DO MESS WITH IT!:
A Sociopolitical Study of Littering and The Role of Southern and Nearby States

By

Stephen L. Spacek

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Faculty Approval:

_____
Dr. Patricia M. Shields

_____
Don Hall

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ABSTRACT

Littering is an environmental crime in the United States, creating a danger to public health and safety. Although environmental quality studies single out the Southern States as “having the most befouled” ecological conditions in America, experts have done little research on littering’ s impingement upon jurisdictional environmental degradation using multivariate statistical analysis. This research Is twofold: First is found an examination of social and political mores in regard to state ecological surface degradation, with an emphasis on twelve conventional southern and three nearby “fringe” states exhibiting southern characteristics. Second, the research examines the impact of the most salient sociopolitical factors that may influence littering, through environmental quality indicators and their consequences for the fifty United States.

A review of relevant literature, on the American sociopolitical, legal, commercial and governmental activities that both create and curtail litter, focusing on the South and nearby states, is discussed. The review arrives at a conceptual, “real world” framework, identifying noteworthy factors that may lead to statewide environmental degradation: geographic location, demographic dynamics, environmental budgetary spending, political culture and availability of existing litter reducing legislation. These aspects become independent variables, operationalized into testable hypotheses through a multivariant model of regression analysis, with dependent variables of livability (quality of life) scores, waste disposal tonnage prices, and daily per person waste disposal for each state.

Findings indicate the created regression models were insufficient to support an idea that scores, pricings and disposal amounts make adequate state-oriented ecological degradation determinants caused by littering. However, findings illustrate a state possessing southern-style *Traditionalistic* political culture and/or substantial concentrations of impoverished residents negatively affect its livability score. A state’s concentration of impoverished individuals influence a chance to have waste disposal prices below the national market average, yet a state having beverage container return deposits influence a heightened waste disposal price for that state.

Preface

I was born and raised in and around Houston—the South's largest and America's fourth largest populated city, known for non-existent comprehensive land use planning (no zoning), a dependence on automobiles and poor public transportation, and the title of "Worst Urban Air Pollution in America" during recent years. Houston is located in Texas, a state known for sharp economic ups and downs, old-fashioned, one-party, conservative political domination (from solid conservative Democrat to solid conservative Republican), and a fierce willingness not to collect taxes on individual or corporate incomes. Growing up, I noticed the litter all over the local roads and parking lots, even the grass--seemingly everywhere I walked and looked. In time, while attending the Universities of Houston, North Carolina-Chapel Hill and Wisconsin-Madison, I took courses on the urban environment, Southern history, public administration and urban planning.

From traveling to other locales and states nationwide, I noticed a lack of litter in places especially outside the South. I began to wonder why Texans and southerners took immense pride to live in abysmal, littered, garbage-filled environments. I wondered, "What was the cultural attributes of my mother's Scotch-Irish settlers?" Why did these settlers from the Carolinas to Tennessee to Texas seem to repress embracement of educational and environmental advancements and a sense of public good, and instead gave an impression of

appreciating violence, racial intolerance, sharp "rich-poor" class hierarchy and stiflingly obedient political customs? My father's ethnic group, refugee Czechoslovaks from the Austrian-Hungarian Empire, appeared to have polar opposite cultural traits for a typical Southern Anglo group--seemingly orderly, industrious, clean-living and politically progressive, often working for "common public goals." The Czechs, along with German immigrants, revered a strong tradition for mass public education and had enlightened attitudes about non-white race relations. Most importantly, they had a "strong bond" and respect for and preservation of land: land was to be recycled and cared for, seemingly unlike Scotch-Irish and early-on Anglo Texan groups who might ruin good land and then migrate onward to other alluring property (Gallup-*Journey's*, 1998, pp. 6, 8). It appeared predominantly Czech and German Texas modern-day settlements had little or no litter on their streets, unlike hundreds of other communities settled by other Anglos and non-whites, who seemed to not mind ugly piles of cups, bottles, paper and cardboard blowing along and into streets, sidewalks and yards.

Moving back to Texas to finish a Masters in Public Administration at Texas State, I felt I had a mission--an ethical duty--to cover this topic to benefit the public good, which both public officials and the public itself ignored. I wanted to research solutions to the region's littering problem. Since beginning work, numerous individuals and groups--including Keep America Beautiful, who first endeavored to study littering and litterers, to public officials of the 50 states—have expressed interest in this project. [The selected title is a take off on the

"Don't Mess with Texas" state anti-litter slogan]. The hope is that this research will not just benefit Texans and southerners, but the nation as a whole.

Chapter One
INTRODUCTION

Littering is an environmental problem all over the United States, but especially so in the Southern and nearby "fringe" states. From early human history to the present, from ancient Greece to the present day Western Hemisphere, humans have thrown unwanted refuse onto streets, countryside and remote places and were often unpunished (Borrman and Kellert, 1979, p. 101; Rathje--"The History" as cited in Garbage, 1999, pp. 32-34). Now, littering is often an illegal action and an environmental crime, creating a danger to public health, safety and welfare in all 50 of these United States.

Littering's prominent feature is its "ugliness" that damages scenic environments, promotes accidents, and feeds a breeding ground for disease causing insects and rodents.[1] Highway maintenance personnel, livestock and wildlife have been injured by litter, and roadway and boating debris cause hundreds of serious injuries and deaths annually.[2]

Environmental quality studies, determining strengths and weaknesses of regulatory policies in producing clean statewide environments, single out the

[1] Bisbort, 2001, p. 9; "City Image, " 2000; Dodge, 1972, p. 3; Geller, Witmer and Tuso as cited in McAndrew, 1993, p. 274; Kentucky, 1975, pp. 1, 2.

[2]AAA, 2002; Bisbort, 2001, p. 9; Dodge, 1972, p. 3; National Institute, 1958, p. 14; U. S. Federal Highway Administration, 1974, Williams, 1974, as cited in Kentucky, 1975, p. 3.

Southern states as having worst overall quality indicators—mostly due to racial and income inequality. Jim Boyce claims that inequality "…significantly harms…the quality of life and public-health index measures [of an entire state]" (Boyce, 2001, pp. 1, 2, 4). Recent research suggests "…that the psychological and social dimensions of inequality significantly increase the incidence of cancer, heart disease and other illnesses [for a state]" (Kawachi, Kennedy and Wilkinson as cited in Boyce, 2001, p. 4). Where these disparities are large and the "powerful can impose pollution on others more easily," overall statewide environmental quality will be worse, unlike [jurisdictions] where disparities are [low to] modest and "…better able to defend themselves from having pollution dumped on them by others" (Boyce, 2001, p. 2).

Today, Southern and nearby states and counties are "…increasingly plagued with symptoms produced by their political maladies," leaving the region's air, water and ["seriously contaminated community"] land "the most befouled in the United States."[3] In 1995, the Gallup Poll found a majority of both Southerners and Americans thinking the government and businesses "are not working together enough" to protect the environment (Gallup as cited in Leal and Meiners, 2003, pp. 2, 3). As Southerners, most Texans are not confident state litter laws are or will be enforced (*Environmedia Litter*, 2001, p. ii).

Customarily, the South's remote geography, low population and political culture has led to "…a history of non-receptivity [in fostering] environmental improvements" (Nisbett and Cohen, 1996, p. xv; Vig and Kraft, 2001, p. 41).

[3] Bullard, 2000, p. 97; Cochran A., 2001, p. 226; U. S. Department of Justice-*Laws,* 1995, p. xi.

[Southern] policy makers tended to "…support economic development over environmental quality," as an aggressive response to jurisdictional environmental problems "may harm the business climate" (Sussman, Daynes and West, 2002, p. 1; U. S. Department of Justice-*Law*, 1995, p. 19). "Unenthusiastic" public officials followed "the path of least resistance" in addressing externalities posing community health threats (Bullard and White as cited in Bullard, 2000, p. 7; Ockels, 2003, p. 11). Millions of dollars were spent annually to combat the problem, yet "relatively little" has been accomplished to control littering (Henning, 1974, p. 105).

THE PURPOSE OF THE RESEARCH

Though some academicians argue "relatively little" has been accomplished to control littering, experts have done even less in terms of researching this problem. To the best of one's knowledge, no researcher to date has attempted a comprehensive investigation of littering affecting environmental degradation using scientific causation factors [Martin Dodge's 1972 exploratory thesis from Utah State comes closest]. Even in the mid-1990's, no national research quantified the extent of environmental crimes like littering nationwide (U. S. Department of Justice-*Law*, 1995, p. 7).[4]

The purpose of this applied research project is twofold. The first is to examine social and political mores in regard to state environmental surface degradation, with an emphasis on twelve conventional Southern and three

[4] The southern state of Texas, birthplace of the author, has been a leading American state jurisdiction fervently profiling litterer demographics within its borders.

nearby “fringe” states. The second is to examine the impact of the most salient sociopolitical factors that may influence littering, through environmental quality indicators and their consequences for the fifty United States.

CHAPTER SUMMARIES

To fulfill the research purpose, the remainder of this study is divided into six other chapters. Chapter Two provides a brief, emphasized description of Southern and nearby fringe states. The Third Chapter reviews the relevant literature on littering, including the sociopolitical and cultural-behavioral causes and effects of littering; the legal, commercial and governmental activities to curtail littering; and a philosophical forecast anticipating a continued worsening of the problem. A conceptual framework section linked to the literature, identifying specific factors that may lead to statewide environmental degradation, is shown in Chapter Four. The Fifth Chapter provides the procedures used to collect and analyze data, as well as the conceptual framework’s operationalization, through three multiple regression models. Chapter Six presents the findings of the three state-oriented, environmental degradation research models created from the conceptual frameworks. The final chapter synthesizes the results’ effectiveness in answering questions posed by the research, with recommendations provided for policy makers to hopefully motivate further research inquiry and real, concerted action to curtail human-induced littering.

Chapter Two
SETTING

Before policy makers and citizens can act for change, we must address the current environmental degradation condition of the states. This chapter provides a brief, sociopolitical description of the research focus, the South and nearby fringe states. The information in this chapter is critical because it helps guide the operationalization of the conceptual framework and reflections on research findings.

IDENTIFYING THE SOUTH AND SOUTHERNERS

The South, comprising 12 southeastern and three fringe states, has been conventionally viewed from the start by academicians as an unprogressive, underachieving and culturally homogenous portion of the American landscape (See *FIGURE 2.1*: Map--Southern and Nearby Fringe States, and *TABLE 2.1*: STATE TYPES: Southern and Nearby Fringe States, and All Other States). V. O. Key observed the South in 1949 as an “underdeveloped country,” exhibiting

numerous traits that seem "outlandish" and "out of place" in an "advanced democracy such as America" (Key as cited in Cochran A., 2001, pp. 173-174). Years later, Robert Bullard's *Dumping in Dixie* (2000, p. 97) viewed the South in a similar vein, arguing the region "…has always been looked at as a backwards land, based on its social, political and environmental policies." Augustus Cochran, in *Democracy Heading South*, writes that these states have been transformed in the last fifty-plus years from a mostly black-and-white rural region "…to an increasingly cosmopolitan, multicultural mix more closely resembling the rest of the country" (Cochran A., 2001, p. 17). The modern-day South is home to both the largest concentration of blacks in the United States and one of the nation's chief centers of Hispanic/Latino population.[5] Despite avant-garde racial and urban alterations, Southerners in general still experience longstanding demographics of "…less education, lower incomes, [lower voter turnouts], higher infant mortality rates and lower life expectancies than Americans elsewhere" (Bullard, 2000, p. 97; Cochran A., 2001, p. 17).

***FIGURE 2.1*: Map—Southern and Nearby Fringe States (shaded)**

[5]Bullard, 2000, p. 22; Lind, 2002, U. S. Department Of Commerce-Census, 2001, p. 27.

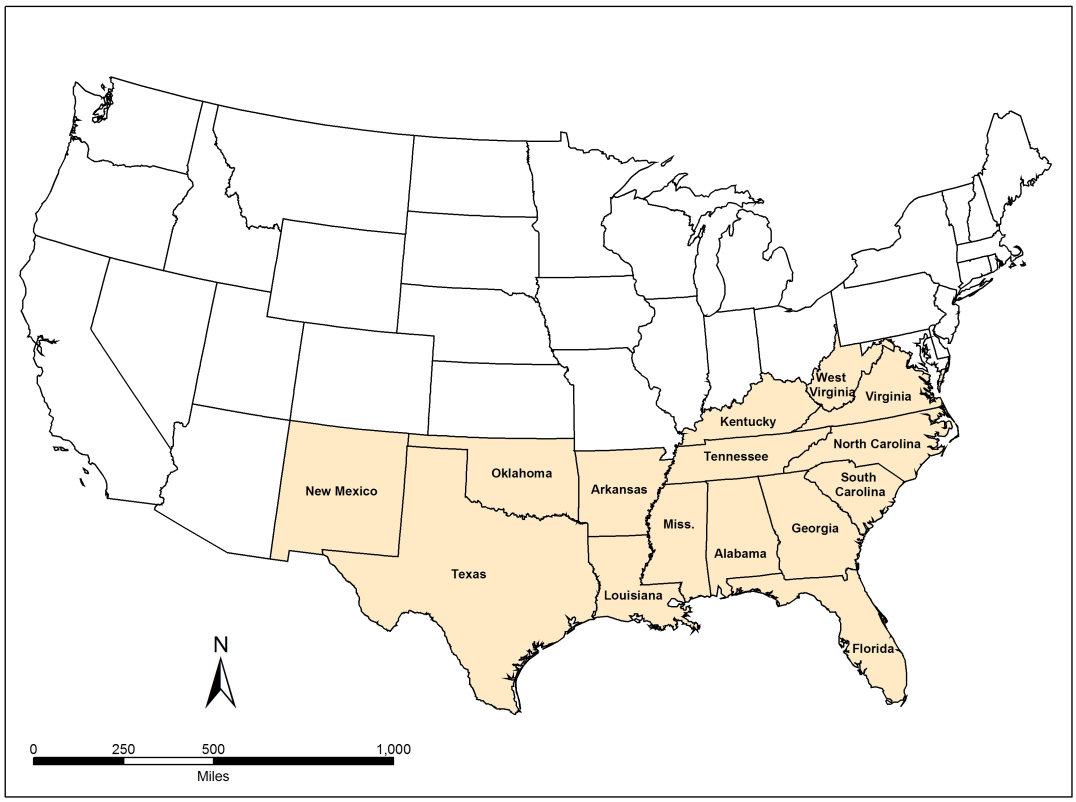

***TABLE 2.1*: STATE TYPES:**
Southern and Nearby Fringe States, and All Other States

Southern And Nearby Fringe States	All Other States
Alabama	Alaska
Arkansas	Arizona
Florida	California
Georgia	Colorado
Kentucky	Connecticut
Louisiana	Delaware
Mississippi	Hawaii
New Mexico*	Idaho
North Carolina	Illinois
Oklahoma*	Indiana
Tennessee	Iowa
Texas	Kansas
Virginia	Maine
West Virginia*	Maryland

	Massachusetts
	Michigan
	Minnesota
	Missouri
	Montana
	Nebraska
	Nevada
	New Hampshire
	New Jersey
	New York
	North Dakota
	Ohio
	Oregon
	Pennsylvania
	Rhode Island
	South Dakota
	Utah
	Vermont
	Washington
	Wisconsin
***Identifies FRINGE States**	Wyoming

Chapter Three
LITERATURE REVIEW

Introduction

The purpose of this Chapter is to examine the reasons found in the scholarly literature why littering is a form of environmental degradation in America. The study focuses on 12 Southern and three nearby “fringe” states. Secondly, this review examines factors found in empirical literature that explain how environmental degradation in these states lower their overall environmental quality rankings and waste disposal pricings, as well as raise their daily per capita waste disposals, vis a vis the other 35 American states.

THE HARMS OF LITTER

Litter is an environmental problem all over the United States, but is especially pronounced in the Southern and nearby states of West Virginia, Oklahoma and New Mexico—as seemingly common to the region as barbecue, country music and pickup trucks. Litter, a breeding ground for disease causing insects and rodents, features most prominently for its "ugliness" that damages scenic environments and causes days of lost work due to accidents.[6] During the 1930's, when disposable containers were first made available, public officials feared broken bottles would create tire hazards, and farmers complained discarded containers damaged expensive machinery (Shireman, 1981, p. 25). In recent years, highway maintenance personnel have been subject to cutting their hands on broken glass while picking up refuse (U. S. Federal Highway as cited in Kentucky, 1975, p. 3). Livestock have injured themselves by stepping on or eating glass and metallic litter (Williams as cited in Kentucky, 1975, p. 4). Trash collects into streams, creeks, even storm water drainage systems, flowing into local bays and estuaries ("City Image," 2000). Cigarette butts and filters, a threat to wildlife, have been found in the stomachs of fish, birds and whales, "mistaking them for food" (Bisbort, 2001, p. 9). Littering, as an "environmental crime," poses a serious threat to "bodily injury or death" (U. S. Department of Justice-National, 1995, p. 3). Roadway and boating debris, in particular, cause major accidents, creating serious injuries and deaths as a result of motorists or boaters "suddenly

[6] "City Image," 2000; Dodge, 1972, p. 3; Geller, Witmer and Tuso as cited in McAndrew, 1993, p. 274; Kentucky, 1975, pp. 1, 2.

swerving or stopping" to avoid hitting debris.[7] For example: In 1996, Texas saw at least four persons killed and 375 injured in litter/road debris related accidents (*Special*, 2001)

LITTERERS ARE PEOPLE

Since the days of Troy, humans have thrown large pieces of debris and garbage onto streets and countryside, where "semi-domesticated animals (usually pigs)…and…human scavengers" consumed food scraps and left remains out in the open (Rathje--"The History" as cited in *Garbage*, 1999, pp. 32-34). Today, most people would be "…reluctant to admit they litter, given that its socially unacceptable and illegal" (*Environmedia Litter*, 2001, pp. I, 1). Francis McAndrew notes in his book, *Environmental Psychology*, research showing men, youth, rural dwellers and live-alone persons litter more than women, seniors, urban dwellers and multi-person households.[8] The type of activity a person engages in is also a factor in a person's propensity to litter. Picknickers, hunters, fishermen, campers, motorboaters, and water skiers, as well as careless pedestrians, motorists, truck drivers, construction and loading dock workers, are prime litter source providers (Bisbort, 2001, p. 8; Kentucky, 1975, p. 1). Telephone research initiated by the state of Texas in 2001 and 2002 elicited answers on who litters within that particular Southern jurisdiction. The profiled litterer in Texas is male and young like the national profile, but also tends to be

[7] AAA, 2002; Dodge, 1972, p. 3; National Institute, 1958, p. 14.

[8] Cialdini, Reno and Kallgren, 1990, Osborne and Powers, 1980, Robinson, 1976 as cited in McAndrew, 1993, p. 275.

non-white, a smoker, goes to bars and parties, and frequents fast food restaurants. A detailed survey of Texas areas with high numbers of Hispanic residents found 97 percent of adult (age 21+) Hispanic respondents admitted to personally engaging in significant littering activity within the previous 36-month period. In 2002, Hispanics comprised 32 percent of Texas' total human population (*Environmedia Litter*, 2001, pp. I, 1, 43; *Environmedia 2002*, pp. I, 1).

LITTER'S COMPOSITION AND OCCURRENCE

The American Public Works Association standardized the term *litter* in the mid-20th Century to include "…garbage…refuse…[and] rubbish…," to be technically known later as a form of *solid waste*—"…material which, if thrown or deposited, tends to create a danger to public health, safety and welfare" (Murphy, 1993, p. 30; National Institute, 1958, pp. 5, 6, 12, 13). Litter is categorized into three specific components: hazardous, reusable-recyclable and non-hazardous, non-usable (Wilson, D. as cited in *Garbage*, 1990, pp. 36-37). The most troubling litter, according to Alan Bisbort (2001, p. 10), is polystyrene foam and plastic, most of which is effectively non-recyclable. Though the "item most littered… worldwide" is the cigarette butt, at 4.5 billion pieces, the "largest volume component of litter," accounting for 40 to 60 percent of total volume since the 1980's, is beverage container litter.[9] Common and severe litter includes candy and gum wrappers, paper towels, food wastes, chip bags, aluminum and steel beer/soda cans, leather, rubber, clothing, textiles, wood, glass and metal

[9] See for example Bisbort, 2001, p. 9; Shireman, McFadden, Newdorf and Noga, 1981, pp. v, 25.

projectiles, blown tires and treads, springs, vehicular and brake parts, drive shafts and bumpers.[10] And, according to a Federal Highway Administration study, the highest concentrations of litter tend to be found "…near intersections or crossroads, where a stop or reduced speed is required, and near beer and package stores, farmers markets, shopping centers, beaches, fast food places and solid waste dumps" (U. S. Federal Highway as cited in Kentucky, 1975, p. 6).

WHY PEOPLE LITTER?

For centuries, humans have been dumping garbage "…with little regard to where it fell…" or how it may affect the environment. Bill Rathje (1990) of The Garbage Project believes, "Given the choice, a human being's first inclination is always to dump." Douglas Wilson (1990) proclaims that garbage has become "…a powerful symbol for everything that is bad, unhealthy, evil and uncouth."[11] Moreover, Herbert Bormann and Stephen Kellert (1979, p. 101) contend that litter connotes a "…negative attitude…that predisposes us to want this material out of our lives as quickly…and as faraway as possible."

Many factors contribute to why people choose to litter, according to McAndrew. "Perhaps the most powerful facilitator" behind littering, McAndrew argues, is the "presence of other litter." Many studies confirm that *litter begets litter* and people appear to be more self-conscious about littering when in non-

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[10] See for example AAA, 2002; *Environmedia Litter*, 2001, p. iii; *Environmedia 2002*, p. 14; Ivins, 1991, p. 4; Kentucky, 1975, pp. 3, 4; McAndrew, 1993, p. 286; Murphy, 1993, p. 4; Poore-"Is" as cited in *Garbage*, 1993, p. 44; U. S. Federal Highway and Williams as cited in Kentucky, 1975, pp. 3, 4.

[11] See for example Murphy, 1993, p. 93; Rathje-"The History" as cited in Garbage, 1990, pp. 32-34; Wilson D. as cited in *Garbage*, 1990, p. 36.

littered areas. Dumping, a form of voluminous littering, is a "…very natural activity done without thinking," writes John Ockels in *Local Control of Illegal Dumping* (McAndrew, 1993, p. 274; Ockels, 2003, p. 7).

A "disconnect from reality"—apathy—is a second dynamic. Research by Keep America Beautiful in 1999 found 75 percent of Americans admitted to littering in the last five years, yet 99 percent of the same surveyed individuals admitted they enjoyed a clean environment. Negligent law enforcement contributes significantly to this disconnect. Bullard and Beverly Wright (2000) note that "Government… [has followed] the path of least resistance…[in addressing] externalities…that may pose…health threat[s]…to nearby communities."[12] Asserts Ockels (2003, p. 11), "…Where elected officials and staff are unenthusiastic about stopping it, dumping spreads unchecked."

Inconvenience is a third factor. McAndrew claims that "…People litter for the simple reason that it's the easiest way to get rid of unwanted things…You do not take the trouble to find a place to dispose of it and carry it there" (Bisbort, 2001, p. 8). According to Ockles (2003, p. 15), "…Not everyone is willing to make a trip to a legal landfill…If legal disposal options are not available, or if the cost of using legal facilities are increased…illegal disposal [can and] will occur."

Entitlement is a fourth dynamic contributing to why people litter. "Littering is acceptable [by many who feel they are] paying taxes and I'm keeping someone else in a job cleaning it all up," says Daquiri Richard of Beautify Corpus Christi.

[12] For more information see Bisbort, 2001, p. 8; Bullard and Wright as cited in Bullard, 2000, p. 7.

"People look around to make sure no one is watching them, [and then,] they litter inconspicuously," advises Police Commander Bryan Smith ("City Image," 2002). Steve Sherwood declares that "…Littering may provide those with a sense of asserting personal freedom, setting territory, even soothing fears" (Bisbort, 2001, p. 8).

A fifth factor is class alienation leading to poor education of individuals. Ockels maintains that family training influences dumping. "Dumping is a social activity we learned from our parents and pass on unconsciously to our children" (Ockles, 2003, pp. 1, 15). Sherwood also insists that litterers are "raised badly" by their parents, and in turn become "…vandals with little sense [of the] damage they do." In addition, Pat Mitchell of the "Auntie Litter" organization claims litterers show "…a lack of pride [as a consequence of,]…a lack of education."[13]

The temptation to litter can be motivated "by greed" and ignorance about the law and its enforcement, according to a Federal document, *Law Enforcement Response to Environmental Crime*. The document includes a summary of the criminal intent of suspects arrested by the California Highway Patrol for illegal waste disposal. These suspects demonstrated an "…intent to harm the environment…" and used "lax law enforcement" as a motivation to carry out littering and dumping crimes in the Golden State (U. S. Department of Justice, National-*Law*, 1995, p. 3).

Finally, governmental neglect is a key influence contributing to why people

[13] For more information see Bisbort, 2001, p. 8. Auntie Litter, Inc. is the exact name of the non-profit, environmental education and litter deterrence organization based in Birmingham, Alabama.

choose to litter. Culturally biased indifference by public servants causes some communities to have persistent dumping problems, "…[and] may result in attitudes of despair and resignation among citizens…values which may support dumping activities…" (Ockles, 2003, pp. 14, 15). This neglect induced by public-sector indifference emerges as a leading custom of the Southern region.

COLONIAL PIETY FOR CONQUESTING NATURE

The early American settler's belief that they must dominate nature to meet human needs explains in part the environmental neglect affecting contemporary America and the Southern and fringe states in particular. According to Lynn White Jr., America's attitudes toward nature have been dominated over the last two hundred-plus years by a "Christian, white and Western European perspective" (McAndrew, 1993, p. 232). White argues human ecology is deeply conditioned by religious beliefs, that Jews as well as modern day Christians believe "…Nature exists to serve human purposes and that it is God's will that [nature] will be used however people see fit." In addition, both groups strongly believed that "…only a divine force [such as God's will, could intervene to] set things right if the ecology is wronged." White uses as evidence ancient animal herding Hebrews, a group that practiced migration as a "…solution to [their] problems—when resources in one area have been depleted, [ancient Hebrews] simply [moved] on to greener pastures" (White as cited in McAndrew, 1993, pp. 233- 234).

Similarly, long-trusted, Hebrew-established migration routines profoundly

influenced the early American settler's outlook and behaviors toward the environment, argues White (White as cited in McAndrew, 1993, p. 234). Unlike longtime Native Americans, "…who adapted their lifestyles to the natural surroundings," these 'New Westerners'…tended to bend nature to human will…"[14] The New Westerners' piousness permitted a belief that the wilderness was a "…threatening, [ungodly] place to be 'reclaimed and redeemed.'" They "…stormed ashore [from the Atlantic]…with guns, axes, plows, private enterprise and notions of growth" (Fritsch, 1980, p. 172; Tuan as cited in McAndrew, 1993, p. 237).

Bullard argues the resulting piety evolved into a 'colonial mentality" that swept the South. This mentality allowed big business and government to work together in "…[taking] advantage of people who are politically and economically powerless" (Feagin and Feagin as cited in Bullard, 2000, p. 97). Colonialism influenced quite a few of the region's individuals to develop values leading to environmental abusive customs: values "with little or no regard for negative ecological effects," stresses David Camacho (1998, p. 214) in *Environmental Injustices*, *Political Struggles*.

SOUTHERN ETHOS FOR CONQUESTING NATURE

The earliest settlers of the South were herdsman similar to those from Britain, and unlike farmers from Holland, Germany and the English interior who

[14] See for example Smallwood as cited in Wilson C. and Ferris, 1989, p. 333; Tuan as cited in McAndrew, 1993, p. 237.

immigrated to the North. They came for "economic reasons" to this "low-population frontier." The Scotch-Irish predominated, accustomed to intertribal warfare and cattle raiding.[15] The temperament of Southerners was based on the Scotch-Irish association with frontier experience, which promoted individualism, community neighborliness, patience with formal institutions and allegiance with family. This "character" encouraged hard work and violence, agricultural commitment and evangelical religion to flourish in the midst of the region's oppressively hot summers yet mild winters (Melosi as cited in Wilson C. and Ferris, 1989, p. 315; Wilson C. and Ferris, 1989, pp. 585-587).

The southern "frontier mind," wrote Larry McMurtry, developed a desire for "an easy expectation of surplus, a casual contempt for caution,…and a crusty, sometimes unhinged anti-intellectualism" (McMurtry as cited in Gunter and Oelschlaeger, 1997, p. 25). Traits of "laziness…and volatility," as well as African "elements," became part of the cultural character and regional axioms.[16] With time, Scotch-Irish southerners brought "…many [cultural] generalizations of the original south westward into Texas [, New Mexico] and Oklahoma," areas with "unique indigenous Latino influences" (Lind, 2002; Nisbett and Cohen, 1996, p. 9). Texans, as most southerners to its east, valued land from its inception realistically and unromantically. "From the get-go," writes Jan Jarboe-Russell, this land tended to be used for "…making money, …with an obligation for one

[15] See for example Cochran N. and Chadwick as cited in Nisbett and Cohen, 1996, p. 8; Nisbett and Cohen, 1996, p. xv; Wilson C. and Ferris, 1989, pp. 584, 587.

[16] See also Goldfield as cited in Wilson C. and Ferris, 1989, p. 353; Melosi as cited in Wilson C. and Ferris, 1989, p. 315; Wilson C. and Ferris, 1989, pp. 586, 587.

to…mind their own business and let everyone else mind theirs" (Jarboe-Russell, 2001).

The pre-Civil War southern frontier also stressed manners as "vital to the maintenance of social order." Southerners with good manners were often at odds with those having reduced ones, and a defense for decorum "sometimes warranted violence" (Wilson C. and Ferris, 1989, p. 635). An "absence of the state," exacerbated by the South's remote geography and low population, conspired against law enforcement to demand citizen compliance with regulatory edicts. A man's personal strength, a "stance of willingness to commit mayhem" for self-protection, not always based on good character, determined his credibility and "right to precedence." This led to a *might makes right* mindset and accompanying violence. Thus, southerners became tolerant to committing violence "…with impunity and…created their own system of order, a 'culture of honor'" (Nisbett and Cohen, 1996, pp. xv, xvi, 4, 5, 8).

The culture of honor, anti-authoritarianism, individualism and later physical devastation from the Civil War helped create a legacy of southern environmental attitudes. Land owners "…became indifferent [to their farms as land] became exhausted from intensive, unscientific farming."[17] A "bottom-line, unecological mentality" developed, as "…excessive economic boosterism, a blind pro-business climate and lax enforcement of environmental regulations and industry strategies…" shaped southern ecology (Bullard, 2000, p. 28). The stereotype of a

[17] See for example Fritsch, 1980, p. 173; Melosi as cited in Wilson C. and Ferris, 1989, p. 320; Nisbett and Cohen, 1996, p. 90; Smallwood as cited in Wilson C. and Ferris, 1989, p. 333.

blue-collar, "'*shitkicker'*…driving down the highway throwing beer cans out the window…" took hold (Ivins, 1991, p. 4). "Litter became an ecological footprint out of sight and mind [of the southerner]" (Gunter and Oelschaleger, 1997, p. 37). Many a novelist, journalist and scholar observed "…ambivalence, if not antipathy, toward the region's environment" and "[tardy]" evolution for natural resource conservation.[18]

CORPORATIST GOVERNMENT AND SOUTHERN ECOLOGY

Environmental degradation in modern-day southern states, such as littering, may be explained by the policies and practices of state and local government through business community influences. Historically, southern environmental policy has been associated with state level politics and the "…tendency for policymakers to support economic development over environmental quality" (Sussman, Daynes and West, 2002, p. 1). Until the end of the 20th Century through federal mandates, the impetus for regional conservation and environmental protection came from outside the South (U. S. Department of Justice, National-*Law*, 1995, p. 12). For the most part, according to Samuel Hays (1987, p. 49), greater environmental concern existed in the uppermost south states of North Carolina and Virginia. Collette Will maintains the "lower states" along the Gulf of Mexico, from Alabama to Texas, were "…[especially not] known for having strong environmental programs" (Will as cited in Bullard, 2000, p. 27).

[18] See for example Goldfield as cited in Wilson C. and Ferris, 1989, p. 353; Smallwood as cited in Wilson C. and Ferris, 1989, p. 320.

Overall, southern states traditionally preferred to practice fiscal conservatism, "excessive boosterism" with a "decisive tilt toward big business[es]" being minimally controlled, and "look the other way tax breaks."[19]

The influence of private property ownership affected the first Anglo southerners. From the early days of inhabitance by the Scotch-Irish, poor "have-nots" encompassed the South's population majority (Cochran A., 2001, p. 194). Yet, the region promoted "…a strong belief in the rights of the individual…" as part of its cultural heritage (Pillsbury as cited in Wilson C. and Ferris, 1989, p. 535). Landowners were accorded numerous privileges (Gunter and Oelschlaeger, 1997, p. 17). Property owners could "…do damn near anything they wanted on their land." Southern states like Texas lacked "…a concept of public land and [had] little or no concept of public good" (Jarboe-Russell, 2001). The liberalization of property rights eventually influenced long-term degradation behaviors against respecting southern ecology.

With time, the Southern political atmosphere allowed "…decisonmaking …[to] degenerate into deal making amongst self-interested elites" (Cochran A., 2001, p. 188). Local and state public officials reacted to southern environmental protection by rejecting data contrary to self-interests, as well as disregarding complex scientific principles and findings (Sussman, Daynes and West, 2002, pp. 9 -10). An aggressive response to environmental problems was not needed, as such "may harm the business climate" (U. S. Department of Justice, National-

[19] See for example Bullard, 2000, p. 28; Cochran A., 2001, p. 188; Dumhoff as cited in Bullard, 2000, p. 21; Feagin and Feagin as cited in Bullard, 2000, p. 97.

Law, 1995, p. 19). Jobs were viewed in economically depressed communities as real; environmental risks were unknown or unavoidable tradeoffs for a broadened tax base (Bullard, 2000, p. 27). Thus, southern political bosses "…encouraged outsiders to buy the region's natural resources at bargain prices" (Feagin and Feagin as cited in Bullard, 2000, p. 97). Southern governments and private industries generally followed "the path of least resistance" in addressing environmental externalities through the 1970's and 80's (Bullard, 2000, p. 7).

In the last one hundred years, Will contends residents of economically impoverished southern areas were "…intimidated by big corporations [such as waste disposal enterprises] and deserted by local politicians" (Will as cited in Bullard, 2000, p. 27). Southern jurisdictions and big businesses based in and out of the region advanced a mentality of colonialism to "take advantage" of a majority of citizens, many being "politically and economically powerless" (Bullard, 2000, pp. 97-98). Black and Hispanic southerners, historically denied equal protection under the law, were slow in challenging private-and-public-sector polluters of their communities (Bullard, 2000, p. 28; Camacho, 1998, p. 126). Bullard argues "…mistrust engendered amongst [these two] economically and politically oppressed [ethnic] groups…[They resented] environmental reforms [as directing needed tax dollars to improve their social and economic plights] toward the priorities of the affluent…low-income and minority communities have had few advocates [for their causes in the traditionally white and politically mainstream environmental movement]" (Bullard, 2000, pp. 3, 36). Jim Hightower (1999, p.

172) further adds: "…[these] great unwashed masses [were] much too preoccupied with scrapping up a living to spend time worrying about such prissy concerns."

At present, fundamental federal statutes remain the model and substance for most southern environmental laws, since the creation of the Environmental Protection Agency in 1970 (U. S. Department of Justice, National-*Law,* 1995, p. 12). Still, the nation's environmental policies, laws and regulations are not uniformly applied across southern and other states (Camacho, 1998, p. 11). Glen Sussman, Byron Daynes and Jonathan West (2002, p. 19) argue that only when ecological enigmas spill across state boundaries "…[does] the national government step in…" as a referee. For now, according to Joe and Claire Feagin, the environmental quality southerners experience is "markedly different" from other United States' regions (Feagin and Feagin as cited in Bullard, 2000, p. 97).

TRADITIONALISM AND SOUTHERN ECOLOGY

Political culture, the particular orientation pattern with which state political systems are embedded, may help explain southern behavior and politics toward environmental quality, an attribute differing from other American regions. In 1972, Daniel Elazar attempted to identify the nature and meaning of political culture through the book, *American Federalism: A View from the States*. Aspects of any state's political culture include the public and their elected officials perception's of "…what politics is and what can be expected from government…," the kinds of

people" active in both politics and government, and the "actual way" government is practiced in light of these perceptions (Elazar, 1972, pp. 84-85, 90).

Elazar classified political culture accordingly as *Moralistic, Individualistic and Traditionalistic*. He classified southern political culture as Traditionalistic, dominating the entire South, from the fringe states of West Virginia to New Mexico and Oklahoma, carried westward by a "…southern stream…of…peculiar southern agrarianism…" (Elazar, 1972, pp. 93, 103, 112). According to Elazar, traditionalistic culture characteristics include the maintenance of "a prevailing social order," rooted with an ambivalent "marketplace" attitude, coupled with a "paternalistic, elite" conception of a commonwealth's power "kept in the hands of a few." Citizens partaking in this culture are either "minimally active in politics" through low voter turnouts, or participate in every possible "…facet of political life, depending on whether they are a member of the right elites" (Elazar, 1972, pp. 99, 135; Neal, 2002, p. 21).

Traditionalistic culture allowed the Southern public-sector to contribute to environmental degradation. Traditionalistic-cultured government was viewed by southern settlers, and notably wealthier ones, as a means to maintain a continuous political establishment, much like the regional "stress" for manners as a defense for decorum. Maintaining the status quo became a common "character" of southern governments despite state-by-state material differences.[20] Instead of codified laws issued by jurisdictions, traditional land affairs in the South were mostly governed by "absent law enforcement" and

[20] Elazar, 1972, p. 103; Koven and Mausolff, 2002, p. 69; Wilson C. and Ferris, 1989, p. 635.

"market place economics" (Gunter and Oelschlaeger, 1997, p. 17; Nisbett and Cohen, 1996, p. xv).

In time, un-policed private-sector power arrangements appeared to help coerce public administrative decisionmaking in the southern states to "mirror" the whims of business (Bullard, 2000, pp. 97-98). Venerable logging interests led the economies of forested southern areas while powerful, environmentally extracting energy firms dominated Louisiana, Oklahoma and Texas. Mainstream environmental groups in the South and other regions, overwhelmingly composed of whites and the middle-to-upper-classes, focused essentially on preserving national areas (i. e. parks) and endangered species (Camacho, 1998, p. 211). Any possible improvements to southern ecology seem to ultimately rely with non-environmental group influences (i. e. churches, neighborhood associations) upon the South's commercial and environmental extracting sectors.

The southern grip on Traditionalistic culture explains why local and state entities often denigrated into "…small-group oligarchies…[exercising control for selfish, corrupt purposes] of the lowest level," leading to social problems common to the region (Elazar, 1972, p. 125). The "antics of southern politics," writes Cochran, produces "have nots" of "…uneducated, illiterate, unproductive, backward, poor…[and] unhealthy…individuals," encompassing a majority of Southerners—particularly affecting the region's non-whites and females. The antics help in supporting a rationale behind low voter turnouts that has plagued the South (Cochran A., 2001, pp. 26, 157, 159). For these multiple reasons,

Norman Vig and Micheal Kraft (2001, p. 41) argue that traditionalistic political culture has led to "…a history of non-receptivity…by traditionalistic regions [like the South] in fostering environmental improvements."

LEGAL EFFORTS TO CURTAIL LITTERING

Litter laws, enforcement efforts and court prosecutions are used to help curtail littering as an environmental degradation behavior throughout the South. All three are part of a "comprehensive response to environmental violators," writes Joel Epstein and Theodore Hammett (U. S. Department of Justice, National-*Laws*, 1995, p. 1).

Though there is not a state or federal version, the first model anti-litter regulation was in the form of a city ordinance devised in 1958 by the National Institute of Municipal Law Officers (National Institute, 1958, pp. 1-13). However, state laws appear to have taken precedence over municipal ordinances in controlling litter, with their rationale of existence as public safety measures, not for aesthetics (Kentucky, 1975, p. 2; Ockels, 2003, p. 19). Generally similar from state to state, in both the South and the rest of America, the language in the laws define whom the laws apply to, the type or "function" of the person committing the action, and what items must be littered or dumped to constitute an illegality. The words *litter* and *dumping* in state laws are often used interchangeably. *Littering* can be considered the human throwing of trash in small, individual portions (i.e. throwing a cigarette butt onto a street); *dumping* is littering on a larger, usually more voluminous scale (i. e. throwing a 33-gallon bag of garbage

into a creek).[21] The laws, defining or providing "descriptive areas" where violations must occur, are typically applicable to public lands and waterways as well as private property.[22] Municipal ordinances and state statutes by-and-large require "human action" in committing an act of illegal littering or dumping for one to be "held in violation" (National Center-"Review Laws"-*Description*, p. 2).

Southern states with anti-litter statutes (See *TABLE 3.1*) are not without their problems. Though environmental crimes have been a growing problem throughout the region, Sherwood believes that toughening "litter laws may only inspire rebellion" amongst the general public (Bisbort, 2001, p. 9). As southerners, less than three percent of Texans deem the state's litter laws are given a compulsory, primary legal standing (*Environmedia Litter*, 2001, p. 11). Because littering is accomplished by people, issuing and strengthening litter laws may not be sufficient enough ends to stop states and communities "…[from reasonably expecting a bare minimum] level of littering and of illegal dumping activity" in their jurisdictions (National Center-"Review Laws"-*Description*, 2000, p. 2).

Law enforcement efforts to fight environmental degradation in the South and other states may occasionally appear unproductive. Walt Amaker of Keep America Beautiful remarked that municipal and state anti-litter statutes are

[21] For more information see National Center, "Review Laws-*Description*," 2000, p. 3. For instance, Arkansas' litter/dumping definition excludes "…wastes of primary processes of mining or other extraction process, logging, saw milling, farming or manufacturing."

[22] For more information see National Center, "Review Laws-*Description*," 2000, p. 3. Area specific laws exist in Alabama, for littering by watercraft; Georgia, for transit buses; Mississippi, for depositing trash onto levees; Oklahoma, for littering caves; Texas, for littering/dumping of certain lakes.

"simply not enforced, or with the lowest priority" (Bisbort, 2001, p. 9). As southerners, Texans are not confident that state and local litter laws are or will be enforced. Over 78 percent of people in a 2001 *Environmedia Litter* study said litterers in Texas rarely or never receive a ticket or have to pay a fine for throwing rubbish (*Environmedia Litter*, 2001, p. ii). There is "...a perception [by law enforcement personnel] that environmental crimes are not real crimes" (U. S. Department of Justice, National-*Law*, 1995, p. 20). In most places, state and local law enforcement officers "…must witness the illegal act to write a citation." In Louisiana, volunteer reserve deputy sheriffs are allowed to issue written citation tickets. Some states such as West Virginia allow mandatory arrest of petty litterers without a warrant. Louisiana and South Carolina operate statewide litter and dumping activity telephone hotlines, in which all complaints are by law thoroughly investigated ("City Image, " 2000; National Center-"Examine Enforcement," 2000, pp. 2, 4). Yet, having delegated individuals forced to mostly witness these crimes, as well as the ongoing "perception" that littering is not criminal, could plausibly cloud crime preventative efforts. Thus, Epstein and Hammett argue "…a history of underenforcement has [often] left [southern and other communities] with seriously contaminated [lands]" (U. S. Department of Justice, National-*Law*, 1995, p. xi).

Despite the lapses in litter law enforcement, by the 1970's court prosecutions became "an important realm" in state and local environmental decisionmaking and they increased dramatically after 1990. From a national

survey of prosecutors, the most important factor whether to prosecute an offense was the “degree of harm” posed by the offense and the “criminal intent” of the offender. “The most significant factor to reject prosecution of environmental offenses is insufficient evidence or ability to recognize appropriate evidence.” In recent years, from the mindset of the average prosecutor, pressures exerted by the general public have outweighed those by business or labor groups. The most common offense brought to classrooms in southern and other states involve the illegal disposal of hazardous waste (Hays, 1987, p. 480; U. S. Department of Justice, National-*Environmental*, 1994, p. 1). Though prosecutions may seem unproductive to community members, Ockels (2003, pp. iii, iv) maintains “[The] past few years in criminal law enforcement have been fruitful ones…The handling of these cases [in Texas and other southern states] has become more routine.” McAndrew (1993, p. 272) contends civil and criminal fines are the “most common strategy governments use to control environmental behaviors.” Most criminal offenders choose to settle out of court, before the start of a trial (U. S. Department of Justice, National-*Law,* 1995, p. 43). For small, non-criminal civil littering, a monetary penalty and/or a specified number of hours picking up litter or community service is typical chastisement (National Center-“Review Laws-State Options,” 2000, p. 4). Incarceration of criminal offenders is still rare. The length of a jail sentence is usually left up to the discretion of the presiding judge, within a maximum limit prescribed by law (U. S. Department of Justice, National-*Law*, 1995, p. 43).

CURRENT SOURCE REDUCTION OPTIONS

Practices for southern and fringe state source reduction—the amount of litter and or garbage, generated or thrown away by individuals—include eradicating litter, controlling personal behavior, environmental group efforts, reusing products through recycling, and revenue collecting beverage deposits and litter taxes.

Litter eradication programs, administered by state and local budgetary expenditures, provide a legislatively authorized, yet seemingly non-regulatory "solution" to littering, shifting costs away from persons responsible for the problem [litterbugs and dumpers] toward the group [taxpayers] that compensates for cleanups (Kentucky, 1975, p. 31). By 2001, programs to remove litter from the public domain nationwide cost at least $500 million annually (Bisbort, p. 9).

Behavioral control is also used to resist littering. The most common use of this antecedent strategy to change behavior and provide environmental awareness --prompts or "cues"—are found in inexpensive, convenient campaigns through billboards and media ads (Grasmick, Bursik and Kinsey as cited in McAndrew, 1993, p. 270). This strategy is most effective when people are given polite, positively worded advice rather than telling them "what to do" [or be penalized] through an anti-littering statute.[23] Scott Geller and his associates concluded that positive reinforcement programs are more visually effective and cost effective, plus more socially acceptable, than fines or incarceration (Geller,

[23] For more information see Geller, 1977, Reich and Robinson, 1979, as cited in McAndrew, 1993, p. 270. Positively worded advice includes state anti-litter slogans, such as "Don't Mess with Texas," "Take Pride in Florida," and "Keep North Carolina Clean and Green."

Witmer and Tuso as cited in McAndrew, 1993, p. 272).

Another form of litter source reduction practices are the significant roles environmental organizations play in both the South and other regions. Environmentally-concerned people come from all walks of life, but the most faithful members tend to be drawn from middle and upper income white stratum (Bullard, 2000, pp. 11, 89). The Sierra Club was America's first major and largest politically mainstream environmental assemblage (Bullard, 2000, p. 12; Schlossberg, 1999, p. 22). Keep America Beautiful (KAB), founded in 1953, was the first to bring littering to southern and national attention and made "litterbug" a household name. KAB conducts nationwide "antecedent strategy" advertising campaigns, such as its famous "Iron Eyes Cody" crying Indian commercial of the 1970's and the Clean Community System since the 1980's (Bisbort, 2001, p. 8; Melosi, 1981, p. 213). Environmental Defense, formed in the late 1960's by Long Island scientists, are adept at confrontational protests, forcing McDonald's in 1986 to institute biodegradable food-packaging containers (*Garbage*, September-October 1991, p. 55). And, the Alliance for Environmental Education, based in Virginia, advocates for environmental education through encouraging implementation of school curriculums that address ecological protection (Poore-"Environmental" as cited in *Garbage*, 1993, pp. 26, 30).

Recycling, as mandated by law or done through non-governmental, voluntary efforts, helps to reduce disposed trash volumes as well as provide savings in energy costs to commerce.[24] Rhode Island was the first state to

[24] See *TABLE 3.1*; Murphy, 1993, p. 35.

legislate mandatory, statewide recycling while California was the leading garbage recycling state during the early 1990's. By the end of the Twentieth Century, an estimated 16 percent of American municipalities had curbside recycling, the vast majority located east of the Mississippi River (*Garbage*, November-December 1990, p. 63, December 1992-January 1993, p. 18, January-February 1990, p. 58).

Since beverage containers made up a significant portion of total solid waste generated by its municipalities, Oregon became the first state to legislate a deposit on beverage containers (Grassy as cited in *Garbage*, January-February 1992, p. 44; Shireman, McFadden, Newdorf and Noga, 1981, p. v). Though often opposed by the beverage industry, chamber of commerces and labor unions, public opinion has shown strong support for these deposits once enacted.[25] In the last two decades, in every state with such legislation, beverage container litter has been reduced by at least 80 percent, and container redemption rates as high as 97 percent (Grassy as cited in *Garbage*, January-February 1992, p. 46; Shireman, McFadden, Newdorf and Noga, 1981, p. v). Texas and Florida are the largest populated states without deposit legislation. No southern state has beverage deposit policies at present.[26] Florida attempted a no-cash back, Advanced Disposal Fee in 1993 on beverage containers, with revenues going back to state coffers. The fee proved unpopular and the Florida Legislature

[25] See for example Kentucky, 1975, p. 57; (get initial) Miller as cited in McAndrew, 1993, p. 286; Shireman, McFadden, Newdorf and Noga, 1981, p. v.

[26] See *TABLE 3.1*, Southern and Nearby States…with Beverage Deposits.

allowed it to "sunset" in 1995 (Henricks, 2004).

Finally, litter taxation, a substitution for deposit legislation, is an imposition of a small tax on "…certain goods which contribute to solid waste…to finance litter control, solid waste and recycling activities." Washington State had America's first statewide litter tax in 1971 (Shireman, McFadden, Newdorf and Noga, 1981, p. vii, viii). Virginia is the only southern state levying this revenue source.[27] Though found only in three other non-South states, polls by *Time* in 1988 and 1992 show that significant percentages of Americans are willing to pay additional taxes to protect natural environments.[28]

***TABLE 3.1*: Southern and Nearby Fringe States With Anti-Litter Statutes, Statewide Mandated Recycling, Beverage Container Deposits and Litter Taxation**

STATE	*ANTI-LITTER STATUTE?*	*MANDATES RECYCLING?*	*BEVERAGE CONTAINER DEPOSIT?*	*LITTER TAXATION?*
Alabama	**YES**	**NO**	**NO**	**NO**
Arkansas	**YES**	**NO**	**NO**	**NO**
Florida	**YES**	**NO**	**NO**	**NO**

[27] See *TABLE 3.1,* Southern and Nearby States…and Litter Taxation.

[28] Container-"Litter," 2002, p. 3; *Garbage*, September – October 1993, p. 13; National Center-"Examine"-Consider Control, Option to Tax Litter, 2000, p. 4.

Georgia	**YES**	**NO**	**NO**	**NO**
Kentucky	**YES**	**NO**	**NO**	**NO**
Louisiana	**YES**	**NO**	**NO**	**NO**
Mississippi	**YES**	**NO**	**NO**	**NO**
New Mexico	**YES**	**NO**	**NO**	**NO**
North Carolina	**YES**	**NO**	**NO**	**NO**
Oklahoma	**YES**	**NO**	**NO**	**NO**
South Carolina	**YES**	**NO**	**NO**	**NO**
Tennessee	**YES**	**NO**	**NO**	**NO**
Texas	**YES**	**NO**	**NO**	**NO**
Virginia	**YES**	**NO**	**NO**	**YES**
West Virginia	**YES**	**NO**	**NO**	**NO**

CHANGE ATTITUDES, CHANGE SOUTHERN ECOLOGY

The attitudes of individuals ultimately will affect the solution to littering and southern environmental degradation. Recent Gallup polls indicate a majority of southerners and Americans think both business and government “are not working enough” to protect the environment, and that economic growth should be sacrificed to do so (Gallup as cited in Leal and Meiners, 2003, pp. 2-3). Indeed, Bullard (2000, p. 99) has emphasized the state-by-state differences in environmental laws, regulations and policies, and that even federal regulation enforcement between states “are not uniformly applied.” However, Albert Fritsch (1980, p. 179) philosophizes people themselves, and not public or private

societal institutions exclusively, are mostly to blame for "…our…extravagant [tastes for] waste [disposal]…and extensive destruction of natural resources." Pamela Murphy (1993, p. 3) asserts "…[our] throaway mentality …leaves us with a growing pile of trash and few acceptable ways to dispose of it." Bormann and Kellert (1991, pp. 74, 121) believe environmental degradation through littering and dumping in the South and other locales has reached crisis proportions, and "…poses as great a threat to life ['and a more probable tragedy'] than nuclear war…"

Knowing that a tradition of mistrust and resentment by non-whites affected support of seemingly white-led ecological protective reforms in the South, David Goldfield predicts that improving race relations will ultimately improve the quality of southern ecology (Goldfield as cited in Bullard, 2000, p. 28). Ultimately, "a change in [people's] attitude about [these contributing problems will be] the necessary first step[s] in seeking a solution," advises Martin Melosi (1981, p. 233). Pete Gunter and Max Oelschlaeger (1997, pp. 136, 137) claim one of the changes must be that "…Hidden [clean-up costs that may affect an economy will] need to be brought out into the open…This will be a real challenge." In the meantime, McAndrew (1993, p. 290) urges southerners and those living elsewhere to start the change by "…[making] a personal commitment to do something to improve the situation."

Chapter Four
CONCEPTUAL FRAMEWORK

In order to engage in Francis McAndrew's commitment to improve environmental quality, one must generally assess the state of affairs behind ecologically destructive behaviors. An empirical research question this study investigates is the impact of the most salient sociopolitical factors that may influence littering, through environmental quality indicators and their consequences for the fifty United States. A conceptual framework organizes

empirical inquiry and satisfies a mainstay of social and policy science, explanatory research, which addresses the "why" question using formal hypotheses. A series of hypotheses are developed that identifies each determinant. This section examines the factors that explain environmental degradation or littering. *TABLE 4.1* presents and summarizes these hypotheses and lists literature sources to support each hypothesis. The remainder of this framework section contains a narrative justifying the hypotheses using sources referred to in *TABLE 4.1*.

***TABLE 4.1*: Conceptual Framework Linked To Literature Sources**
Hypotheses One through Twelve and Their Relation to
Statistical Environmental Degradation (Quality) Determinants

Formal Hypothesis	Literature Source
H1: Environmental degradation in **Southern and Fringe states** is considerably more than other American states.	List of American States Bullard (2000) Cochran A. (2001) Feagin and Feagin (1978) Vig and Kraft (2001)
H2: Environmental degradation in **states with**	Bullard (2000)

population concentrations of non-whites is considerably more than other states.	Camacho (1998) *Environmedia Litter* (2001) *Environmedia* (2002) Goldfield (2000)
H3: Environmental degradation in **states with population concentrations of persons living below the poverty level** is considerably more than other states.	Bullard (2000) Will (1985)
H4: Environmental degradation in **states with population concentrations of citizens registered and actually voting** is considerably less than other states.	Bullard (2000) Cochran A. (2001)
H5: Environmental degradation for **states with imperative expenditures on overall environmental issues** is considerably less than other states.	Bisbort (2001) Henning (1974) Kentucky (1974) Vig and Kraft (2001)
H6: Environmental degradation in **states with *Traditionalistic* political culture** is considerably more than other states.	Elazar (1972) Vig and Kraft (2001)
H7: Environmental degradation in **states with comprehensive recycling** are considerably dissimilar than other states.	Murphy (1993) National Solid (1990) Strong (1997)
H8: Statistical environmental degradation determinants for **states with beverage container deposits is** considerably less than other states.	*Garbage* (1992) Grassy (1992) Miller G. (1990) McAndrew (1993) Shireman, McFadden, Newdorf and Noga (1981)
H9: Environmental degradation for **states with litter taxation** is considerably less than other states.	Shireman, McFadden, Newdorf and Noga (1981)
H10: Environmental degradation in **states with subordinate concentrations of educational attainment** is considerably more than other states.	Bisbort (2001) *Environmedia Litter* (2001)
H11: Environmental degradation in **states with numerous and frequent murders** is considerably more than other states.	Nisbett and Cohen (1996)
H12: Environmental degradation for **states with prominent statewide average temperatures** is considerably more than other states.	Melosi (1989) Wilson C. and Ferris (1989)

CONCEPTUAL FRAMEWORK FACTORS IDENTIFIED

Selected factors were chosen for this research found to have exclusive and noteworthy weight in explaining the outcome of environmental degradation through littering in Southern and nearby fringe states. This section describes in detail these factors.

Southern and Nearby Fringe States

The geographic location of a group of American States is expected to affect a state's standing on environmental degradation determinants. In particular, Southern and nearby fringe states, comprising 15 of the nation's southeastern-most states, are noted for their high concentrations of non-white population, lack of educational attainment and low voter turnouts (Bullard, 2000, pp. 22, 97; Cochran A., 2001, p. 17). The region is also characterized for having "lenient environmental regulations" and "…[a] history of non-receptivity…[in fostering] environmental improvements" (Bullard, 2000, p. 21; Vig and Kraft, 2001, p. 41). According to Joe and Claire Feagin, the environmental quality Southerners experience today is "markedly different" from other regions (Feagin and Feagin as cited in Bullard, 2000, p. 97).

Therefore, one would expect that:

Formal Hypothesis One (H1)
Environmental degradation in Southern and Fringe states is considerably more than other American states..

Concentration of Non-White Population

The concentration of non-white population of a state, appearing most often in the empirical literature, is also expected to affect a states' standing on environmental degradation determinants. Black and Hispanic groups were historically denied equal protection under the law in fighting environmental issues throughout the United States, and in particular certain regions (Bullard, 2000, p. 28; Camacho, 1998, p. 126). Historian David Goldfield believes a region's

environmental eminence is tied significantly to racial dynamics (Goldfield as cited in Bullard, 2000, p. 28). Available state government studies show non-whites profiled as prominent, frequent litterers (*Environmedia Litter*, 2001, pp. I, 1; *Environmedia 2002*, pp. I, 1, 43).

Therefore, one would expect that:

Formal Hypothesis Two (H2)
Environmental degradation in states with population concentrations of non-whites is considerably more than other states.

Population Living Below Poverty Level

A state's concentration of persons living below the poverty level is anticipated to affect its standing on environmental degradation. Collette Will argues that residents of economically impoverished areas within some states known for high poverty have been "deserted by local politicians" and "intimidated by [potentially environmentally-degradating waste disposal companies]" (Will as cited in Bullard, 2000, p. 27).

Therefore, one would expect that:

Formal Hypothesis Three (H3)
Environmental degradation for states with population concentrations of persons living below the poverty is considerably more than other states.

Voters Registered and Voting

The percentage of those registered and actually voting for elections is anticipated to affect a state's overall environmental degradation. Low voter turnouts have historically plagued particular regions of the United States more

than other American regions (Bullard, 2000, p. 97; Cochran, A., 2001, pp. 17, 159).

Therefore, one would expect that:

Formal Hypothesis Four (H4)

Environmental degradation in states with population concentrations of citizens registered and actually voting in elections is considerably less than other states.

State Spending on the Environment

A state's proportion of spending on inclusive environmental issues is anticipated to be a determinant of its overall environmental degradation. For instance, litter eradication programs can be very expensive, yet "little has been accomplished by [state and local] governments [nationwide] to control littering" (Bisbort, 2001, p. 9; Henning, 1974, p. 105). Such programs have been noted for shifting "solution" costs from persons causing the problem toward those who must pay for cleanup through taxation (Kentucky, 1975, p. 31). A state's political culture could also shape a jurisdiction's monetary receptivity in nurturing ecological enhancements (Vig and Kraft, 2001, p. 41).

Therefore, one would expect that:

Formal Hypothesis Five (H5)

Environmental degradation for states with imperative expenditures on overall environmental issues is considerably less than other states.

Statewide Political Culture

Also anticipating to affect a state's overall environmental degradation is the particular orientation pattern with which state political systems are

embedded, its *political culture*. Aspects of this culture include both citizen and elected official's perceptions of what state and local politics should be, the kinds of people active in these politics, and the "actual way" government is practiced. Elazar classified political culture as *Moralistic*, *Individualistic* and *Traditionalistic*. States entrenched with Traditionalistic political culture, known for keeping their political powers "in the hands of a few," often lead to governmental practices that reduces overall environmental qualities statewide. (Elazar, 1972, pp. 84-85, 90, 93, 99). According to Vig and Kraft, Traditionalistic political culture has led to "…a history of non-receptivity…by traditionalistic [state regions in fostering] environmental improvements" (Vig and Kraft, 2001, p. 41).

Therefore, one would expect that:

Formal Hypothesis Six (H6)
Environmental degradation in states with Traditionalistic political culture is considerably more than other states.

Comprehensive Recycling States

American states with comprehensive, jurisdiction-wide recycling are also anticipated to affect their standings on environmental degradation. Such states are required to have detailed recycling plans and/or separation of recyclables containing at least one other provision to stimulate recycling (National Solid as cited in Strong, 1997, p. 96). Recycling helps to reduce disposed trash volumes and provide energy cost savings to both industry and government (Murphy, 1993, p. 35).

Therefore, one would expect that:

Formal Hypothesis Seven (H7)

Environmental degradation in states with comprehensive recycling is considerably less than other states.

Beverage Container Deposit States

American states with beverage container deposits are also expected to affect individual environmental degradation statuses. Those states that have enacted this legislation have seen substantial--80 percent or more--decreases in statewide total solid waste output (Grassy as cited in *Garbage*, January-February 1992, pp. 44, 46; Shireman, McFadden, Newdorf and Noga, 1981, p. v). National and state public opinion polls have shown strong support for these deposits once enacted (Miller G. as cited in McAndrew, 1993, p. 286).

Thus, one would expect that:

Formal Hypothesis Eight (H8)

Environmental degradation in states with beverage container deposits is considerably less than other states.

Litter Taxation States

American states with litter taxation powers are expected to affect individual overall standings on environmental degradation. A substitute to beverage container laws, some state jurisdictions impose this usually small tax on contributors to solid waste, "…to finance litter control…and recycling activities" (Shireman, McFadden, Newdorf and Noga, 1981, p. viii).

Thus, one would expect that:

Formal Hypothesis Nine (H9)

Environmental degradation for states with litter taxation is considerably less than other states.

Statewide Educational Attainment

The concentration of persons 25 years of age and over having completed a high school diploma or its equivalent are expected to influence state statuses on environmental degradation. The "Auntie Litter" organization claims "…a lack of education…" is a litterer's character trait (Bisbort, 2001, p. 8). State governmental studies portray profiled primary litterers as those under age 25 (*Environmedia Litter*, 2001, pp. I, 1). Persons under age 25 who have yet to finished a minimum secondary education may negatively contribute to a state's resultant environmental quality.

Thus, one would expect that:

Formal Hypothesis Ten (H10)

Environmental degradation in states with subordinate concentrations of educational attainment is considerably more than other states.

Murder-Frequent States

A most extreme form of violence, murder, like littering, can be a culturally predisposed activity. Certain states and their regions tolerate the commitment of violence with exemptions from punishment or loss (Nisbett and Cohen, 1996, pp. 5, 8). Such excessive acts of this violence could influence individual state statuses on environmental degradation.

Thus, one would expect that:

Formal Hypothesis Eleven (H11)

Environmental degradation in states with numerous and frequent murders is considerably more than other states.

Prominent Statewide Average Temperatures

Statewide normal daily temperatures are expected to influence the environmental degradation indicators for a given state. In certain regions of the United States, "oppressively hot summers yet mild winters" can encourage an agricultural commitment to flourish. Regions with these summers "…[may encourage] violence…to flourish…" (Melosi as cited in Wilson, C. and Ferris, 1989, p. 315; Wilson C. and Ferris, 1989, p. 585). A rationale behind this research is a speculation that states with both high temperatures and high violence may be more prone to widespread, land-damaging litter. People living in uncomfortably hot climates may, under the duress of intense heat, be more inclined to discard foodstuff packaging and drinking containers. Such localistic, individualistic behavior could proliferate to grander territorial proportions that inadvertently and negative affect a state's overall environmental quality.

Thus, one would expect that:

Formal Hypothesis Twelve (H12)

Environmental degradation for states with prominent statewide average temperatures is considerably more than other states.

CONCLUSION

The review of scholarly literature captures the broad body of discourse on

littering and the American state, with emphasis on the Southern and fringe states. The origins and persistence of littering in these states are attributed to cultural and sociopolitical factors, including fundamental religiosity, anti-authoritarianism, corporatism, elitism and racism.

Littering and its negative consequences, as well as the attributes of the South, have received ample attention in scholarly literature. However, this research subject lacks a comprehensive investigation of littering and ecological degradation for American states that uses scientific statistical research techniques, with implementation of political/public-sector oriented variables. By the 1990's, according to Joel Epstein and Theodore Hammett, no national research quantified the extent of environmental crimes nationwide (U. S. Department of Justice-*Law*, 1995, p. 7). Consequently, Formal Hypothesis One (H1) through Twelve (H12) were developed to further this research agenda.

The next chapter guides the operationalization of the Formal Hypotheses by explaining the very deliberate process of methodological design and its implementation process. By taking into consideration the study's Setting's chapter, the researcher constructs in a coherent manner the formulation of the survey instrument—a multivariant model--used to test the Formal Hypotheses.

Chapter Five
METHODOLOGY

INTRODUCTION

At the heart of the research study, this chapter provides a discussion of the unit of analysis and population, plus data collected to test the hypotheses developed in Chapter Four, and explains the methods and statistical techniques used to address the research question. The chapter operationalizes the Formal Hypotheses presented in Chapter Four (H1-H12) by defining associated variables and discussing each data source for each variable. A rationalization and operationalization of a conceptual framework through the quantitative and analytical use of three mathematical models is found later in the chapter.

The American states, regarded as a "political-geographic" unit—both a sampling frame and population—is the study's unit of analyses (Babbie-*The Practice-9th*, 2000, pp. 111, 195, 316). Fifty of these recognized units comprise the nation of the United States, excluding the District of Columbia and Territories. Particular population focus, however, will be upon twelve Southern and three nearby states (see *TABLE 2.1*, Chapter Two). Ordinal, non-hierarchal data comprise the 50 state names, further divided into Southern and non-southern states and the handful of states with comprehensive recycling, beverage container and litter taxation regulations—all considered independent variables for

this project. There are also 50 separate, ratio-level numerical measurements, one for each specific state, including the dependent variables and the remaining independent variables (i.e. percent non-white population). In most instances, data source providers came from the United States Department of Commerce and the Council of State Governments--nationally recognized sources used regularly in scholarly research. Other sources include academicians, trade organizations and associations.

OPERATIOALIZATION OF THE CONCEPTUAL FRAMEWORK

TABLE 5.1 shows how the researcher operationalized Hypotheses One through Twelve and the hypotheses' measurable response categories. The process of operationalization helps to provide reality--a real world explanation of statewide environmental statuses potentially supported by littering through data dimensions (Babbie-*The Practice-9th*, 2000, pp. 122-123; Bingham and Felbinger, 2000, p. 32).

Each hypothesis will have one dependent variable and one independent variable. The dependent variables, along with the independent variables used in the analysis, operationalize the research's conceptual framework. Previously aggregated data, as specified in each table and found in a discussion within this section, measures each variable—dependent and independent.

This research uses three separate, principal dependent variables. Hypothesis One through Twelve are further subdivided into three Hypotheses per

singular Hypothesis—Hypothesis One is subdivided in Hypothesis One a, Hypothesis One b, Hypothesis One c and so on, through Hypothesis Twelve a, Hypothesis Twelve b and Hypothesis Twelve c. Each table describes and defines each variable, provides an abbreviation for the variable that will be used in a subsequent multiple regression analysis table, and indicates the source of data for each. The remainder of the operationalization section contains a discussion and justification for each of the dependent variable data sources, the operationalization tables, and the independent variable data sources.

TABLE 5.1: Operation of the Conceptual Framework for Hypotheses One a, b, c – Twelve a, b, c

HYPOTHESIS	VARIABLE	DEFINITION	DATA SOURCE
	Dependent		
	a. State Livability Scores	Ratio Data	Morgan and Morgan (2000) (See *TABLE 5.2*)
	b. Waste Disposal Pricings by State	Ratio Data	"Waste" (2002) (See *TABLE 5.3)*
	c. Per Capita Daily Waste Disposal Poundage by State	Statewide Daily Waste Disposal Tonnages Multiplied by 2000 Divided By Total State Population	"Waste" (2002) (See *TABLE 5.4*)
	Independent		
H1a, H1b, H1c: Southern and Fringe States	*State Type*	A dichotomous variable where Southern + Fringe states = 1 and All Other States = 0	Delineated in Research (See *TABLE A2.1)*
H2a, H2b, H2c: States with population concentrations of non-whites	*Percent Non-White Population by State*	Ratio Data	U. S. Department of Commerce (2001) (see *TABLE A2.2*)
H3a, H3b, H3c: States with population concentrations of persons living below the poverty level	*Percent of Population Living Below the Poverty Line*	Ratio Data	U. S. Department of Commerce (2001) (See *TABLE A2.3)*
H4a, H4b, H4c: States with population concentrations of citizens registered and actually voting	*Percent of State Registered Voters Actually Voting*	Ratio Data	U. S. Department of Commerce (2001) (See *TABLE A2.4)*
H5a, H5b, H5c: States with imperative expenditures on overall environmental issues	*Percentage of State Budget Spending on Environmental Concerns*	Ratio Data	Council of State Governments-*Council* (1999) (See *TABLE A2.5)*
H6a, H6b, H6c: States with Traditionalistic political culture	*Sharkansky's Political Culture Score Scale*	An index score from 1 to 9 indicating a state's political culture continuum position (7 or more =*Traditionalistic)*	Koven and Mausloff (2002) (See *TABLE A2.6*)
H7a, H7b, H7c: States with comprehensive recycling	*States with Comprehensive Recycling Laws*	A dichotomous variable where states with comprehensive recycling = 1 and All Other States = 0	American Forest (2002) (See *TABLE A2.7)*

		1 and All Other States = 0	
H8a, H8b, H8c: States with beverage container deposits	*States with Beverage Container Laws*	A dichotomous variable where states with beverage container laws = 1 and All Other States = 0	California Henricks (2004) (See *TABLE A2.8)*
H9a, H9b, H9c: States with litter taxation	*States with Litter Taxes*	A dichotomous variable where states with litter taxes = 1 and All Other States = 0	Container – "Litter" (2002) National Center- "Examine" (2000) (See *TABLE A2.9*)
H10a, H10b, H10c: States with subordinate concentrations of educational attainment	*Percent of Population With Educational Attainment by State*	Ratio Data	U. S. Department of Commerce (2001) (See *TABLE A2.10)*
H11a, H11b, H11c: States with numerous and frequent murders	*State Murder Rates*	Ratio Data	Morgan and Morgan (2000) (see *TABLE A2.11*)
H12a, H12b, H12c: States with prominent statewide average temperatures	*State Daily Mean Temperatures*	Ratio Data	Morgan and Morgan (2000) (See *TABLE A2.12)*

Measures of Environmental Degradation: Dependent Variables

STATE LIVABILITY SCORES

This research project explores an expectation that environmental quality rankings could reflect littering and environmental quality in the fifty states. Excellent yet incomplete quality indicators are available from Pope's (1999) *Sierra Club Ranks the States*, Hall and Kerr's (1991, pp. 3-5) *Green Index,* and the Institute for Southern Studies (2002, pp. 48-52) "Green and Gold: Together Again." A leading quantitative framework for this subject matter is Boyce, Klemer, Templet and Willis (1999, p. 8) *Environmental Quality Index*, using data from Hall and Kerr's previous effort. This foursome established a model on environmental stress based on 167 indicators: from the eminence of a state's air to its forestry and fishery resources.

To meet academic research principles stipulating the use of accurate, reliable and up-to-date data, Morgan and Morgan's "Most Livable State" (2000, p. iv) is justifiable. This livability score is a scale that takes into account "…a broad range of [43] economic, educational, health-oriented, public safety and

environmental statistics." This score takes on a calculated value from a low of 17.37 to a high of 35.02. Through these recently-produced livability scores comprising environmental quality rankings, a state's expected standing on environmental excellence or degradation from a hierarchal score can be determined. Perceptibly, states with higher livability rating scores due to low-numbered, environmental quality rankings ought to be regarded for this research as having lesser levels of environmental degradation. Thus, Hypothesis One a through Twelve a, drawn from the literature, satisfy this research purpose. *TABLE 5.2* provides the dependent variable for these hypotheses--state livability scores and quality rankings for all fifty states. *TABLE 5.5* shows an operationalization of the conceptual framework--the connection between the derived hypotheses, literary sources and an expected positive or negative sign influence on the dependent variable.

***TABLE 5.2*: Dependent Variable for Hypotheses One a -Twelve a**

State Livability Scores

(Southern/Fringe States in **bold**)

STATE	RANK	LIVABILITY RATING
Minnesota	1	35.02
Iowa	2	32.40
Colorado	3	30.98
Utah	4	30.95
New Hampshire	5	30.02
Kansas	6.5	29.88
Wisconsin	6.5	29.88
Virginia	8	**29.57**
Nebraska	9	29.47
Massachusetts	10	29.42
South Dakota	11	28.81
Vermont	12	28.50
Connecticut	13	28.16
North Dakota	14	27.65
Maine	15	27.60
New Jersey	16	27.42
Maryland	17.5	27.33
Delaware	17.5	27.33
Indiana	19	27.00
Wyoming	20	26.60
Oregon	21	26.26
Washington	22	25.98
Missouri	23	25.93
Idaho	24	25.79
Ohio	25	25.77
Nevada	26	25.28
Texas	27	**25.00**
Michigan	28	24.88
Illinois	29	24.74
Georgia	30	**24.21**

Rhode Island	31	24.07
Kentucky	32	**23.77**
Montana	33	23.58
Pennsylvania	34	23.51
North Carolina	35	**23.47**
California	36	23.26
Oklahoma	37	**22.98**
New York	38	22.44
Arizona	39	22.42
Florida	40	**22.40**
Alaska	41	22.33
Alabama	42	**21.88**
Hawaii	43	21.86
South Carolina	44	**21.40**
Arkansas	45	**20.47**
Tennessee	46	**20.23**
New Mexico	47	**19.37**
Louisiana	48.5	**17.42**
West Virginia	48.5	**17.42**
Mississippi	50	**17.37**

WASTE DISPOSAL PRICINGS BY STATE

This research project also explores an expectation that state waste disposal prices could reflect an outcome of littering and environmental quality indicators in American states. According to Collette Will, waste disposal companies have especially permeated impoverished southern communities "ripe for exploitation." Two westernmost southern and fringe states, New Mexico and Texas, were amongst the twelve states through the 1990's dominating garbage importation from other states.[29] Personal practices for reducing waste source reduction, such as decreasing consumption and recycling, offer an alternative to disposal methods of landfills and incinerators, meaning less trash requiring disposal (Murphy, 1993, pp. 11, 35). The culmination of legislated or citizen-

[29] Murphy, 1993, pp. 14-17; Shireman, McFadden, Newdorf and Noga, 1981, p. viii; Will as cited in Bullard, 2000, p. 27.

induced source reduction practices could affect a state's overall waste disposal price level. Knowing these dynamics, waste disposal pricings are capable of making measurable, quality, rank-order statistics for a state's presumable environmental quality/degradation condition. Waste Disposal Pricings and Volumes from the *Waste News Market Handbook* (2002, pp. 20-21) provide this valid statistical source, listing the average daily cost per ton of disposed solid waste from a state's identified solid waste disposal facilities for an entire year. Perceptibly, states with higher waste disposal costs should be regarded as having lesser levels of environmental degradation for purposes of this research. Thus, Hypotheses One b through Twelve b, drawn from the literature, satisfies this research purpose. *TABLE 5.3* provides a list of the dependent variable for these hypotheses: waste disposal pricings for all fifty states. *TABLE 5.5* shows an operationalization of the conceptual framework-- the connection between these derived hypotheses and their literary sources, and the expected positive or negative influence on the dependent variable.

***TABLE 5.3*: Dependent Variable for Hypotheses One b -Twelve b**

Waste Disposal Pricings by State

(Southern/Fringe States in **bold**)

STATE	RANK	$COST PER TON
Massachusetts	1	68.98
New Hampshire	2	68.57
New Jersey	3	58.55
Rhode Island	4	57.75
Vermont	5	54.61
Maine	6	54.30
Maryland	7	52.20
Hawaii	8	52.05
Connecticut	9	51.40
Pennsylvania	10	50.84
New York	11	50.27
Delaware	12	48.57
Alaska	13	46.41
Minnesota	14	43.61
Virginia	15	**40.28**
Washington	16	40.00
Florida	17	**38.13**
West Virginia	18	**35.17**
Iowa	19	33.47

Illinois	20	33.38
California	21	33.26
Missouri	22	32.87
Wisconsin	23	32.86
South Carolina	24	**32.74**
Michigan	25	32.34
Georgia	26	**31.92**
North Carolina	27	**31.49**
Alabama	28	**30.94**
Kentucky	29	**30.75**
Indiana	30	30.52
Tennessee	31	**29.86**
Kansas	32	29.28
Oregon	33	28.23
Ohio	34	27.96
South Dakota	35	27.49
North Dakota	36	26.28
Mississippi	37	**26.10**
Arizona	38	25.77
Utah	39	25.52
Louisiana	40	**25.21**
Arkansas	41	**25.05**
Nebraska	42	24.91
Oklahoma	43	**24.36**
Montana	44	23.51
Texas	45	**21.95**
Idaho	46	21.22
Colorado	47	19.70
Wyoming	48	19.04
New Mexico	49	**17.21**
Nevada	50	11.41

PER CAPITA DAILY WASTE DISPOSAL POUNDAGE BY STATE

Furthermore, this research explores an expectation that daily per capita waste disposal poundage could influence littering leading to environmental degradation in American states. As with waste disposal pricings, personal practices for reducing waste source reduction offer alternatives to traditional disposal methods, connoting less trash disposed (Murphy, 1993, pp. 11, 35). The culmination of legislative or citizen-induced source reduction could affect a state's overall per capita, daily pounds of waste disposed. Knowing these dynamics, per capita waste disposal poundage make suitable, rank-order figures for a state's presumable environmental degradation/quality condition. Waste

Disposal Tonnages by State, obtained from the *Waste News Market Handbook* (2002, pp. 20-21), listing daily waste disposal tonnage by state for an entire year, provides an important, research-manipulativable data source when looked at on a per capita basis [daily waste disposal tonnages multiplied by 2000 divided by a state's total annual population]. Perceptibly, states with lower per capita poundage ought to be regarded as having lesser environmental degradation/quality levels. Thus, Hypotheses One c through Twelve c, drawn from the literature, satisfies this research purpose. *TABLE 5.4* provides a list of the dependent variable for these hypotheses: per capita waste disposal poundage per day for all fifty states. *TABLE 5.5* shows a conceptual framework operationalization—the connection between these derived hypotheses, their literary sources, and the expected positive or negative influence on the dependent variable.

***TABLE 5.4*: Dependent Variable for Hypotheses One c – Twelve c**
Per Capita Daily Waste Disposal Poundage by States
(Southern/Fringe States in **bold**)

STATE	RANK	AVERAGE PER CAPITA POUNDS DISPOSED PER DAY
Connecticut	1	0.4510
Vermont	2	0.5840
Maine	3	1.0348
Massachusetts	4	1.4575
New York	5	1.5250
New Jersey	6	2.4698
Minnesota	7	2.5871
Maryland	8	2.9465
Hawaii	9	3.6754
Idaho	10	4.4523
Missouri	11	4.6106
Washington	12	4.9711

Florida	13	**5.2001**
South Dakota	14	5.3127
Montana	15	5.3165
Alaska	16	5.4872
Alabama	17	**6.1666**
Louisiana	18	**6.2151**
Delaware	19	6.2535
West Virginia	20	**6.3716**
Iowa	21	6.4104
Rhode Island	22	6.6646
Georgia	23	**6.6713**
California	24	6.7999
Nebraska	25	6.8072
Oklahoma	26	**6.9690**
Wyoming	27	7.2168
Texas	28	**7.2457**
New Hampshire	29	7.3430
North Carolina	30	**7.4116**
Arkansas	31	**7.5971**
Mississippi	32	**7.8556**
Colorado	33	7.9048
Tennessee	34	**8.2213**
Illinois	35	8.4773
Ohio	36	8.7336
Utah	37	8.8063
Kansas	38	8.9314
Arizona	39	8.9871
Virginia	40	**9.0122**
Oregon	41	9.0161
Wisconsin	42	9.4417
North Dakota	43	9.4650
Indiana	44	9.7873
Kentucky	45	**9.9515**
South Carolina	46	**10.2101**
Michigan	47	10.4388
Pennsylvania	48	12.9517
New Mexico	49	**15.6367**
Nevada	50	16.9415

Determinants of Environmental Degradation: Independent Variables

STATE TYPE. The geographic location of an American state is expected to affect its standing on environmental degradation determinants. For purposes of this research, states are divided into “Southern/Fringe states” and “All Other States.” This independent variable is a *dichotomous variable*, with only two values (Norusis, 2000, p. 328). Thus, “Southern/fringe states” will have a value of 1, and “All Other States” will be assigned a value of 0.

PERCENT NON-WHITE POPULATION BY STATE. The percent of non-

white population of a state is also expected to affect standings on environmental quality rankings, waste disposal pricings and per capita disposal poundage. The U. S. Department of Commerce's *Statistical Abstract of the United States* (2001, pp. 25, 27) provides this data source. In the year 2000, Southern and fringe states such as Mississippi and New Mexico had two of the nation's highest concentrations of non-white population for blacks and Hispanics, respectively.

PERCENTAGE OF POPULATION LIVING BELOW THE POVERTY LINE. A state's concentration of person's living below the poverty level is expected to affect environmental degradation indicators. The *Statistical Abstract* (2001, p. 444) provides this data source. For 2000, the national state average of American residents living below the poverty line was 11.8 percent, with New Mexico having the highest Southern/Fringe state rate, at 20.7 percent.

PERCENT OF STATE REGISTERED VOTERS ACTUALLY VOTING. The showing of a state on those registered and actually voting in elections is anticipated to also affect a state's overall environmental degradation determinants. In 2000, 54.7 percent of qualified Americans registered and actually voted within their state, according to the *Statistical Abstract* (2001, p. 252). Low voter turnouts have historically plagued Southern and fringe states like Texas, which experienced a 48.2 percent rate in 2000.[30]

PERCENTAGE OF STATE BUDGET SPENDING ON ENVIRONMENTAL CONCERNS. The showing of a state's spending on overall environmental issues

[30] Bullard, 2000, p. 97; Cochran A., 2001, pp. 17, 159; U. S. Department of Commerce -U. S. Census, 2001, p. 252.

is expected to affect its standings on the environment. Studies note these expenditures shifting solution costs from persons causing environmental problems toward those who must pay for improvements through taxation (Kentucky, 1975, p. 31). This data source's age, the oldest for this research (1996) yet the only such available, is provided by the Council of State Governments. Wyoming, at 5.66 percent and Arizona, at 0.72 percent, had the highest and lowest state expenditures towards state environmental concerns for fiscal year 1996 (Council of State Governments-*Council* as cited in Sussman, Daynes and West, 2002, pp. 33-34).

SHARKANSKY' S POLITICAL CULTURE SCORE SCALE. Also anticipating to affect a state's overall environmental degradation determinants is the particular orientation pattern with which political systems are embedded: its *political culture*. Elazar (1972, p. 99) classified state political cultures as *Moralistic*, *Individualistic* and *Traditionalistic*. Ira Sharkansky essentially operationalizes Elazar's political culture gradients by assigning numerical state scores of 1 to 9, with 1 to a pure Moralistic state, 5 to a pure Individualistic state and 9 to a pure Traditionalistic state (Koven and Mausloff, 2002, p. 73). These spectrum-like scores are thus used in the research. Interestingly, Traditionalistic culture states are especially known for their "…non-receptivity [in fostering] environmental improvements" (Vig and Kraft, 2001, p. 41). In reviewing this particular culture's scores, all of the Southern and fringe states, plus Maryland and Delaware, were the dominant possessors of this political tradition (Koven

and Mausloff, 2002, p. 73)

STATES WITH COMPREHENSIVE RECYCLING LAWS. Whether or not a state has required, detailed recycling plans and/or separation of recyclables, with least a significant provision stimulating statewide recycling activity, could affect its environmental degradation standing (National Solid as cited in Strong, 1997, p. 96). No Southern nor nearby fringe state has a mandated, fully comprehensive recycling statute to date (American Forest, 2002, pp. 1-16). For purposes of this research, states are divided into "States With Comprehensive Recycling" and "States Without Comprehensive Recycling." This independent variable is a dichotomous variable with only two values (Norusis, 2000, p. 328). Thus, "States With" will have a value of 1, and "States Without" will be assigned a value of 0.

STATES WITH BEVERAGE CONTAINER LAWS. Whether or not a state has beverage container return deposits is expected to affect its statewide environmental quality indicators. Despite their popularity in national and state public opinion polls, no Southern nor fringe state has yet to enact this type of legislation.[31] For purposes of this research, states are divided into "States With Beverage Container Laws" and "States Without Beverage Container Laws." This independent variable is also dichotomous, with only two values (Norusis, 2000, p. 328). Thus, "States With" will have a value of 1, and "States Without" will be assigned a value of 0.

STATES WITH LITTER TAXATION. American states that either possess or

[31] California; Grassy as cited in Garbage, January-February 1992, pp. 44, 46; Henricks, 2004.

not possess litter taxation powers, a substitute to beverage container laws, are expected to affect their individual overall standings on environmental degradation determinants (Shireman, McFadden, Newdorf and Noga, 1981, pp. viii). Only one Southern/fringe state and three non-southern states have an imposition of litter taxation (Container-"Litter, " 2002, p. 3; National Center-"Examine"-Consider Control, Option to Tax Litter, 2000, p. 4). This research divides states into "States With Litter Taxes" and "States Without Litter Taxes." This independent variable has only two values and is thus dichotomous (Norusis, 2000, p. 328). A value of 1 will be assigned to "States With" and "States Without" will have a value of zero.

PERCENT OF POPULATION WITH EDUCATIONAL ATTAINMENT BY STATE. The concentration of persons 25 years of age and over having completed a high diploma or its equivalent for each state are expected to influence individual state environmental indicators. The U. S. Department of Commerce's *Statistical Abstract of the United States* (2001, p. 141) provides this data source. In 2000, 84.1 percent of Americans 25 and over met this educational qualification. Academics portray Southerners with having less educational attainment than non-southerners (Bullard, 2000, p. 97; Cochran A., 2001, p. 17). In 2000, West Virginia had a 77.1 percent attainment rate, the lowest for any Southern/fringe state (U. S. Department of Commerce—U. S. Census, 2001, p. 444).

STATE MURDER RATES. Excessive and individual acts of the taking of human life by violent force--murder--could influence state environmental

degradation indicators. The Federal Bureau of Investigation's *Uniform Crime Reports* (U. S. Department of Justice, Federal as cited in Morgan and Morgan, 2000, p. 35) provides this data source. Certain states and their regions—the South in particular—tolerate the commitment of violence and have leading murder rates as proof (Nisbett and Cohen, 1996, p. 5, 83). For 1998, Louisiana, at 12.8 percent, led the high-percentage, southern state rates, while a 6.3 percent rate per 100,000 state population was the national average.

STATE DAILY MEAN TEMPERATURES. The average statewide temperatures per day for a time period will have a bearing on environmental indicators leading to littering and poor environmental quality. The National Oceanic and Atmospheric Administration's *Climatography of the United States, Number 81* (U. S. Department of Commerce, National as cited in Morgan and Morgan, 2000, p. 226) provides this data source. A rationale behind using this data source is that high-temperatured states might increase a propensity for extreme violence to flourish within their jurisdictions, and thus might have more chances for reduced, less suitable environmental quality overall. Conversely, states with lower daily temperatures may have more suitable environmental qualities.

THE MULITIVARIANT MODEL

As mentioned earlier in this Methodology section, this research uses an scrutiny of existing information through quantitative, multiple regression analysis to find expected outcomes. Three mathematical models test the independent

variables operationalized in the conceptual framework in relevance to environmental degradation determinants. The models, with their combined, interacting independent variables, help predict the environmental degradation/environmental quality dependent variable.

The preliminary generic multiple regression equation that predicts state environmental quality/degradation overall for this research is written as

> Predicted State Environmental Quality/Degradation Determinant = *constant* + _1STATYPE + _2PRNONWHT + _3PRPOV + _4PRVOTR + _5PRBUDEXP + _6POLCULT + _7STRECYCL + _8STCONT + _9STLITRTX + _10PREDUATN + _11MRDRATE + _12AVGTEMP

where the predicted Environmental Quality/Degradation Determinant is a dependent variable measuring either State Livability Scores, Waste Disposal Pricing by State, or Per Capita Daily Waste Disposal Poundage by State; *constant* is the value of the dependent variable when all independent variables are equal to zero; _1 through _12 are coefficients, one for each independent variable, noting the change in the predicted Environmental Quality/Degradation Determinant associated with a one unit change in an independent variable. The State Type is a dichotomous independent variable, denoting "1" if a state is "Southern/Fringe" and "0" for "all other states." A state's percentage of non-white population; percentage of person's living below the poverty line; percent of registered voters actually voting; its annual percent of budgetary expenditures on environmental concerns and its Sharkansky political culture score are measured by ratio data. A state's status of having or not having comprehensive

recycling, beverage container laws and litter taxation, respectively are measured as dichotomous independent variables, denoted with “1” if having a particular characteristic and “0” if without an attribute. Furthermore, a state’s percentage of educational attainment, its yearly rate of murders committed and its daily mean temperature are all measured with ratio data.

STATISTICAL TECHNIQUES

Regression

This research uses an analysis of existing, aggregated, group data through quantitative multiple regression to find expected outcomes. This unobtrusive research method studies behavior without directly affecting it and is used to fully understand relationships between two or more variables. Social researchers often find several independent variables (i. e. percent non-white population, political culture score) influence a given dependent variable (i.e. livability score). A regression equation provides a mathematical formula description of the relationship between the dependent and independent variables, allowing inference of Y values when X values exist (Babbie-*The Practice- 9th*, 2000, pp. 304, 317, 414, 442 - 443, 444). Thus, each hypothesis in this study alleges the presence of a linear relationship. This explanatory research technique is used in outcome-oriented evaluation research to understand the impact or result of a program or policy (Bingham and Felbinger, 2002, p. 3).

Model Testing and Multicollinearity

The researcher made a preliminary computer run of the created predictive

environmental degradation/quality model for all three dependent variables. As a rule, multiple regression is deemed highly reliable. All data for the research was at the interval or ratio level of measurement and were drawn from a random sample and deemed valid (Babbie as cited by Neal, 1998, p. 129). In addition to multiple variable analysis, a bivariate analysis was done to find any observed differences or similarities between a singular independent variable and a dependent variable. Pearson Correlations, measuring the "degree and direction" of a linear relationship between two independent variables, were undertaken (Gravetter and Wallnau as cited in Neal, 1999, p. 389). After running the test regression and the utilization of Pearson Correlation tests, high percentage correlations were found between the independent variables PREDUATN, a state's percentage of educational attainment, MRDRATE, a state's yearly rate of murders committed, and AVGTEMP, a state's daily mean temperature. This problem of *multicollinearity* between these three variables could distort outcome results. After consultation with supervising faculty, a determination was made to drop these three variables from both the created predictive model and the research entirely. As a result, Hypotheses One a through Nine a, One b through Nine b and One c through Nine c were kept. Hypotheses Ten a through Twelve a, Ten b through Twelve b and Ten c through Twelve c were no longer utilized for the project and thrown out. *TABLE 5.5* shows the final operationalization of the conceptual framework for Hypotheses One a, b and c through Nine a, b and c, consisting of State Livability Scores (Hypotheses One a

to Nine a), Waste Disposal Pricings by State (Hypotheses One b to Nine b) and Per Capita Daily Waste Disposal Poundage by State (Hypotheses One c to Nine c).

TABLE 5.5: Final Operation of the Conceptual Framework for Hypotheses One a, b, c - Nine a, b, c

HYPOTHESIS	VARIABLE	DEFINITION	DATA SOURCE
	Dependent		
	a. State Livability Scores (+/-)	Ratio Data	Morgan and Morgan (2000) (See *TABLE 5.2*)
	b. Waste Disposal Pricings by State (+/-)	Ratio Data	"Waste" (2002) (See *TABLE 5.3)*
	c. Per Capita Daily Waste Disposal Poundage by State (+/-)	Statewide Daily Waste Disposal Tonnages Multiplied by 2000 Divided By Total State Population	"Waste" (2002) (See *TABLE 5.4*)
	Independent		
H1a, H1b, H1c: Southern and Fringe States	*State Type*	A dichotomous variable where Southern + Fringe states = 1 and All Other States = 0	Delineated in Research (See *TABLE A2.1)*
H2a, H2b, H2c: States with population concentrations of non-whites	*Percent Non-White Population by State*	Ratio Data	U. S. Department of Commerce (2001) (see *TABLE A2.2*)
H3a, H3b, H3c: States with population concentrations of persons living below the poverty level	*Percent of Population Living Below the Poverty Line*	Ratio Data	U. S. Department of Commerce (2001) (See *TABLE A2.3)*
H4a, H4b, H4c: States with population concentrations of citizens registered and actually voting	*Percent of State Registered Voters Actually Voting*	Ratio Data	U. S. Department of Commerce (2001) (See *TABLE A2.4)*
H5a, H5b, H5c: States with imperative expenditures on overall environmental issues	*Percentage of State Budget Spending on Environmental Concerns*	Ratio Data	Council of State Governments- *Counci*l (1999) (See *TABLE A2.5)*
H6a, H6b, H6c: States with Traditionalistic political culture	*Sharkansky's Political Culture Score Scale*	An index score from 1 to 9 indicating a state's political culture continuum position (7 or more =*Traditionalistic)*	Koven and Mausloff (2002) (See *TABLE A2.6*)
H7a, H7b, H7c: States with comprehensive recycling	*States with Comprehensive Recycling Laws*	A dichotomous variable where states with comprehensive recycling = 1 and All Other States = 0	American Forest (2002) (See *TABLE A2.7)*
H8a, H8b, H8c: States with beverage container deposits	*States with Beverage Container Laws*	A dichotomous variable where states with beverage container laws = 1 and All Other States = 0	California Henricks (2004) (See *TABLE A2.8)*
H9a, H9b, H9c: States with litter taxation	*States with Litter Taxes*	A dichotomous variable where states with litter taxes = 1 and All Other States = 0	Container – "Litter" (2002) National Center- "Examine" (2000) (See *TABLE A2.9*)

RESEARCH STRENGTHS AND WEAKNESSES

A regression model's *validity* refers to the extent an empirical measure adequately reflects the real meaning of a concept--in this case--environmental quality determinant—under consideration. *Reliability* is the matter of whether or not this regression technique, applied repeatedly to the "same object," would yield the same result each time (Babbie as cited in Neal, 1998, pp. 129). The validity of chosen dependent variables--livability scores, waste disposal pricings and per capita daily waste disposal—has been substantiated in the literature review. The reliability of the data used is ensured through the use of widely available sources from federal and state governments and esteemed, respected private providers. Dichotomous variables, also known in the research profession as "dummy variables," are coded within the regression equation for designating the presence or absence of a characteristic [i.e. Southern and fringe states, comprehensive recycling states, beverage and litter taxation states] (Bingham and Felbinger, 2002, p. 35). The results of this research should be easily replicated, which adds weight to future, prospective conclusions by other researchers (Babbie- *The Practice-9th*, 2000, p. 217).

Though associated with high reliability of results, the multiple regression method does have its problems due to its unobtrusive research nature. The *ecological fallacy*, an assumption that something learned about a group applies to all individuals making up that group, is an issue when aggregate statistics are

utilized. Another issue is *reductionism*, the seeing and explaining of complex, real world phenomena into single, narrow, concepts terms or sets. Despite the fact that appropriate data may simply be not available (i.e. private source availability for waste disposal prices and per capita disposals as end determinants for environmental degradation by state), social scientists may often have no other choice but to use these limited resources (Babbie-*The Practice-9th*, 2000, pp. 100, 304). The limited data collected for this research have the ability to disconfirm the hypotheses (Gravetter and Wallnau, 2000, p. 20). A third issue is *threats to validity*, including a method's data history, maturation, instrumentation, regression artifact, selection bias and mortality (Bingham and Felbinger, 2002, pp. 20-25). A fourth issue is the *strength of Pearson's Correlation r testing a bivariate relationship*. This testing does not account for variables outside the study's scope that influence outcome dependent variables-prices, poundage, rankings (Moore as cited in Jeffers, 1995, p. 43). Social researchers, as human beings, can never be totally objective. Thus, one should use caution and logical reasoning when analyzing research results using regression analysis (Babbie-*The Practice-9th*, 2000, pp. 318, 446, 481).

CONCLUSION

The next chapter discusses the results from running the three models. In determining the results, the researcher performs an analysis between each hypotheses and a dependent variable. If the results of each test show a negative

or weak positive correlation between the variables, the researcher will dismiss the hypothesis in question. If test results show a considerable positive relationship, then the researcher will support the hypothesis. If the result of the specific test is mixed, the researcher will designate a partial, “weak” support standing for the given hypothesis.

Chapter Six
RESULTS

This chapter provides the results of the independent variable correlation matrix, as well as the multiple regression analysis of the three regression models for environmental quality/degradation, for all fifty American states.

CORRELATION MATRIX

A Pearson Correlation matrix displays condensed information for the degree and direction of linear association between two categorical variables and their statistical significance (Gravetter and Wallnau, 2000, p. 531; Norusis, 2000, pp. 365, 368, 419). Because dichotomous independent variables (i.e. state beverage container deposit status) cannot be measured through Pearson Correlation, *TABLE 6.1* provides a matrix for independent variables measured with ratio data for Hypotheses One a, b and c through Hypotheses Nine a, b and c. The results show a positive relationship between a individual state's political culture score and the total percentage of that state's non-white population. There was also a positive, but weak-supporting relationship between a state's political culture score and its percent of population living below the poverty line. Furthermore, there was a negative, inverse association between the percentages

of a state's registered voters actually voting and its non-white population.

***TABLE 6.1*: Correlation Matrix for Ratio Data Independent Variables Used in Hypothesis One a, b, c – Nine a, b, c**

	Mean/ ***Std. Deviation***	1.	2.	3.	4.	5.
1. **% Non-White**	**20.51** *12.97*	1.00				
2. **% Poverty**	**11.34** *3.21*	+.266	1.00			
3. **% State Voters**	**57.43** *6.47*	-.567**	-.243	1.00		
4. **% Budget Expenditures**	**1.93** *.99*	-.293*	-.089	+.307*	1.00	
5. **Political Culture**	**5.06** *2.59*	+.576**	+.448**	-.399**	-.259	1.00

n=50
*p < .05. two-tails
**p < .01, two-tails

% Non-White = Percent Non-White Population by State
%Poverty = Percent of State Population Living Below the Poverty Line
% State Voters = Percent of State Registered Voters Actually Voting
% Budget Expenditures = Percentage of State Budget Spending on

Environmental Concerns
Political Culture = Sharkansky State Political Culture Score Scale

STATE LIVABILITY SCORES

The livability scores model was the model of environmental quality with the best fit. The nine independent variables did the best job of explaining this measure's great variation amongst the states. A state livability score, as a dependent variable, has a *ratio level* unit of measurement, with a score range from a 17.37 low in Mississippi to a high of 35.02 for Minnesota. By far, the percent of persons living in poverty in a state affected the direction this score, followed by its Sharkansky political culture mark (see *TABLE 6.2*). For every one percent increase in the number of people living below the poverty line inside a state, that state's livability score dropped by almost a full point. In addition, for every one point movement in the Sharkansky political culture score scale toward *Traditionalistic* culture, a state's livability score also dropped by almost a full point.

***TABLE 6.2:* Regression Results—State Livability Scores**

Independent Variable	*Unstandardized B Coefficient*	*Standardized Beta Coefficient*	*t Value*
Constant	34.454		8.235**

State Type	.421	.050	.325
% Non-White	-.0129	-.043	-.346
% Below Poverty	-.667	-.546	-5.352*
% Actually Voting	.0652	.108	1.061
% Environmental $	-.573	-.145	-1.598
Political Culture	-.738	-.487	-2.905*
Recycling States	-1.611	-.144	-1.507
Deposit States	-.0337	-.003	-.037
Litter Tax States	-.367	-.026	-.284
R Square	.740		
Adjusted R Square	.681		
F	12.638**		
N = 50			

*p<.05
**p<.01
Dependent Variable: State Livability Scores

WASTE DISPOSAL PRICINGS BY STATE

This was the second best-fit environmental quality measurement model for the fifty states. A state's waste disposal tonnage price, as a dependent variable, has a *ratio level* of measurement, with waste disposal prices ranging from Nevada's $11.41 to Massachusetts' $68.98 per ton. The percent of persons living below the poverty level in a state affected its waste disposal price, followed closely by whether a state has a beverage container return deposit law (see *TABLE 6.3*). For every one percent increase in the percent of persons living below the poverty line inside a state, that state's waste disposal tonnage prices at recognized facilities dropped over a $1.50 per ton. In addition, for states allowing beverage container deposits to be paid out to customers, the difference between their waste disposal tonnage prices and those without container deposits differed by about $10.43 per ton.

***TABLE 6.3:* Regression Results—Waste Disposal Pricings by State**

Independent	*Unstandardized*	*Standardized*	*t Value*

Variable	*B Coefficient*	*Beta Coefficient*	
Constant	17.725		.846
State Type	-4.873	-.168	-.751
% Non-White	.130	.126	.698
% Below Poverty	-1.501	-.360	-.2.405*
% Actually Voting	.538	.260	1.747
% Environmental $	-3.357	-.250	-1.871
Political Culture	1.218	.236	.959
Recycling States	5.826	.152	1.089
Deposit States	10.433	.315	2.297*
Litter Tax States	2.165	.044	.335
R Square	.440		
Adjusted R Square	.315		
F	3.499*		
N = 50			

*p<.05
Dependent Variable: Waste Disposal Pricings by State

PER CAPITA DAILY WASTE DISPOSAL POUNDAGE BY STATE

This was by far the least best-fit statewide environmental quality model created. As a dependent variable, the amount of waste thrown away daily by each state's resident has a *ratio level* of measurement. Daily waste disposals range from less than half-a-pound in Connecticut to approximately 17 pounds per person in Nevada. Since the F score—a mean squares ratio count of 1.351—is not significant, this model has no explanatory power (see *TABLE 6.4*). None of the independent variables can adequately explain the variations in the average amount of daily waste thrown away by a typical state resident and those of 49 other states.

***TABLE 6.4*: Regression Results—**
Per Capita Waste Disposal Poundage by State

Independent Variable	*Unstandardized B Coefficient*	*Standardized Beta Coefficient*	*t Value*

Constant	14.088		2.267
State Type	.399	.054	.208
% Non-White	-.0274	-.105	-.497
% Below Poverty	.148	.140	.798
% Actually Voting	-.124	-.237	-1.358
% Environmental $	.0823	.024	.155
Political Culture	-.149	-.114	-.396
Recycling States	-1.955	-.202	-1.231
Deposit States	-2.539	-.302	-1.833
Litter Tax States	1.004	.081	.523
R Square	.233		
Adjusted R Square	.061		
F	1.351		
N = 50			

Dependent Variable: Per Capita Waste Disposal Poundage by State

Chapter Seven
CONCLUSION

This section provides a conclusive paragraph to the research, as well as recommendations for action by American state public servants.

Overall, the created regression models do not sufficiently support an idea that livability scores, waste disposal pricings and per capita disposal poundages make adequate, litter influenced, state-oriented environmental quality/ degradation determinants (see *TABLE 7.1*). Results from this research should not be deemed as definitive causation markers to uphold for a reasoning, that littering leads to environmental degradation amongst American states and especially so for Southern and nearby fringe states. Rather, one should see this research realistically as a contributing inquiry into this poorly-probed matter.

***TABLE 7.1*: Summary of Research Findings**

INDEPENDENT VARIABLES	***DEPENDENT VARIABLES***		
	State Livability Score	*Waste Disposal Pricings by State*	*Per Capita Waste Disposal Poundage by State*
State Names	NO SUPPORT	NO SUPPORT	NO SUPPORT
Percent Non-White Population by State	NO SUPPORT	NO SUPPORT	NO SUPPORT
Percent of State Population Living Below the Poverty Line	**SUPPORT**	**SUPPORT**	NO SUPPORT
Percent of State Registered	NO SUPPORT	NO SUPPORT	NO SUPPORT

Voters Actually Voting			
Percentage of State Budget Expenditures on Environmental Concerns	NO SUPPORT	NO SUPPORT	NO SUPPORT
Sharkansky's Political Culture Score Scale	NO SUPPORT	NO SUPPORT	NO SUPPORT
States With Comprehensive Recycling Laws	NO SUPPORT	NO SUPPORT	NO SUPPORT
States With Beverage Container Laws	NO SUPPORT	**SUPPORT**	**WEAK SUPPORT**
States With Litter Taxes	NO SUPPORT	NO SUPPORT	NO SUPPORT

RECOMMENDATIONS FOR PUBLIC SERVANTS

Dependent Variables

There is much that public servants in American states can do to improve both state and regional conditions from environmental degradation due to littering, through advancing one's state livability score, increasing state waste disposal prices, and reducing the daily amounts of waste generated and disposed of by state residents (see *TABLE 7.2*).

An objective in improving the states with lowest livability scores is to reduce their poverty rates. Providing more aggressive community development, bounteous educational opportunities and elevated private sector wages could be suggested solutions. States with low quality of life scores could be more

accommodating to allow women, non-whites and low-income individuals a better chance at running for elected representation. Raising voter turnouts for elections, as well as increasing the number of persons graduating from high school in these states, should be a prime concern with public officials. States with low scores should be more amiable to cultivate positive, earth-friendly, human life-preserving environmental changes for the better.

The lowest state waste disposal prices tend to occur in the Southwest. Reducing the poverty levels of these states through elevated community development, educational prospects and take-home pay come to mind. To combat littering and improve ecological excellence, states with below average waste disposal prices should encourage privately-owned landfills and incinerators to charge higher market fees for garbage transported and dumped to their businesses. Environmental regulation agencies in these particular states could pursue solid regulation and monitoring of waste disposal firms operating in counties and communities populated with large numbers of non-whites and low-income citizens. Furthermore, these jurisdictions can encourage the implementation of statewide beverage container return deposit legislation. The consumer and financial incentives and increased state revenues, plus the improved cleanliness of the landscape this legislation can provide, should be addressed and supported in statehouse chambers.

To encourage a higher standard of environmental quality through the diminishment of waste entering landfills and incinerators, states with high per

person daily waste disposals can consider alternative waste source reduction practices. These specific states should also consider implementing a beverage container law, to enhance both respect for the landscape and economic incentives in the public and private sectors.

***TABLE 7.2*: Policy Recommendations for Public Servants To Reduce State Litter from Research-Operated Dependent Variables**

Dependent Variable	Policy Recommendations
Livability Scores	Reduce poverty rates through community development, education and earnings. Provide more sexual and racial diversity in elected offices. Raise voter turnout and number of persons holding a high school diploma and/or an equivalent education.
Waste Disposal Pricings	Increase private market prices for disposed landfill/ incinerator waste. Stronger state regulation and monitoring of disposal firms. Institute statewide beverage container deposit legislation for environmental and economic enhancement.
Per Capita Daily Waste Disposal	Make efforts to reduce household garbage generation amongst residents. Implement beverage container deposit legislation for environmental and economic enhancement.

Independent Variables

Public servants in the American states can also improve both state and regional conditions due to environmental degradation from littering, through the knowledge provided in analyzing this research's operated independent variables (see *TABLE 7.3*). Anti-litter campaigns and ecological education promoting pride for the environment should target Hispanics and blacks in those states with high non-white population percentages. States with large numbers of persons living below the poverty level could aggressively pursue more community development, educational attainment, workplace wages, electoral turnout and governmental

diversity for their citizenry. States habitually suffering from low voter turnouts should comprehensively look at ways to raise these numbers to over a 50 percent level, and especially target non-white Hispanics and those under 25 years of age to go to the polls more often. And, states with low environmental budgetary expenditures could certainly use more financial considerations in this area, to help combat littering and protect natural landscapes.

With the strong grip of *Traditionalistic* political culture upon much of the research-emphasized Southern and nearby states, environmental protection legislation proposals must adhere to Daniel Elazar's insinuation, of providing attentiveness and respect to the self interests of "elitist" government administrators—the political motivations of statehouses currently presided over by conservatives and their financial, commercial and constituent backers. Instituting environmentally receptive legislation, such as comprehensive recycling, beverage container deposits and litter taxation, could be deemed as a tough but not an impossible task. Policy makers should pursue ideas of economic practicality, public good and individual courage in administrative courses of action to protect the environment. The actual reduction of litter carelessly thrown away, the public and private sector economic benefits, the strong popular support for clean landscapes by conservative poll respondents in non-*Traditionalistic* states, and the potential injuries and deaths thwarted—these are among the reasons states should give plenty of due consideration to in the course of crafting needed litter-preventative legislation for jurisdictional

ecological survival.

TABLE 7.3: Policy Recommendations for Public Servants To Reduce State Litter from Research-Operated Independent Variables

Independent Variable	Policy Recommendations
Percent Non-White Population	Target anti-littering and environmental education campaigns at non-white and Hispanic populations.
Percent of Population Living Below The Poverty Line	Reduce poverty rates through additional community development, educational attainment, workplace wages, voter turnouts, and public sector diversity.
Percent of Registered Voters Actually Voting	State election officials should encourage higher voter turnouts, targeting non-white Hispanics and persons under age 25, to participate more substantially in the electoral process.
Percent of Budget Expenditures on Environmental Concerns	Boost environmental protection budget expenditures in all the states.
Political Culture Score	State environmental enhancement legislation must be attentive to and respect the political interests and motivations of conservatives and their patrons.
Comprehensive Recycling Laws	State legislative success may depend on promoting potential litter reduction, financial incentives and statute workability found in states with this legislation.
Beverage Container Laws	State legislative success may depend on promoting potential litter reduction, saving lives, financial incentives, existing workability and citizen popularity founding states with this legislation.
Litter Taxation	State legislative success may depend on promoting potential litter reduction, saving human lives, appeasing beverage producers and budgetary interests shown in states with this existing revenue source.

RECOMMENDATIONS FOR FURTHER RESEARCH

This research project was built keeping in mind that no one to date has attempted a comprehensive investigation of littering affecting state-oriented environmental quality using multivariate statistical analysis. Furthermore, no one has yet to conduct national research quantifying the extent of environmental crimes such as littering. Perhaps future research will eliminate the current condition of inattentiveness towards this matter.

The literature suggests that, despite problems of multicollinearity, a state's murder propensity, educational attainment, and outdoor temperature may make plausible explanatory factors for littering as causing a resultant jurisdictional environmental degradation status. In addition, other *health*, *demographic*, *sociopolitical* and *psychological* variables, such as a state's cancer, heart attack, infant mortality and life expectancy rate (*health*), average per capita wage, per capita annual income, urban/rural percentages (*demographic*), religiosity, partisan control and governmental response indicators (*sociopolitical*), and object presence, apathy, convenience, entitlement and class alienation (*psychological*) could be used for further research study in determining jurisdictional environmental quality from the consequences of illegal littering.

APPENDICE ONE
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BIBLIOGRAPHY

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APPENDICE TWO
DATA SOURCE TABLES
FOR INDEPENDENT VARIABLES

***TABLE A2.1*: Independent Variable One**
State Types

This variable is dichotomous, with Southern and Fringe states (in **bold**) coded with "1" and All Other States coded with "0."

SOUTHERN AND NEARBY FRINGE ("1")	ALL OTHER ("0")
Alabama	Alaska
Arkansas	Arizona
Florida	California
Georgia	Colorado
Kentucky	Delaware
Louisiana	Hawaii
Mississippi	Idaho
New Mexico*	Illinois
North Carolina	Indiana
Oklahoma*	Iowa
Tennessee	Kansas
Texas	Maine
Virginia	Maryland
West Virginia*	Massachusetts
	Michigan
	Minnesota
	Missouri
	Montana
	Nebraska
	Nevada
	New Hampshire
	New Jersey
	New York
	North Dakota
	Ohio
	Oregon
	Pennsylvania
	Rhode Island
	South Dakota
	Utah
	Vermont
	Washington
	Wisconsin
	Wyoming

*Indicates FRINGE state	

TABLE A2.2: **Independent Variable Two**
Percent of Non-White Population by State

This variable provides ratio data for the percent of non-white population from the total population for each of the 50 United States in 2000 (Southern and Fringe states are in **bold**).

STATE	PERCENT NON-WHITE
Alabama	**28.90**
Alaska	30.70
Arizona	24.50
Arkansas	**20.00**
California	40.50
Colorado	17.20
Connecticut	18.40
Delaware	25.40
Florida	**22.00**
Georgia	**34.90**
Hawaii	75.70
Idaho	9.00
Illinois	26.50
Indiana	12.50
Iowa	6.10
Kansas	13.10
Kentucky	**9.90**
Louisiana	**36.10**
Maine	3.10
Maryland	36.00
Massachusetts	15.50
Michigan	19.80
Minnesota	10.60
Mississippi	**38.60**
Missouri	15.10
Montana	9.40
Nebraska	10.40
Nevada	24.80
New Hampshire	4.00
New Jersey	27.40
New Mexico	**33.20**
New York	32.10
North Carolina	**27.90**
North Dakota	7.60
Ohio	15.00
Oklahoma	**23.80**
Oregon	13.40
Pennsylvania	14.60
Rhode Island	15.00
South Carolina	**32.80**
South Dakota	11.30
Tennessee	**19.80**
Texas	**29.00**
Utah	10.80
Vermont	3.20
Virginia	**27.70**
Washington	18.20
West Virginia	**5.00**
Wisconsin	11.10
Wyoming	7.90

TABLE A2.3: **Independent Variable Three**

Percent of State Population Living Below the Poverty Line

This variable provides ratio data for the percent of population living below

the federal-defined poverty line from the total population for each of the 50 United States in 2000 (Southern and Fringe states are in **bold)**.

STATE	PERCENT BELOW POVERTY LINE
Alabama	**15.10**
Alaska	7.60
Arizona	14.70
Arkansas	**12.00**
California	13.80
Colorado	8.30
Connecticut	7.10
Delaware	**10.40**
Florida	**12.40**
Georgia	12.90
Hawaii	10.90
Idaho	13.90
Illinois	9.90
Indiana	6.70
Iowa	7.50
Kansas	12.20
Kentucky	**12.10**
Louisiana	**19.20**
Maine	10.60
Maryland	7.30
Massachusetts	11.70
Michigan	9.70
Minnesota	7.20
Mississippi	**16.10**
Missouri	11.60
Montana	15.60
Nebraska	10.90
Nevada	11.30
New Hampshire	7.70
New Jersey	7.80
New Mexico	**20.70**
New York	14.10
North Carolina	**13.50**
North Dakota	13.00
Ohio	12.00
Oklahoma	**12.70**
Oregon	12.60
Pennsylvania	9.40
Rhode Island	9.90
South Carolina	**11.70**
South Dakota	7.70
Tennessee	**11.90**
Texas	**15.00**
Utah	5.70
Vermont	9.70
Virginia	**7.90**
Washington	9.50
West Virginia	**15.70**
Wisconsin	8.60
Wyoming	11.60

***TABLE A2.4*: Independent Variable Four**
Percent of State Registered Voters Actually Voting

This variable provides ratio data for the percent of a state's registered Voters actually voting in elections for the 50 United States in 2000 (Southern and Fringe states are in **bold**).

STATE	PERCENT ACTUALLY VOTING
Alabama	**59.60**
Alaska	65.50
Arizona	49.40
Arkansas	**46.70**
California	46.40
Colorado	53.60
Connecticut	55.20
Delaware	62.20
Florida	**51.60**
Georgia	**49.00**
Hawaii	39.70
Idaho	53.90
Illinois	56.80
Indiana	58.50
Iowa	64.10
Kansas	60.20
Kentucky	**54.90**
Louisiana	**64.60**
Maine	69.20
Maryland	57.10
Massachusetts	60.10
Michigan	60.10
Minnesota	67.80
Mississippi	**59.80**
Missouri	65.40
Montana	62.20
Nebraska	58.90
Nevada	46.50
New Hampshire	63.30
New Jersey	55.20
New Mexico	**51.30**
New York	51.00
North Carolina	**53.20**
North Dakota	69.80
Ohio	58.10
Oklahoma	**58.30**
Oregon	60.80
Pennsylvania	55.70
Rhode Island	60.10
South Carolina	**58.90**
South Dakota	58.70
Tennessee	**52.30**
Texas	**48.20**
Utah	56.30
Vermont	63.30
Virginia	**57.20**
Washington	58.60
West Virginia	**52.10**
Wisconsin	67.80
Wyoming	62.50

TABLE A2.5: Independent Variable Five

Percentage of State Budget Spending on Environmental Concerns

This variable provides ratio data for the percent of a state budget spent on environmental concerns in the 50 United States for the Fiscal Year 1996. (Southern and Fringe states are in **bold**).

STATE	PERCENT ENVIRONMENTAL SPENDING
Alabama	**1.09**
Alaska	4.74
Arizona	.72
Arkansas	**1.96**
California	2.69
Colorado	2.49
Connecticut	1.37
Delaware	2.57
Florida	**1.78**
Georgia	**1.13**
Hawaii	1.04
Idaho	3.51
Illinois	1.21
Indiana	1.43
Iowa	1.13
Kansas	1.23
Kentucky	**1.74**
Louisiana	**1.75**
Maine	2.79
Maryland	1.61
Massachusetts	.88
Michigan	1.40
Minnesota	1.50
Mississippi	**1.90**
Missouri	1.94
Montana	3.47
Nebraska	2.06
Nevada	2.95
New Hampshire	1.60
New Jersey	.78
New Mexico	**1.06**
New York	1.04
North Carolina	**.91**
North Dakota	2.14
Ohio	.73
Oklahoma	**1.63**
Oregon	2.18
Pennsylvania	1.86
Rhode Island	1.51
South Carolina	**1.30**
South Dakota	2.81
Tennessee	**1.68**
Texas	**1.26**
Utah	2.52
Vermont	2.66
Virginia	**1.51**
Washington	1.80
West Virginia	**2.28**
Wisconsin	3.53
Wyoming	5.66

TABLE A2.6: Independent Variable Six

Sharkansky's Political Culture State Scores

This variable provides ratio data for a state's consistent political culture score in the 50 United States. A score of 1 equals a pure *Moralistic*; 5, a pure *Individualistic* and 9, a pure *Traditionalistic* state. (Southern and Fringe states are in **bold**).

STATE	SCORE
Alabama	**8.57**
Alaska	6.33
Arizona	5.66
Arkansas	**9.00**
California	3.55
Colorado	1.80
Connecticut	3.00
Delaware	7.00
Florida	**7.80**
Georgia	**8.80**
Hawaii	8.25
Idaho	2.50
Illinois	4.72
Indiana	6.33
Iowa	2.00
Kansas	3.66
Kentucky	**7.40**
Louisiana	**8.00**
Maine	2.33
Maryland	7.00
Massachusetts	3.66
Michigan	2.00
Minnesota	1.00
Mississippi	**9.00**
Missouri	7.66
Montana	3.00
Nebraska	3.66
Nevada	5.00
New Hampshire	2.33
New Jersey	4.00
New Mexico	**7.00**
New York	3.62
North Carolina	**8.50**
North Dakota	2.00
Ohio	5.16
Oklahoma	**8.25**
Oregon	2.00
Pennsylvania	4.28
Rhode Island	3.00
South Carolina	**8.75**
South Dakota	3.00
Tennessee	**8.50**
Texas	**7.11**
Utah	2.00
Vermont	2.33
Virginia	**7.86**
Washington	1.66
West Virginia	**7.33**

Wisconsin	2.00
Wyoming	4.00

TABLE A2.7: Independent Variable Seven
States with Comprehensive Recycling Laws

This variable is dichotomous, with states having comprehensive recycling coded with "1" and All Other States coded with "0." (Southern and Fringe states are in **bold**).

STATES WITH COMPREHENSIVE RECYCLING ("1")	ALL OTHER ("0")
California	**Alabama**
Connecticut	Alaska
Maryland	Arkansas
New Jersey	Arizona
Oregon	Colorado
Rhode Island	Delaware
Washington	**Florida**
	Georgia
	Hawaii
	Idaho
	Illinois
	Indiana
	Iowa
	Kansas
	Kentucky
	Louisiana
	Maine
	Massachusetts
	Michigan
	Minnesota
	Mississippi
	Missouri
	Montana
	Nebraska
	Nevada
	New Hampshire
	New Mexico*
	New York
	North Carolina
	North Dakota
	Ohio
	Oklahoma*
	Pennsylvania
	South Carolina
	South Dakota
	Tennessee
	Texas
	Utah
	Vermont
	Virginia
	West Virginia*
	Wisconsin

	Wyoming ***Indicates FRINGE State**

TABLE A2.8: Independent Variable Eight
States with Beverage Container Laws

This variable is dichotomous, with states having laws allowing beverage container refund deposits coded with "1" and All Other States coded with "0." (Southern and Fringe states are in **bold**).

BEVERAGE CONTAINER DEPOSIT STATES ("1")	ALL OTHER ("0")
California Connecticut Delaware Iowa Maine Massachusetts Michigan New York Oregon Vermont	**Alabama** Alaska Arizona **Arkansas** Colorado **Florida** **Georgia** Hawaii Idaho Illinois Indiana Kansas **Kentucky** **Louisiana** Maryland Minnesota Mississippi Missouri Montana Nebraska Nevada New Hampshire New Jersey **New Mexico*** **North Carolina** North Dakota Ohio **Oklahoma*** Pennsylvania Rhode Island **South Carolina** South Dakota **Tennessee** **Texas** Utah **Virginia** **West Virginia*** Wisconsin Wyoming

	***Indicates FRINGE State**

TABLE A2.9: Independent Variable Nine

States with Litter Taxation

This variable is dichotomous, with states having laws allowing litter taxation of waste source producers coded with "1" and All Other States coded with "0." (Southern and Fringe states are in **bold**).

LITTER TAXATION STATES ("1")	ALL OTHER ("0")
Ohio	**Alabama**
Rhode Island	Alaska
Virginia	Arizona
Washington	**Arkansas**
	California
	Colorado
	Delaware
	Florida
	Georgia
	Hawaii
	Idaho
	Illinois
	Indiana
	Iowa
	Kansas
	Kentucky
	Louisiana
	Maine
	Maryland
	Massachusetts
	Michigan
	Minnesota
	Mississippi
	Missouri
	Montana
	Nebraska
	Nevada
	New Hampshire
	New Jersey
	New Mexico*
	New York
	North Carolina
	North Dakota
	Oklahoma*
	Pennsylvania
	South Carolina
	South Dakota

	Tennessee **Texas** Utah Vermont **West Virginia*** Wisconsin Wyoming ***Indicates FRINGE State**

***TABLE A2.10*: Independent Variable Ten**

Percent of Educational Attainment by State

This variable provides ratio data for the percent of a state population age 25 and over, having a high school diploma or equivalent education, for the 50 United States in 2000. (Southern and Fringe states are in **bold**)

STATE	PERCENT EDUCATIONAL ATTAINMENT
Alabama	**77.50**
Alaska	90.40
Arizona	85.10
Arkansas	**81.70**
California	81.20
Colorado	89.70
Connecticut	88.20
Delaware	**86.10**
Florida	**84.00**
Georgia	82.60
Hawaii	87.40
Idaho	86.20
Illinois	85.50
Indiana	84.60
Iowa	89.70
Kansas	88.10
Kentucky	**78.70**
Louisiana	**80.80**
Maine	89.30
Maryland	85.70
Massachusetts	85.10
Michigan	86.20
Minnesota	90.80
Mississippi	**80.30**
Missouri	86.60
Montana	89.60
Nebraska	90.40
Nevada	82.80
New Hampshire	88.10
New Jersey	87.30
New Mexico	**82.20**
New York	82.50
North Carolina	**79.20**
North Dakota	85.50
Ohio	**87.00**

Oklahoma	86.10
Oregon	88.10
Pennsylvania	85.70
Rhode Island	81.30
South Carolina	**83.00**
South Dakota	91.80
Tennessee	**79.90**
Texas	**79.20**
Utah	90.70
Vermont	90.00
Virginia	**86.60**
Washington	91.80
West Virginia	**77.10**
Wisconsin	86.70
Wyoming	90.00

TABLE A2.11: Independent Variable Eleven
State Murder Rates

This variable provides ratio data for the rate of murders per 100,000 within a state's population, for each of the 50 United States in 1998. (Southern and Fringe states are in **bold)**.

STATE	MURDER RATE
Alabama	**8.10**
Alaska	6.70
Arizona	8.10
Arkansas	**7.90**
California	6.60
Colorado	4.60
Connecticut	4.10
Delaware	2.80
Florida	**6.50**
Georgia	**8.10**
Hawaii	2.00
Idaho	2.90
Illinois	8.40
Indiana	7.70
Iowa	1.90
Kansas	5.90
Kentucky	**4.60**
Louisiana	**12.80**
Maine	2.00
Maryland	10.00
Massachusetts	2.00
Michigan	7.30
Minnesota	2.60
Mississippi	**11.40**
Missouri	7.30
Montana	4.10
Nebraska	3.10
Nevada	9.70
New Hampshire	1.50
New Jersey	4.00
New Mexico	**10.90**
New York	5.10
North Carolina	**8.10**
North Dakota	1.10

Ohio	4.00
Oklahoma	**6.10**
Oregon	3.80
Pennsylvania	5.30
Rhode Island	2.40
South Carolina	**8.00**
South Dakota	1.40
Tennessee	**8.50**
Texas	**6.80**
Utah	3.10
Vermont	2.20
Virginia	**6.20**
Washington	3.90
West Virginia	**4.30**
Wisconsin	3.60
Wyoming	4.80

***TABLE A2.12*: Independent Variable Twelve**
State Daily Mean Temperatures

This variable provides ratio data for the daily average temperature of an entire state, from 1961 to 1990, for each of the 50 United States. (Southern and Fringe states are in **bold**).

STATE	DAILY MEAN TEMPERATURES
Alabama	**67.50**
Alaska	40.60
Arizona	72.60
Arkansas	**61.80**
California	61.30
Colorado	50.30
Connecticut	49.90
Delaware	54.20
Florida	**72.00**
Georgia	**61.30**
Hawaii	77.20
Idaho	50.90
Illinois	49.90
Indiana	52.30
Iowa	49.90
Kansas	56.20
Kentucky	**56.10**
Louisiana	**68.10**
Maine	45.40
Maryland	55.10
Massachusetts	51.30
Michigan	44.20
Minnesota	41.70
Mississippi	**64.20**
Missouri	54.90
Montana	44.80
Nebraska	50.60
Nevada	50.80
New Hampshire	45.10
New Jersey	53.00
New Mexico	**56.20**
New York	49.90

North Carolina	**59.70**
North Dakota	41.60
Ohio	51.40
Oklahoma	**60.00**
Oregon	53.60
Pennsylvania	52.30
Rhode Island	50.40
South Carolina	**63.10**
South Dakota	45.50
Tennessee	**60.70**
Texas	**65.50**
Utah	52.00
Vermont	44.60
Virginia	**58.50**
Washington	49.70
West Virginia	**55.00**
Wisconsin	46.10
Wyoming	45.60