Spring 5-3-2011

The History Of Zoological Gardens And The State, Federal And International Laws That Govern Them

Morgan Maxwell
Western Kentucky University, morgan.maxwell386@topper.wku.edu

Follow this and additional works at: http://digitalcommons.wku.edu/stu_hon_theses

Part of the Animal Law Commons, and the Biology Commons

THE HISTORY OF ZOOLOGICAL GARDENS AND THE STATE, FEDERAL AND
INTERNATIONAL LAWS THAT GOVERN THEM

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for

The Degree Bachelor of Science with

Honors College Graduate Distinction at Western Kentucky University

By

Morgan J. Maxwell

*****

Western Kentucky University
2011

CE/T Committee: Approved by

Professor Michael Stokes, Advisor   _____
                                                                                  Advisor
Professor Patricia Minter   Department of Biology

Dr. Paul Markham

ABSTRACT

The history of zoos in North America can be traced back through 18th century Europe to ancient civilizations such as the Romans. The menageries of ancient Rome were far different from modern zoos that stress conservation, education, and research as primary objectives. Zoos are still evolving and changing to become more suitable for captive animals and to ensure their animals' health and well-being. An examination of state wildlife laws reveals that there are more laws that pertain to wildlife at the state and local level than at any other level of government. Federal wildlife laws are few in number and have been criticized for enforcement issues. The definition of an animal is also different from many state laws. International treaties also exist to help protect wildlife and endangered species. Zoos are granted licenses, permits and exemptions from state and federal laws and international wildlife treaties more often than other organizations or individuals.

Keywords: Zoological Gardens, History, State and Federal Laws, International Regulations, Wildlife, Captive Animal

Dedicated to my family and friends, who always support me, and to my wonderful advisors who pushed me to do my best. And to red pandas and lemurs.

VITAE

July 25, 1989…………..……………Born –Bowling Green, Kentucky

2007…………………..……….……Bowling Green High School, Bowling Green,
Kentucky

2007……………………………....Recipient of Western Kentucky University
Regent's Scholarship

March 26, 2011………………….…..Presented at Western Kentucky University
Student Research Conference

2011…………………….….…..Western Kentucky University

FIELDS OF STUDY

Major Field: Biology

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

For thousands of years, humans have kept exotic wildlife captive for

entertainment. The reasons for having captive animals have changed over time from

religious sacrifices and status symbols for royalty to modern centers for research,

education, and conservation efforts. Millions of people each year visit zoos that keep

captive wildlife, either for recreation or to learn about the animals; the business of having

and maintaining a zoo is a billion-dollar industry in the United States.

But how often do these visitors consider the effort and planning that goes into

running these facilities? In the rush to see every animal and every exhibit, they may

ignore educational displays or listening to keeper talks. The reasons people visit zoos

differ based on geography and the zoo itself. Some zoos are little more than menageries,

with small enclosures; others are more technologically advanced with barriers cleverly

disguised from view and habitats that seem natural. The modern zoo is still striving to

improve and keep up with public opinion, even as zoo attendance has steadily decreased

in recent years.

Another issue facing zoos are the legal requirements for acquiring and

transporting specimens internationally. Voluntary international treaties are in place to

attempt to ensure that endangered populations will not be extirpated and to ensure the

safe transport of animals. A handful of federal laws are in place to try and ensure the safety of animals in zoos, though many of them draw criticism and controversy in how they are worded and enforced. In the US, most wildlife law comes from the state and local levels, with much variation among the states with regard to how comprehensive the laws are and how strict the penalties are. At all legal levels, zoos are either exempted, have different standards, or can more readily get around the restrictions in place than private individuals or other organizations.

Although zoos all over the US have begun to claim conservation and research as their primary objectives, little research has been done to evaluate whether or not these conservation efforts are successful and whether the educational measures are really educating anyone. Most of the conservation effort of zoos has been measured in how much money was spent on projects and it is hard to determine how successful educational efforts have been. Continued research is needed to provide zoos with constructive information about their conservation and education efforts.

CHAPTER 2

HISTORY OF WESTERN ZOOLOGICAL GARDENS

The History of North American Zoos

The history of keeping captive animals is a long one. Beginning in Egypt, zoos had been kept for mainly religious sacrifices. Documentation of these menageries can be found from ca. 2500 BC, when animals were kept for curiosity, religion, or to validate the wealth and status of the owners (Tribe, 2004). Ancient Romans, who used menageries extensively to show their status and wealth, also kept exotic animals for hunting expeditions and to use them as a form of entertainment, not just for religious purposes (Tribe, 2004). The Romans also used exotic animals in the Circus Maximus where gladiators where forced to fight them for the entertainment of the spectators. Many monarchs also kept royal menageries to show off their prestige.

The tradition of keeping captive animals for entertainment spread from ancient western civilizations to Europe. As sailors traveled to new countries and continents, they encountered strange new animals, and would often bring them back to show or to sell to the wealthy. While the practice of keeping wildlife for personal enjoyment was nothing new, there were no zoos in the sense that they were open to a public that could pay to view these specimens. The earliest modern zoo was established in 1752 in Schoenbrunn

Palace in Vienna, Austria, though it was not opened to the public until 1765. The Jardin des Plantes was opened in Paris, France in 1795 and was the first establishment that kept captive animals to state that scientific research was one of its primary objectives, as was public education. These new zoos had a somewhat naturalistic setting in a large open park; this was the way in which most new zoos were fashioned for well over the next hundred years (Tribe, 2004).

There is some debate as to which was the first zoo in America. Although the Central Park Zoo began to exhibit animals around 1859, it did not have an official charter. The first public zoo in America was the Philadelphia Zoo, which opened in 1874. It currently houses 1,300 species on 42 acres. When it opened, it had approximately 813 animals. The charter establishing the zoo was signed on March 21, 1859, but it did not open until 1874 due to the Civil War. The interest in an American zoo was due in part to sailors and hunters who returned from overseas with exotic animals that most settlers had never seen (Tribe, 2004). Zoos in Europe already existed by 1859 and were fashionable venues to visit, which may have been another reason for interest in establishing a zoo in America. These were similar reasons for the creation of European zoos in the 18th century.

The construction of zoos has evolved from ancient to modern places. The ancient menageries and even the early zoos were little more than barred cages. The novelty of the animals brought paying sightseers, who did not give much thought to the comfort of the animals. In the early 20th century, habitats had begun to appear within zoos. These were often much larger than barred cages, made of cement, and many times had a moat surrounding the enclosure. Another change in habitat design appeared in the mid-20th

century. These new habitats attempted more or less to replicate the natural surroundings of that specific species (Tribe, 2004). Most of the early zoos were also arranged taxonomically; the organization of zoos into different geological regions (for example, "Southern Madagascar!" in the Isle of Wright Zoo in England or the "Outback Trail" and "African Region" in the San Francisco Zoo in California) is a relatively new trend (Axelsson & May, 2008). During the 1960s, zoos in developed countries began to respond more to environmental and animal welfare concerns (Tribe, 2004). Finally, at the beginning of the 21st century, zoos are now using an "immersion experience" to display captive animals; they use vegetation to give the habitat a more natural feel and to disguise barriers and separate visitors (Tribe, 2004).

Because of their colorful history, it is hard to define a modern zoo. The World Conservation Strategy has listed two characteristics that may help define zoos:

- "Zoos possess and manage collections that primarily consist of wild (non-domesticated) animals, of one or more species, that are housed so that they are easier to see and to study than in nature."

- "Zoos display at least a portion of this collection to the public for at least a significant part of the year, if not throughout the year," (Tribe, 2004).

Zoos are basically any facility that collects and displays captive wildlife and charges visitors a fee or accepts donations. Not all zoos promote conservation, education, and research as primary objectives.

Modern Zoos

As zoos entered the 21st century, how they were funded, their objectives and missions, their treatment of animals, and how they developed their habitats had all begun to change. Zoos are mainly funded through admission fees and donations yet several zoos now consider themselves as non-profit institutions. While most zoos were previously entertainment driven, more zoos have added conservation and research as one of their fundamental objectives; this is especially the case in modern zoos in most developed countries (Miller, 2004). Conservation may be defined as:

> "a value-driven disciple based on the premise that the
>
> preservation of species diversity, ecological systems, and
>
> evolutionary processes in nature is important to the
>
> maintenance of life on our planet," (Miller 2004).

Most zoos have become conservation-centered within the last four decades (Miller, 2004), during which much research has highlighted the loss of biodiversity. For example, more woodland was lost in the past 200 years in North America than was previously lost in Europe in the last 2000 years (Robinson,1992) and agricultural development, especially in the tropics, has been a major source of forest loss since World War II (Robinson, 1992). Between 1979 and 1989, tropical deforestation rates increased by 90 percent. Figure 1 shows some biodiversity loss statistics and current main threats to biodiversity.

```
Biodiversity Loss Statistics (2010)

Of 5,490 mammal species:
    • 78 extinct or extinct in wild
    • 188 critically endangered
    • 540 endangered
    • 492 vulnerable

Of 6,285 amphibian species:
    • 1,895 endangered

Main Threats to Biodiversity:
    • Habitat Loss and Degradation
    • Invasive Alien Species
    • Over-exploitation of Natural Resources
    • Pollution and Disease
    • Human-induced Climate Change
```

Figure 1. Biodiversity Loss Statistics, Source: IUCN, 2010

Although zoos are a commercial business, they are now balancing the need to maintain a profit and to be conservation centers. In 2003, there were ca. 10,000 zoos globally, with ca. 600 million visitors per year (Tribe & Booth, 2003). Figure 2 lists estimated annual zoo attendance for each continent.

Continent	Total (millions)
Africa	15
Asia	308
Australia	6
Europe	125
Latin America	61
America	106

Figure 2. **Zoo Attendances Around the World**, Source: UDDZG/CBSG (IUCN/SSC),1993.

Zoos are places of entertainment for many, with 90% of Americans having visited one within their lifetime and 92% of visitors do so as part of a group (Tribe, 2004). A poll at Woodland Park, Seattle revealed that 68% of people polled viewed zoos as primarily educational. Figure 3 shows the results of studies for the U.S., U.K., and Australia for motivations for visiting zoos.

Country	Reason for Visiting (%)	Reference
USA	Education for children (38)	Kellert (1979)
	To do something with family/friends (26)	
	Personally fascinated by wild animals (25)	
	Animals are pretty to look at (11)	
USA	Education/Recreation (56)	Andereck & Caldwell (1994)
	Education (21)	
	Recreation/Novelty (11)	
	Photography (11)	
UK	To have a day out (64)	English Tourist Board (1983)
	To treat the children (53)	
	To watch animals and birds (22)	
	For entertainment (13)	
	For a change (13)	
	To learn about animals and birds (7)	
UK	For fun/Entertainment (39)	Rajack & Warren (1996)
	Visit with friends (36)	
	To see rare animals (5)	
	Education (4)	
Australia	Entertainment (63)	Ford (1998)
	Education (37)	
Australia	Spend time with friends and family (77)	Tribe (2003)
	Be in a pleasant outdoor space (54)	
	Learn about the animals (33)	
	Escape pressures of daily life (31)	
	Learn about wildlife conservation (25)	

Figure 3. The Perceptions of Roles of Zoos, Source: Tribe, A. (2004). Wildlife Tourism: Impacts, Management and Planning. *Zoo Tourism*, 35-56.

Of the ca. 10,000 international zoos, only about 1,000 of these participate in zoo federations, such as the Association of Zoos and Aquariums, that stress conservation and public education (Tribe & Booth, 2003). Methods used by zoos to satisfy their research and conservation objectives include genetic management and captive breeding. Over half of new mammals and birds for zoos are now bred in captivity, with several zoos participating in reintroduction efforts for captive bred species (Tribe & Booth, 2003). There have been several issues raised by these methods, however. The limited space afforded in a zoo facility limits the number of individuals that can be captive bred and housed in a suitable manner. There is a high cost associated with producing and reintroducing individuals. In Australia, it costs on average $6,546 for each animal bred for reintroduction. A third issue is the availability of natural habitat for those animals that are bred for reintroduction (Tribe & Booth, 2003).

The idea of captive breeding attracts its share of criticism. Some species reproduce rapidly in captivity, which poses a dilemma for zoos as to how to handle the surplus animals (Nolan, 2002). Caring for these animals and finding appropriate housing while keeping a stable genetic pool all create problems. Excess males might lead to increased confrontation or aggression. However, aborting male fetuses offends many animal lovers. Animals that are too old or sick are often considered surplus, along with hybrids, genetic mutants, and terminally ill individuals (Nolan, 2002). Some of these surplus animals are housed in facilities that are not part of the main exhibit and which have undesirable conditions. The options of using these surplus animals for medical research or culling them have been proposed, but both of these also invoke strong moral opinions (Nolan, 2002).

Research is another activity that distinguishes the modern zoo from the ancient menageries. Many zoos perform research at their facilities and several zoos partner with universities to allow them to perform research they otherwise would not be able to do (Tribe & Booth, 2003).

Conservation education is another objective of zoos. Just how effective they are at education is still unclear. In the United Kingdom and Ireland, ca. 73% of zoos taught visiting students. Research suggests that "exposure to wildlife in combination with some form of interpretation was associated with increased support for conservation of both the target species and wildlife in general" (Tribe & Booth, 2003). There is also evidence that visitors learned more when they were presented information in an interactive manner via keepers than static displays (Tribe & Booth, 2003). There is no way to ensure that visitors will read the informational displays or how much information from the displays is retained.

A closer look at the financial contributions to conservation projects from AZA-accredited zoos reveals that while conservation and research projects efforts had increased, only 0.1% of these facilities' operating budgets were spent on captive research, field conservation or staff (Tribe & Booth, 2003). A very few captive animal facilities spend as much as 5% of the budget on conservation (Miller, 2004). When zoos worked with government and local agencies, their success in field projects improved. This may be due to the fact that these government agencies are better funded or have more funding to spend on these projects. One way in which zoos have attempted to supplement their income in order to better fund conservations projects, research, and care for animals is in

the form of sponsorships, membership packages, season tickets, animal adoptions, and retail sales. In addition, many have begun to offer behind-the-scenes tours, concerts, corporate events, and hosting private parties; many of these trends developed in the United States (Tribe, 2004).

While zoos spend very little of their operating budget on conservation and education, zoos in the United States alone spend around $1 billion to operate, and budgets do dictate policy and which areas get the most funding (Miller, 2004). In addition, some zoos are changing how they are designing habitats and how they handle their specimens. The idea of a biopark has been implemented and suggests incorporating flora and fauna and ecosystems rather the current model of one species per exhibit with the flora only existing as an aesthetic disguise (Robinson, 1993). Even in a natural exhibit, zoos cannot show the more brutal aspects of nature, including predation, disease, and sexual rivalry (Robinson, 1992). In order to truly understand and appreciate the complexity of ecosystems within the biopark, all of these things must also be included.

Microscopic specimens and invertebrates are also largely ignored by modern zoos. Most zoos do not have habitats that exhibit insects or bacteria, which are integral to almost every ecosystem. However, some zoos have begun exhibiting different physiological aspects of animals. Some animals see in visual spectra such as ultraviolet and infrared and they sense the world in a completely different way than humans do. By using technology, visitors can be shown the world the way another animal sees it (Robinson, 1992). Using the habitat, gardens, aquaria, and the small creatures involved in an ecosystem, zoo visitors can be shown the complexity of wildlife in a new way. The

Smithsonian National Zoo established an invertebrate exhibit to display many insects and marine invertebrates, however they do not exhibit anything at a microscopic level (Invertebrates 2011).

The history of zoos as menageries and symbols of social status could have left impressions that persist, as many people are still philosophically opposed to the very idea and existence of zoos. Many zoos must change how they operate to bring in paying visitors as attendance has been decreasing for many years (Tribe, 2004). Although millions of people visit zoos every year, generating billions in revenue, research still needs to be done to address how well modern zoos in North America are achieving their conservation objectives and the goal of educating visitors about environmental and biodiversity issues. Conservation efforts need to be analyzed to review how effective they have been and continued research into the motivations of zoo visitors and what information they take away could help zoos better their operations.

CHAPTER 3

STATE LAWS AND REGULATIONS

State Wildlife Agencies

At the lowest political level of wildlife laws are the state and local laws and regulations. There are many statutes at these levels, more than at the federal or international levels. The stringency of state wildlife laws varies from state to state and there are several different ways in which states handle the creation of regulations. First, many states use a system of representative democracy or, "the election of elites responsible for making decisions (i.e. laws) in the best interest of the public," (Jacobson 2008). Appointed boards or commissions are responsible for interpreting laws and setting regulations. This system of wildlife management is designed to protect wildlife agencies from outside political influence and to protect stakeholder's interests. These stakeholders usually include hunters, trappers, and agriculturists and not individuals who are solely concerned with wildlife welfare and conservation (Jacobson 2008). Critics of the representative democracy system argue that it is designed to serve the needs of only consumptive users such as hunters and trappers and does not accurately reflect contemporary society's wildlife concerns (Jacobson 2008).

As the human population is increasing and expanding further into the historic range of wildlife, state wildlife agencies are expected to take on more responsibility,

which leads to an increased cost for state wildlife agencies. Alternative funding for these agencies from license plates sales or state general funds, for example, are being relied upon more heavily, while different individuals and groups are now being included in the stakeholder base (Jacobson 2008). Trying not to alienate traditional stakeholders while incorporating new ones in order to increase funding and to match the increased demand for management is a balance that state wildlife agencies must find.

A second system that twenty-four states currently or have previously used as their model for state wildlife agency policymaking is a direct democracy system. This system involves ballot initiatives and referenda and it resulted from concerns about how elected officials were subject to interest group pressure and biases, and could therefore not accurately represent the public (Jacobson 2008). Many of the ballot initiatives put forth by these states regard the prohibition of hunting certain animals and banning specific trapping methods; however, many wildlife professionals are wary of a system that leaves complex wildlife issues to a public that does not take into account scientific research and can be subject to fleeting public opinions (Jacobson 2008).

A third system that some state wildlife agencies have adopted for policymaking is a participatory democracy system (also known as deliberative democracy or collaborative decision making) and it is "simply civic governance by deliberation" (Jacobson 2008). This system involves communication among citizens and consideration of other viewpoints before the decision making process takes place (Jacobson 2008). Practical uses of participatory democracy have been called into question by critics. Some of the issues critics have found in this system include: lack of citizen authority over actual

implementation of the decisions, a need for cost-benefit analysis, minimal citizen interest, and unrealistic expectations for how effective this model can be (Jacobson 2008).

The participatory model can be effective if certain parameters can be met: a high degree of equality between members, the group is homogenous, the group is small, a consensus based process is feasible, and those involved support the process. Additionally, many polarizing issues are harder to decide upon in a participatory setting due to highly differing values (Jacobson 2008).

State wildlife agencies, which date to the late 19th century, have not seen significant changes in the way they have been traditionally run since their inception. As biodiversity loss increases and more and more wildlife species are in danger of extinction, the state wildlife agencies in the United States have an opportunity to become conservation agencies as well as wildlife management organizations (Jacobson 2010). Changing ecological and social conditions, poor funding, and environmental threats are issues that state wildlife agencies must face. Their large financial dependency historically (and currently) on hunters and trappers is another issue that state wildlife agencies need to address. Several reform measures to help agencies deal with budget constraints and become a center of conservation have been proposed (Jacobson 2010).

One of these funding proposals is to broaden the funding base. The main funding to state wildlife agencies (license sales from hunters, trappers, and gun owners) has been steadily declining it recent years; hunters specifically have been declining in numbers over the past several decades (Jacobson 2010). Vehicle license plate sales and voluntary donations have been proposed by as other sources of funding; however, these revenues

can be fleeting and vary greatly from year to year (Jacobson 2010). Other proposed

revenues include:

1) using gaming and gambling revenues,

2) dedicating a fraction of percent in sales tax,

3) creating tax incentives, and

4) using bonding for long-term stability (Jacobson 2010).

These options, which were devised by a committee appointed by the governor of Iowa,

were set forth to help the Iowa Department of Natural Resources reach a goal of $150

million for conservation projects. Funding needs to be steady and reliable and cover a

broad stakeholder base (Jacobson 2010).

Anti-cruelty Laws

Most state law regarding wildlife and animals is in the form of anti-cruelty laws

for domestic animal and livestock. There are several possible reasons for this, including

the familiarity and close proximity humans have with these animals. It is also interesting

to note that "cruelty to animals can be one of the earliest and most significant signs of a

person's potential to harm other" (Anonymous 2001). As such, several states have

focused recent laws on psychiatric counseling or anger management for any animal

cruelty offender. Thirteen states - California, Colorado, Illinois, Maryland, Maine,

Michigan, Minnesota, New Mexico, Oregon, Virginia, Vermont, Washington, and West

Virginia - give the courts discretion to order counseling for animal-cruelty offenders and

Nevada has passed a statue that requires counseling and psychological treatment for

children that commit offenses involving animals (Anonymous 2001).

Interest groups, especially the Humane Society of the United States (HSUS), have been very successful in helping to shape state policy and laws regarding anti-cruelty-to animal-laws. The HSUS was created in 1954 as a nonprofit animal rights group. In the 1990s, the HSUS campaigned heavily to states in order to make cruelty against animals a felony offense. Prior to 1986, animal cruelty was a misdemeanor in 46 of 50 states (it was punishable by a fine and up to one year in prison) (Mahalley 2005). The HSUS's First Strike Campaign aimed to strengthen United States state animal cruelty laws and lobby for states for make acts of cruelty felony offenses. By the end of 2004, 41 states had adopted felony animal anti-cruelty laws.

Kentucky, for example, now permits a fine of up to $10,000 and 5 years in prison for offenses based upon laws passed in 2003 (Mahalley 2005). This is less than what some other states have mandated. For example, Colorado, Georgia, and Oregon allow a maximum fine of up to $100,000 while Arizona allows a maximum fine of up to $150,000. Other states such as Massachusetts, Montana, North Carolina, and Rhode Island allow a maximum fine of up to $1,000. In addition to fines and incarceration times, counseling, restitution, cost of care to be paid, and forfeiture of the animal have also been used as sentencing provisions for anti-cruelty offenders (Mahalley 2005). A summary of state anti-cruelty sentencing provisions is in Figure 4.

State	Year Laws Enacted	Maximum Incarceration Time	Maximum Fine	Counseling	Forfeiture	Service or Restitution	Cost of Care
Alabama	2000	10 years	$5,000	No	Yes	No	Yes
Arizona	1999	2 years	$150,000	No	Yes	Yes	No
California	1988	3 years	$20,000	Yes	Yes	No	Yes
Colorado	2002	3 years	$100,000	Yes	No	Yes	No
Connecticut	1996	5 years	$5,000	Yes	Yes	No	Yes
Delaware	1994	3 years	$5,000	No	Yes	No	Yes
Florida	1989	5 years	$10,000	Yes	Yes	No	Yes
Georgia	2000	5 years	$100,000	No	No	No	No
Illinois	1999	5 years	$50,000	Yes	Yes	No	Yes
Indiana	1998	3 years	$10,000	No	Yes	No	Yes
Iowa	2000	5 years	$7,500	Yes	Yes	Yes	Yes
Kentucky	2003	5 years	$10,000	No	Yes	No	No
Louisiana	1995	10 years	$25,000	No	Yes	Yes	Yes
Maine	2001	5 years	$10,000	Yes	Yes	No	Yes
Maryland	2001	3 years	$5,000	Yes	Yes	No	Yes
Massachusetts	1804	5 years	$1,000	No	Yes	Yes	Yes
Michigan	1931	4 years	$5,000	Yes	Yes	Yes	Yes
Minnesota	2001	2 years	$10,000	Yes	Yes	No	Yes
Missouri	1994	5 years	$5,000	No	Yes	No	Yes
Montana	1993	2 years	$1,000	No	Yes	No	Yes
Nebraska	2002	5 years	$10,000	No	Yes	No	Yes
Nevada	1999	5 years	$10,000	Yes	Yes	Yes	Yes

19

State	Year Laws Enacted	Maximum Incarceration Time	Maximum Fine	Counseling	Forfeiture	Service or Restitution	Cost of Care
New Hampshire	1994	7 years	$4,000	No	Yes	Yes	Yes
New Jersey	2001	1.5 years	$10,000	Yes	Yes	Yes	Yes
New Mexico	1999	1.5 years	$5,000	Yes	Yes	No	Yes
New York	1999	4 years	$5,000	No	Yes	No	Yes
North Carolina	1998	6 months	$1,000	No	Yes	Yes	Yes
Ohio	2002	1 year	$2,500	No	Yes	No	Yes
Oklahoma	1887	5 years	$5,000	No	Yes	No	Yes
Oregon	1995	5 years	$100,000	Yes	Yes	No	Yes
Pennsylvania	1995	7 years	$15,000	Yes	Yes	No	Yes
Rhode Island	1896	2 years	$1,000	Yes	Yes	Yes	Yes
South Carolina	2000	5 years	$5,000	No	Yes	No	Yes
Tennessee	2002	6 years	$3,000	Yes	Yes	No	Yes
Texas	1997	2 years	$10,000	Yes	No	No	No
Vermont	1998	5 years	$7,500	Yes	Yes	No	Yes
Virginia	1999	5 years	$2,500	Yes	Yes	Yes	Yes
Washington	1994	5 years	$10,000	No	Yes	No	Yes
West Virginia	2003	3 years	$5,000	Yes	Yes	Yes	Yes
Wisconsin	1986	5 years	$10,000	No	Yes	No	Yes
Wyoming	2003	2 years	$5,000	No	Yes	No	Yes

Figure 4. State Animal Cruelty Felony Laws and Sentencing Provisions, Source: Allen, M.D. (2005). Laying Down the Law? Interest Group Influence on State Adoption of Animal Cruelty Felony Laws. *Policy Study Journal, 33*(3), 443–457.

Zoos and State Laws

A plethora of readily available information exists regarding state wildlife agencies and state animal law. When it comes to state laws pertaining to zoological gardens, however, research becomes scarce. The trend of exempting accredited zoos and aquariums from laws and regulations at the federal level seems to have carried over to state laws as well. States vary in both licensing requirements and prohibitions, as well as which animals they cover (Paquette 2010). Sixteen states, including Kentucky, currently have no license or permit requirements for wildlife, although they have some regulations regarding an entry permit or veterinary certificate (Paquette 2010). More often than state laws, local laws enact stricter animal laws in response to public safety concerns and health issues. Hundreds of counties have passed prohibitions against owning exotic animals as pets while 24 cities have gone so far as to prohibit circuses with animals within the city.

Although state and, even more so local laws, are typically stricter than federal animal laws, their efficiency of enforcement has been called into question and suffers from funding issues (Paquette 2010). Due to a lack of enforcement, many times it is concerned individuals who monitor compliance and put pressure on governing bodies to ensure enforcement. Individuals and animal rights groups even go so far as to file lawsuits on behalf of captive animals to ensure that they are being properly protected under the laws (Paquette 2010).

Currently, California is one of the more progressive states in terms of animal and wildlife laws. A 1985 law required that "all facilities and persons possessing captive wild

animals obtain a permit from California Department of Fish and Game (CF&G)." Permits are granted for:

-exotic pets purchased prior to 1992,

-exhibitors,

-breeding for exhibition or breeding in general,

-certified zoos,

-research,

-brokers and dealers, and

-shelters and sanctuaries.

This law is unique in that it even requires certified zoos, which are usually exempt from most other state regulations, to be inspected. The facilities must be inspected by CF&G or an eligible local entity such as "a county local animal control officer, local humane society official, an education institution, or trained private individual which enters into a memorandum of understanding [MOU] with the director [of Fish and Game]," (Paquette 2010).

Although this California law was progressive, it has had its problems. Since 1985, it was found that the director of CF&G had not entered into any MOUs with eligible local entities or U.S. Department of Agriculture-accredited veterinarians (who could also inspect facilities). However, only 7% of inspections were conducted by CF&G, while the other 93% were conducted through June 1996 and May 1998 by eligible local entities without a MOU, which was in violation of the statute (Paquette 2010).

Although state wildlife agencies are better equipped to handle wildlife issues and have a closer proximity than federal institutions, there are still enforcement issues and a

lack of funding despite the growing demands and pressures with which state wildlife

agencies must deal. Several models have been proposed as to how these state agencies

can overcome budget issues and broaden the stakeholder base. State laws are also

beginning to reflect a shift in how wildlife management and animal care are handled,

although accredited zoos are often exempt from state and local laws. Enforcement of

these new laws is still an issue that must be resolved before the greatest effect of these

progressive animal laws can be observed.

<div align="center">Case Studies in State Laws</div>

PETER RENZO, dba S.A.B.R.E. FOUNDATION, INC. Plaintiff-Appellant, v. IDAHO

STATE DEPARTMENT OF AGRICULTURE, Defendant-Respondent (Supreme Court of

Idaho, Boise, filed October 5, 2010)

Peter Renzo, the developer of the S.A.B.R.E. tiger habitat in Idaho sued the

state's Department of Agriculture for refusing to grant an exotic animal permit, and that

by doing so, it was negatively affecting his economic income. The state countered that

he was not granted the permits because Renzo had not yet spayed or neutered the tigers in

his possession, which was one of the conditions that must be satisfied before Renzo was

granted a possession permit. The state also noted that the 180 day time limit had passed

since it sent a letter stating the conditions, which included spaying or neutering the

animals, of the possession grant to Renzo. Ultimately, the courts decided in favor of the

Department after deciding that Renzo did not file a claim within the specified time frame.

The decision was delivered by Judge W. Jones.

EDWARD EYRICH AND PATRICIA EYRICH, PLAINTIFFS-RESPONDENTS, AND PATRICIA EYRICH, AS GUARDIAN AD LITEM OF MARY JO EYRICH, PLAINTIFF, v. ROBERT EARL, D/B/A ROBERTS BROS. CIRCUS; SCHOOLEY'S MOUNTAIN FIRE PROTECTION ASSOCIATION; WILLIAM BLEISNER, D/B/A WILMER ASSOCIATES, AND CARLTON YOUNG, DEFENDANTS-APPELLANTS, AND CONNIE H. DAM, D/B/A MISS CONSTANCIA LEOPARDS AND JAGUAR, AND BOARD OF EDUCATION OF THE TOWNSHIP OF WASHINGTON, DEFENDANTS (Superior Court of New Jersey, Appellate Division, decided August 5th, 1985)

In New Jersey, a five year old child was killed by a circus leopard after the circus was held at a school. The neighbors of the victim filed suit against the circus operators for emotional damages and wanted compensation. The court decided that wild animals are inherently dangerous and that the owners of such animals are liable if they hurt a person. The courts found that "as a matter of public policy, it would be 'unthinkable' to refuse to insulate individuals who put a defective car on the road and then tell one injured by a wild beast that he has no claim against those who put that beast on the road." The decision was delivered by Judge Fritz, P.J.A.D.

CHAPTER 4

FEDERAL LAWS AND REGULATIONS

Animal Welfare Act

The Animal Welfare Act was created in 1966 and regulates the welfare of animals
in laboratories, research, exhibition, transport, and trade (USDA 2010). It was originally
named the Federal Laboratory Animal Welfare Act, which reflected its original purpose
of protecting cat and dog owners from theft and use of stolen pets in medical research.
Although this Act was created to stop the theft of pets for research, it has expanded over
time to include many other aspects of animal welfare and transport (Mendelson 1997).
The main authority of the AWA is the Secretary of Agriculture (Grech 2004). The
standards set forth in the Act cover "the minimum requirements for handling, housing,
feeding, watering, sanitation, shelter from extremes of weather and temperatures,
adequate veterinary care…and for a physical environment adequate to promote the
psychological well-being of primates," (Grech 2004). A limiting factor of the AWA is
that only minimum standards are required. There are no specific values that dictate these
standards and each situation is addressed individually. Moreover, psychological health is
not regarded for any animal other than primates. One could argue

that the minimum standards are those that simply keep the animal alive, but not psychologically healthy.

Another limiting factor of the AWA is the definition of what constitutes an animal. The term "animal" as defined by the AWA covers:"any live or dead dog, cat, nonhuman primate, guinea pig, hamster, rabbit, or such other warm-blooded animal….intended for use, for research, testing, experimentation, or exhibition purposes, or as a pet; but such term excludes (1) birds, rats of the genus *Rattus*, mice of the genus *Mus*, bred for use in research, (2) horses not used for research purposes, and (3) other farm animals…"

This definition of what is an animal and consequently under the jurisdiction of the AWA is narrow and does not include any cold-blooded animal, birds, and many other warm-blooded animals. This definition limits which animals are afforded protection under the AWA.

Zoo animals are listed in a separate section with a broader definition of an animal; the definition includes marine mammals also. However, these specifications state minimal requirements also and do not contain any standards for psychological well-being of most animals. These standards are somewhat ambiguous. Zoo animals are to be kept so as to ensure their well-being, but there is no definite, quantitative values for what "well-being" entails; it is a subjective term (Grech 2004).

Any act would be ineffective without a body to enforce the requirements set. The power to enforce the guidelines set forth by the AWA is given to the Animal and Plant Health Inspection Service (APHIS). In 2004, APHIS employed 104 inspectors to inspect more than 2,000 licensed facilities that either trade or exhibit animals. Due to logistic constraints, each licensed facility cannot be frequently inspected to ensure that all

26

regulations are being followed. APHIS is furthermore divided into two separate but equally important divisions: Animal Care and Veterinary Services. The Animal Care division enforces the welfare requirements of the standards set in the AWA. Veterinary Services, which deals mainly with livestock, is affiliated with the National Center for Import and Export, which regulates trade of zoo animals. Animals imported for zoo exhibition are subject to oversight and regulations set by the National Center for Import and Export (Grech 2004).

Before a facility that keeps wildlife can be licensed, it is are subject to an inspection. Each facility can attempt to meet qualifications in inspections three times to prove that they meet AWA standards. After they are licensed, the U.S. Department of Agriculture must inspect each research facility once per year and conduct further inspections to ensure that any violations are handled. Inspections are unannounced and they can result from complaints made directly to the USDA about a facility (Grech 2004).

There are several issues of note about the structure of agencies within the AWA. First, the Office of Management and Budget (OMB) has oversight over the USDA, and thus oversight of APHIS and the Animal Care and Veterinary Services divisions (Grech 2004). Beacuse the OMB has oversight, there is a conflict between animal care and welfare and legitimate budget concerns. The main job of the OMB is to budget and manage monetary resources; its main function is not to protect the welfare of animals listed under the AWA. Second, the USDA inspection records are kept only for three years, which presents a problem when trying to find trends and understand long term issues under the AWA as well as identify long-term offenders. Maintaining records showing if a facility has not complied year after year with the standards is impossible; the only

violations that can be seen in the record must occur within the previous three years (Grech 2004).

Another issue with the efficiency of the AWA are Stipulation Agreements that, in essence, allow the violating facility to state that the USDA has jurisdiction but does not force the facility to admit or deny any charges made against them. In any court case, the actual AWA violation that the facility made cannot be seen by the judge and thus no penalties for a repeated (or continuing) offense can be made (Grech 2004).

The lack of a citizen suit provision also makes it nearly impossible to sue on behalf of an animal's welfare under the AWA, both those in zoos and at other exhibition facilities. For a citizen to make a claim on behalf of any animal in captivity, they must prove standing under the AWA in the court system. Over the years, the definition of standing has become less encompassing and fewer private parties are able to successfully fulfill the requirements to prove standing under the AWA and thus bring a court case on behalf of a captive animal (Mendelson 1997).

Endangered Species Act

The second federal law that deals with wildlife trade and animals kept in zoos is the Endangered Species Act (ESA), which was signed into law on December 28, 1973 by President Richard Nixon in order to protect wildlife and biodiversity (Grech 2004). In order to understand the ESA, one must understand the terminology that is used within the Act. The ESA applies to threatened and endangered species and relies on these terms to classify wildlife. These terms can mean different things depending on who is defining them. For example, a population biologist would define threatened and endangered species "to refer to high probabilities of extinction within specified time frames"

(Vucetich 2006). However, the ESA lists an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range" and a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range," (Vucetich 2006). A recovered species is said to be a species that is no longer threatened or endangered.

The ESA definitions of threatened and endangered pose a problem. Rather than being an empirical or numerical definition, the terms are defined in a more subjective way. The phrase "a significant portion of its range," "likely to become," and foreseeable future" are subjective. To some, a significant portion would be 30%, to others it would be 70%. There is no quantitative standard set for what a significant portion of range means. This may be due to the fact that populations of different species vary so much. But this has caused some controversy as to how the ESA definitions are interpreted. Before the ESA was created in 1973 the Endangered Species Preservation Act of 1966 and of 1969 had defined extinction as global extinction. With the current ESA, "extinction" became more localized and the concept of significant portion of range was adopted. As stated by Judge Kessler, judge for Court for 9th Circuit in the court of appeals in the decision for Defenders of Wildlife v. Norton 2005, "the new definition's expansion to include species in danger of extinction 'in any portion of its range' represented a significant shift in the definition in existing law which considered a species to be endangered only when it is threatened with worldwide extinction" (Vucetich 2006).

Because of this shift in definition of endangered, some states have placed species on endangered lists which are only endangered within that state and are not at risk in

other places (Vucetich 2006). This shift in views reflect the more modern attitude that biodiversity and population dynamics more complex than simply whether or not a species exists somewhere on the planet. The ESA also states that "endangerment is to be determined solely on the basis of the best scientific and commercial data available (section4[b])," (Vucetich 2006).

By far the most controversial phrase in the ESA is "significant portion of range." A dictionary definition of significant is "a noticeably or measurably large amount." There is much subjectivity and normative language in this definition of significant as it is used in the ESA (Vucetich 2006). It has been suggested that one possible way to judge a significant portion of range would be to base it on a case by case bases for each species (Vucetich 2006). For some populations that have always been small, a small change in the future populations could be significant. Each population would have to be evaluated individually.

The number of species listed under the ESA is larger than those that have been considered recovered species. A study by Pombo in 2004, found that only 13 of 1300 listed species had achieved recovery (Taylor 2005). Several parameters have been studied to see what accounts for how well or poorly the species listed in the ESA progress; among these parameters are budget, recovery plans, critical habitat and other factors (Taylor 2005). Listing a species for a longer period of time was found to increase its population stability. However, there has not been a steady number of listed species each year since the inception of the ESA. In the mid 1990's there was a sharp rise in the number of species that were listed (Bruskotter 2009). Soon after that rise Congress passed Public Law 104-6 which prohibited the Secretary of Interior from using budget and

available funding when determining if a species was endangered or threatened (Bruskotter 2009). This made it much harder to list species, but the bar was lifted a year later. Around 1996, the sharp peak in the number of listings began to drop fairly quickly. The number of species listed from 2001-2007 was 56, between 1973 and 1980, 294 species were listed (Bruskotter 2009).

Another aspect of the ESA is the requirement of recovery plans for all listed species. These recovery plans include "site specific recovery actions, time frames for accomplishment, and criteria for judging whether recovery has been achieved" (Taylor 2005). These plans have been criticized in the past. The U.S Fish and Wildlife Service (USFWS) in 2004 only had recovery plans for 83% of listed species while only 2% of those listed species under the USFWS had achieved a quarter of the recovery goals (Taylor 2005). For those species with recovery plans, correlations have been found between expenditures of funding and positive population trends. However, no significant correlations were found between multi-species recovery plans and positive populations trends (Taylor 2005). Multi-species recovery plans account for 73% of all plans since 2000 even though they have been found to be less effective recovery plans. These multi-species plans are ones in which more than one species are encompassed into a single recovery plan (Taylor 2005).

Although more endangered species have recovery plans in place than threatened species, the amount of critical habitat designated is similar for both (Taylor 2005). Critical habitats are required for all listed species and are defined as "all lands and water 'essential to the conservation of the species' (sec. 3[5][A])," with conservation defined as "all actions necessary to fully recover and delist species." There have been several cases

that have affirmed critical habitat as an important factor to recovery. It has been found that a species with critical habitat that has not been changed or reduced for two or more years was 1) half as likely to be declining early on in its listing and 2) twice as likely to have a positive population trend later on in its listing (Taylor 2005). USFWS has estimated "that $153 million is needed to complete work on the existing backlog of listings and critical habitat designations" (Taylor 2005).

<div align="center">The Lacey Act and The Pittman-Robertson Act</div>

A third act that deals specifically with the trade of wildlife is the Lacey Act. It was originally enacted to help stop the trade of bird feathers for clothing accessories in the nineteenth century; several species of birds had been nearly eradicated (Fairbrother 2009). The original version of the Lacey Act was passed on May 25, 1900 and it has been amended several times. The Lacey Act currently prohibits trading in wildlife that is transported, sold, or taken (defined by the ESA to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct") that violates other state, federal, or international laws (Grech 2004). However, zoo animals and sanctuaries are exempt from this Act as are persons that are licensed and inspected by APHIS or a federal agency. It prohibits the general trade of endangered wildlife and attempts to keep illegally obtained animals and animal products out of trade (Grech 2004).

The Federal Aid in Wildlife Restoration Act, also called the Pittman-Robertson Act, is another federal act that has provided much of the state funding for conservation and wildlife management projects. It was enacted on September 2nd, 1937 and originally

levied a 10% excise tax on all hunting ammunition and gun sales. Amendments to the Act include:

- 1954 – tax was raised from 10% to 11%,

- 1972 – taxes included for hunter safety programs,

- 1980s – taxes on bows and arrows, and

- 1990 – allowed for funds to be applied to wetland protection (Fairbrother 2009).

Through the Pittman-Robertson Act $2.75 million are given to the states each year for game species management (Fairbrother 2009) and it raises around $163 million annually (Numbers 2007). Most of the funding goes toward game species management as the funding is primarily gathered though hunters (Mangun & Shaw 1984). Very little of this funding is provided for non-game species. There is no provision that levies a tax on non-consumptive uses of wildlife. Some of the non-consumptive purchases that could be taxed to help fund non-game wildlife management include wildlife photography, field guides, binoculars, bird houses and bird baths (Mangun and Shaw 1984). Although most of the funds come from consumptive users, it has been estimated that up to 70% of individuals using these managed lands are non-consumptive (Federal Aid Division 2010). The Pittman-Robertson Act funds most of the states' wildlife projects, however it will only fund up to 75% of the costs and the states must cover at least 25% of the project cost (Federal Aid Division 2010).

Species-Specific Statutes

There are several species specific federal statutes that create species specific funds that the Secretary of the Interior may pull from for research, conservation, management, or projects including:

- 1988 - The African Elephant Conservation Act

- 1997 - The Asian Elephant Conservation Act

- 2000 - The Great Ape Conservation Act

- 1994 - The Rhinoceros and Tiger Conservation Act

The funds are different for each Act, but they all are only listed for designated amounts of time. One of the most notable regulations was established by the African Elephant Conservation Act; this regulation stopped the import of any raw or worked ivory from any country that does not meet certain criteria of or is not a member of Convention on International Trade in Endangered Flora and Fauna. Consequences for not following these regulations range from civil to criminal penalties (Grech 2004). However, enforcement regulations are not written into the Act and therefore the Act cannot be fully implemented without outside enforcement (Grech 2004).

Association of Zoos and Aquariums

The Association of Zoos and Aquariums (AZA) is a voluntary organization in the United States for zoos and other facilities that care for wildlife or exhibit animals. It is a voluntary organization, but membership is regarded as a high industry standard (Grech 2004). The AZA code states that members should be "dedicated to excellence in animal care and welfare, conservation, education, and research that collectively inspire respect for animal and nature." The standards that are set forth by the AZA generally go beyond

the minimal requirements set forth by the AWA and a Program Animal Policy must be developed in order to "ensure animal welfare standards are met, including those for housing, husbandry, handling, and human-animal interactions" (Grech 2004). These policies must also account for education and conservation work that the AZA states are two of their main objectives.

More than 200 zoos and animal care facilities are currently accredited or certified by the AZA. Zoos and aquariums can be accredited and facilities that care for animals yet are not open to the public can be certified. For facilities that are certified, they must still meet the same requirements for care and handling and are still subject to regular inspections and reviews under the Accreditation Commission of the AZA. Along with regular reviews, accredited and certified facilities are expected to continuously pass current standards. A Species Survival Plan (SSP) for certain species is another AZA initiative that strives for conservation through research and captive breeding. There is no clause, however, about reintroduction of captive bred animals (Grech 2004).

The AWA and the ESA are the only federal laws that regulate animal welfare and zoological gardens; however, there are many exemptions for zoos in these Acts. For facilities that are not a member of the AZA, the standards for animal welfare and transportation are minimal or are nonexistent for organisms not falling under the definition of an animal. The limited definition of an animal eliminates many species from protection under the AWA. The ESA is also limited by its subjective and vague language that is subject to interpretation. However, the AZA , where membership is highly regarded, sets standards for animal care and welfare that are higher and with more thought to psychological well-being than federal law.

Case Studies in Federal Law

TENNESSEE VALLEY AUTHORITY v. HILL ET AL (Supreme Court of the United States, decided June 15, 1978)

The Tennessee Valley Authority had started constructing a dam on part of the Little Tennessee River prior to 1973, when the Endangered Species Act went into effect. The TVA had already spent $53 million on the project. After the enactment of the ESA, the Secretary of the Interior declared that the snail darter, *Percina tanasi*, was endangered and that the dam would interfere with its habitat. Construction was halted by decision of the Supreme Court. Congress later allowed the dam to be completed after populations of the snail darter were established in other rivers in Tennessee. President Carter allowed the TVA in this instance to be exempt from the ESA. In 1984, the fish was moved from the endangered list to the threatened list.

Robertson v. Seattle Audubon Society (Supreme Court of the United States,

decided March 25th, 1992)

A wildlife group filed suit on behalf of the endangered Northern Spotted Owl, *Strix occidentalis caurina*, which lives in old-growth forests in the Pacific north-west. It was placed on the endangered species list in June of 1990. They were challenging timber companies who were harvesting trees in the owl's habitat. After the owls were listed on the list millions of acres became protected habitat and companies were not allowed to harvest timber from them. Labor unions, the timber industry, homebuilding and real estate groups opposed on the grounds that not allowing harvesting would cause negative economic harm for many and President George H.W. Bush stated, "it is time to make people more important than owls." The Seattle Audubon Society alleged that three

federal violations had occurred: 1) the Migratory Bird Treaty Act, 40 Stat. 755, ch. 1-28, as amended, , 16 U.S.C. 703 et seq. (1988 ed. and Supp. II) 2) the National Environmental Policy Act of 1969, 83 Stat. 852, as amended, 42 U.S.C. 4321 et seq., and 3) the National Forest Management act of 1976, 90 Stat. 2949, as amended, 16 U.S.C. 1600 et seq. Appellate Judge Dwyer ruled in favor of the Audubon Society in March 1991 and in May 1991 he directed the Forest Service to comply with National Forest Management Act regulations. The Supreme Court ruled that certain forested areas in the owls' habitat would be open to the timber industry for harvesting timber and other areas would be restricted from harvesting.

CHAPTER 5

INTERNATIONAL REGULATIONS

Convention on International Trade in Endangered Species of Wild Fauna and Flora

The history of the Convention on International Trade in Endangered Species of

Wild Fauna and Flora (CITES) is recent. In 1963, discussion of international animal trade

was a fairly new concept. At a meeting of The World Conservation Union, a draft of what

would eventually become CITES was created. Ten years later on March 3rd 1973, with

eighty countries in attendance, the final text of CITES was agreed upon; CITES went into

effect on July 1st, 1975 and 175 countries are now parties of CITES. While each country

voluntarily agrees to adopt CITES, each country must set its own national laws in order

to enforce the framework and guidelines that CITES sets up. Implementation of the

guidelines and enforcement is strictly left up to each nation but national law takes

precedence over the CITES framework ("What Is," 2001). CITES itself is not an

international governing body and cannot enforce whatever laws each nation enacted.

Under CITES, commercial imports are prohibited or regulated for species that are

endangered or that may be adversely affected by trade (Yeater & Vasquez, 2001).

Species are categorized into one of three appendices based on scientific data about the

level of endangerment and how trade would impact the future of that species (Paquette

2003). Appendix I status prohibits commercial trade while strictly regulating non-

commercial trade. Even though zoos are, legally, commercial enterprises, they are still

granted permits to take part in trade of species listed under Appendix I, which are considered to have the highest level of threat (Paquette 2003). Of the 892 species listed under Appendix I, a few include: snow leopard, certain tiger species, chimpanzee, gorillas, most large parrots, sea turtles, slipper orchids, and many species of cacti (Yeater & Vasquez, 2001). For species that are not as endangered but could become so if the trade was not regulated, CITES uses permits to regulate that trade. Species under this category are listed in Appendix II; there are 33,033 species of flora and fauna listed in Appendix II and these include many large cats, primates, cetaceans, parrots, and some carnivorous plants. Appendix III species are considered the least endangered or threatened via trade according to CITES (Yeater & Vasquez, 2001). Species in Appendix III are already regulated within a nation and need assistance from other countries to prevent exploitation (The CITES Appendices, 2001).

The way in which a commercial establishment such as a zoological garden obtain Appendix I species relies on the proposed imported species and if the import follows certain guidelines. For a zoological garden to take part in trade of an Appendix I species, they must first satisfy the following:

- Is the proposed import "detrimental to the survival of the species?"
- Was the animal "acquired lawfully?"
- Will the animals "be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment?"
- Is the entity "suitably equipped to house and care for such wildlife?"
- Is the imported animal "to be used for primarily commercial activities?" (Paquette 2003)

Even when a zoo is fully able to provide for the animal and meets all criteria for

obtaining an Appendix I species, there is often criticism of those transactions. Currently,

in the United States, the U.S. Fish and Wildlife Service has the power to issue permits of

this nature (Paquette 2003). Zoological specimens that were obtained before the adoption

of CITES are ineligible for CITES provisions and animals born in captivity are not

granted the protection status that an animal of same species from a natural habitat is

afforded (Grech, 2004).

The enforcement of the legal framework laid out by CITES is the responsibility of

the nations that adopt CITES. However, CITES has defined provisions for dealing with

noncompliance. Two articles listed specifically describe the provisions for compliance.

Article II(4) "provides that parties shall not allow trade in specimens of species included

in Appendices I, II and III, except in accordance with the provisions of the Convention"

(Text of the Convention, 2001). Each party that has adopted CITES must follow the

guidelines stated for the trade of listed species. Article VIII(1), "requires parties to take

appropriate measures to enforce the provisions of the Convention and to prohibit trade in

violation thereof" (Text of the Convention, 2001). This provision requires adequate

national legislation to enact and enforce the compliance of the CITES guidelines. Closely

related to Article VIII(1), Article IX(1) requires that compliant nations designate one or

more management authorities that are able to grant permits and one or more scientific

authorities to provide advice before issuing the permits. These measurements ensure that

enough information is analyzed and that knowledge of how the species could be affected

by trade has been taken into account before any permits are granted. If a party or nation

does not comply with the guidelines set forth, then CITES may make one of several

recommendations. One measure is to recommend that all trade of CITES-listed species be ceased until appropriate steps are taken to ensure full compliance with CITES guidelines. Oftentimes, the threat of suspending trade and pressure from other countries brings enough attention to the issue that actions are taken swiftly to avoid any trade suspensions (Yeater & Vasquez, 2001).

Over the years, the way in which CITES has proceeded to list species in any of the Appendices has changed and the criteria for listing them has become more stringent and less political. The Conference of the Parties (COP), which meets every two years, is a congregation of members from CITES that decides which species to list, remove from a list, or move to a different Appendix (Gehring & Ruffing, 2004). The first set of detailed criteria were the Bern Criteria of 1976 yet this set of criteria allowed for "extensive interpretation" by those deciding which species to list. There was also a "charismatic" species bias that led to over-representation for certain species and less regulation for many invertebrates (Gehring & Ruffing, 2004). In 1994 the listing criteria were revised. Along with member countries, the International Union for the Conservation of Nature and Natural Resources (IUCN), two expert committees, organizations, and other individuals took part in the revision process and the Fort Lauderdale criteria were adopted (they were amended by COP 13 in 2004).

The revised criteria are much more stringent and take into consideration biological statuses of species, such as worldwide population sizes, more than the old listing criteria. Clear definitions are made about how a species becomes eligible for Appendix I status, including that the species must be threatened with extinction and that it can be so shown through scientific reports. Appendix II status requires scientific

projections and data that show how not regulating trade could result in Appendix I status (Gehring & Ruffing, 2004). However, there is still some discrepancy in the listing criteria that leaves room for interpretation. One biological status that is taken into account for listing is "marked decline" of a population. How much decline is enough to be considered marked is subject to some debate. There are a few established guides such as a 5%-30% decrease from a baseline, a 50% decline in the last 10 years or three generations, or 20% decline in last five years or two generations for small populations (Gehring & Ruffing, 2004). These guidelines are mostly species-specific and still leave room for some interpretation. These gray areas must be discussed in more detail for each individual proposal. The listing criteria must make sure that the guidelines balance both the need to be easy to understand and be consequential, but they must also be able to be applied and enforceable. There are three stages to listing a species in any of the Appendices, they are 1) evaluation through scientific assessment which results in the Secretariats' recommendation, 2) the COP decides by vote to approve or disapprove (a two-thirds vote is needed for approval), and 3) aggrieved parties can opt out of the commitment to decisions that were undesired (Gehring & Ruffing, 2004).

<div align="center">International Air Transportation Association</div>

The other international association that contributes to the regulation of animal transport is the International Air Transportation Association (IATA). While IATA covers much more than wildlife and environmental issues, there is still a section dedicated to the safe transport of animals and CITES works with IATA to ensure that such trade has the appropriate approvals. IATA was created in Cuba in 1945 and has members from 126

nations. According to IATA, its objective is to be "the prime vehicle for inter-airline

cooperation in promoting safe, reliable, secure and economical air service - for the

benefit of the world's consumers" (History, 2010). While IATA is also an association

that nations and airlines voluntarily adopt, membership and compliance with IATA is

highly regarded and up to about 93% of all scheduled air travel proceeds under IATA

regulations (Grech, 2004).

Both CITES and certain provisions of IATA were developed to help combat

unregulated wildlife trade and ensure that live specimens and their byproducts are

transported safely. However, the actual amount of unregulated trade is hard to estimate.

There are discrepancies between the actual number of specimens imported and exported

and what is reported by customs agents around the world (Gerson, Cudmore, & Mandrak,

2008). It is impractical for CITES authorities to physically watch over each and every of

the millions of imports and exports and document the actual number of trades. Wildlife

trade can be dangerous in that it may potentially result in "habitat destruction,

overexploitation of wildlife, and the spread of invasive alien species," (Gerson et al.,

2008).

Reporting Trade

Although CITES attempts to document the amount of international trade, there is

no international "harmonized" system that can collate the data on wildlife trade. The

Harmonized Commodity Description and Coding System, or the Harmonized System

(HS), was created by the World Customs Organization in 1983 to help document

international trade and 190 countries currently participate. The HS takes advantage of

customs tariffs to collect statistics and uses a six digit code for commodities that are

divided into 5,000 groups. These codes assist in helping to identify the number of wildlife

entering and exiting different countries, but they are often misrepresented or used

incorrectly. An inspection by Blundell and Mascia (2005) compared the data from CITES

about the level of wildlife trade against U.S Customs Service HS data and found "major

discrepancies" for all listed taxa (Gerson et al., 2008). This suggests that data collection

about the level of wildlife trade is sufficiently lacking to make meaningful

recommendations about how to proceed regulating species. One major factor is the lack

of training that customs officials have in identifying which of the thousands of species

listed they are inspecting. In Canada alone, 12 million shipments are brought into the

country, yet only 2% are physically inspected (Gerson et al., 2008). Aside from the fact

that the inspected shipment may not even contain specimens or their products, they face a

great probability that the inspectors are not sufficiently trained to identify the specimens

and are unable to compare against a list of thousands (Gerson et al., 2008).

Another problem with the HS is that any changes to the system can take more

than five years to implement and that it "would not be practical or even possible to create

specific, international HS codes for all the numerous products" (Gerson et al., 2008). Yet

another issue is that the data from the HS system about wildlife trade, while still valuable,

were not the primary purpose of the HS system; the original and primary purpose of the

HS system was for tariff purposes; it was not created to collect trade information on

wildlife trade (Gerson et al., 2008).

There are great discrepancies in the amount of wildlife trade reported by CITES and by the U.S. Customs Service. These discrepancies can mislead lawmakers and conservationists on how to handle wildlife trade and how to address problems and design effective legislation. For example, the import of live coral into the U.S. was reported by CITES as 376% greater than what was reported as by Customs, and the United States import of conch was reported by Customs as 5202% greater than by CITES (Blundell & Mascia, 2005). Blundell and Mascia discuss several possible reasons for these errors. Among these reasons are random errors and typographic mistakes, "taxonomic miscategorization," smuggling, and incorrect units for data (Blundell & Mascia, 2005). While Blundell and Mascia were mostly looking at U.S. data, they found similar discrepancies in other countries and suggest that "training, compliance assistance, and automated record keeping" could help decrease the number of errors reported in wildlife trade (Blundell & Mascia, 2005).

Although zoos are technically a commercial enterprise, they are often granted exceptions for imported CITES listed species and it is easier for zoos to acquire licenses and permits than for private individuals. If a zoo meets the criteria for exception, even if the import does not have popular support or a plan for breeding or research of that species, they can still be granted a permit even if CITES has deemed the species to be critically endangered. This is an obstacle to conservation. If an animal is so endangered that international trade is prohibited to stop loss, then a zoo that obtains one of those species needs to have some measures in place to help repopulate the wild populations that they have decreased before being allowed a permit. Zoo must be inspected more thoroughly and held to high standards before being granted such exceptions to trade regulations.

The discrepancies in the amount of international wildlife trade and the few regulations dealing with such trade is a dangerous combination to global populations of endangered species. Although CITES has made great progress in helping to curb unregulated trade of endangered species, many species are not listed and therefore have almost no regulations in regard to trade. IATA ensures that most animals transported by air are done so at a certain level of safety, but animals transported by any other means may not have such protections. A new, more encompassing system to more accurately record data on international trade of species is needed in order to create conservation legislation that is consequential and can help curb global biodiversity loss.

BIBLIOGRAPHY

Albrecht, V.S. & Christman, J.N. (1999). The Endangered Species Act. Retrieved April 19, 2011 from http://library.findlaw.com/1999/Jan/1/241467.html.

Allen, M.D. (2005). Laying Down the Law? Interest Group Influence on State Adoption of Animal Cruelty Felony Laws. *Policy Study Journal, 33*(3), 443-457.

Anonymous (2001). States Look at Stricter Animal Cruelty Laws. *State Legislatures, 27*(4), 8-9.

Axelsson, T., & May, S. (2008). Constructed Landscapes in Zoos and Heritage. *International Journal of Heritage Studies, 14*(1), 43-59.

Babcock. D.W. (2006). Legal Implications of Zoonotic-Disease Outbreaks at Petting Zoos and Animal Exhibits. *Journal of Environmental Health, 69*(4), 46-47.

Blundell, A. G., & Mascia, M. B. (2005). Discrepancies in Reported Levels of International Wildlife Trade. *Conservation Biology, 19*(6), 2020-2025.

Bruskotter, J.T., & Enzler, S. A. (2009). Narrowing the Definition Of Endangered Species: Implications of the U.S. Government's Interpretation of the Phrase "A Significant Portion of its Range" Under the Endangered Species Act of 1973. *Human Dimensions of Wildlife, 14*, 73-88.

By the NUMBERS. (2007). *NBS Nation's Best Sports Fish & Hunt, 6*(1), 12.

Ceballos, C.P., & Fitzgerald, L.A. (2004). The Trade in Native and Exotic Turtles in Texas. *Wildlife Society Bulletin, 32*(3), 881-891.

Cooper, A. (2008, Mar. 19). New report: Zoo understaffed, unprepared day of fatal tiger attack. San Francisco Chronicle. Retrieved April 19, 2011 from http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/03/18/BAL8VM6RR.DTL.

Dockai, R. (2010). Ecosystems Get Their Day in Court. *The Futurist, 44*(5), 10-11.

Doukakis, P., Parsons, E.C.M., Burns, W.C.G, Salomon, A.K., Hines, E., & Cigliano, J.A. (2009). Gaining Traction: Retreading the Wheels of Marine Conservation. *Conservation Biology, 23*(4), 841-846.

Eliason, S.L. (2008). Wildlife Crime: Conservation Officers' Perceptions of Elusive Poachers. *Deviant Behavior, 29*, 111-128.

Fairbrother, A. (2009). Federal Environmental Legislation in the U.S. for Protection of Wildlife and Regulation of Environmental Contaminants. *Ecotoxicology, 18*, 784-790.

Federal Aid Division – The Pittman-Robertson Federal Aid in Wildlife Restoration Act. (2010). U.S. Fish & Wildlife Service Southeast Region. Retrieved May 2, 2011 from http://www.fws.gov/southeast/federalaid/pittmanrobertson.html.

Gehring, T., & Ruffing, E. (2008). When Arguments Prevail Over Power: The CITES Procedure for the Listing of Endangered Species. *Global Environmental Politics, 8*(2), 123-148.

Gerson, H., Cudmore, B., & Mandrak, N.E. (2008). Monitoring International Wildlife Trade with Coded Species Data. *Conservation Biology, 22*(1), 4-7.

Gerson, S. (2009). Who Can Enforce the Endangered Species Act's Command for Federal Agencies to Carry Out Conservation Programs? *Ecology Law Quarterly, 36*(407), 407-438.

(2010, Jul. 23). Government and Professional Resources: Animal Welfare Information Center. Retrieved April 19, 2011 from http://awic.nal.usda.gov/nal_display/index.php?info_center=3&tax_level=1&tax_subject=182.

Grech, K.S. (2004). Detailed Discussion of the Laws Affecting Zoos. Retrieved April 19, 2011 from http://www.animallaw.info/articles/dduszoos.htm.

History - Part 1. (2010). IATA. Retrieved September 23, 2010 from http://www.iata.org/about/Pages/history.aspx

Hodges, C. (2011).2010 Significant Animal Law Cases. Retrieved April 19, 2011 from http://www.animallaw.info/articles/ovus2010significantcases.htm.

Invertebrates. (2011), Smithsonian National Zoological Park, Friends of the National Zoo. Retrieved April 19th, 2011, from http://nationalzoo.si.edu/animals/Invertebrates/default.cfm

Jacobson, C.A., & Decker, D.J. (2008). Governance of State Wildlife Management: Reform and Revive or Resist and Retrench? *Society of Natural Resources 21*, 441-448.

Jacobson, C.A., Organ, J.F., Decker, D.J., Batcheller, G.R., Carpenter, L. (2010). A Conservation Institution for the 21st Century: Implications for State Wildlife Agencies. *Journal of Wildlife Management, 74*(2), 203-209.

Live Animals Transportation by Air. (2010). IATA. Retrieved September 23, 2010 from http://www.iata.org/whatwedo/cargo/live_animals/Pages/index.aspx

Manfredo, M.J., Teel, T.L., & Henry, K.L. (2009). Linking Society and Environment: A Multilevel Model of Shifting Wildlife Value Orientations in the Western United States. *Social Science Quarterly, 90*(2), 407-426.

Mangun, W.R. & Shaw, W.W. (1984). Alternative Mechanisms for Funding Nongame Wildlife Conservation. *Public Administration Review, 44*(5), 407-413.

Mendelson III, J. (1997). Should Animals Have Standing? A Review of Standing Under the Animal Welfare Act. *Boston College Environmental Affairs Law Review, 24*(4). 795-821.

Michigan State University College of Law (2010). Animal Legal and Historical Center. Retrieved April 19, 2011 from http://animallaw.info/.

Miller, B., Conway, W., Reading, R.P., Wemmer, C., Wildt, D., Kleiman, D., & et al. (2004). Evaluating the Conservation mission of Zoos, Aquariums, Botanical Gardens, and Natural History Museums. *Conservation Biology, 18*(1), 86-93.

Monaghan, P. (2007). The Growing field of Animal Law is Attracting Activists and Pragmatists Alike. *Chronicle of Higher Education, 53*(43). A6-A8.

Nolan, S.R. (2002). Zoos wrestle with the fate of surplus animals. Journal of the American Veterinary Medical Association. Retrieved April 19, 2011from http://www.avma.org/onlnews/javma/dec02/021201f.asp.

Paquette, N. (2003) The Status of Captive Wild Animals in the U.S.: An Overview of the Problem and the Laws. Animal Law Institute Conference – Dallas, TX. Retrieved April 19, 2011 from http://www.bornfreeusa.org/facts.php?more=1&p=179&page=8

Robinson, M.H. (1992). Global Change, the Future of Biodiversity and the Future of Zoos. *Biotropica, 24*(2), 345-352.

Robinson, M.H. (1993). The age of the Biopark. *World & I, 8*(9), 228-233.

Sharman, K. (2003). Scientific Fact vs. Legal Fiction: The New Case for Animal Rights. *Animals Today, 11*(2), 22-27.

Shine, C. (2007). Invasive Species in an International Context: IPPC, CBD, European Strategy on Invasive Alien Species and other Legal Instruments. Bulletin OEPP/EPPO Bulletin, 37, 103-113.

Southwick, R. (2002). Researchers Face More Federal Scrutiny on Animal Experimentation. *Chronicle of Higher Education, 48*(42). A23-A25.

Taylor, M.F.J., Suckling, K.F., & Rachlinski, J.J. (2005). The Effectiveness of the Endangered Species Act: A Quantitative Analysis. *BioScience, 55*(4), 360-367.

Text of the Convention. (2001). Convention on International Trade in Endangered

Species of Wild Fauna and Flora. Retrieved May 1, 2011, from http://www.cites.org/eng/disc/text.shtml

The CITES Appendices. (2001). Convention on International Trade in Endangered Species of Wild Fauna and Flora. Retrieved September 23, 2010, from http://cites.org/eng/app/index.shtml

Toh, R.S., & Shubat, N.S. (1985). The Impact and Effectiveness of the International Air Transportation Competition Act of 1979. *Transportation Journal, 25*(2), 46-54.

Tribe, A. (2004). Wildlife Tourism: Impacts, Management and Planning. *Zoo Tourism*, 35-56.

Tribe, A., & Booth, R. (2003). Assessing the Role of Zoos in Wildlife Conservation. *Human Dimensions of Wildlife, 8*, 65-74.

Vucetich, J.A., Nelson, M.P., & Phillips, M.K. (2006). The Normative Dimension and Legal Meaning of Endangered and Recovery in the U.S. Endangered Species Act. *Conservation Biology, 20*(5), 1383-1390.

What is CITES? (2001). Convention on International Trade in Endangered Species of Wild Fauna and Flora. Retrieved September 23, 2010, from http://cites.org/eng/disc/what.shtml

Yeater, M., & Vasquez, J., (2001). Demystifying the Relationship Between CITES and the WTO. *Review of European Community and International Environmental Law, 10*(3), 271-275.