

WINDOW INTO WILDERNESS: A CONTENT ANALYSIS OF  
TEXAS STATE PARK WEB SITES

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Amanda Ross, B.A.

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## CHAPTER 1

### THE PROBLEM AND ITS SETTING

With advances in technology such as the World Wide Web, many people are now looking through the computer window into wilderness. Past studies have examined landscape representations in art, literature, tourist brochures, television, and magazines (Buck 1977; Burgess 1990; Cosgrove 1987; Cox 1988; Daniels and Cosgrove 1988; Peterson 2000). Few studies have examined landscape representations offered via the Web. Advances in technology prompt many questions about the role of electronic media in communicating messages about landscape. These questions include how landscapes are represented on the Web and what factors influence this representation.

Such questions can be addressed through examination of how systems of landscape management use the Web to represent themselves and their activities. For example, the Texas Parks and Wildlife Department (TPWD) manages over 100 state parks, natural areas, historic sites, state fishing piers, and state trailways areas on 587,216 acres of land. TPWD also manages 50 wildlife management areas. In an effort to provide information to the roughly 19 million people who

visit Texas State parks each year, TPWD produces promotional materials to increase visitation, raise awareness of conservation and preservation issues, inform the public of recreational opportunities, and publicize educational programs. TPWD produces these informational materials in several different media. The Texas Parks and Wildlife Magazine has 155,964 subscribers. Nearly 215,000 viewers watch the weekly Texas Parks and Wildlife television show. TPWD reports one million page viewers per month on to the TPWD Web site (Texas Parks and Wildlife Department Sunset Review 2000). The sheer volume of Texas state park informational material produced and viewed suggests that these materials are important for creating perceptions of Texas state parks.

TPWD has Web sites for most of its state parks, historic areas, natural areas, fishing piers, wildlife management areas and trailways. The Web offers background information about each site and allows visitors to make reservations online. As Texas enters the twenty-first century, TPWD must meet the needs of an increasingly urban population. Providing information via the Web is a valuable way to reach the increasingly urban population of Texas.

The main purpose of this research is to understand how Texas parks are represented on the Web. The following questions specify the aims of this research:

- (1) What human environmental values influence the representation of Texas landscapes on state park Web sites, specifically:
  - (a) Do management classifications create variability in park representation on the Web?
  - (b) Does the location of a park within Texas influence the way the park is represented on the Web?

This research will not investigate the sense of place derived from the real world compared to the virtual world. Instead, it will determine whether there is a relationship between environmental values, management classification, location, and virtual landscapes representation of parks located throughout Texas.

It is hypothesized that human environmental values shape representations of Texas state parks on the Web, that management objectives create variability in park representation on the Web, and that park location impacts Texas state park representation on the Web.

### Significance

The primary result of this research is a picture of how Texas landscapes are represented on the Web. Studying Texas landscapes on the Web is a window into the cultural, governmental, and historical events surrounding Texas state parks and helps to define the purpose of parks in Texas. Wyckoff (1997,3) explains the significance of landscape studies as, "Understanding propagation of regional images serves several purposes. It allows us to reconstruct with

accuracy the history of place perceptions and to explore the origins of the imaginative geographies that still shape popular regional images." The representation of Texas parks on the Web is a way to examine historical perceptions of Texas parks, as well as Texas parks in the twenty-first century. Texas state park Web sites provide educational information, publicize recreational opportunities, and present logistical information, and each site is an, "...invaluable text displaying the origins and intermingling of corporate ideologies, popular stereotypes, and cultural predilections that shape the American experience"(Wyckoff 1997,2).

While past research has examined landscape representations in traditional forms of media, few studies have examined landscape representation on the Web. Until this point no study has researched the way Texas parks are represented, let alone the way Texas parks are represented on the Web. The largest challenge for Texas parks in the twenty-first century is to entice the increasingly urban population of Texas to visit state parks. The Web is a unique position to provide information and encourage visitation to the urban population of Texas. The 2001 Annual Report for TPWD concludes that, " The Department's Web site continues to expand and diversify, including more Web casts, more information and more subject matter." The report (TPWD 2001) goes on to quote the director of communications as stating, "We're continuing to harness the power of the Web...Increasingly our Web site has become a key communications tool. In the past, it has been supportive of other communications efforts, but now

it's beginning to come into its own." TPWD is aware of the potentials of the Web as a communication tool. The Web is fast becoming the most effect delivery information system, it is important to gage how well the Web is used on a restrictive budget. This study defines how Texas parks are defined on the Web and therefore how Texans perceive Texas state parks. Besides providing a baseline of information, this research concludes with recommendations for improving Texas state park Web sites.

## CHAPTER 2

### REVIEW OF RELATED LITERATURE

This chapter reviews literature concerning cultural landscape production, Texas parks, and Web technology. The literature review begins by examining the ways cultural landscapes are constructed in the media. The next section chronicles the development and management of Texas state parks. Specifically, this section addresses the management policies and cultural climate behind the designation, design and representation of Texas state parks. Finally, the chapter reviews the Web as a tool for the consumption of landscape representation.

#### Landscape Representation

This research draws from landscape theory and media representation theory. Since Carl Sauer (1963, 24) wrote, "The cultural landscape is fashioned from a natural landscape by a cultural group," a debate about the very term landscape has surfaced within geography literature. J .B. Jackson suggests that a human attempt to transform the natural world is an effort to create heaven on earth (Pasqualetti 1997). Ley, (1981, 209-230) suggests that, "...[P]lace is a

negotiated reality, a social construction by a purposeful set of actors." For the purpose of this research, it is important to note:

A landscape is... a man-made system of spaces superimposed on the face of the land, functioning and evolving not according to natural laws but to serve a community. ... Man, the political animal, thinks of the landscape as his own creation, as belonging to him... whereas man the inhabitant sees the landscape as a habitat, which was there, long before he appeared [and] sees himself as belonging to the landscape. ... Yet these two points of view assume that human beings cannot survive and fulfill themselves unless there is a landscape to hold them together in a group.  
(Jackson 1984, xii, 8, 40, 54-55, 156)

Originally the term landscape referred to a genre of painting (Callicott 1992). Cosgrove (1985) chronicles the evolution of the landscape ideal from bourgeois paintings to a study of landscapes as reflections of one's culture. Grieder and Garkovich (1994, 2) suggest, "Cultural groups transform the natural environment into landscapes through the use of different symbols that bestow different meanings on the same physical objects or conditions."

Many landscape studies employ aerial photographs, dating of photographs, personal journal experiences, and historical context of settlement patterns to examine how physical and cultural landscape change through time (Doughty 1987; Meinig 1969; Vale and Vale 1994). Other landscape studies examine how places are portrayed in different media such as art, literature, and television (Burgess 1981, 1987; Bengston and Fan 1999b; Cosgrove 1978; Cox 1988; Higson 1987). Lewis (1979) suggests an axiom for reading a landscape can be found in the examination of promotional travel literature. By creating an

image that visitors expect and therefore react to, " ... travel literature can act as an agent of landscape change (Lewis 1979, 20)." In addition to creating visitor expectations, representation of places is a valuable tool in reconstructing the factors that shape cultural landscapes. This research examines the Web as a medium for representation just as past studies have examined representation in art and literature. The careful depictions of a place, whether in art or on the Web, combine to communicate messages about places.

Burgess (1990, 139-140) defines media as, "... a circuit of cultural forms through which meanings are encoded by specialist groups of producers and decoded in many different ways by the groups who constitute the audiences for those products." Promotional materials impact the impressions and perceptions of the public (Burgess 1981, 1987, 1990; Lewis 1979; MacCannel 1976; Meinig 1979a; Schwartz 1996). When examining materials that provide information about a place, many persons are unaware of the process involved in constructing representation of places. Ingerson (2001) refers to this idea as the "invisible politics of visible landscapes." For instance, the idea that Texas is a place populated by cowboys, horses and ranches is the result of media portrayals (MacCannel 1976).

Each representation of a place in media is constructed to produce a particular idea of a place. Wyckoff (1994) examined *Harper's Monthly* articles of the American West in the 1880s. The results of his content analysis show the American West was characterized as full of adventure, a natural wonder, with

tourists, and a laboratory for science. Thus *Harper's Monthly* created and reinforced a romantic view of the American West by characterizing it as a wilderness untouched by man (Wyckoff 1994). "Harper's Monthly emerged at mid-century to become an institution that measured, reflected, and indeed, molded the national pulse" (Wyckoff 1994, 20).

Another Wyckoff (1997) article concluded that promotional imagery of Glacier National Park depicted a life very different from the average American's lifestyle in the west, and instead focused on a fantasy-like and idyllic view of Glacier National Park. "While empirical research demonstrates that people distinguish very clearly between the real and the imaginary (and that is part of the pleasure), it must also acknowledge that the power to encode particular meanings and to 'naturalize' certain ideological positions still resides with the producers" (Burgess 1990, 144). In Wyckoff's article the Great Northern Railway acted as the producer of the image making. By depicting Glacier as a good place to visit without presenting the harsher side of Glacier winters and frontier life, the Great Northern Railway produced images that encouraged train travel to the northwest.

Representations of places in literature and art can be powerful tools of persuasion. Past studies suggest that promotional materials are effective at creating an environmental conscience and promoting travel (Dilley 1986; Peterson 2000). Landscape representations in media also furnish important logistical information about an area. Masberg and Jamieson (1999) found

promotional literature of parks provided limited information, focusing on a few scenic pictures without much emphasis on vital information such as activities and facilities. While not all landscape representations in the media are meant to provide logistical information, it is important for promotional literature of parks to present basic information about activities and facilities.

Landscape theory and media representation theory suggest three considerations when exploring landscape representations. First, representations are not depictions of reality but constructions of it. Second, landscape representations further the objectives or goals of those who design the representation. Burgess (1981, 13) suggests that, "Image-making reflects not only the character of the place itself but also the nature of the local authority. A well written and well produced publication creates an impression of the authority responsible for its creation." Lastly, these representations affect the way in which the audience of the constructed landscape perceives a place. "These landscapes reflect our self-definitions that are grounded in culture" (Greider and Garkovich 1994, 1).

With regard to Texas parks, representations of these parks are products of the TPWD, which designs the Web sites. The material represents the TPWD definition of parks. These representations also help to mold public opinions of Texas parks.

## Texas State Parks

The Texas state park system contains over a million acres and attracts about twenty million people a year. Thus Texas state parks are popular. A survey conducted for TPWD found that, "ninety-eight percent of those polled felt it was either very important (72%) or somewhat important (26%) that people have the opportunity to visit state parks in Texas" (Texas Parks and Wildlife Annual Report Online 2001). The public opinion study also found that, "Ninety-seven percent said that it was either very important (80%) or somewhat important (17%) to know that wildlife exists in Texas" (Texas Parks and Wildlife Annual Report 2001). Ninety-seven percent state, "...it was either very important (79%) or somewhat important (18%) that natural areas exist in Texas for enjoying and experiencing nature" (Texas Parks and Wildlife Department Annual Report 2000). The results of this public opinion survey confirmed to TPWD that, "Texans' love of the land is ... a strongly imbedded value held by a great majority of Texans."

While love of the land is a tradition throughout the state, Texas state parks are a relatively new phenomenon. "Texas leaders in the 1880s danced on the edge of growing national trends for government stewardship of public lands, as well as guardianship of the public's collective identity in scenery and battlefields" (Steely 1999, 2). To commemorate the fiftieth anniversary of the Texas Revolution, the Texas legislature purchased the Alamo church and a ten-

acre cemetery at the site of the battle of San Jacinto. These lands became the first state parks in Texas.

As Texas began to consider setting aside public lands, the automobile ushered in an era that challenged everyone to "See America First." Families answered this challenge by taking road trips to national parks. The "See America First" campaign measured its success with increases in visitation to many national parks. The increasing visitation to national parks encouraged the idea of state parks in Texas.

With the election of Pat Morris Neff as Governor of Texas in 1920, a shift occurred within the parks movement in Texas from preserving battlefields and cemeteries to setting aside natural areas as parks. During his term, Neff established the State Parks Board of Texas and several "roadside" parks. While the National Park Service stressed large areas for federal parks, Texas was setting aside small roadside state parks.

For the next thirty years, Texas parks fell under the jurisdiction of two agencies: The Texas Game and Fish Commission, which controlled animal resources, and the State Parks Board which resided over natural and historic areas. These two agencies joined in 1963, to create the Texas Parks and Wildlife Department. Texas State parks originally emphasized, "preservation of unique, superlative areas" (Stubbles 1979, 36), but with time the TPWD grew to include recreational, natural, and historic areas.

Today the Texas Parks and Wildlife Department's mission is, "To manage and conserve the natural and cultural resources of Texas for the use and enjoyment of present and future generations" (Texas Parks and Wildlife Department Web Site 2001). Behind this mission is the philosophy:

We seek to balance outdoor recreation with conservation as we achieve greater self-sufficiency. On one hand, we must manage and protect our natural and cultural resources. At the same time, we must generate increased revenue by adding value through more and better public services. We affirm that a culturally diverse well-trained staff will best achieve this balance. And we must never forget, not in the haste of business, nor in the pride of science, that the outdoors should above all be a source of joy! Providing outdoor experiences, whereby young minds form values, will be our greatest contribution to the future.

(Texas Parks and Wildlife Web Site 2001)

The general objectives set forth in the Texas Parks and Wildlife Department Public Lands Policy Guidelines for Acquisition Development, Operation, Management and Use (1995,1) guide the purpose and scope of the TPWD. The general objectives are:

- (1) To seek out and protect through education cooperative agreements, partnerships, conservation easements, and acquisition high quality examples of the State's natural and cultural heritage, and sensitive habitats or resource;
- (2) To provide opportunities for resource based outdoor recreation;
- (3) To impart to the people of Texas an understanding and appreciation of the State's cultural, historical and natural heritage;

- (4) To promote environmental education, research, and demonstration of stewardship of the State's diverse natural and cultural resources;
- (5) To join with all citizenry of this and other states and nations in promoting the conservation of natural, historical and recreational resources.

The Texas Parks and Wildlife Department categorize areas into six main management categories. They are state parks, state historic areas, state natural areas, wildlife management areas, state trailways and state fishing piers (referred to as recreation areas). The Texas Parks and Wildlife Department Public Lands Policy Guidelines for Acquisition Development, Operation, Management and Use (1995) defines each management area as:

- (1) State Parks are spacious areas of outstanding natural or scenic character, often containing historical, archeological, ecological or geological values, selectively developed to provide opportunities for compatible types of resource-oriented recreation.
- (2) State Historic Areas include all parks, sites, and structures established for the preservation and interpretation of pre-historic and historic resources of particular Statewide or national significance.
- (3) State Natural Areas are areas retaining to a major degree their unique or natural character established primarily for the perpetual preservation of outstanding ecological, biological, geological, or scenic features of Statewide significance, which may be used in a manner consistent with their continued preservation for the public purposes of scientific research, education, aesthetic enjoyment, and dispersed-type primitive recreation.

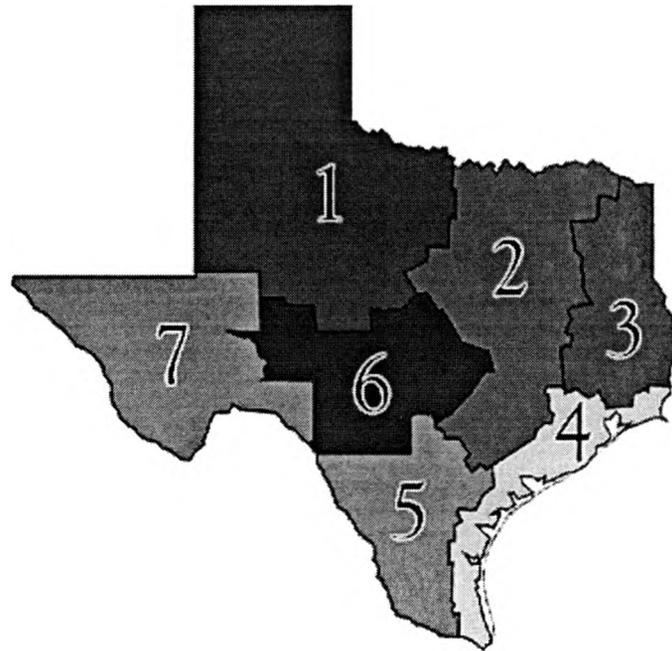
- (4) Game Management Areas are areas dedicated to wildlife management, research, demonstration, and appropriate public use. Game Management Areas should be areas possessing significant or potentially significant habitat values for the management and protection of wildlife and natural resources.
- (5) Recreation Areas. Recreation Areas are areas of natural or scenic character, often containing historical, archeological, ecological, or geological values selectively developed to provide resource-oriented recreational opportunities. Visitor information and interpretive programs should be emphasized to provide the visitor with a more complete and meaningful recreational experience.

Since Wildlife Management Areas, do not at the time of this research, provide information via the Web as well as the other four management classification do, Wildlife Management Areas are not included in this study.

It is also important to note that TPWD divides management responsibilities by regions. TPWD (TPWD Web site 2000) divides the state into seven regions: Panhandle Plains, Prairies and Lakes, Piney Woods, Gulf Coast, South Texas Plains, Hill Country and Big Bend Country (Figure 2.1). For example Big Bend Ranch State Natural Area falls under the jurisdiction of the Big Bend Country region, while Enchanted Rock State Natural Area is managed as part of the Hill Country region. While each park is a natural area, it is possible that the different management regions or even physical regions result in different park representations on the Web. A complete list of park in each management region and management classification is included in the appendix.

Figure 2.1

## TPWD MANAGEMENT REGIONS



- (1) Panhandle Plains
- (2) Prairies and Lakes
- (3) Piney Woods
- (4) Gulf Coast
- (5) South Texas Plains
- (6) Hill Country
- (7) Big Bend Country

Source: TPWD Web Site 2001.

## World Wide Web

TPWD reports the Web is one of its most important forms of informational outreach (Texas Parks and Wildlife Department Annual Report 2000). While past studies of park promotional material have all evaluated brochures or magazines, none have examined park promotional materials in the new media of the Web (Burgess 1990; Peterson 2000). Opportunity exists for the Web to be the most significant modern implement of park ideals and promotion. Before this study can determine which factors influence the content presented by TPWD sites on the Web, it is important to address special characteristics of the Web as a new medium.

Estimating the number of people on the Web is an inexact science. In the mid-1990s Adams and Warf (1997, 140) estimated the number of people on the Web in the "...tens of millions at the least." By 2001 Web survey estimated that 513 million people worldwide are online (NAU Internet Survey 2001). Clearly, use of the Web is growing at a fast rate.

The Web is "... a means of transmitting text, images, and even sound and movie files over the Internet" (Adams and Warf 1997, 141). It has overthrown the "...tyranny of author over reader" (Weare and Lin 2000, 274). Unlike the newspaper or tourist brochure where a reader was given only a small and direct amount of information, the Web gives readers choices of which information to view and allows searches for information. Users have more control over what they wish to view and choose the paths of information they wish to follow.

The Web is an immense resource to find information and investigate places. The Web allows anyone with access to search for information regarding Texas parks and provides that information immediately. Print materials require mailing or special trips, and lack the immediate information possible from Web sites. Online material goes "beyond the original newspaper content" by providing feedback and interaction (Li 1998, 353).

The style of delivery of information about visual and other qualities of landscape has evolved from one whereby static images are collected and distributed to viewers ...to formats where viewers are free to roam a visual field, examine the underlying data, manipulate its particulars, and maybe play 'what-if games' with its underlying biology or hydrology. (Orland, Budthimedhee, and Uusitalo 2001, 140)

Its users also consider the Web reliable. A study of people's confidence in media sources found that viewers of the Internet place more credibility with Internet news than with traditional versions of media (Johnson and Kaye 1998).

Critics of the Web suggest that viewers do not make conscious distinctions between real and virtual worlds. Schwartz (1996, 3) refers to this effect as "virtual witnessing." The same criticisms surfaced with the increase in travel photography, which allowed people to go places once unreachable for a variety of reasons. "Through the agency of photographic images and the authority of photographic truth, armchair travel allowed the viewer to have a false sense that one could be knowledgeable about a place without the first-hand experience of being there" (Schwartz 1996, 34). Turkle in *Life on the Screen* (1995, 237) suggests that the Web makes, "...the fake seem more compelling than the

real." Another criticism of the Web is that it can be used to exacerbate current inequities in society. Most studies of the Web assume that access to the Web is available to everyone. Yet the equipment required to access the Web is expensive, therefore limiting Web those who can pay for access or otherwise obtain access. Robert Cantrall asks "Is Myth America On-line?" Myth America is the idea that all people are equal in society regardless of race, gender, or economic status. He states, "In examining the demographics of frequent and consistent Internet viewers/users, one immediately detects that the stratification evident in the 'real' world are also evident in the online world" (Cantrall 2001). He suggests examining the framework of the site's intended purpose, representation, and asking, "...who benefits from the site in its present construction?" (Cantrall 2001). It is important to avoid the assumption that access to the Web is commonplace, and that this research consider whether representations on the Web are linked to stratification evident in society. While one may access the Web in schools, libraries, etc. at no cost; it is often a hassle and inconvenient to access the Internet, as a result people without computers become less adept at surfing the Web quickly and efficiently, and rely on the Internet less for information.

Despite criticisms of the Web, millions of people every day turn to the Web for information. It is a medium that is being used by a large portion of society. Just as brochures have in the past, the Web interprets the landscapes of Texas parks. Until now most research of promotional literature examined

brochures and magazines. The Web offers a new medium to examine how landscapes are constructed and then represented.

The literature presented in this chapter suggests landscapes are constructed, represented, and consumed influencing perceptions of places. Secondly, the literature in this chapter provides a historical setting to the creation of state parks in Texas. Lastly, this chapter presents literature that discusses different criticism and praise of the Web. In light of the literature presented in this chapter, the research hypothesizes:

1. Human environmental values shape representations of Texas state parks on the Web.
2. Management objectives create variability in park representation on the Web.
3. Park location impacts Texas state park representation on the Web.

## CHAPTER 3

### METHODOLOGY

In order to classify the immense amount of information presented within the pages of Texas state park Web sites, this research employs content analysis to answer the following research questions: (1) What human environmental values influence the representation of Texas landscapes on state park Web sites, specifically: (2) Do management classifications create variability in park representation on the Web? (3) Does the location of a park within Texas influence the way the park is represented on the Web?

#### Content Analysis

A content analysis summarizes the text and graphics of TPWD Web pages and provides the primary data for this research. "Content analysis is a research technique for making replicative and valid inferences from data to their context" (Krippendorff 1980, 21). Content analysis produces a "descriptive profile of media" (Riffe, Lacy and Fico 1998, 27). Haggarty (1996, 99) provides a summary of content analysis as, "...a research method which allows the qualitative data

collected in research to be analyzed systematically and reliably so that generalizations can be made from them in relation to the categories of interest to the researcher." The two main goals of content analysis are, "...To describe the communication to draw inferences about its meaning or infer from the communication its context of production or consumption" (Riffe, Lacy, and Fico 1998, 26). In this study, content analysis provides a structured interpretation of state park Web sites.

Several studies successfully applied content analysis to the Web by evaluating such groups of Web sites as those of Fortune 500 companies, Federal and State Governments, Web newspapers, and political parties (Elliot 1999; Esrock and Leichty 1998; Flores 1999; Gibson, and Ward 1998; Lui et al. 1997; Massey and Levy 1999; Musso, Wear, and, Hale 2000; Peng, Them, and, Xiaoming 1999; West 2001). West (2001) in cooperation with Brown University applied content analysis to 1,680 government Web sites. The study examined e-government, which provides information and service over the Web such as car registration and renewal of driver's license. E-government "...improves citizens access to government information, and puts the average citizen in a stronger position to hold leaders accountable" (West 2001, 22). The results show that very few states take full advantage of the Web as a way to reduce the amount of time needed to process applications for state services such as car registration, provide informational material, and promote tourism. While there are many

improvements to be made, Texas ranked in the top three for providing information, citizen access, portal access, and services (West 2001).

Content analysis has also been applied to newspaper coverage, online news media text, and tourist brochures (Bendix and Liebler 1999; Bengston and Fan 1998; Masberg and Jamieson 1999, Xu and Bengston 1997). Bendix and Liebler (1999) found that measures of physical and social distance influence the amount of coverage a story receives. By using content analysis of news media stories another study found that National Forest values shifted between 1982 to 1993, "...away from easily defined and measured economic values toward values that are much more difficult to measure and that have often been neglected or ignored [such as aesthetics]" (Xu and Bengston 1997, 55).

While applying content analysis to the Web is new ground, several studies examine the benefits and challenges (Haas and Grams 2000; McMillan 2000; Weare and Lin 2000). Weare and Lin (2000, 276) remind that, "The Web is rapidly becoming the largest repository of information ever known to man." The majority of articles applying content analysis to Web sites mention the difficulties of defining boundaries and warn researchers to take care in defining the unit of analysis. McMillan (2000) also suggests care when training coders and testing for validity. Overall, each article finds many benefits of applying content analysis to the Web and each offers suggestions to overcome challenges presented by the

Web. TPWD Web sites provide a measure of what values are important to Texas parks and an explanation of the role of parks in Texas.

This study analyzes text and graphics from 121 homepages and the internal links of TPWD units. An internal link is a link that falls within the domain of TPWD. For example, [www.tpwd.state.tx.us/enchanted\\_rock/camping](http://www.tpwd.state.tx.us/enchanted_rock/camping) is within the TPWD domain. A link that leads to an external site, such as Friends of Big Bend ([www.friendsofbigbend.org](http://www.friendsofbigbend.org)), is not included in this content analysis. The main page of TPWD will not be examined; only the home pages and links of TPWD park units are analyzed. By including only the homepages and internal links of each park, the study controls for links to repetitive information pages and allows the analysis to be specific to the park units instead of the TPWD system. The assumption that supports this analysis is that most Web site visitors are looking for information about a specific park instead of the TPW system.

### Design

The analysis of this research involved (1) developing valid content analysis instruments including a dictionary, scoring guide, and protocol (2) checking reliability of content analysis instruments and (3) coding and classifying park Web site's text and graphics.

### **(1) Content Analysis Evaluation Instruments**

For a content analysis to be successful, a valid dictionary, scoring guide, and protocol must be developed. A content analysis dictionary provides a list of important terms and items presented within a medium. For example, the recreation value dictionary includes themes such as hiking, fishing, camping, and swimming. A scoring guide applies the dictionary concepts to the data set. Lastly, the protocol is the instruction sheet for using the scoring guide. The dictionary and scoring guide applied in this research have been adapted from a content analysis employed by David Bengston and Zhi Xu (1995). Since the content analysis applied by Bengston and Xu (1995) was designed to evaluate national forest values and this research evaluates state park values, minor changes had to be made to the data collection implements. For instance, the Bengston and Xu (1995) study includes terms such as logging and forest managers that were changed to hunting and park managers for use in this study. Many different researchers have provided value classifications schemes that aided in the development of the content analysis instruments used in this research (Brennan 1992; Ehrenfeld 1976; McCloskey 1990; Rolston 1985, Texas Parks and Wildlife Comprehensive Planning Branch 1990).

The general categories examined in this research are:

- (1) Recreation value, which examines common recreation activities in Texas state parks. This category includes recreation such as hunting, camping,

water recreation, and motorized recreation. Recreation is an, "...outdoor gymnasium and theater...valued by two-thirds of Americans, especially by the young and educated, as a matter of preference and well-being" (Rolston 1985). Parks that include hunting, swimming and fishing will have a high recreation value score.

- (2) Infrastructure value centers on the idea that parks are to charge fees, and that these fees help to sustain the management of the park. Governing policy transfers its values onto the landscape of a place. The results are extensions of policy that act as, "...clues and the whole scene as a symbol of the values of governing ideas, the underlying philosophies of a culture" (Meinig 1979b, 42). Mention of park mission, friends groups, and park fees are examples of the infrastructure value.
- (3) Ecological value is the idea that a park is a healthy ecosystem. Texas parks protect endangered species and work to provide the most natural habitat. This is an attempt to "...heal the wounds with the primeval forest, clear off settlements, heal wounds and mend the natural fabric-to imagine what the area is really like" (Meinig 1979b, 34). Examples to be coded for this value include mention of endangered species, air quality, ecosystem health, and primitive camping.
- (4) Aesthetic value emphasizes the beauty of a place. "One of the main reasons that we have set aside certain natural areas as national, state, and

county parks is because they are considered beautiful" (Callicott 1992, 12).

Because of the subjective nature of this value, it is necessary to determine objective variables for the purpose of coding. Examples of measures include artistic descriptions of an area, mention of wildflowers, potential for animal watching, and pictures of natural landscapes.

(5) Education value involves making a park "...good not just because individuals like it, but because society gains pure knowledge, which enlarges our understanding of the world and our roles in it" (Rolston 1985, 27). Parks therefore provide a "...landscape [that] can be regarded as a laboratory, an experiment station" (Meinig 1979b, 38). Examples include links to classroom activities, mention of a visitor center, and boater safety classes.

(6) Historical value reflects the cultural history of an area. Rolston (1985, 29) describes this as, "...lifting historical experience out of books and recapturing it on a vivid landscape." Sites with high historical value representation would include mention of cemeteries, reenactments, and historical buildings.

The dictionary and scoring guide for each classification value are included in the appendix. It is important to note that the dictionaries for each value classification do not contain the same number of terms. Many terms could have been added to equalize the number of terms in each dictionary, but this would

have just added many dictionary terms that are never mentioned by TPWD Web sites. To avoid large numbers of zero values for terms, dictionaries contain unequal amounts of terms. To account for this the final results are percentages based on the total number of occurrences and not the percentage of the possible total dictionary terms. Since a Web site combines graphics and text, dictionaries were developed for both text and graphics. This bypasses the confusion when trying to apply general dictionaries to both text and graphics. For example, the aesthetic value dictionary for text includes terms such as beautiful, scenic, and natural. While each of these terms are valid for a text scoring guide, applying these terms to graphics introduces reliability issues. One coder may find a desert scene beautiful while another may dislike deserts and consider only mountain scenes beautiful, therefore finding the desert scene unattractive. To reduce reliability problems dictionaries specific to text and to graphics were applied in this study. While the dictionaries are very similar, the graphic dictionaries are specific to the presence or absence of a thing in an image and the text scoring guides simply evaluates the presence or absence of a term. This research applied Verbatim Pro, a qualitative software analysis program, to score all text found on each park's Web site. Computer scoring allows the computers to search through the text for key words. The key words used in this study are the terms included in each of the value dictionaries. Table 3.1 provides examples of the dictionary and scoring guide for text. Table 3.2 provides examples of the dictionary and

scoring guide for graphics and links. Since computers are unable to assess the values presented in pictures and graphics, researchers evaluated all visual data presented on the studies Web sites. It is important to note that one Web page may include expressions of each category or a mixture of several categories. The complete dictionaries, scoring guides and protocols used in this analysis are included in the appendix.

Table 3.1. Example Dictionary for Text

Value	Example dictionary and score guide
Recreation Value	Tubing, hiking, camping, hunting, boating, 4X4 driving
Infrastructure Value	Fees, friends groups, map, park store
Ecological Value	Air pollutants, biological diversity, habitat, sustainability, conservation
Aesthetic Value	Artistic, awe-inspiring, vistas, wildflowers, scenic value
Education Value	Visitor center, stewardship, guided tours, classroom activities, boater safety classes
Historic Value	Burial mound, birthplace, historic home, reenactments, forts, legends

Table 3.2. Example Scoring Guide for Graphics

Value	Present/ Absent
Recreation Value	canoeing, tents, swimming, hiking
Infrastructure Value	rangers, map, fees volunteers
Ecological Value	endangered, wildlife, native plants
Aesthetic Value	scenic vistas, wildflowers
Educational Value	guided tours, visitor center,
Historic Value	historic structures, forts, missions

## **(2) Reliability of content analysis instruments**

Reliability means, "Different people should code the same text in the same way" (Weber 1990, 12). In addition to people coding graphics the same way, for this research reliability also requires that people and computers should code the same Web sites in the same way.

Since this study evaluated 121 park Web sites, there was a large amount of text to classify. The computer program Verbatim Pro was used to classify text. First, to check the accuracy of the computer scoring, random sections of text were selected from 25% of the 121 Web sites. Reliability requires that at least 10% of all sampled sites take part in cross coding (Macmillan 2000). Verbatim Pro key word in context application marked each of the 30 sites' text for dictionary terms and produced a printout with dictionary terms highlighted. A human coder evaluated each highlighted term to determine if the term did in fact support the overall category in which the term was included. The author acted as the main human coder in this research. The coder agreed with the computer selection on 92% of the scored items. The few times the coder did not agree with computer scoring of the text most often involved proper names or an improper context. The selected text below provides an example of human computer coding comparison.

A unique legacy of lively and fantastic rock paintings greets the visitor at the "tanks." From Archaic hunters and foragers of thousands of years ago to relatively recent Mescalero Apaches, Native Americans have drawn strange mythological designs and human and animal figures on the rocks of the area. The site's notable pictographs also include more than 200 face designs or "masks" left by the prehistoric Jornada Mogollon culture. Hueco Tanks was the site of the last Indian battle in the county. Apaches, Kiowas, and earlier Indian groups camped here and left behind pictographs telling of their adventures (TPWD Web Site 2001).

The human coder and computer agreed on the terms: legacy, rock paintings, visitor, Apaches, Native Americans, pictographs, prehistoric, Indian, and battle. While the computer also marked the terms hunters and camped as recreational values, the human coder was able to determine that these terms were not expressions of recreation values but historical values. This example shows that while computer scoring improves the consistency and speed of coding, computers are unable to distinguish small nuances in language. While this is a flaw to computer scoring, reliability of the computer scoring with human scoring of text found an acceptable 92% agreement rate (Weber 1990).

Since computers cannot score graphics, researchers scored the graphics and available links. The author and a fellow graduate student acted as the two human coders for this research. To check the accuracy of the human-scored graphics two coders scored the same 30 randomly chosen Web sites used in the computer reliability test. The two coders, working independently, reached a 94% agreement rate when evaluating graphics in this study. Chi-square was also

employed to determine the effectiveness of the scoring of each graphic (Riffe, Lacy, and Fico 1998). Chi Square and Kappa values were calculated to adjust for chance agreement between coders. While an overall agreement percentage provides support for agreement levels, it does not take into account agreement by chance. A Chi Square agreement matrix comparing the two coders evaluation of Web site graphics provided the data needed to calculate Kappa Values. K is calculated using the formula (Stemler 2001):

Figure 3.1

$$\kappa = \frac{P_A - P_c}{1 - P_c}$$

where:

$P_A$  = proportion of units on which the raters agree

$P_c$  = the proportion of units for which agreement is expected by chance.

Stemler (2001) also provides the following benchmarks for interpreting data:

Figure 3.2

<u>Kappa Statistic</u>	<u>Strength of Agreement</u>
<0.00	Poor
0.00- 0.20	Slight
0.21- 0.40	Fair
0.41- 0.60	Moderate
0.61- 0.80	Substantial
0.81- 1.00	Almost Perfect

Items with less than a .651 Kappa Value were dropped from the study since the value indicates coders did not consistently code the items the same. Items deleted from the study after reliability tests are included in the appendix along with all the Chi Square and Kappa Values.

### **(3) Coding and classifying park Web site's text and graphics**

Once scoring guides, computer scoring, and hand scoring were all found to be reliable, the next step in a content analysis is to code all data.

This content analysis allows comparison between the management regions, management classifications and the classifying values.

The management regions of TPWD are:

- (1) Panhandle Plains,
- (2) Prairies and Lakes,
- (3) Piney Woods,
- (4) Gulf Coast,
- (5) South Texas Plains,
- (6) Hill Country,
- (7) Big Bend Country

The management classifications of TPWD are:

- (1) State Parks
- (2) State Recreation Areas
- (3) State Historic Areas
- (4) State Natural Areas

The classification values are:

- (1) Aesthetic/spiritual value
- (2) Recreation value
- (3) Historic value
- (4) Commodity/Management value
- (5) Ecological value
- (6) Educational value

After placing each park in the appropriate management region and management classification system, the text and graphics of each Web site were coded for classification values.

The coding process for text included downloading all available text from each park units Web site, entering the text into the computer program Verbatim Pro, entering dictionary terms for each classification value into the Verbatim Pro program, and lastly applying Verbatim Pro code procedure to each park's text selection. The result of the computer-coded analysis is a count of each park's text for the presence or absence of each term.

The next step in the coding process applied human scoring to all pictures and links available on each of the TPW sites. Figure 3.3 is a picture from the Devil's River State Natural Area.

Figure 3.3



The coding process for all pictures involved the coders marking the presence or absence of items in a photograph. Figure 3.3 has two main items to code: the first is canoeing and the second is the river. Native plants and vegetation were also marked as present for this picture. The scoring process was repeated for each picture presented on TPWD unit Web sites.

Each of the 121 Web sites for Texas state parks underwent the same process discussed in the example. The result of the content analysis is an extensive database of information that provides a summary of how Texas state parks are represented on the Web. The following chapter examines the resulting database, and tests the null hypotheses:

1. Human environmental values do not influence how Texas state parks are represented on the Web.
2. Management objectives do not create variability in park representation of the Web.
3. A park's location has no relationship to its representation on the Web.

## CHAPTER 4

### RESULTS

To provide a better understanding of TPWD Web sites and the results as applied to the hypotheses, this chapter begins with a general description of TPWD Web site characteristics. The second section of this chapter discusses the preparation and arrangement of the data. The third section presents the general results of the content analysis. The final section of this chapter evaluates the results in relation to the null hypotheses posed by this research.

#### Texas State Park Web Site Descriptions

Each state park Web site follows the same basic format. All most all sites are organized by the general categories: history, activities, facilities, flora/fauna, directions, area attractions, calendar of events, elevation weather and schedule information, park fees and gate information, and park map. While most Web sites contain at least a small amount of information under each category, the depth and amount of information varies greatly from site to site. These general categories are present on most park Web sites, and many parks go beyond these

general categories and include information specific to the area or history of the park. For example, Lost Maples State Natural Area includes a link to foliage reports, Big Bend State Ranch includes a large section devoted to educational resources, and Washington on the Brazos State Historical Park Web site explores Texas history through pictures, paintings and historical timelines, while Government Canyon State Natural Area's site offers very little information and no pictures. The general design and overall characteristics are consistent throughout TPWD Web sites, yet there is a fair amount of variability in the type and amount of information presented. Before delving into the overall results of the content analysis, the next section discusses data preparation and arrangement.

### Data Preparation and Arrangement

Content analysis provided a tabular information sheet that explains which factors are emphasized in which parks. The result of this content analysis is a frequency count of the occurrences of text terms and items present in pictures. Preparing the data involved combining the text frequency counts and the picture frequency counts, resulting in a complete overall measure of TPWD Web sites. The overall frequency count measure was then grouped into the six classifications defined in chapter three (history, education, aesthetic, ecological, infrastructure, and recreation). After organizing the results into the classification values (history, education, aesthetics, ecological, infrastructure, and recreation),

each of the 121 parks were categorized by location in the state of Texas and management designation. Both location and management classifications are a result of TPWD definitions.

The last step in the data preparation applied the non-parametric test chi-square to the data. This statistical test determines if the observed distribution is different from the distribution one would expect if no pattern or relationship existed in the data. Specifically, this research tested the relationship between location and the six themes, and management designation and the six themes.

Chi-square is calculated using the formula:

Figure 4.1

$$\chi^2 = \sum \frac{(\text{Observed Value} - \text{Expected Value})^2}{(\text{Expected Value})}$$

The observed value is the frequency count of each theme for each park Web site. The statistical analysis program Stat View reviewed the data and calculated the expected value. The expected value is the frequency count distribution one would expect if no relationship existed. Stat View calculated the chi-square value to determine if the observed frequency count differed significantly from the expected frequency count.

Proper data preparation and arrangement are vital to an accurate interpretation of the results of a content analysis. Data preparation involved the classification and grouping of data and the applying the non-parametric

statistical analysis chi-square. The following section reports the results of the data by themes and the results of the statistical analysis.

## Results

Texas state park Web sites offer a large repository of information including text and graphics. The content analysis found that the number of pictures on each park Web site varied from parks with zero pictures to a Web site with 42 pictures. On average TPWD Web sites presented 6.3 pictures. This study evaluated all of the 772 pictures found on the 121 park Web sites. All text from each Web site also contributed to the analysis of the park Web sites. The results of the content analysis suggest that most state parks are represented on the Web as areas of recreation. Table 4.1 reports the overall results. The frequency count is the total number of each theme terms and picture items found on all State park Web sites. Tables reporting text and picture frequencies are included in the appendix.

Table 4.1.  
Overall Frequency Counts

---

Value	Total Number of Occurrences	Percentage
History	658	12.7%
Education	616	11.9%
Aesthetic	753	14.6%
Ecological	795	15.4%
Infrastructure	645	12.5%
Recreation	1705	33%
Total	5172	

---

## Hypothesis 1

Specifically, this tables answer the first research question asked by this paper: What human environmental values influence the representation of Texas landscapes on state park Web sites? The results support the human environmental value recreation. History, Education, Aesthetic, Ecology, and Infrastructure are also pertinent to the representation of Texas landscapes on state park Web sites, yet the results suggest recreation is the most prominent representation of Texas park landscapes on state park Web sites.

To further this analysis tables 4.2-4.13 report the number of parks, which mention or show each theme item. These tables are particularly important since each is a breakdown of the major overall themes. First, tables 4.2 and 4.3 distinguish between frequently mentioned history terms and infrequently mentioned history terms, and the same for the most frequent and infrequent picture history items. Tables 4.4 and 4.5 inform that the term information is by far one of the most commonly included terms on each Web site. In fact 118 out of 121 park Web sites included the term information. Museum and tours are also mention by a majority of Web sites. The next tables 4.6 and 4.7 suggest that the landscapes are often described on Texas state park Web sites as areas with lakes and rivers. Interestingly, the term mountain is also included on a little less than half of the 121 park Web sites evaluated in this research.

Tables 4.8 and 4.9 suggest the ecological perspective of Texas park landscapes on the Web focus on birds and nature tourism. The term birds is one

of the most prevalent ecological terms and the photographic item birds is also a common item presented by most parks. Texas landscapes on the Web are also referred to as natural areas. An important distinction is that Texas landscapes are represented as natural systems instead of developed landscapes. Conservation is also commonly mentioned by a majority of parks suggesting the incorporation of conservation efforts with recreational opportunities.

The Infrastructure themes reported in tables 4.10 and 4.11 show that the Web is an important tool to publicize and provide vital information to plan a visit to a state park. Most park Web sites are linked to a fee table and about half state park Web sites contain a link to a park map.

Tables 4.12 and 4.13 include the specific items and the related results of the terms and picture items that comprise the recreation category. Interestingly, the term sports occurs most often in the recreation category. Campgrounds and tents are also frequently mentioned by Texas state park Web sites. The results of the recreation category suggest that the kinds of recreation possible at Texas state park vary greatly from park to park.

The overall results suggest that Texas park landscapes are portrayed on the Web as places to recreate, while the five other environmental values are fairly equally represented. The term and specific item results also aid in this research by providing a more detailed description of common representations of Texas state parks. For instance, recreation in general is very common, but park map, park fees, and water bodies are all common representations and links included in

most of the 121 Texas state park Web sites. Chapter 5 includes a discussion of the overall content analysis results.

Table 4.2.  
Historic Text Value

Term	Number of Parks
Apaches	8
Battlegrounds	0
Battleship	1
Birthplace	10
Buffalo soldiers	6
Burial mound	8
Cathedral	2
CCC	28
Cemetery	10
Church	12
Comanche	11
Cowboys	9
Depression	4
Flag	4
Folk stories	0
Forts	6
Gravesite	1
Graveyard	0
Heritage	12
Historic home	46
History	114
Indians	37
Legend	3
Living history	16
Military	19
Mission	21
Monument	16
Native Americans	9
Pictographs	5
Prehistoric	12
Railroads	6
Reconstructed	7
Reenactments	5
Restored	20
Rock Painting	0

Table 4.2--Continued.

Term	Number of Parks
Roundups	1
Ruins	12
Rustic	6
Sacred	1
Slavery	0
Statue	4
Temple	2
Trail Drives	1
War	38
18 <sup>th</sup> century	14
19 <sup>th</sup> century	4
Total	559

Table 4.3.  
Historic Picture Value

Item	Number of Parks
Battleship	3
Buffalo Soldier	0
Cemetery, Graveyard	4
Cathedral/Church	2
Cowboy	3
Flag	9
Fort, Military Base	4
Historic Home	18
Living History	12
Native Americans	4
Pictographs	3
Ruins	11
Statue	5
Structure (Historic)	19
Trail Drive	2
Total	99

Table 4.4.

## Education Text Value

Term	Number of Parks
Children	32
Classes	9
Classroom	2
Education, Educational	51
Ethics	0
Experiment	2
Future generations	3
Good steward	0
Guides	8
Guided	55
Inspire, Inspiring	1
Inspirational	0
Interpretation, Interpretive, Interpretational	4
Information	118
Junior Ranger	3
Kiosk	0
Land Ethic	0
Legacy	11
Lesson Plans	1
Museum, Museums	68
Naturalist	3
Posterity	1
Program	35
Project WILD	1
Safety	11
Stewards	2
Teachers	6
Tours	83
Visitor Center	14
Total	575

Table 4.5.  
Education Picture Value

Item	Number of Parks
Children	17
Guided Tours	8
Junior Rangers	4
Kiosk	2
Ranger	2
Real Audio	22
Safety Classes	1
Virtual Tour	9
Visitor Center	3
Total	68

Table 4.6.  
Aesthetic Text Value

Term	Number of Parks
Aesthetic	0
Artistic	0
Awe	0
Awe-inspiring	0
Awesome	0
Beautiful	32
Beautify	0
Beauty	14
Breathtaking	1
Butterflies	25
Butterfly	24
Canyon	26
Captivating	0
Captivate	0
Cave	10
Caves	6
Coastal	8
Colorful	11
Desert	14
Emotion	0
Emotional	1
Evoke	0
Expansive	2
Fragrant	5
Fragrance	0
Glories	0
Glory	0
Graceful	0
Grandeur	1
Harmonious	0
Harmony	2
Hart-stopping	0
Hue	0
Inherent	1

Table 4.6--Continued.

Term	Number of Parks
Lake	77
Lavish	0
Lovely	5
Lush	4
Luxuriant	5
Magnificent	4
Majestic	2
Majesty	0
Marsh	7
Marvelous	0
Mountain	50
Musical	7
Noble	2
Orchestral	0
Ornament	0
Ornate	0
Ornamented	0
Painting	2
Panorama	0
Panoramic	0
Picturesque	2
Poem	0
Poems	0
Poetic	0
Poetical	0
Poetry	1
Prairies	1
Pristine	5
River	76
Scenery	4
Scenic	37
Spectacular	13
Splendor	3

Table 4.6--Continued.

Term	Number of Parks
Splendorous	0
Stunning	1
Stunningly	0
Stupendous	0
Sublime	0
Sunset	10
Sunsets	2
Untrammeled	0
Vast	11
Vista	2
Vistas	2
Visually Spectacular	4
Wildflower	12
Wildflowers	26
Total	560

Table 4.7.  
Aesthetic Picture Value

Item	Number of Parks
Artist Rendering	2
Butterflies	21
Canyon	6
Caves	4
Coastal	7
Desert	7
Lake, River	63
Marsh	21
Mountains	10
Prairies	12
Sunset	20
Wildflowers	20
Total	193

Table 4.8.

## Ecology Text Value

Term	Number of Parks
Armadillo	18
Bat	9
Biodiversity	2
Biota	0
Biotic	0
Birds	63
Bison	7
Buffalo	13
Conservation	51
Contamination	0
Damaging	0
Degradation	0
Degrade	0
Degrading	0
Ecological	8
Ecologist	0
Ecology	0
Ecosystem	4
Endangered	0
Energy	2
Entropy	0
Environmental	0
Environmentally	0
Erode	2
Eroded	0
Eroding	0
Erosion	6
Exotic	4
Extinct	3
Fire ban	1
Flood Control	6
Frog	5
Game	9
Global Warming	0
Groundwater	0

Table 4.8— *Continued.*

Term	Number of Parks
Greenhouse	0
Habitat	19
Health	7
Insects	4
Integrity	0
Keystone Species	0
Landscape	15
Life-supporting	0
Longhorns	17
Migration	5
Monitoring	2
Natural	67
Nature	79
Photosynthesis	1
Plants	38
Pollution	2
Pollutants	1
Primitive Camping	18
Protection	16
Quality (Water and Environment)	7
Rabbit	13
Riparian	2
Sensitive	3
Snakes	7
Soil	9
Species	58
Sustainability	0
Sustainable	0
Threatened Species	4
Toad	3
Top Soil	1
Turtle	4
Watershed	6

Table 4.8 – *Continued.*

Term	Number of Parks
Watersheds	1
Wetland, Wetlands	13
Wildlife	92
Total	727

Table 4.9.  
Ecology Picture Value

Item	Number of Parks
Armadillo	0
Bats	1
Bison	1
Birds	11
Deer	4
Exotic Species	1
Fish	3
Frogs	0
Insects	0
Longhorn	7
Native Plants	3
Prairie Dogs	2
Rabbits	1
Snakes	0
Toads	2
Turtles	0
Wildlife General	5
Total	40

Table 4.10.

## Infrastructure Text Value

Term	Number of Parks
Commodity	0
Concession	15
Development	15
Economic	5
Fees	110
Financial	2
Hotel	12
Laws	3
Management	19
Map	46
Motel	7
Passport	6
Payment	4
Permits	3
Purchased, Purchase	44
Shop	6
Store	73
Volunteer	21
Total	389

Table 4.11.

## Infrastructure Picture Value

Infrastructure Item	Number of Parks
Entrance Station	5
Fire Wood	0
Link to Friends Groups	12
Link to Map	64
Link to Park Fees	110
Link to Park Store	65
Total	256

Table 4.12.

## Recreation Text Value

Term	Number of Parks
Automobiles	0
Backpacking	22
Basketball	12
Baseball	6
Beach	70
Biking, Biking, Bike, Bicycling	38
Birding, Bird watching	8
Boating, Boat	55
Boat dock, Boat ramp	5
Camping	6
Campground, Campgrounds,	87
Camping, Campsite, Campsites	14
Campfires	22
Climbing	12
Drive	0
Dump station	44
Facilities	17
Firearms	85
Fishing	8
Floating	1
Golf	81
Grills	1
Hall	45
Hiking, Hike	54
Horseback riding	6
Hunting, Hunt	4
Jogging	5
Kayaking	34
Nature Trails	13
Parking	30
Pavilion	35
Picnicking, picnic tables, picnic areas	63
Photography	0
Playground	8
Rafting	10
Recreation	22

Table 4.12--Continued.

Term	Number of Parks
Restrooms	83
RV	83
Running	1
Sailing	1
Showers	6
Sightseeing	27
Star gazing	19
Stables	8
Sports	120
Swimming	87
Tennis	9
Tents	92
Trailers	41
Tubing	0
Walking	7
4X4	3
Total	1474

Table 4.13.

## Recreation Picture Value

Recreation Item	Number of Parks
Automobile	3
Basketball	0
Baseball	1
Bathroom	1
Boat Dock or Ramp	14
Boating	23
Biking	6
Birding	2
Campsite	15
Campfire	0
Canoeing	10
Fire Arms	0
Fishing	17
Golf	0
Grill	12
Hiking	7
Horseback Riding	2
Hunting	0
Kayaking	1
Link to Fishing Information	21
Pavilion	12
Photography	0
Off Roding	0
RV	9
Star Gazing	0
Tents	9
Trails	17
Picnicking	22
Playground	5
Rail Road	1
Recreation Hall	3
Rock Climbing	2
Stables	1
Swimming	12
Tennis	0

Table 4.13--*Continued.*

Recreation Item	Number of Parks
Train	1
Tubing	1
Volleyball	1
Total	231

## Hypothesis 2

The overall results provide valuable information about the general representation of Texas parks to the public. This next section addresses the research question: Do management classifications create variability in park representation on the Web? To answer this question this research tested the null hypothesis that: Management classifications do not create variability in park representation on the Web. Chi-Square was employed to determine if a relationship existed between management classification and the six environmental values.

Table 4.14 reports the number of occurrences in relation to management classifications and each of the environmental value themes. While there appears to be a slight pattern between the history management category and the historic environmental value by observing the raw number of occurrences and percentages in table 4.14, the non-parametric test chi-square does not support a relationship. The results of the chi-square are not statistically significant and therefore the null hypothesis cannot be rejected with regard to Texas state park Web sites value themes and management classifications. The insignificant chi-square values are included in the appendix.

Table 4.14.

## Frequency Count by Management Classification

	State Park N= 71		Historic Site N=34		Natural Area N=7		Other N=9	
	Raw	%	Raw	%	Raw	%	Raw	%
History	289	9%	240	22%	19	9%	38	9%
Education	378	12%	206	19%	19	9%	39	10%
Aesthetic	475	15%	183	17%	46	21%	59	14%
Ecological	460	15%	194	18%	50	22%	94	23%
Infrastructure	295	9%	178	17%	25	11%	42	10%
Recreation	1237	39%	267	25%	64	29%	137	33%
Total	3134		1074		223		409	

### Hypothesis 3

The next section addresses the influence of location on the representation of Texas state parks on the Web. Specifically, null hypothesis 3 states: A park's location has no relationship to its representation on the Web. To test the null hypothesis the overall results were divided by the seven TPWD regions. The data underwent the same chi-square procedure used to test hypothesis 2. Tables 4.15 and 4.16 report the frequency count and percentage of each environmental value theme for each location. The frequency count and percentage tables illustrate the distribution of each value for each location. The non-parametric test chi-square indicates that aesthetic, ecology, education, infrastructure and recreation do not vary by location. Chi-square does suggest that a relationship between location and the history value exists. Table 4.16 reports the frequency counts that influence the significant  $\chi^2$  of 274.892 at the 5% level. The null hypothesis that location does influence representation can be rejected for the history value.

Table 4.15.

Frequency Count by Location Classification

	1 N=13	2 N=31	3 N=19	4 N=18	5 N=8	6 N=19	7 N=13
History	84	182	73	88	57	92	84
Education	79	177	99	79	4	96	79
Aesthetic	85	174	133	94	57	111	99
Ecological	103	177	123	119	58	99	89
Infrastructure	71	169	98	98	30	102	77
Recreation	258	469	267	216	204	223	158
Total	686	1348	793	694	500	723	586

Table 4.16.

Percentage of Frequency Count by Location

	1	2	3	4	5	6	7
History	12%	14%	9%	13%	11%	13%	14%
Education	12%	13%	12%	11%	7%	13%	13%
Aesthetic	12%	13%	17%	14%	11%	15%	17%
Ecological	15%	13%	16%	17%	12%	14%	15%
Infrastructure	10%	13%	12%	14%	6%	14%	13%
Recreation	38%	35%	34%	31%	41%	31%	27%

Table 4.17.

Significant Chi-Square Frequency Count for History Value  
(RANGE 0-125)

Location	Low 0-42	Medium 43-82	High 83-125
1	22, 23	51	
2	12, 15, 19		
3	25, 34		
4	2, 11, 13, 29, 35, 40		
5	5	58, 80	
6	3, 4, 24, 36		125
7	7, 21, 33	45	

$\chi^2 = 274.892$ ;  $p = .0182$ ;  $DF = 228$

The results of the chi-square analysis suggest that location influences the representation of historical themes. Location 1 (Panhandle Plains) counts are clustered in the lower range with one outlier reporting 51 text and picture historical themes. Fort Griffin State Park influences the results since the historical frequency count (51) is substantially larger than the expected value. Locations 2,3 and 4 (Prairies and Lakes, Piney Woods, and Gulf Coast) also contribute to significant chi-square values by offering less than expected historical themes. Locations 5 and 7 (South Texas Plains and Big Bend Country) report slightly more than expected historical themes. This is most likely a result of the location of larger number of forts and military type parks in these areas of Texas. Location 6 (Hill Country) is most likely reporting significant results as a result of Admiral Nimitz Museum State Historic Site, which reports the largest frequency count of 125. Overall, a relationship does exist between park location in Texas and the historical themes represented on Texas state park Web sites.

Lastly, this study addresses the Web resources that are imbedded within each parks Web site. It is important to examine these results separately, since these results are important to the new medium of the Web. Both text and graphics can be presented in any other media including brochures and television, the Web allows for a new frontier where the images and text are not static, but searchable indexes of information with links to similar information. Table 4.18 Web Resources reports the number of parks with Web specific resources.

Table 4.18.  
Web Resources

---

Web Resources	Number of Parks
Link to Map	64
Link to Park Fees	110
Virtual Tour of Site	9
Real Audio	22
Link to Friends Group	12
Link to Fishing Information	21
Link to Park Store	65

---

The results of this research suggest (1) that aesthetics, ecology, education, history, and infrastructure themes are each equally represented on Texas state park Web sites, while recreation themes are the most prominent way Texas state parks are represented on the Web (2) management objectives do not contribute to variability in the representation of Texas state parks on the Web (3) location influences variability in the representation of historical themes on Texas state park Web sites and (4) Web resources are being utilized by the TPWD.

## Chapter 5

### DISCUSSION

Texas state parks are just beginning to harness the potentials of the Web. Specifically, the Web is a valuable way to impart pertinent information such as infrastructure themes, increase visitation through promotion of recreational opportunities, but also as an important tool to educate about ecological issues and to help shape perceptions about Texas landscapes. This chapter discusses each of the results reported in Chapter 4 in more depth. The first section of this chapter is a discussion the prevalence of recreation themes in the representation of Texas state parks on the Web. The next section addresses the lack of management objectives influence on the representation of Texas state parks on the Web, compared with location which slightly influence the variability in representation of historical themes on park Web sties. The last section of this chapter discusses the potential of the Web to help TPWD achieve its mission statement and adapt to the changing Texas population.

## Texas Parks As Recreation Areas

The results of the content analysis suggest Texas parks are most often represented on the Web as recreation areas, therefore suggesting that visitors expect Texas state parks to be places of recreation. Texas state park Web sites provide pertinent information for planning weekend getaways and visits such as fees, maps, and campground information. The mission of the TPWD states:

We seek to balance outdoor recreation with conservation as we achieve greater self-sufficiency. On one hand, we must manage and protect our natural and cultural resources. At the same time, we must generate increased revenue by adding value through more and better public services. We affirm that a culturally diverse well-trained staff will best achieve this balance. And we must never forget, not in the haste of business, nor in the pride of science, that the outdoors should above all be a source of joy! Providing outdoor experiences, whereby young minds form values, will be our greatest contribution to the future.

(Texas Parks and Wildlife Web Site 2001)

The frequency of recreation themes in the representation of Texas parks on the Web is most likely an attempt to shape perceptions of Texas state parks as places of 'joy'. The choice to emphasize recreational opportunities is a way to provide the increasingly urban population of Texas access to and contact with nature in an effort to build an environmental consensus for the twenty first century. Hough (1990, 163) states, "A new vision of the environment by the tourist industry has suggested that the use and preservation of natural areas and scenic places presents not a conflict but opportunity for a new harmonious relationship between man and nature."

While this argument suggests that the emphasis on recreation is a positive effect on the conservation of natural areas, this argument does not address the negative effects of recreation. Hough (1990, 168) suggests, "...the downfall of many parks programs that are geared to stress natural history and the beauty of nature, but that omit the more unpleasant realities of overcrowded campsites and polluted park environments," are ignoring the reality of the situation. Is the TPWD ignoring the downfall of too many tourists? While the representation of Texas parks on the Web involves more recreation themes, the representation also incorporates important conservation themes through education, ecology, and aesthetic themes. Also, not all recreational opportunities are detrimental to the natural landscape of Texas. For instance birding was mentioned by a great many Web sites. In fact, this kind of recreation is important in the conservation efforts of endangered species in Texas. Overall, the representation of Texas state parks on the Web is a direct result of the overall mission philosophy of the TPWD.

Public lands are also bound by Texas history and culture since the "...natural landscapes represent socially constructed, cultural relationships to the created environment rather than connections to a pristine world undisturbed by man" (Grant 1994, 82). The social construction of Texas landscapes is bound by a history in which private land ownership is protected and the need for open spaces devoid of urban characteristics. Texas parks help reinforce these socially constructed ideas of Texas. Past studies discussed in the review of related literature suggest that a representation of a place influences what a visitor then

expects of that place (Burgess 1981; MacCannel 1976; Wyckoff 1997; Wyckoff 1994;). Since TPWD strives to increase visitation to its parks, it is not surprising that Web sites entice users to visit areas by informing about the variety of recreational opportunities possible. TPWD represents Texas parks as places of recreation, and therefore Texas parks are perceived as places full of recreational opportunities.

The Web might be the first contact a potential visitor has with each park. Therefore the perceptions influenced by the representation on the Web are critical to shaping the regional images of Texas. Interestingly enough many of the landscapes represented on the Web include lakes and rivers. The frequency of the term mountains is also an interesting surprise. Texas is not known for its mountains, lakes and rivers, yet that is how Texas park landscapes are represented on the Web. These not so typical Texas landscapes may help to transform the stereotypical regional images of Texas from stark deserts to images of rich riparian habitat.

Another contributing factor to the emphasis of recreation themes on Texas state park Web sites is the revenue generated by such activities. The 2001 TPWD Annual Report (Online) reminds that the use of Texas state parks is vital to the survival of the park system in Texas due to the large amount of revenue generated by recreation activities. For instance, fisherman and anglers accounted for \$41.5 million in revenue for TPWD during the fiscal year 2001. Park users contributed another \$37 million, while hunters and boaters contributed \$34.1 and

\$36.9 million respectively in 2001. Without these substantial contributions, the management and maintenance of TPWD land would not be possible. Recreation tourism is vital not only to Texas, but to the United States. TPWD (Online 2002) quotes a U.S. Fish and Wildlife survey that, "Seventy-seven million Americans 16 years or older, or 40% of the adult population, enjoyed some form of wildlife-related recreation during 1996. In doing so, they pumped \$100 billion into the national economy." Recreation tourism is a lucrative industry. TPWD publicizes via the Web the many recreational opportunities available at state parks as a means to increase funds for Texas state parks.

#### Management Objectives and Location

The results show that management objectives do not contribute to the representation of Texas landscapes on the Web while location only slightly influence historical themes represented on Texas park Web sites. Clay and Daniel (2000,2) suggest that, "Because agencies operate under different regulations and policy mandates, lands within their respective jurisdictions can reflect unique environmental and visual qualities." Clay and Daniel's study examined if jurisdiction played a role in the environmental perceptions of visitors and found that jurisdiction accounted for the largest amount of variance on preference (Clay and Daniel 2000, 11). With regard to Texas parks the results show that parks classified as state historic sites are not more likely to have pictures on the Web site emphasizing historical themes. This is surprising since

each management classification sets different goals and perimeters. For instance, a State Historic Area is defined by the TPWD (2001) as a park, “established for the preservation and interpretation of pre-historic and historic resources of particular Statewide or national significance.” TPWD’s definition of a natural area (2001) states:

State Natural Areas are areas retaining to a major degree their unique or natural character established primarily for the perpetual preservation of outstanding ecological, biological, geological, or scenic features of Statewide significance, which may be used in a manner consistent with their continued preservation for the public purposes of scientific research, education, aesthetic enjoyment, and dispersed-type primitive recreation.

Since each park is managed according to its classification, each park should also be represented according to its classification. Underlying the management classification of a park is its designation and the original purpose of the area as a park. Most often an area is set aside because it contains assets whether these assets be historically significant or assets of natural beauty. These assets should help to determine how a park is represented to the public.

A slight relationship does exist between location and representation with regard to historical terms. This is most likely a result of a few parks acting as outliers and skewing combined with the concentration of forts, historic structures, and Spanish settlement found in southern and west Texas. In general, parks are represented consistently.

## Parks on the Web

The numbers in table 4.18 are the number of parks that contain a link to a map, link to park fees, a virtual tour of the park, real audio, link to friends group, link to fishing information, and link to the park store. For example 110 of 121 park Web sites contained a link to fees while 64 park Web sites out of 121 contained a link to a park map. The Map Link usually leads the visitor to a general park Map, often the very same map the visitor would be handed upon entering the park. The most common Web resource was the Park Fees Link. This link included information about entrance fees, special use fees, and camping fees presented in a database format. A very small amount of parks offered a virtual tour. These tours were usually very extensive and including activities offered at the park, classroom activities, or a link to a Web broadcast from the main agency of TPWD. The Real Audio links included on several Web sites varied greatly by topic from Golden Cheeked Warblers to interviews with park employees. All of the Real Audio links were taken from TPWD Radio broadcasts.

Friends groups play an important role in any Texas state park. Many of these links also provided supplemental materials including area information, volunteer and job information, and historical information about the creation and maintenance of the specific park. The Fishing Link provided basic information about fishing in the specific park, obtaining permits, general fishing guidelines, and available fish. Since fishing appears to be one of the most popular activities at Texas parks, this link consolidates information. Instead of having each park

provide the same general information, the link provides the basic general information and a small section on each park. The Link to the Park Store took the Web visitor to a general store of TPWD memorabilia. Web resources presented by TPWD Web Sites are a way to provide general agency wide information through specific park Web sites. The exception to this is the Virtual Tour, which often relied on very specific park information instead of providing general agency information.

While all of the links found on the park Web sites provide beneficial information that traditionally was not available without visiting the park itself. The potential is great for including more links, educational information, and even logistics such every park providing a more detailed park map. Parks on the Web have the potential to increase visitation, yet the Web can also increase awareness about ecology, educational opportunities, and importance of parks in Texas.

The Web provides a window into a park to explore the natural world while in front of a computer. There is substantial promise for the Web to entice a person to explore the parks of Texas beyond the computer screen thus increasing park revenues and connect more people with the outdoors.

## CHAPTER 6

### CONCLUSIONS AND RECOMMENDATIONS

TPWD Web sites provide pertinent visitor information and emphasize recreation. This is a telling story of parks in Texas. Parks are designed to attract visitors to an area. It is also important to note that TPWD Web sites are not designed to provide superlative information and instead concentrate on the vitals of planning a visit to a park. Surprisingly management classification does not influence representation on the Web, yet location influence historical representation of Texas parks on the Web. The challenge to the TPWD is to harness the power of the Web to sustain a regional image, promote visitation to parks while maintaining efforts towards conservation and education.

For environmental ethics to grow out of experiences of state parks, it is important for state parks to provide more educational opportunities in conjunction with recreational opportunities. Texas parks appear to be at a stage of needing and enticing visitors. Yet, what happens when the visitors begin to overflow the areas? TPWD parks average around 20 million visitors a year, and at some point these visitors may become a hindrance to the area much like the

problem many national parks such as Yellowstone and Yosemite face. The TPWD must take full advantage of the Web to education not only about recreational opportunities, but also about conservation issues. The tools available through the Web offer a way to publicize but also a way to education with virtual tours and links to lesson plans.

It is also important for the TPWD to be aware of the influence representation can have in effecting regional images. This is particularly pertinent since most of the pictures presented on TPWD Web sites were not characteristic of the typical view of Texas as a desert. Instead most areas concentrated on water including pictures of lakes, rivers or streams. It is interesting that, "Tourism has the potential to be a major force in the protection and maintenance of regional character" (Hough 1990, 149). Yet TPWD's representation of Texas landscapes are not the stereotypical images associated with Texas' regional character. This direction away from the stereotypical may be an effort to make Texas landscapes more appealing to visitors.

### Recommendations

Regardless of the representation of Texas parks on the Web it is true that Texas parks have found the Web to be an important tool to provide information to visitors. Visitors needing information regarding a specific site can easily find the information ranging from directions to the history of the area. The abundance of infrastructure links supports the claim that Texas parks use the

Web as a valuable way to disseminate information. A downside to this representation on the Web is that while it is assumed that everyone has access to the Web, not everyone has easy access to the Web. If TPWD is to use the Web as an effective means of communication, it is important to understand the limitations of the audience of the Web. The agency must continue traditional forms of media if it wishes to reach every facet of the Texas population.

At the moment, the information presented on each park's Web site very much resembles the information presented in park brochures. The Web allows for interaction beyond the brochure. TPWD could increase the number of visitor comments sections to allow visitors to read other visitors comments and suggestions. A section could also be included that discussed the natural resource programs currently in place in each of the parks. Links to park activities including scavenger hunt lists for children, or educational opportunities for adults could also aid in Web representation. Parks are currently linked to other parks in the area which is a good use of the Web, but more is possible to make a park site interactive and to use the Web to its fullest potential. TPWD largest obstacle in the twenty-first century is to help an urban population develop an environmental responsibility through first hand experience. The Web is a valuable link to educate the increasingly urban population of Texas about the natural world of Texas via state parks.

Lastly, as advances in technology increase access to the Web, the Web is likely to become the first contact a possible visitor has with Texas state parks. It is

important to remember that, "...Our human landscape is our unwitting autobiography, reflecting our tastes, our values, our aspirations, and our fears, in tangible visible form" (Lewis 1979, 12). The computer screen is now a window into wilderness and a record of our human landscape.

## APPENDIX

## Table A-1.

## Big Bend Region

---

Balmorhea State Park

Barton Warnock Center

Big Bend Ranch State Park

Davis Mountains State Park

Devils River State Natural Area

Fort Lancaster State Historic Park

Fort Leaton State Historic Park

Franklin Mountains State Park

Hueco Tanks State Historic Site

Indian Lodge

Magoffin State Park

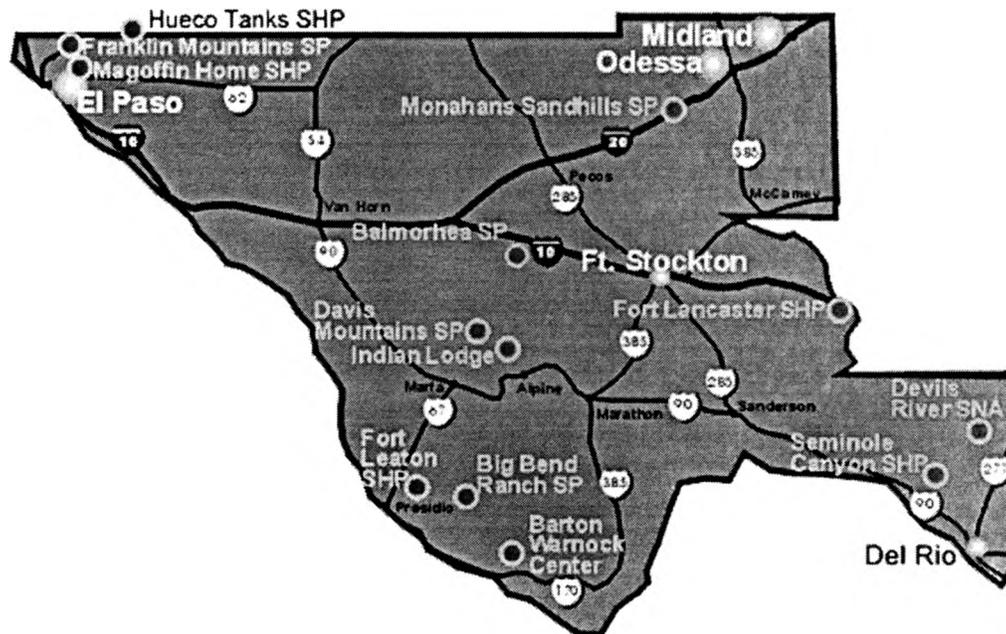
Monahans State Park

Seminole Canyon State Historic Site

Wylers Aerial Tramway

---

Figure A-1.  
Big Bend Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-2.

Gulf Coast Region

---

Battleship Texas State Historic Site

Boca Chica State Park

Brazos Bend State Park

Copano Bay State Fishing Pier

Fulton Mansion State Historic Site

Galveston Island State Park

Goose Island State Park

Lake Corpus Christi State Park

Lake Houston State Park

Lake Texana State Park

Lipantitlan State Historic Site

Matagorda Island State Park

Mustang Island State Park

Port Isabel Lighthouse State Historic Site

Port Lavaca State Fishing Pier

Sabine Pass Battleground State Historic Site

San Jacinto Battleground/Monument State Historic Site

Sea Rim State Park

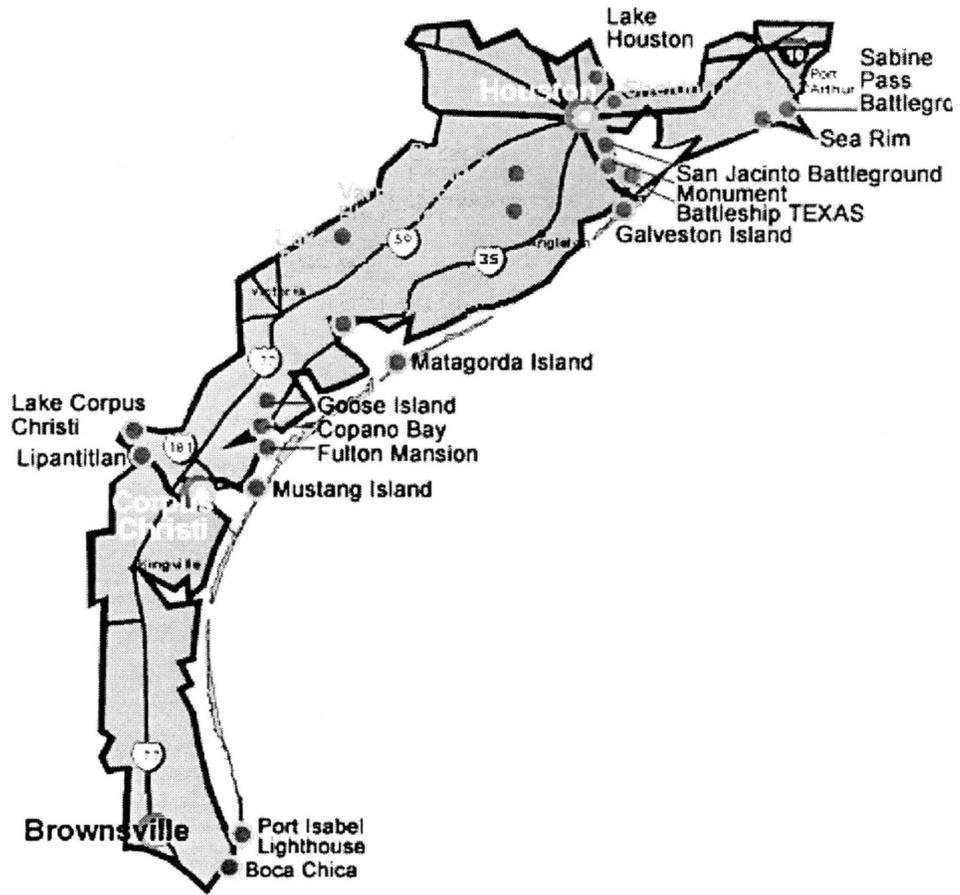
Sheldon Lake State Park

Varner-Hogg Plantation State Historic Site

---

Figure A-2.

Gulf Coast Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-3.

## Hill Country Region

---

Blanco State Park

Colorado Bend State Park

Devil's Sinkhole State Natural Area

Enchanted Rock State Natural Area

Fort McKavett State Historic Site

Garner State Park

Guadalupe River State Park

Hill Country State Natural Area

Honey Creek State Natural Area

Inks Lake State Park

Kerrville-Schreiner State Park

Kickapoo Cavern State Park

Landmark Inn State Historic Site

Longhorn Cavern State Park

Lost Maples State Natural Area

Lyndon B. Johnson State Historical Park

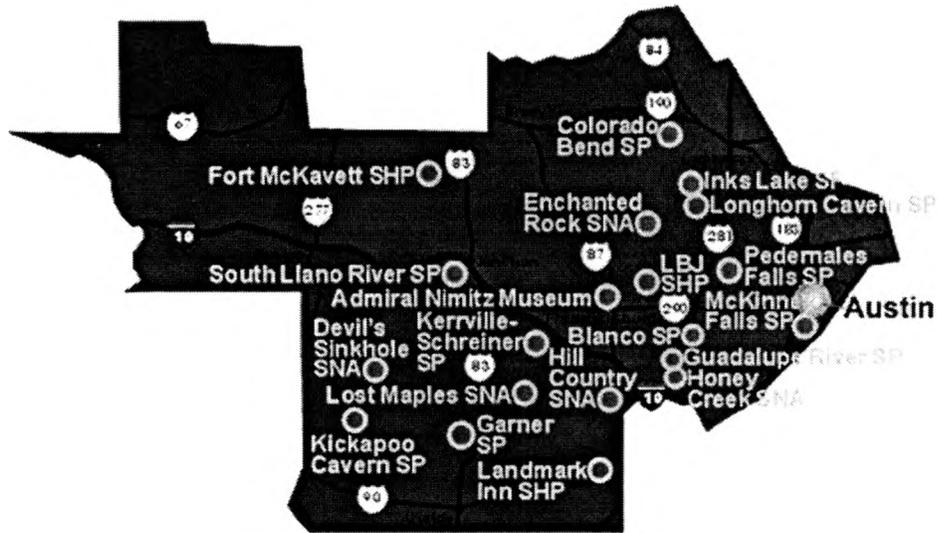
McKinney Falls State Park

Pedernales Falls State Park

---

Figure A-3

Hill Country Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-4.  
Panhandle Plains Region

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Abilene State Park

Big Spring State Park

Caprock Canyons State Park

Copper Breaks State Park

Fort Griffin State Park and Historic Site

Fort Richardson State Park and Historic Site & Lost Creek Reservoir Trailway

Lake Arrowhead State Park

Lake Brownwood State Park

Lake Colorado City State Park

Lake Rita Blanc State Park

Palo Duro Canyon State Park

Possum Kingdom State Park

San Angelo State Park

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Figure A-4.

Panhandle Plains Region Map



Source: Texas Parks and Wildlife Web Site 2001

Table A-5.

## Pineywoods Region

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Atlanta State Park

Caddoan Mounds State Historic Site

Caddo Lake State Park

Daingerfield State Park

Governor Hogg Shrine State Historic Site

Huntsville State Park

Jim Hogg State Historic Site

Lake Bob Sandlin State Park

Lake Livingston State Park

Martin Creek Lake State Park

Martin Dies, Jr. State Park

Mission Tejas State Historical Park

Rusk and Palestine State Parks

Starr Family State Historic Site

Texas State Railroad State Historical Park

Tyler State Park

Village Creek State Park

---

Figure A-5.

Pineywoods Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-6.

Parries and Lakes Region

---

Acton State Park

Bastrop State Park

Buescher State Park

Bonham State Park

Cedar Hill State Park

Cleburne State Park

Confederate Reunion Grounds State Historic Site

Cooper Lake State Park

Dinosaur State Park

Eisenhower State Park

Eisenhower Birthplace State Historic Site

Fairfield State Park

Fanthorp Inn State Historic Site

Fort Boggy State Park

Fort Parker State Park

Lake Mineral Wells State Park & Trailway

Lake Somerville State Parks & Trailway

Lake Tawakoni State Park

Lake Whitney State Park

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Table A-6--*Continued.*  
Parries and Lakes Region

---

Lockhart State Park

Meridian State Park

Mother Neff State Park

Monument Hill and Kreisch Brewery State Historic Site

Old Fort Parker State Park

Palmetto State Park

Purtis Creek State Park

Ray Roberts Lake State Parks

Sam Bell Maxey State Historic Site

Sebastopol State Historic Site

Stephen F. Austin State Park

Washington on the Brazos State Historic Site

---

Figure A-6.

Parries and Lakes Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-7.

## South Texas Plains Region

---

Bentsen-Rio Grande Valley State Park

Casa Navarro State Historic Site

Choke Canyon State Parks

Falcon State Park

Fannin Battleground State Historic Site

Goliad State Historical Park

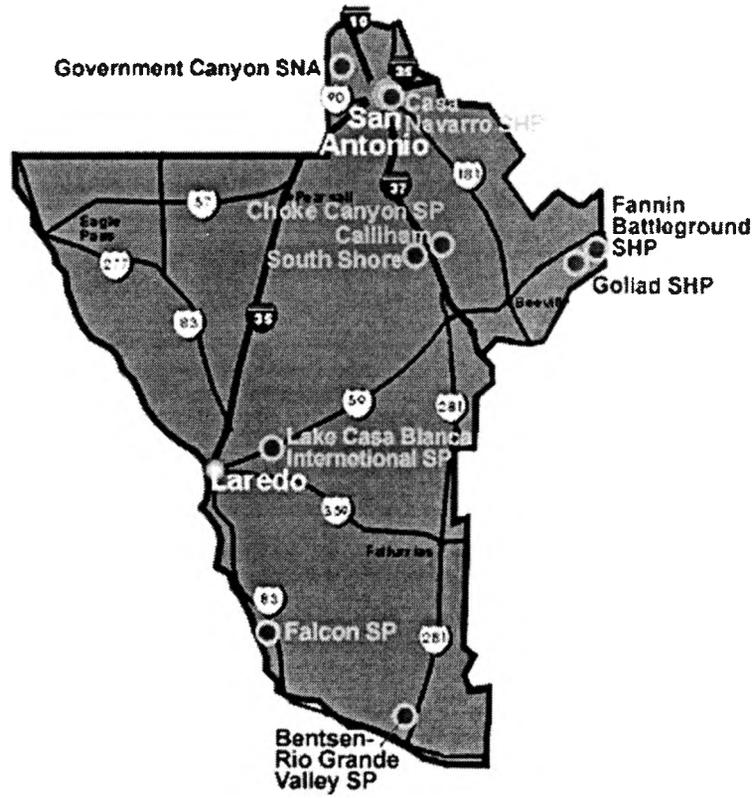
Government Canyon State Natural Area

Lake Casa Blanca International State Park

---

Figure A-7.

South Texas Plains Region



Source: Texas Parks and Wildlife Web Site 2001.

Table A-8.

## State Park Management Category

---

Abilene State Park  
Atlanta State Park  
Balmorhea State Park  
Bastrop State Park  
Bensten-Rio Grande Valley State Park  
Big Bend Ranch State Park  
Big Spring State Park  
Blanco State Park  
Boca Chica State Park  
Bonham State Park  
Brazos Bend State Park  
Buescher State Park  
Caddo Lake State Park  
Cedar Hill State Park  
Choke Canyon State Park  
Cleburne State Park  
Colorado Bend State Park  
Copper Lake State Park  
Copper Breaks State Park  
Daingerfield State Park  
Davis Mountains State Park  
Dinosaur Valley State Park  
Eisenhower State Park  
Fairfield Lake State Park  
Falcon State Park  
Franklin Mountains State Park  
Fort Boggy State Park  
Fort Parker State Park  
Galveston Island State Park  
Garner State Park  
Goose Island State Park  
Guadalupe River State Park  
Huntsville State Park  
Inks Lake State Park  
Kerrville-Schreiner State Park  
Kickapoo Cavern State Park

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Table A-8 Continued.

## State Park Management Category

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Lake Arrowhead State Park  
Lake Bob Sandlin State Park  
Lake Brownwood State Park  
Lake Casa Blanca State Park  
Lake Colorado City State Park  
Lake Corpus Christi State Park  
Lake Houston State Park  
Lake Livingston State Park  
Lake Rita Blanca State Park  
Lake Tawakoni State Park  
Lake Texana State Park  
Lake Whitney State Park  
Lockhart State Park  
Longhorn Cavern State Park  
Marin Creek Lake State Park  
Martin Dies, Jr. State Park  
Matagorda Island State Park  
McKinney Falls State Park  
Meridian State Park  
Monahans Sandhills State Park  
Mother Neff State Park  
Mustang Island State Park  
Palmetto State Park  
Palo Duro Canyon State Park  
Pedernales Falls State Park  
Possum Kingdom State Park  
Purtis Creek State Park  
Ray Roberts Lake State Park  
Rusk/Palestine State Park  
San Angelo State Park  
Sea Rim State Park  
Sheldon Lake State Park  
Tyler State Park  
Village Creek State Park

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Table A-9.

## State Historic Park Category

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Action State Historic Site  
Admiral Nimitz Museum State Historic Site  
Caddoan Mounds State Historic Site  
Casa Navarro State Historic Site  
Confederate Reunion Grounds State Historic Site  
Eisenhower Birthplace State Historic Site  
Fannin Battleground State Historic Site  
Fanthrop Inn State Historic Site  
Fort Griffin State Park and Historic Site  
Fort Lancaster State Historic Site  
Fort Leaton State Historic Site  
Fort Mckavett State Historic Site  
Fulton Mansion State Historic Site  
Goliad State Park  
Governor Hogg Shrine State Historic Site  
Hueco Tanks State Historic Site  
Jim Hogg State Historic Site  
Landmark Inn State Historic Site  
Lyndon B. Johnson State Park and Historic Site  
Lipantitlan State Historic Site  
Magonffin Home State Historic Site  
Mission Tejas State Park  
Monument Hill State Historic Site  
Old Fort Parker State Historic Site  
Port Isabel Lighthouse State Historic Site  
Sabine Pass Battleground State Park and Historic Site  
Sam Bell Maxey House State Historic Site  
San Jacinto Battleground State Historic Site  
Sebastopol State Historic Site  
Seminole Canyon State Park  
Stephen F. Austin State Park  
Starr Family Home State Historic Site  
Texas State Railroad State Park  
Varner-Hogg Plantation State Historic Site  
Washington-on-the-Brazos State Historic Site

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Table A-10.

## State Natural Area Category

---

Devil's Sinkhole State Natural Area  
Devils River State Natural Area  
Enchanted Rock State Natural Area  
Government Canyon State Natural Area  
Hill Country State Natural Area  
Honey Creek State Natural Area  
Lost Maples State Natural Area

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Table A-11.

## Other Management Category

---

Caprock Canyons State Park And Trailway  
Fort Richardson Historic Site, Lost Creek Reservoir State Trailway  
Lake Mineral Wells State Park and Trailway  
Lake Somerville State Park and Trailway  
Copano Bay State Fishing Pier  
Port Lavaca State Fishing Pier  
Baron Warnock Environmental Education Center  
Indian Lodge  
Wyler Aerial Tramway

---

Table A-12.

## Aesthetic Terms

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Aesthetic	Desert
Artistic	Emotion
Awe	Emotional
Awe-inspiring	Evoke
Awesome	Expansive
Beautiful	Fragrant
Beautify	Fragrance
Beauty	Glories
Breathtaking	Glory
Butterflies	Graceful
Butterfly	Grandeur
Canyon	Harmonious
Captivating	Harmony
Captivate	Hart-stopping
Cave	Hue
Caves	Inherent
Coastal	Lake
Colorful	Lavish

---

Table A-12 CONTINUED.

## Aesthetic Terms Continued

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Lovely	Picturesque
Lush	Poem
Luxuriant	Poems
Magnificent	Poetic
Majestic	Poetical
Majesty	Poetry
Marsh	Prairies
Marvelous	Pristine
Mountain	River
Musical	Scenery
Noble	Scenic
Orchestral	Spectacular
Ornament	Splendor
Ornate	Splendorous
Ornamented	Stunning
Painting	Stunningly
Panorama	Stupendous
Panoramic	

---

## Table A-12 CONTINUED.

## Aesthetic Terms Continued

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Sublime  
Sunset  
Sunsets  
Untrammeled  
Vast  
Vista  
Vistas  
Visually Spectacular  
Wildflower  
Wildflowers

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Table A-13.

## Ecology Terms

---

Armadillo	Endangered
Bat	Energy
Biodiversity	Entropy
Biota	Environmental
Biotic	Environmentally
Birds	Erode
Bison	Eroded
Buffalo	Eroding
Conservation	Erosion
Contamination	Exotic
Damaging	Extinct
Degradation	Fire ban
Degrade	Flood Control
Degrading	Frog
Ecological	Game
Ecologist	Global Warming
Ecology	Groundwater
Ecosystem	Greenhouse

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## Table A-13 Continued.

## Ecology Terms Continued

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Habitat	Quality (Water and Environment)
Health	Rabbit
Insects	Riparian
Integrity	Sensitive
Keystone Species	Snakes
Landscape	Soil
Life-supporting	Species
Longhorns	Sustainability
Migration	Sustainable
Monitoring	Threatened Species
Natural	Toad
Nature	Top Soil
Photosynthesis	Turtle
Plants	Watershed
Pollution	Watersheds
Pollutants	Wetland, Wetlands
Primitive Camping	Wildlife
Protection	

---

Table A-14.

## Historic Terms

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Apaches	Living history
Battlegrounds	Military
Battleship	Mission
Birthplace	Monument
Buffalo soldiers	Native Americans
Burial mound	Pictographs
Cathedral	Prehistoric
CCC	Railroads
Cemetery	Reconstructed
Church	Reenactments
Comanches	Restored
Cowboys	Rock Painting
Depression	Roundups
Flag	Ruins
Folk stories	Rustic
Forts	Sacred
Gravesite	Slavery
Graveyard	Statue
Heritage	Temple
Historic home	Trail Drives
History	War
Indians	18 <sup>th</sup> century
Legend	19 <sup>th</sup> century

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Table A-15.

Infrastructure Terms

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Commodity  
Concession  
Development  
Economic  
Fees  
Financial  
Hotel  
Laws  
Management  
Map  
Motel  
Passport  
Payment  
Permits  
Purchased, Purchase  
Shop  
Store  
Volunteer

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## Table A-16 Continued.

## Recreation Terms Continued

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Playground  
Rafting  
Recreation  
Restrooms  
RV  
Running  
Sailing  
Showers  
Sightseeing  
Star gazing  
Stables  
Sports  
Swimming  
Tennis  
Tents  
Trailers  
Tubing  
Walking  
4X4

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Table A-16.

## Recreation Terms

---

Automobiles	Facilities
Backpacking	Firearms
Basketball	Fishing
Baseball	Floating
Beach	Golf
Biking, Biking, Bike, Bicycling	Grills
Birding, Bird watching	Hall
Boating, Boat	Hiking, Hike
Boat dock, Boat ramp	Horseback riding
Camping	Hunting, Hunt
Campground, Campgrounds,	Jogging
Camping, Campsite, Campsites	Kayaking
Campfires	Nature Trails
Climbing	Parking
Drive	Pavilion
Dump station	Picnicking, picnic tables, picnic areas
	Photography

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Table A-17.

Education Terms

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Children  
Classes  
Classroom  
Ethics  
Education, Educational  
Experiment  
Future generations  
Good steward  
Guides  
Guided  
Inspire, Inspiring  
Inspirational  
Interpretation, Interpretive, Interpretational  
Information  
Junior Ranger  
Kiosk  
Land Ethic  
Legacy  
Lesson Plans  
Museum, Museums  
Naturalist  
Posterity  
Program  
Project WILD  
Safety  
Teachers  
Tours

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A-18.  
Protocol

A Protocol for the Content Analysis of Texas state park Web sites

*Introduction*

This protocol will provide instructions for coding and classifying the graphics of Texas state park Web sites. To ensure consistency, all coders will use Internet Explore as the Web browser. The purpose of this content analysis is to assess which values are expressed on Texas Parks and Wildlife Web sites. Values to be assessed in this study are defined below.

- (1) Recreation value, which examines common recreation activities in Texas state parks. This category includes recreation such as hunting, camping, water recreation, and motorized recreation. Recreation is an, "...outdoor gymnasium and theater...valued by two-thirds of Americans, especially by the young and educated, as a matter of preference and well-being" (Rolston 1985). Parks that include hunting, swimming and fishing will have a high recreation value score.
- (2) Commodity/management value centers on the idea that parks are profit-making machines. Governing policy transfers its values onto the landscape of a place. The results are extensions of policy that act as, "...clues and the whole scene as a symbol of the values of governing ideas, the underlying philosophies of a culture" (Meinig 1979b, 42). Mention of park mission, friends groups, and park fees are examples of the commodity/management value.
- (3) Ecological value is the idea that a park is a healthy ecosystem. Texas parks protect endangered species and work to provide the most natural habitat. This is an attempt to "...heal the wounds with the primeval forest, clear off settlements, heal wounds and mend the natural fabric-to imagine what the area is really like" (Meinig 1979b, 34). Examples to be coded for this value include mention of endangered species, air quality, ecosystem health, and primitive camping.
- (4) Aesthetic/spiritual value emphasizes the beauty of a place. "One of the main reasons that we have set aside certain natural areas as national, state, and county parks is because they are considered beautiful" (Callicott 1992, 12). Due to the abstract nature of this value it will be the hardest to code.

Examples of measures include artistic descriptions of an area, mention of wildflowers, potential for animal watching, and pictures absent of man.

- (5) Education value involves making a park "...good not just because individuals like it, but because society gains pure knowledge, which enlarges our understanding of the world and our roles in it" (Rolston 1985, 27). Parks therefore provide a "...landscape [that] can be regarded as a laboratory, an experiment station" (Meinig 1979b, 38). Examples include links to classroom activities, mention of a visitor center, and boater safety classes.
- (6) Historical value reflects the cultural history of an area. Rolston (1985, 29) describes this as, "...lifting historical experience out of books and recapturing it on a vivid landscape." Sites with high historical value representation would include mention of cemeteries, reenactments, and historical buildings.

### *Procedure*

#### v1. Web site identification

Write down the Web site URL.

This content analysis is of park Web sites only.

Coders are to stay within the Web domain of each park for example [www.tpwd.state.tx.us/enchanted/camping](http://www.tpwd.state.tx.us/enchanted/camping) is to be evaluated, but if a link is general (not specific to the park)

[www.tpwd.state.tx.us/management](http://www.tpwd.state.tx.us/management), it should not be evaluated.

#### v2. Make note of the time and date.

Start time, month, day, and year.

#### v3. Name of park Web site to be evaluated.

#### v4. Code the management classification of each park.

1=state parks

2=state historic areas

3=state natural areas

4=all others

#### v5. Number of pictures to be evaluated.

Before evaluating each Web site, count the number of pictures that will be evaluated.

v6. Evaluate each Web site for the presence (1) or absence (0) of values listed in coding sheets.

## A-19. Example Scoring Guide

- V1. Web site Identification
  
- V2. Date and time
  
- V3. Park Name
  
- V4. Code the management classification of each park.
  - 1=state parks
  - 2=state recreation areas
  - 3=state historic areas
  - 4=state natural areas
  
- V5. Number pictures to be evaluated (P)

## A-19 – Continued.

## V11. Historical value coding sheet

	Present1/Absent 0	Number of Pictures	Total
Temple			
Burial mound			
Burial site			
Cemetery			
Gravesite			
Native Americans			
Pictographs			
Living History (reenactments)			
Forts, military bases			
Battleground			
Battleship			
Birthplace			
Historic structure			
Ruins			
Buffalo Soldiers			
Cathedral			
Trail drives			
Roundups			
Cowboys			
Railroads			
Flag			
Symbol (logo)			
Total			

Notes:

Table A-20.

## ITEMS EXCLUDED FROM PICTURE CODING

Item	Chi Square	Kappa Value
Natural Setting	14.483	.651
Sacred Site	3.810	.348
Scenic Drive	11.893	.630
Game	14.483	.651
Endangered Species	8.205	.516
Campfires	14.483	.651
Sailing	14.483	.651
Developed Camping	13.929	.634
Sports Facility	3.810	.348
Man-made Structure	3.203	.322
Motel/Hotel	3.810	.348

Table A-21.

## PICTURE RELIABILITY FOR EDUCATION

Item	Kappa Value	Chi Square*
Virtual Tour	1.000	30.000
Real Audio	1.000	30.000
Visitor Center	.783	19.286
Kiosk	1.000	30.000
Children	.762	18.462
Guided Tours	.839	21.667
Safety Classes	1.000	30.000
Ranger	1.000	30.000
Junior Naturalist	1.000	30.000

\*.001 Significance Level

Table A-22.

## PICTURE RELIABILITY FOR ECOLOGY

	Kappa Value	Chi Square*
Snakes	1.000	30.000
Bats	1.000	30.000
Insects	.839	21.667
Toads/Frogs	1.000	30.000
Bison	1.000	30.000
Rabbits	1.000	30.000
Turtles	1.000	30.000
Prairie Dogs	1.000	30.000
Longhorns	.839	21.667
Deer	1.000	30.000
Fish	1.000	30.000
Armadillo	1.000	30.000
Birds	1.000	30.000
Wildlife General	1.000	30.000
Native Plants	1.000	30.000
Exotic Species	1.000	30.000

\* .001 Significance Level

Table A-23.

## PICTURE RELIABILITY FOR HISTORY

	Kappa Value	Chi Square*
Cemetery, Gravesites	1.000	30.000
Living History	.712	15.189
Native Americans	1.000	30.000
Pictographs	1.000	30.000
Forts, Military Bases	1.000	30.000
Battleship	1.000	30.000
Historic Home	.839	21.667
Historic Structure	1.000	30.000
Ruins	1.000	30.000
Cathedral/Church	1.000	30.000
Buffalo Soldier	1.000	30.000
Trail Drive	1.000	30.000
Cowboy	1.000	30.000
Flag	1.000	30.000
Statues	1.000	30.000

\*.001 Significant Level

Table A-24.

## PICTURE RELIABILITY FOR INFRASTRUCTURE

	Kappa Value	Chi Square*
Map	1.000	30.000
Friends Group	1.000	30.000
Park Store	1.000	30.000
Park Fees	1.000	30.000
Entrance Station	.839	21.667
Fire Wood	1.000	30.000

\*.001 Significant Level

Table A-25.

## PICTURE RELIABILITY FOR RECREATION

Item	Kappa Value	Chi Square*
Tents	.839	21.667
RV	.839	21.667
Grills	.712	15.189
Fishing	.839	21.667
Horseback Riding	.712	15.189
Stables	.839	21.667
Playground	1.000	30.000
Basketball	1.000	30.000
Tennis	1.000	30.000
Volleyball	1.000	30.000
Baseball	1.000	30.000
Golf	1.000	30.000
Hiking, Walking	1.000	30.000
Running, Jogging	1.000	30.000
Birding, Bird Watching	1.000	30.000
Photography	1.000	30.000
Nature Trails	1.000	30.000
Biking, bicycles	.783	19.286
Picnic Tables, Picnicking	.839	21.667
Swimming	.762	18.462
Tubing	1.000	30.000
Canoeing, Rafting, Kayaking	1.000	30.000
Boating	.839	21.667

Table A-25.

## PICTURE RELIABILITY FOR RECREATION

Item	Kappa Value	Chi Square*
Boat Dock, Boat Ramp	.839	21.667
Pavilion	1.000	30.000
Automobiles	1.000	30.000
Birding	1.000	30.000
Bathroom	.783	19.286
Campsite	.651	14.483
Hunting	1.000	30.000
Off Roding	1.000	30.000
Star Gazing	1.000	30.000
Rail Road	1.000	30.000
Recreation Hall	.651	14.483
Rock Climbing	1.000	30.000
Stables	.839	21.667
Train	1.000	30.000

\* .000 Significance Level

Table A-26.

## PICTURE RELIABILITY FOR AESTHETIC

Item	Kappa Value	Chi Square*
Artist Rendering, Painting	1.000	30.000
Canyon	1.000	30.000
Desert	1.000	30.000
Marsh	1.000	30.000
Caves	1.000	30.000
Coastal	1.000	30.000
Prairies	.783	19.286
Lake, River	1.000	30.000
Mountains	1.000	30.000
Wildflowers	.783	19.286
Butterfly	1.000	30.000
Sunset	.831	21.667

\* .001 Significance Level

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## VITA

Amanda Joe Ross was born in Austin, Texas, on May 18, 1977, the daughter of Christina and Michael Ross. After graduating in 1995 from Georgetown High School, Georgetown, Texas, she entered the University of Texas in Austin, Texas. She graduated from the University of Texas in May of 1999 with a degree of Bachelor of Arts in Government and Geography. The following year Amanda traveled and worked in both Yosemite National Park and Lake Mead National Recreation Area. Amanda returned to Texas in 2000 to study geography at Southwest Texas State University. She received the degree of Master of Science in August of 2002. Amanda is currently working as an environmental education specialist with Texas Watch, a volunteer water monitoring organization.

Permanent address: 203 Landon's Way  
Georgetown, Texas 78628

This thesis was typed by Amanda Ross.

