in the development of a sense of community attachment. The article notes the common finding that a positive view of one’s environment can facilitate the development of a sense of belonging that can make their geographic location acquire meaning. Brehm points out that while newcomers to an area can feel connected to its natural environment, it is most often those who have lived in the area longest who express the deepest connection to its landscape. It was this observation that led me to create the research question of my own: does length of time

spent living in the state correlate positively with value or importance placed on its environmental components? The methodology used for Brehm's study was a positive confirmation for the utility of the methods chosen for this research. The author similarly conducted her research by collecting survey data concerning residents' views of their environment and also distributed surveys in five communities. Brehm's data about Heavenly Valley's residents' view of their environment showed that people most often conceptualize their environment not in an interconnected, holistic, web-like manner but rather in terms of the discrete elements of that environment. This finding supports my decision to inquire about discrete elements and their subsequent benefits separately rather than asking respondents to rate their value of central Nebraska's environment as a whole.

Another study conducted by Brehm, along with Eisenhaur and Krannice, in a 2004 article entitled "Dimensions of Community Attachment and their Relationship to Well-Being in the Amenity-Rich Rural West" is also closely related to my research. In the article the authors again discuss the importance of feeling a sense of attachment to one's natural environment in order to develop a sense of belonging. Unlike Brehm's 2007 article, however, this study focused on the sentiments of rural communities. This qualitative study of rural residents showed that features of the natural environment played a larger role in their sense of attachment to their locations (Brehm et. al, 2004). This prompted the development of yet another research question for this project: do respondents from the central, more rural region of the state place higher importance on the ecology in question?

The answer to the fourth research question is contingent upon one of the independent variables of demographic category comes from a fairly common perception among not only the general public but also the anthropological literature. When it comes to the intersection of gender

and environmentalism the term ecofeminism is often employed. Socially enforced gender stereotypes along with feminist discourse analysis suggest a connection between the nurturing character of the female and responsible stewardship of the earth (Glazerbrook, 2002). Some scholars even argue that because women are more holistic and non-linear in their analytical worldviews, they are more likely to accept and understand contemporary ecological science (Somma and Tolleson-Rinehart, 1997). With these concepts in mind, do the sample data show that female respondents place higher values on the environmental features presented in the survey?

Lastly, in addition to an analysis of the valuation of the ecological components, the research will investigate if respondents rank a resource as of higher value if the question asks for their personal value or the value to the state. For example one question will ask how important the ecosystem benefit is to the respondent personally, while the other will ask how important it is to the state of Nebraska as a whole. If values are higher for either form of the question this will show whether the respondent values the item because they recognize its overall importance or because they feel a personal connection to the environmental feature.

In summary, the independent variables that will be analyzed in relation to valuation of the ecosystem benefits and features are region of residency (Eastern or Central), length of time spent living in Nebraska, and gender. A comparison will be made between how the interviewees value the components for themselves and for the state as a whole. Value of the Sandhills region will be compared to the value of the other resources to look for correspondence to public defense of it, and the values placed upon each of the resources will be compared amongst the rest.

Methodology and the survey tool will be discussed below, followed by an exposition of the

results. Any limitations encountered in working to answer the research questions will be outlined in the Discussion section of the report.

Materials and Methods

The general research design of this study is one based on quantitative data gathered from survey respondents. While researchers have found that qualitative answers can offer thicker descriptions of the sentiments of those interviewed (Brehm et. al, 2004) the limitations presented by the time-span given for the research prevented such an approach. Commonly discussed in Anthropology field methods courses, gathering truthful, unbiased qualitative data often requires a “warming-up” period between researcher and informant. Though survey data is also always at risk for observer bias effects, strangers are more likely to quickly rank their opinions on already constructed scales than to offer their personal explanations for such beliefs.

Although gathering quantitative data proved to produce a slightly thinner portrayal of public sentiments, Brehm also used the survey method to gather quantitative data for one of her studies. As discussed earlier, Brehm (2007) also pointed out the benefit of inquiring about discrete components of the environment rather than the system as a whole. Due to the controversial nature of the Keystone XL construction the survey makes no reference to the subject. When asked if the survey was related to that topic the researcher invariably replied that they survey was simply investigating the public’s value natural resources and was not related to pipeline politics. While this may be somewhat untrue, the only aspect of the research relevant to the pipeline is that the scope of resources in question was narrowed to the route area.

The survey tool consisted of 14 questions total. The first question served to screen for current Nebraska residents and the subsequent four inquired about demographic information of

the respondent: age, gender, current city, and length of residency. Questions 6 through 12 and 14 asked respondents to rate the value of the resource or resource benefit either to themselves or to the state (See Figure 1 below, and Appendix B). Answers were given according to a Likert-scale of responses that included “Not important/valuable,” “Somewhat important/valuable,” “Important/valuable,” and “Very important/valuable.” Question 13 prompted an answer of true, false or “I don’t know” to the statement “The ability of Sandhill and Whooping cranes to use Nebraska as a stopping point on their migrations is an indicator of the state’s environmental health.”

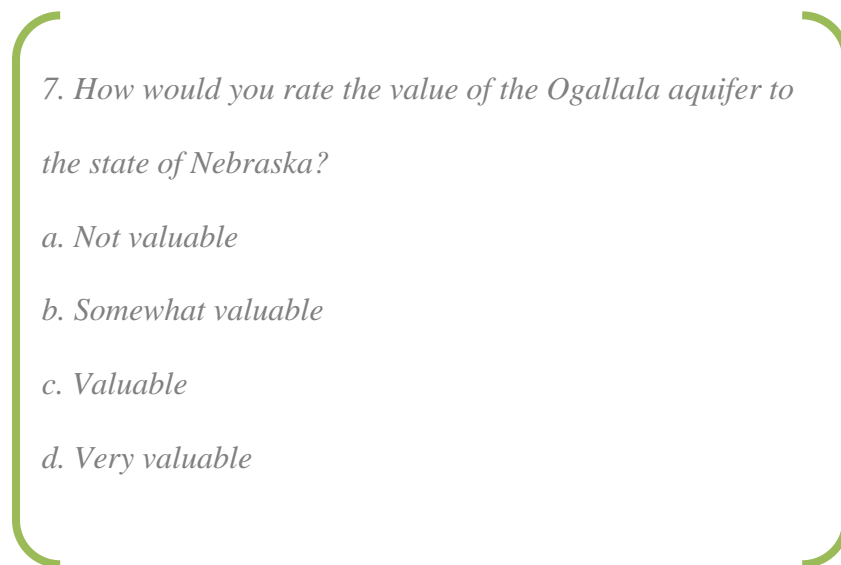


Figure 1: Sample Question

Participants met both requirements of current residency in Nebraska and an age of 18 or older. All surveys were conducted anonymously and IRB certification was not needed since the research will not be published. Although a sample size of 100 respondents was initially desired the final total, due to time constraints, was 78 respondents. This means that the research will only represent a non-probability sample as producing a probability sample would require vast time

and resource inputs. The term non-probability means that the results will not represent a large enough portion of the population to be able to accurately generalize the results as representative. Nevertheless, it is hoped that this research will serve to elucidate trends and generate hypotheses that further research can explore in more detail.

Sampling Methods and Reliability of the Instrument

Sampling methods used were a compromise between available resources and time and perfectly random selection of respondents. All surveys were conducted at public locations in which potential respondents would not be bothered by a request to fill out a quick survey. Characteristics common to all study areas were a leisurely atmosphere, a congregational nature, and socializing adults. All surveys were conducted on Saturdays within a five week period.

In Lincoln, this meant the outdoor spaces in the Haymarket business district, coffee shops, and several city parks. In Omaha surveys were distributed in a cooperating restaurant, in the Old Market, and at a neighborhood park. The sampling conducted in the Central region of the state proved to be slightly more difficult as there are overall fewer possible respondents in smaller towns. In the town of Aurora, surveys were administered in a bowling alley and a hardware store as there were fewer congregational, public areas there. In York respondents were sought in an antique store, a business district, and a local clubhouse. Once in the city of Kearney sampling was conducted on the UNK campus library and union, at a cooperating restaurant, and on a main thoroughfare of the town.

Sampling methodology can thus be referred to as a mixture of convenience and snowball sampling. Convenience sampling refers to the selection of sampling sites based on which locations are accessible, available, and appropriate places to do the research. The term snowball

sampling refers to taking advantage of the opportunity to increase sample size when one respondent refers the researcher to other respondents. An example of the use of this technique is when the clerk at the antique store directed me to another location in which surveys could be completed- the Eagles Club. Although this is normally a members-only location, the reference from the antique store clerk earned my entrance into the club and surveys were voluntarily completed thereafter. Another instance of snowball sampling was when a table of women directed me to a table of their husbands located inside a downtown restaurant. The drawback of using this technique is that the sample becomes less representative the more that people of the same family or social groups are interviewed. This is because often times members of such groups have similar characteristics and therefore their responses may become less reflective of the various characteristics or beliefs of the whole population. Travelling to Central Nebraska towns to gain information on the resource values of Central region residents is an example of a technique called oversampling for a demographic and can improve efficiency of a study (Smith, 1989).

As with any other survey research, the reliability of responses is difficult to measure and can be biased by any number of circumstances. An uncomfortable environment, leading questions, a nosy observer, and certain social contexts can all effect respondents' answers. Even such uncontrollable variables as the weather, time of year and unknown personal situations of people surveyed can have immeasurable effects on the data. While no social setting is sterilized against such issues larger sample size and consistency of survey distribution behavior can help to reduce such effects. For this reason I gave each respondent a pen and a survey on a clipboard, told them to ask me if they had any questions and then gave them space to allow for a feeling of privacy while sharing their opinions.

I was often asked about the purpose of the research to which I invariably responded that it was for an Anthropology-based senior thesis project and that I was an undergraduate student at UNL. I chose not to inform respondents of the relation of the research to Environmental Studies in order to keep my own opinions about the value of the resources at least somewhat ambiguous. If I had responded that it was an Environmental Studies project, observer bias might have played a much larger role in responses given. Additionally, in the few instances when I was asked if the survey was about the pipeline, I replied that it was just about Nebraska natural resources. Respondents were also informed that the research was not going to be published if the issue was brought up.

Data Analysis

Once all surveys had been completed the data was entered into an Excel spreadsheet. In order to facilitate more efficient analysis numerical values of 0 to 3 were applied to the Likert scale responses with “Not valuable” receiving a 0 and “Very valuable” receiving a 3. This results in the highest valuation receiving the highest score. In order to investigate trends in valuation based on gender and region these scores were totaled (Questions 6-12 and 14) and then means of each of the categories were compared using statistical analysis software. T-tests were constructed to obtain p values for variance. In order to investigate the possibility of higher values for certain resources the values for each were averaged from both the Eastern and Central regions. An ANOVA (Analysis of Variance) test was conducted to see if there was variance between age groups. As was established in previous research participants were considered “new-comers” to the state if they reported living in Nebraska for less than 10 years (Brehm 2007). Once grouped in to <10 years residency and >10 years residency categories valuation scores and their means

were compared. While only the statistical analyses can be considered capable of producing significant results, the small sample size and disparity in number of respondents in other demographic categories necessitated the use of simpler, less accurate analysis techniques.

Results

After constructing a t-test to compare the mean scores of Eastern and Central region respondents the statistical analysis showed no significant difference in means between the two groups with a p-value of .949. This indicates that there is a 95% chance that any difference between the two groups' means was purely by chance. The mean value score for Eastern region respondents was 17.38 out of a possible 24. This was only slightly lower than the mean for Central region respondents which was 17.56. While the t-test proved that there was no significant difference in the means of the two groups weak support for the assertion that rural respondents would place higher value on the resources was given by the slightly higher mean score of Central region respondents (See Appendix C for all results).

The t-test comparison of the mean value scores of males and females also showed no significant difference between the two gender groups with a p-value of .245. The mean value score for males was 18.102. Female value scores, though not significantly different, were slightly lower at 16.795. While no statistical support was given to indicate higher value of resources for either gender, the male mean value score gives weak support for the assertion that the concept of females as better stewards of the earth is false.

An ANOVA test was constructed to look for variance in mean scores between the 5, 10-year age bands. While this test would not be able to indicate statistically significant differences between each of the groups (doing this would have required more than 30 separate tests, and

sample sizes of each group were subsequently too small) it would provide statistical proof that there existed some sort of variance between groups. The p-value produced, however, was too high to indicate statistical difference among the age groups. This information, if found to be significant, did not relate to any particular research question but would have indicated a need for further research into what may be the underlying causes in higher value placed on ecological resources by a certain age group.

As discussed above the mean score for each resource was calculated for each region in order to address the research question concerning correlation between public sentiment about the Sandhills region and its successful political defense. The technique used for this stage of the analysis, though incapable of producing truly reliable findings may still help to shed some light on the subject for further, more extensive research. The analysis showed that Eastern Nebraska respondents' value ratings were higher or equal for all environmental components except agriculture, which was ranked higher among Central region residents. For both groups however the values of agriculture to the state of Nebraska and of the Platte River to the state of Nebraska were highest.

In order to address the research question concerning whether the respondents would place higher value on a resource for themselves personally or for the state as a whole the mean scores analyzed above were also separated by whether or not they were scores for personal value or Nebraska state value. Figure 2 shows mean scores for each resource, with personal/state value specified. Figure 3 shows a condensed comparison of personal and state values of the three resource benefits in question.

Mean values placed on the Sandhills region are among the lowest three of all resources mentioned. Answers to Question 13, which were hoped to show the level of understanding of

respondents in regards to the interconnected nature of the Platte River system almost invariably produced a response of “True.”

Figure 2: Mean Score Comparison between Regions for Each Question

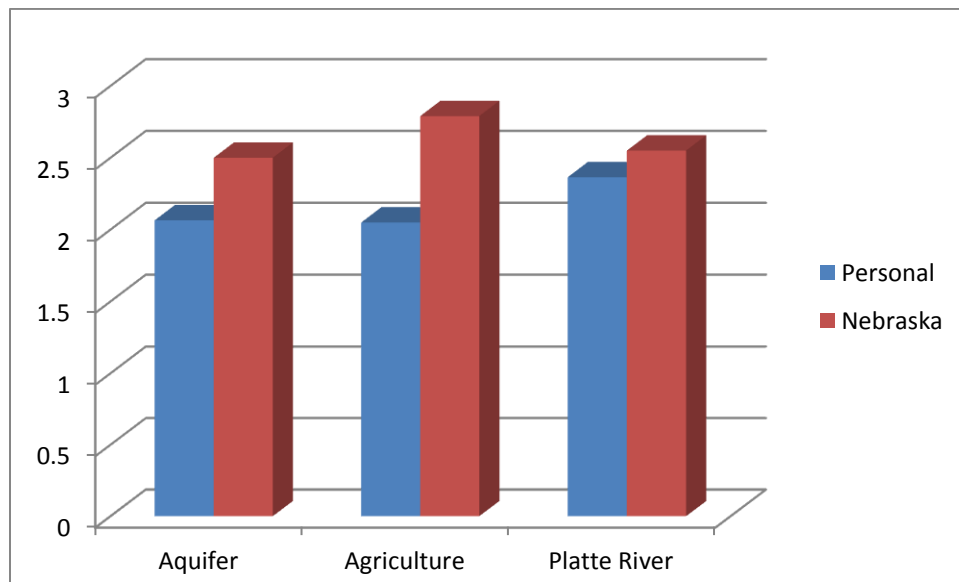
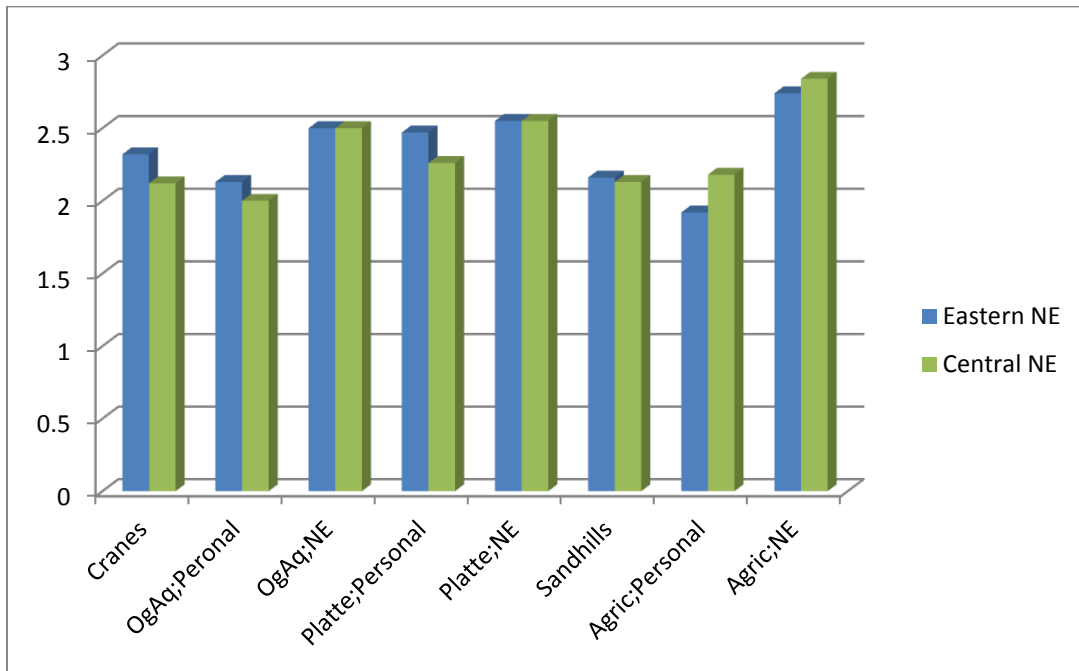


Figure 3: Comparison of Personal/Nebraska State Value Score Means of Resources

Discussion

The statistical analysis of the valuation of Central Nebraska's natural resources by respondents from either the Eastern or Central region did not show any significant difference between values given by residents. Though the mean value score for Central Nebraska residents was slightly higher, the implications of this are limited by the lack of statistical support. This finding illustrates the need for a larger sample size in future research. Perhaps with more respondents, more visible trends in correlation between region of residency and value would arise. For this study, however, the assertion that rural residents would place higher value on natural resources cannot be supported.

Similarly, the t-test analysis for difference in mean value scores of males and females showed no significant difference. Interestingly, the male mean value score was higher than that of the female respondents. The magnitude of this difference for such a small sample size, however, is insignificant. Once again it is possible that a larger sample size would elucidate greater trends in correlation between gender and high value of environmental benefits. The research presented here does not support or deny the association between females and better stewardship. Further research should be conducted in this area however, since the data hints at higher value of resources for males than females. This could shed light on the potentially misguided nature of the claims of ecofeminism.

Due to the nature of the sampling conducted, sample sizes for grouping based on length of residency proved to be too uneven for proper analysis. The group of respondents who can be considered "new-comers" to the state (Brehm 2007) showed no trend in their value scores. While some of the lowest valuations of the natural resources came from respondents who had lived in

the state for less than ten years, other “new-comers” ranked highest among the other residency groups’ value scores. It must also be considered that some of the lowest values given were from respondents who had lived in the state their whole lives. Because of sampling limitations no assertion about length of residency correlating to certain levels of value can be supported. In future research it may be helpful to compare length of residency groups by region in order to investigate possible differences there.

The data analysis of variance between personal and state values of natural resources cannot significantly support an assertion of correlation in either direction. Despite lack of statistical analysis however, the data do show a higher valuation of resources for the state than for respondents personally. This may indicate an area for further research into why Nebraskans would appreciate the value of the resource for the state, but feel a lower value of it personally.

Mid-level values placed on the Sandhills region show that while it is of value to respondents, it may not be the highest valued resource on the pipeline route. Additionally, the high proportion of “True” responses to Question 13 failed to indicate any correlation between an understanding of the interconnected nature of ecological systems and a high value for their resources. This may have been due to the slightly leading nature of the question. If it were not an indicator of the state’s environmental health, respondents may have assumed that it would not have been presented in statement form in the survey.

In comparing the mean values reported for each individual resource it was discovered that the value of the Ogallala aquifer to Nebraska, and the value of the Platte River to Nebraska produced equal mean values for both regions. For the value of agriculture to the respondents and to the state Central Nebraskan responses produced a higher mean value than those from Eastern Nebraska. All other resources in question were given a higher mean value by Eastern

respondents. Though these findings cannot assert statistical significance, further research should be done to identify which elements of the state's ecology are valued most by whom. As discussed earlier, this information could be very useful in creating a campaign to increase appreciation of Nebraska's environmental features. If Central Nebraska residents value the ecosystem benefit of agriculture most, informational advertisements could highlight the sources of such a benefit (aquifer/river for irrigation) to encourage support of their conservation.

Conclusion

This study was conducted in order to investigate what, if any, are the demographic predictors of natural resource appreciation. It was carried out using a survey tool intended to produce quantitative data which was then analyzed for each of the independent variables related to demographic information. The research addressed the possible predictors of high value placed on Nebraska's environmental facets: gender, location, and length of residency. Additionally, the study questioned whether the successful defense of the Sandhills region reflected respondents' value of the habitat. Values given were also analyzed for each resource benefit in question and for any disparity between personal and state importance of those benefits. No statistically significant difference was found between genders or regions. Though not analyzed statistically due to sample size constraints, length of residency appeared to show no correlation to level of value placed on the state's resources.

Support was not given for the concept of ecofeminism or for higher rural valuation of resources. Difference in mean values among the resources and between state and personal valuations, though not statistically significant, indicate a need for further research on this subject. In future studies on these topics it is recommended that screening for sampling be conducted

separately for each independent variable if equivalent sample sizes are to be achieved. Further research is recommended to investigate any correlation between an understanding of the mechanisms of an ecological system and high value of its resource benefits. This may be more adequately achieved by including a larger number of true/false statements. Studies such as this one, if conducted on larger scales, could be helpful in showing the nature of residents' valuation of environmental components to both legislative representatives seeking support for conservation, and to organizations seeking to augment local pride in a state's ecology.

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APPENDIX A



Figure 1: Map of proposed route and migratory corridor

APPENDIX B- Survey Tool

1. Do you live in Nebraska?
Yes
No
2. What is your gender?
Male
Female
Other
3. To which of the following age groups do you belong?
18-28
29-39
40-50
51-60
61+
4. Where in Nebraska do you live?
5. How long have you lived in Nebraska?
6. How important would you say Nebraska agriculture is to you?
 - a. Of no importance
 - b. Somewhat important
 - c. Important
 - d. Very important
7. How would you rate the value of the Ogallala Aquifer to the state of Nebraska?
 - a. Not valuable
 - b. Somewhat valuable
 - c. Valuable
 - d. Very valuable
8. How important is it to you that Nebraska be a habitable stopping point for the migrations of the Sandhill and Whooping cranes?
 - a. Not important
 - b. Somewhat important
 - c. Important
 - d. Very important
9. How valuable is the environmental health of the Platte River to you personally?
 - a. Not valuable
 - b. Somewhat valuable
 - c. Valuable
 - d. Very valuable
10. How valuable is the Sandhills region of Nebraska to you?
 - a. Not valuable
 - b. Somewhat valuable
 - c. Valuable
 - d. Very valuable
11. How important would you say agriculture is to the state of Nebraska?
 - a. Not important
 - b. Somewhat important
 - c. Important
 - d. Very important
12. How valuable is the Ogallala Aquifer to you personally?
 - a. Not valuable
 - b. Somewhat valuable
 - c. Valuable
 - d. Very Valuable
13. The ability of Sandhill and Whooping cranes to use Nebraska as a stopping point on their migrations is an indicator of the state's environmental health
 - a. True
 - b. False
 - c. I don't know
14. How important is the health of the Platte River to the state of Nebraska?
 - a. Not important
 - b. Somewhat important
 - c. Important
 - d. Very important

APPENDIX C-RESULTS

Central Nebraska

Gender	Age	Town; Region	Time in NE in years	Q. 6	Q. 7	Q. 8	Q. 9	Q. 10	Q. 11 (6)	Q. 12 (7)	Q. 13	Q. 14 (9)	Sums 6-12, 14
F	E	K; C	65 years	3	3	2	2	2	2	3	T	3	20
M	A	K; C	22 years	2	2	3	3	2	3	1	T	3	19
M	A	K; C	22 years	3	3	3	3	3	3	3	T	3	24
F	A	K; C	12 years	1	3	3	2	2	3	2	T	2	18
F	E	K; C	3 years	2	3	0	3	2	3	3	T	3	19
M	C	K; C	42 years	2	1	1	2	1	3	1	T	3	14
F	D	K; C	60 years	3	3	3	3	3	3	3	T	3	24
F	A	K; C	4 years	1	2	3	2	3	3	2	T	3	19
M	A	K; C	23 years	2	1	1	1	1	3	1	DK	1	11
M	A	K; C	24 years	3	3	2	2	2	3	2	T	3	20
F	A	H;C	20 years	1	3	3	3	3	3	3	T	3	22
F	A	NP;C	20 years	3	3	3	3	2	3	3	T	2	22
M	A	Y;C	24 years	3	3	1	2	2	3	3	DK	3	20
F	A	K; C	21 years	1	0	1	0	1	2	0	T	2	7
M	A	K; C	5 years	2	3	0	1	0	3	3	F	3	15
F	A	K; C	19 years	1	3	2	3	2	1	1	T	3	16
F	A	K; C	.7 years	0	1	1	2	1	2	0	DK	2	9
F	A	K; C	27 years	3	3	3	3	3	3	3	T	3	24
M	A	K; C	25 years	2	3	3	3	3	3	3	T	1	21
M	A	K; C	23 years	2	3	3	2	3	3	0	T	3	19
F	B	A;C	5 years	3	3	1	1	2	3	2	T	2	17
F	C	M;C	25 years	3	3	3	3	3	3	3	T	3	24
M	A	K; C	.1 years	3	3	3	3	2	3	2	T	3	22
M	A	G;C	23 years	3	3	0	2	2	3	3	DK	1	17
F	A	Mf;C	22 years	3	2	2	1	2	3	2	T	2	17
M	A	W;C	24 years	1	3	3	3	3	3	2	T	3	21
F	C	Y;C	37 years	2	3	2	2	2	3	3	T	3	20
F	D	Y;C	56 years	2	0	2	2	3	3	1	DK	2	15
M	E	Y;C	20 years	3	3	2	2	3	3	2	T	2	20
M	E	Wa;C	35 years	3	3	1	1	1	3	2	F	2	16
M	B	Y;C	38 years	2	2	3	3	1	2	2	T	2	17
M	A	Y;C	20 years	1	3	1	2	0	3	2	T	3	15
M	B	Y;C	10 years	2	1	3	3	3	3	1	T	3	19
M	D	Wa;C	18 years	3	3	3	3	3	3	0	T	3	21
M	A	Y;C	19 years	3	3	3	2	3	3	3	T	2	22

F	C	A;C	43 years	1	2	3	2	2	3	1	T	3	17
F	B	A;C	11 years	2	3	3	3	2	3	2	DK	3	21
M	B	A;C	34 years	3	3	3	3	3	3	3	T	3	24
M	C	M;C	42 years	3	3	3	3	3	3	3	T	3	24
M	D	A;C	50 years	3	3	2	2	3	3	3	T	3	22

Eastern Nebraska

Gen der	A ge	Town; Region	Time in NE in years	Q. 6	Q. 7	Q. 8	Q. 9	Q. 10	Q. 11 (6)	Q. 12 (7)	Q. 13	Q. 14 (9)	Sums 6- 12, 14
M	E	L;E	71	2	3	2	2	2	3	2	T	2	18
F	E	L;E	76	3	2	2	2	3	3	2	DK	2	19
M	B	L;E	20	0	1	2	3	0	2	2	DK	2	12
M	C	L;E	40	3	3	3	3	3	3	3	T	3	24
M	D	L;E	59	3	3	3	3	3	3	3	T	3	24
F	A	L;E	22	2	3	3	3	3	3	3	T	3	23
M	C	L;E	41	1	3	1	3	3	3	3	T	3	20
M	A	L;E	15	3	3	3	3	3	3	3	T	3	24
F	A	L;E	21	2	3	3	3	3	2	3	T	3	22
F	A	L;E	3	3	3	3	3	3	3	2	T	3	23
M	A	L;E	3	1	3	3	2	2	3	2	DK	2	18
F	C	L;E	33	3	2	1	1	0	3	2	DK	2	14
M	C	L;E	43	2	3	3	2	2	3	2	T	3	20
M	A	L;E	24	1	2	1	1	1	2	1	DK	1	10
M	A	L;E	28	1	3	3	3	3	3	3	T	2	21
M	A	L;E	25	2	3	3	3	3	2	3	DK	3	22
M	B	L;E	30	2	3	3	3	3	3	3	T	3	23
M	A	L;E	21	1	2	2	1	1	2	1	T	2	12
M	B	L;E	30	3	3	3	3	3	3	3	T	3	24
M	C	L;E	2	3	3	3	3	3	3	2	T	3	23
F	C	L;E	16	2	2	2	2	2	2	2	DK	2	16
F	A	L;E	3	1	2	0	3	1	2	1	DK	2	12
F	B	L;E	38	1	2	3	3	3	3	2	T	3	20
F	C	L;E	33	2	1	2	2	2	2	1	T	2	14
F	A	L;E	12	3	3	3	3	3	3	3	T	3	24
F	B	L;E	33	1	1	1	1	2	3	0	T	1	10
M	C	L;E	19	2	2	2	2	2	2	2	DK	2	16
F	C	O;E	49	1	3	1	3	1	3	2	T	2	16
F	D	O;E	38	1	3	2	3	1	3	2	T	3	18
M	D	O;E	30	3	3	2	2	2	2	2	F	2	18
F	A	O;E	24	2	3	3	3	1	3	2	DK	3	20
F	D	O;E	51	2	1	3	3	3	3	2	T	3	20

F	A	O;E	18	2	2	3	2	2	3	1	T	3	18
F	A	O;E	19	0	2	3	2	2	3	1	T	3	16
M	A	O;E	24	0	3	1	2	2	3	3	DK	3	17
F	A	O;E	22	3	2	1	2	0	3	1	DK	3	15
F	C	O;E	46	3	3	3	3	3	3	3	T	3	24
M	B	O;E	12	3	3	3	3	3	3	3	T	3	24