

INTERNATIONAL RELATIONS, BIODIVERSITY LOSS, AND THE UNITED STATES

by

Kayla Marie Young

Honors Thesis

Appalachian State University

Submitted to the Department of Government and Justice Studies
and The Honors College

in partial fulfillment of the requirements for the degree of

Bachelor of Science

December, 2016

Approved by:

Renee Scherlen, Ph.D., Thesis Director

Jacqueline Ignatova, Ph.D., Second Reader

Elicka Sparks, Ph.D., Departmental Honors Director

Ted Zerucha, Ph.D., Interim Director, The Honors College

Abstract

Biodiversity is an environmental cache that has been maintained and developed globally over thousands of years. However, biodiversity loss is an international environmental issue that is increasingly threatening the countless ecosystem services and stabilizing abilities of biologically diverse ecosystems. The drivers of biodiversity loss are largely anthropogenic and transboundary, and without a concerted and coordinated global effort, it is likely that current ecosystem services and a diverse planet will be lost to future generations. While this issue has been recognized by the global community through multilateral environmental agreements, the United States has consistently refrained from engaging in these efforts. This paper seeks to explore the current trend of United States participation in multilateral efforts to address biodiversity loss, as well as the implications of its actions. This paper analyzes the United States' engagement, or lack thereof, using the liberal and constructivist theories of international relations to examine the negative consequences of the United States' current strategy of participation. This is especially important when considering the redistribution of power in the international system from unipolarity to multipolarity, in which the United States may no longer maintain a disproportionate share of power. In general, the United States' lack of engagement in global environmental efforts is likely to negatively affect its ability to achieve future foreign policy goals, suggesting a strong motivation for the United States to assess and alter its current engagement strategy in biodiversity agreements.

Contents

Acronyms.....	3
I. Introduction.....	5
II. International efforts to address biodiversity loss.....	17
III. U.S. participation in international agreements on biodiversity loss.....	35
IV. Domestic efforts to address biodiversity loss.....	47
V. Liberalism and Constructivism: the U.S. in the future.....	56
VI. Conclusions.....	77
Appendix.....	82
Works Cited.....	84

Acronyms

APPS Act to Prevent Pollution from Ships

BLM Bureau of Land Management

CBD Convention on Biological Diversity

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

DOA Department of Agriculture

DOI Department of the Interior

EPA Environmental Protection Agency

ESA Endangered Species Act

FS Forest Service

FWS Fish and Wildlife Service

GHG Greenhouse gas

IPCC Intergovernmental Panel on Climate Change

IUCN International Union for the Conservation of Nature

MARPOL International Convention for the Prevention of Pollution from Ships

NATO North Atlantic Treaty Organization

NGO Non-governmental organization

NPS National Park Service

POPS Persistent organic pollutants

SCPOP Stockholm Convention on Persistent Organic Pollutants

SCS South China Sea

UNCCD United Nations Convention to Combat Desertification

UNCLOS United Nations Convention on the Law of the Sea

UNEP United Nations Environmental Program

UNESCO United Nations Educational, Scientific, and Cultural Organization

UNFCCC United Nations Framework Convention for Climate Change

US United States

USCG United States Coast Guard

I. Introduction

“Humans are fundamentally, and to a significant extent irreversibly, changing the diversity of life on Earth, and most of the changes represent a loss of biodiversity” –Millennium Ecosystem Assessment¹

Biodiversity is an environmental cache that has been maintained and developed over thousands of years. That invaluable variety within natural systems allows the planet to sustain life, provide precious bounty and nutrition, gift life-saving cures, prevent catastrophic events and diseases, and recover from seemingly impossible obstacles. Many of the inherently natural processes of healthy and biodiverse ecosystems provide invaluable or irreplaceable ecosystem services that are critical components for the survival of humanity. This biodiversity exists in the myriad of species familiar to many, but it also refers to a necessary variety of genes, ecosystems, communities, and functions that aid in a thriving and healthy planet.

Regrettably, the precious element of biodiversity has been unable to evade the effects of the “Anthropocene,” the concept of a new global epoch in which human activities have fundamentally shifted global geophysical processes (Steffen et al. 2011, Kolbert 2015, 91-110, Waters et al. 2016). Human activities, combined with natural processes, are causing irreparable biodiversity loss and inciting rapid shifts in what had previously been an evolutionarily slow progression across the globe (Waters et al. 2016). Scientists are increasingly voicing grave concern over global biodiversity loss. Recently published works

¹ Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being Synthesis*. Island Press, Washington, D.C.

move toward a forceful consensus, with warnings that biodiversity is being pushed beyond the “safe limit” of planetary boundaries, and bringing along with it complex and detrimental consequences (Newbold et al. 2016, Stephen et al. 2015). In fact, some believe the rapid loss of global diversity will lead to the “Sixth Extinction,” placing humans in a unique historical position as the agents of the eternal disappearance of species en masse. If the trends of loss continue, it is likely to mark the current era alongside the only five other critical losses of life, including the infamous extinction of the dinosaurs (Kolbert 2015, 92-124). Although humans have fostered a myriad of important contributions in their existence, it is likely that none will be more pronounced than a legacy of furthering the mass extinction of life on the planet. Recognizing the sources of that rapid loss is an essential step in mitigating and preventing further deterioration of one of the planet’s most precious resources. Currently, the major causes of this alarming loss of biodiversity are habitat loss in the form of fragmentation, destruction, and degradation, invasive species, overexploitation, emerging diseases, co-extinction, and climate change.

One of the most recognizable ways humans are affecting biodiversity and hastening its depletion is through the loss or alteration of habitat, either through fragmentation, degradation, or destruction of natural surroundings (National Wildlife 2016, “Habitat”). Habitat fragmentation refers to the severing of full habitats into separate fragments. This is often associated with the development of human infrastructure, in the form of roads, dams, and other structures that make it difficult for migration to continue. Examples of human-motivated fragmentation consequences are regrettably common in the continental U.S. In the country’s most densely populated state, California, this has become a major threat to large mammals such as mountain lions and bobcats in the Santa Monica Mountains, trapped

between sparsely remaining habitats and surrounding urban landscapes (National Park 2016, “Habitat”). Large predators are essential for the healthy function of ecosystems by ensuring vegetation can thrive through a regulation of herbivores that would strip the land of vegetation if unchecked (Ripple et al. 2014). Considering concerns over water availability, the ability of healthy mountain lion populations relieve pressure from already water-stressed vegetation could prove critical. The degradation of habitats refers to a significant decline in quality that makes them less suitable to support the ecosystems that were previously thriving. Examples include the conversion of land for agricultural purposes or the pollution of water sources. The catastrophic Deepwater Horizon Oil spill in 2010 resulted in 205.8 million gallons of oil pollutants into the Gulf of Mexico that ultimately affected thousands of native wildlife, both killing marine and shore-dependent species and reducing quality of life for those remaining several years later (Convention on Biological 2011). Most apparent, species died from direct impacts of the pollutants and declined stocks for the large fishing industry in the Gulf states. Further, the long-term indirect impacts of declined growth rates could prove even more devastating, as affected species are unable to procreate and offspring experience birth defects that prevent maturation. While the Gulf has shown incredible resiliency, many of the effects of the spill are unknown, and other habitats facing similarly devastating degradation may not be able to likewise adapt. Finally, the ultimate loss of habitats comes in the form of destruction. Primary examples include deforestation, the filling in of wetlands, and the dredging of water bodies. According to the United Nations Environmental Programme (UNEP), the loss of biodiversity is being accelerated due to global deforestation, largely across South America and Africa, and is noted as requiring global attention to maintain “fundamental ecological processes” present with sustained biodiversity (United

Nations Environment 2011). When a species' habitat is essentially removed from existence, it requires a significant amount of adaptation. If a species is unable to adapt, regardless of how integral it may be to the function of ecosystem services, its ultimate peril is likely. Regardless of the type of habitat loss, the multitude of species unable to adapt swiftly enough to changing conditions will be unable to fruitfully exist and contribute necessary ecosystem services on a planet continuing business-as-usual disregard for habitats.

Invasive species are another major driver of biodiversity loss. While non-native species can occur without outside intervention, human activities are often the source of the introduction and dispersal of invasive species. Although not always harmful, these species can result in the degradation of habitats, as well as the loss of other species through competition for resources, the introduction of new and harmful pathogens, or the predation of native species. Pervasive examples within the United States include several species of Asian carp, Asian longhorn beetle, and the Burmese python (National Wildlife 2016, "Species"). One of the most recognized invasive species in the United States is the infamous zebra mussel. Currently wreaking havoc in the Great Lake states with their unabated reproduction, effectively cutting off food supplies to native species, covering beaches, and causing millions of dollars in structural damage, the zebra mussel is believed to have been transported from Europe via ballast waters in shipping commerce in the 1980's. Today, the ultimate removal and attempted prevention of the zebra mussel is ongoing, but has not yet been successful (O'Neill 1994, National Wildlife 2016, "Mussels"). As globalization and transportation technologies continue to advance, it is reasonable to expect that the issue of invasive species will continue, develop, and evolve into an uncontrollable phenomenon.

Humans have also contributed to biodiversity loss through the overexploitation of wildlife and plants for their uses including food, clothing, medicine, and shelter. While many of these resources were once found in plenty, their overexploitation has resulted in the inability of some species to survive, and the possibility of habitat degradation or loss of ecosystem services as critical elements of ecosystem webs are depleted or removed. Examples include the depletion of animal populations such as tigers or swordfish, as well as medicinal plants such as American ginseng, which today fetch a high price due to their current rarity (National Wildlife 2016, “Overexploitation”). High profile examples include the killing of large game for markets, such as commercial whaling, and for sport, including the killing of Cecil the lion during a hunt in Zimbabwe (World 2016, Goode 2015). Although many species are valued, or even feared, by humans, and are thus killed en masse, it is often without thought to that species’ role in providing ecosystem services. While some of the most high-profile cases have resulted in government response to prevent the extinction of precious species due to human actions, it is often in vain without appropriate enforcement measures, and the problem continues to endanger wildlife and plants (Jowit 2010).

Emerging diseases are also noted as a significant contributor to biodiversity loss. While this is not always connected to human activities, like the introduction of invasive species, societal actions often act as an accelerated driver for emerging diseases (Mills 2006). These include the amphibian chytrid fungus as well as white-nose syndrome, which are both being spread at rapid rates via human transportation of footwear and live animals (Kolbert 2015, 4-22). Without the globalization of human societies, diseases like the chytrid fungus, responsible for major losses in the nearly 6,000 species of amphibians as one of the world’s most deadly infections, may never have permeated such vast swaths of area (National Park

2016, “Amphibian,” National Park 2016, “Frogs”). Amphibians have existed since the time of the dinosaurs, and have exhibited substantial resilience. However, a disease proliferated by humans appears to be leading to the demise of dozens of different species (Kolbert 2015, 11-13). Likewise, the white-nose syndrome is threatening the extinction of several bat species largely due to the movement of humans (Center 2016, “White”). This is accompanied with the understanding that further biodiversity loss will only increase the transmission of infectious disease in a vicious positive feedback loop, creating an even more significant issue unless quickly addressed (Keesing 2010).

Climate change is perhaps one of the most widely recognized and devastating process in which human-centered actions are contributing to the loss of biodiversity (Bellard et al. 2012). Climate change refers to the idea that, in addition to natural processes, human-driven emissions of greenhouse gases such as carbon dioxide and methane are causing an unprecedented warming of the Earth (National Aeronautics 2016). Humans contribute to this phenomenon through a myriad of ways, but its essence is in the burning of fuels that has allowed modern society to thrive in unparalleled ways. Unfortunately, the expansion of society and technology, powered by ancient sunlight in the form of fuels like coal, oil, and gas, has resulted in negative externalities to the natural environment via dangerous shifts in the Earth’s climate (IPCC 2013). Due to the untold number of ways in which the global climate is anticipated to alter biologic processes, biodiversity is in danger from multiple different avenues originating from climate change. Examples include a forced change in range due to warming temperatures that various species are unable to adapt to, a loss of natural timing for vital processes such as migration and procreation, and an increase in ocean acidity levels that many species are similarly finding themselves unable to adapt within

(National Wildlife 2016, “Global”). Examples of species already in danger due to climate change include polar bears that are unable to adapt to record heat, and ocean coral that engineers a vibrant ecosystem and provides a natural home for hundreds of other species currently dying throughout the world’s oceans because of ocean acidification (Dell’Amore 2014). Climate change is already occurring. While there is the possibility that the severity may be lessened if global emissions are drastically reduced in the near future, biodiversity is already in grave danger, and is expected to further decline without concerted intervention.

Finally, it is important to recognize that each of the aforementioned drivers of biodiversity loss are interconnected in multiple ways. A primary example lies in the concept of co-extinction. This refers to the loss of one species due to the loss of a separate, but interrelated species. For example, certain species of butterflies face significant decline due to the likewise decline of larval host plants (Koh 2004). Although the specific plant species may not be significantly valued by society, the butterfly that is dependent on it, and the subsequent species in the food chain reliant on the butterfly, may be of substantial importance to ecosystem health and productivity. In essence, this means that the loss of one species may not simply be the loss of one species. While one species may be integral in the provision of ecosystem services or resiliency, it may also be vital for the survival of a succession of other species and the health of biodiversity. Further, each of the proximate causes of biodiversity loss interacts with one another. For example, climate change acts as an amplifier to several other issues. Evidence suggests that warmer temperatures are linked to a rise in infectious diseases, which in turn supports further loss of biodiversity (Alitzer 2013). Climate change is predicted to cause a rise in sea level that will continue to encroach upon critical habitats, creating both habitat loss and degradation, and further endangering species

in the process (Center 2013). In addition, invasive species can pervade a habitat to the point of severe degradation, affecting its ability to provide ecosystem services, and even deplete populations of key native species (Charles 2008).

Considering each of the aforementioned ways in which biodiversity loss can be rapidly accelerated by human actions, conservation and protection efforts to halt those devastating consequences have similarly increased in recent years. As a country with a vast and diverse territorial range, the United States encompasses a wealth of biodiversity (Dobson 1997). Regrettably, it has not been immune to anthropogenic biodiversity loss, although recognition of the issue has been expanding across levels and scopes of society and government. However, this is not an issue exclusive only to the United States. Rather, biodiversity loss has pervaded regions throughout the globe, irrespective of borders (Dirzo 2003). Thus, biodiversity is, at its core, a global issue. To most effectively manage a transboundary issue with such widespread and pervasive repercussions, international cooperation is essential. Through interstate negotiations, international standards can be solidified into international law, creating precedent for regulating and protecting the global resource of biodiversity. Further, negotiations can result in coordinated multilateral action in which state actors work together to achieve global objectives. Multilateralism is in contrast to unilateral actions, which can vainly attempt to address inherently transboundary issues with incohesive and uncoordinated national actions (Brunnee 2004).

In the aim of achieving both unanimous consent to global standards, as well as engagement in regulative multilateral actions, all state actors hold a critical role. More specifically, although it should be recognized that a state's perceived power within the international system is often accompanied with greater influence on the text and outcomes of

multilateral agreements, reaching an encompassing level of protection requires the consent of each state actor, regardless of military or economic strength. Notably, the United States has a particularly important function in the success of multilateral efforts because of power operations within multilateral negotiations. In other words, when considering the United States' powerful economic, military, and resource-dependent status in the international system since WWII and the collapse of the Soviet Union, "the ways in which the United States engages with the problem of environmental degradation are crucial for the survival of the planet" (Harris 2001, 68). However, attention to the United States' engagement in multilateral agreements to address biodiversity loss and its associated drivers indicates lackluster participation, and an overall atypical level of restraint to engage in those critical efforts relative to the efforts of other state actors. While there are instances of U.S. engagement in multilateral negotiations and agreements, it consistently exhibits a clear preference for unilateral rather than multilateral action (Ivanova and Etsy 2008). This is especially the case in regards to efforts to address or improve a 'global good,' with the global environment as a key example. In general, the United States tends to prioritize security interests and traditional economic concerns when engaging in multilateral efforts, and tends to distance itself from any agreements that require a concession of sovereignty for the betterment of nontraditional policy concerns (Schreurs 2012). Environmental policy concerns, and subsequent agreements to address global degradation, are an example of nontraditional policy concerns that are increasingly gaining global awareness and concern. When further accounting for the United States' general awareness and concern for biodiversity loss domestically through unilateral measures to regulate and protect national biological resources, the United States' pointed departure from leadership and participation

in international environmental efforts is an unorthodox trend when compared to other states actors (Brunnee 2004). When further considering anticipated power shifts within the international system, the United States' current strategy of participation posits a myriad of potential negative consequences using liberal and constructivist paradigms of international relations. While other state actors continue to address global biodiversity loss through multilateral agreements, establishing shared values and a history of cooperation, the United States is voluntarily excluding itself from those negotiations and efforts. In the long-term, the current engagement strategy of the United States is likely to manifest into obstacles to achieving its future foreign policy goals.

Thus, this paper seeks to explore the current trend of United States participation in multilateral efforts on biodiversity, as well as the implications of its actions. In general, the United States' lack of engagement in global environmental efforts is likely to negatively affect its ability to achieve future foreign policy goals, suggesting a strong motivation for the United States to assess and alter its current engagement strategy in biodiversity agreements. This paper first presents international efforts to address biodiversity loss and its associated drivers before evaluating the United States' engagement, or lack thereof, with the respective agreements. This provides an essential background for understanding the United States' recent trend of restraint and nonengagement in important multilateral efforts. Next, the scope of the paper broadens to include the United States' domestic efforts to address biodiversity loss. Upon a general finding that the U.S. recognizes the seriousness of biodiversity loss, and has taken measures to ensure national protection of its resources, disbelief of scientific consensus as an explanation for the U.S.'s inactive participation in multilateral efforts is thus inadequate. Rather, the lack of United States engagement suggests a connection to the nature

of global efforts to address biodiversity loss: through legally binding multilateral agreements with regulations on economically valued resources and a concession of some level of sovereignty for the global good.

For that reason, the agreements discussed in the paper are each legally-binding and either express a specific focus on biodiversity loss through an attention to endangered species or biodiversity specifically, or address one of the main drivers: habitat loss or degradation, climate change, excessive nutrient load and other forms of pollution, over-exploitation and unsustainable use, and invasive alien species. The aforementioned drivers are designated as the most influential accelerants of biodiversity by the Global Biodiversity Outlook 3 by the Convention on Biological Diversity (Convention 2010). Further, the international texts and agreements are evaluated using the “Auditing Biodiversity: Guidance for Supreme Audit Institutions” general method, with a focus on compliance with agreements, laws, policies, and performance measurement and results (International Organization 2007). In the interest of reviewing the most significant international treaties, only treaties with 154 member parties or greater (80% of total United Nations member states) are actively evaluated (United Nations 2016). To compare the United States’ ratification record with that of other states, percentages of ratification by human development index rankings of ‘very high,’ ‘high,’ ‘medium,’ and ‘low’ are utilized. The Human Development Index ranks states based on life expectancy, education, and gross national income by capita, thus establishing a relative index for levels of affluence (United Nations Development 2016). Considering the most industrialized and affluent states have disproportionate impact on the environment, recognized through the design of agreements that place the responsibility on the most industrialized states, like the Kyoto Protocol, this distinction can help distinguish ratification

levels. As the United States is ranked eighth in the ‘very high’ human development category for 2014 data, other ‘very high’ states are the most easily comparable. However, it is important to recognize the ratification of other state actors, regardless of human development ranking for global consensus and effective agreements, and thus all other categories are included for participation analysis. Through this, the United States’ relatively poor record of participation in international agreements is highlighted. Participation is evaluated by determining the United States’ ratification status as a party to the respective convention or agreement, and its subsequent actions to meet the standards of the agreement. As participation in multilateral efforts may contribute to future efforts to meet foreign policy goals, this paper includes an analysis of actions through both a liberal and constructivist paradigm. Through these two theories of international relations, the United States’ clear preference for unilateral action warrants reconsideration of current engagement in global efforts in the interest of achieving future foreign policy goals. Finally, this paper concludes with potential motivations for the U.S. to engage in more active participation in multilateral agreements on biodiversity loss.

II. International efforts to address biodiversity loss

“Biodiversity is a cornerstone of developed and developing economies. Without healthy concentrations of biodiversity, livelihoods, ecosystem services, natural habitats, and food security can be severely compromised.”
—Secretariat for the Convention on Biological Diversity²

“The Earth’s biological resources are vital to humanity’s economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations. At the same time, the threat to species and ecosystems has never been so great as it is today. Species extinction caused by human activities continues at an alarming rate.”—Convention on Biological Diversity³

Biodiversity loss is a global issue. Although it is more prevalent in some regions relative to others, the loss of biodiversity due to human activities has no regard for arbitrary boundaries of countries or developmental status. Rather, biodiversity loss is propelled by fundamentally global phenomena, such as transboundary climate change, degradation of habitats, and overexploitation. Scientific analysis continues to show compromised biospheres, and subsequent biodiversity loss throughout the globe (Newbold et al. 2016). Although it continues at unparalleled rates, the global community has recognized biodiversity loss, and continues to evaluate its progression while simultaneously attempting to stymie its advancement. Thus, there are several essential agreements on biodiversity loss that work to regulate and protect vital resources. In this paper, the Ramsar Convention, the Convention on

²Secretariat of the Convention on Biological Diversity. 2014. *Global Biodiversity Outlook 4*. Montreal, Canada. Pg. 7.

³Convention on Biological Diversity. 2016. “History of the Convention.” Accessed September 1, <https://www.cbd.int/history/>.

International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Convention for the Prevention of Pollution from Ships (MARPOL), the United Nations Convention on the Law of the Sea (UNCLOS), the Convention on Biological Diversity (CBD), the Kyoto Protocol, the United Nations Convention to Combat Desertification (UNCCD), and the Stockholm Convention on Persistent Organic Pollutants (SCPOP) are evaluated. For an overview of the purpose and year each respective agreement was opened for state signature, see Table 1. This section presents the general state of global biodiversity, international actors addressing biodiversity, and the subsequent biodiversity agreements established in chronological order of adoption year to establish a background on international recognition, and subsequent efforts to address, global biodiversity loss.

Table 1. Overview of Treaties on Biodiversity Loss or Associated Drivers

Treaty	Substance	Year Adopted
Ramsar Convention	Recognizes the importance of wetlands for ecosystem services, and aims to prevent their further degradation through conservation and sustainable use of designated sites	1971
CITES	Regulates international trade of plant and animal specimens through management and scientific assessment to prevent their endangerment or extinction	1973
MARPOL	Aims to prevent the pollution of the marine environment from both operational and accidental operations of shipping through regulation of vessels	1973
UNCLOS	Acknowledges the overexploitation of the marine environment, and establishes regulations to ensure the sustainable use of the ocean and its resources	1982
CBD	Recognizes humans as a global threat to biodiversity, and aims to establish a legal instrument for the sustainable use and conservation of biological diversity	1992
Kyoto Protocol	Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) that establishes an enforcement measure in the aim of reducing greenhouse gas emissions	1997

UNCCD	Aims to prevent and reverse desertification through national programs supported by international cooperation	1994
SCPOP	Acknowledges the negative consequences of persistent organic pollutants (POPs), and provides for the elimination of known POPs and the identification and elimination of other POPs	2001

The International Union for the Conservation of Nature has continually compiled a list of the state of threatened species across the globe for the past fifty years. Known as the Red List of Threatened Species, it is “widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species” (International Union 2016, “About”). This list provides an assessment of the relatively understudied topic and quantification of biodiversity loss. Although the Red List currently recognizes 23,892 of 82,845 evaluated species as threatened, the estimated total number of species, many of which have not yet been discovered, is between 3 and 100 million (May 2010). While scientists have reached a general consensus that “humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history” that “has resulted in a substantial and largely irreversible loss in the diversity of life on Earth,” it has been a generally under-researched and complex issue to understand (Millenium 2005). Thus, there is the possibility that species loss is occurring at even faster rates than currently believed, and that valuable and critical species not yet discovered are already being lost. To develop more certainty on the issue, several other organizations are working to quantify levels of biodiversity loss and ecosystem changes. Several key examples include the Millennium Assessment by the World Resources Institute, the Global Biodiversity Outlook for the Convention on Biological Diversity, and the Global

Environmental Outlook by the United Nations Environment Program (Millennium 2005, Secretariat of the Convention 2014, United Nations Environment 2016).

Following the global recognition of biodiversity loss and understanding that it would only accelerate without intervention, leaders began to have meetings for state cooperation in the interest of protecting the environment. Although there have been other actors addressing irreparable biodiversity loss, such as significant international NGOs including the World Wildlife Fund and Conservation International, cooperation among governmental actors is integral to widespread solutions with longevity and enforceability (Collins 2013). The United Nations serves as a key intergovernmental actor for that purpose. As arguably the foremost intergovernmental institution, the United Nations has recognized environmental issues since its inception with the establishment of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1945. This body then assisted in the establishment of the International Union for the Conservation of Nature (IUCN) in 1948. Since its conception, the IUCN has combined both government and civil society actors for the betterment of “human progress, economic development, and nature conservation” with a direct focus and dedication to “species survival, environmental law, protected areas, social and economic policy, ecosystem management, and education and development” (International Union 2016, “Overview”).

The United Nations further advocated for the health of the global environment through the creation of the United Nations Environment Program in 1972. This body has been responsible for a significant and invaluable contribution to the betterment of the environment, promoting scientific assessment and multilateral action across a broad range of issues. Further, advocating for the spectrum of betterment for environmental issues, including

climate change, ecosystem management, resource efficiency, and chemicals and waste, the work of the UNEP is important for a systems thinking approach, recognizing the effects that each factor has on other factors and the system as a whole (Sterling et al. 2010). Notably, the UNEP has also recognized biodiversity loss explicitly, frequently publishing and updating several reports on biodiversity trends, and promoting the goals presented in prominent international agreements (United Nations Environment 2014). Most important, the UNEP acts as an intermediate between state governments. Without the initial catalysts this robust body creates and its promotion of multilateral action, arguably many initiatives, conventions, and agreements concerning biodiversity loss may not have been possible (Desai 2006).

Although it is often a drawn-out process, establishing international environmental agreements is frequently the most effective stand-alone method for organizing international standards and commitments to an issue. While the process of creating and implementing international agreements is complex, it can be understood in several critical steps. For instance, the process of creating agreements begins with the global recognition of an issue that would benefit from international action, like biodiversity loss. Often, the issue is raised before a body of international representatives, such as a United Nations conference, and an instrument for addressing the issue is explicitly requested. Next, a text is drafted which outlines the issue and subsequent measures states should, or must, take to address the respective issue. This stage is often lengthy, including time for studies to be carried out or analyzed, the provisions included in the document to be delineated, and language to be made precise and clear. Upon the preparation of an initial draft, states involved in the agreement negotiate the terms of the text, with the intention of reaching a point in which states will concede to the agreement while maintaining effective solutions. Finally, if a level of satisfice

is reached, the text is then opened for signature. By signing an agreement, a state expresses the intention to comply. However, this does not mean the state is bound to the terms of the agreement. Rather, the state must be granted approval under its respective national procedures before it formally ratifies the agreement, and becomes bound to its terms. In the United States, the Senate holds the responsibility of ratification of international treaties. Agreements typically require a certain number of states to ratify an agreement before it “enters into force,” and becomes part of international governance. Once a state has ratified an agreement, it becomes a party member to that particular text and officially enters into internationally cooperative efforts to address a given issue.

Often, international agreements are voluntary, being without compliance measures. This implies that states can choose to engage in or disregard environmental protection at their own discretion. While there are certainly attributes to voluntary agreements, they ultimately lack critical enforceability to ensure long-lasting solutions. In contrast, treaties are a form of international agreements that are legally binding, having some enforcement instrument to ensure states comply with obligations to the agreement. Legally binding treaties compose international law to which states are compelled to abide to, and thus are the focus of this paper. Although these are certainly the most effective forms of international agreements, they require extensive international cooperation to achieve a meaningful number of ratifying parties. This occurs both in the creation of the text, the commitment of states to enter into binding terms and pursue national ratification, and the creation of institutions for monitoring and enforcement measures. That aside, treaties are arguably an essential component for the protection of the Earth’s biodiversity. However, as stated by one of the most directly-related

agreements on biodiversity loss, the Convention on Biological Diversity, “success depends on the combined efforts of the world’s nations” (Secretariat of the Convention 2000).

Precedence for international conventions on conservation efforts was established with the Convention on Wetlands of International Importance, also referred to as the Ramsar Convention. In the 1960s, the global community began to note the productivity and diverse nature of wetlands present across the globe. However, they simultaneously recognized that wetlands were rapidly being “degraded and converted to other uses.” Thus, the Contracting Parties of the Ramsar Convention agreed to commit to: “work towards the wise use of all their wetlands, designate suitable wetlands for the... (‘Ramsar List’) and to ensure their effective management, and to cooperate internationally on transboundary wetlands, shared wetland systems, and shared species” (Ramsar Convention 2014, “Ramsar”). The Ramsar Convention was signed in 1971, and entered into force in 1975. Today, there are 162 parties committed to this effort. Although the major success of the Convention is in its concerted effort to preserve vital wetlands, ecosystems diverse with biodiversity and essential for the function of many ecosystem services, it is also important to recognize the precedence for international cooperation concerning an environmental issue set forth in the text. As stated by the Secretariat of the Ramsar Convention, “By setting international standards for wetland conservation and providing a forum for discussing global wetland issues, the Convention enables Contracting Parties to share information on wetlands and address issues together” (Ramsar Convention 2014, “International”). Overall, the Ramsar Convention is considered a success. Although it recognizes that the disappearance of wetlands is still a pressing issue, analysis shows that more wetlands would have been lost without the Convention than have been with it (Ramsar Convention 2014, “Wetlands,” United Nations Environment 2009).

Further, once established, this precedent could then be extrapolated, as a framework for international cooperation for the full spectrum of environmental issues, namely the loss of biodiversity and its contributing factors.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora is the first example of a significant multilateral effort to protect species. When the concept of a treaty specifically for the conservation of species was raised, it was relatively novel. However, upon further investigation of the issue, the complexity of the drivers of biodiversity loss combined with the cross-border trade between countries made it apparent that international cooperation would be necessary to preserve internationally valued natural resources. The text and agreement on the document represents years of discussion between respective state leaders. Negotiations began in 1963 after a meeting between members of the IUCN. After careful discussion and construction of a workable compromise, the text was agreed upon by the representatives of 80 countries in 1973, and entered into force in 1975 (Convention on International 2016, “What”). Since, CITES has become one of the most entered-into legally binding treaties on the topic, today having 182 party members. The core purpose of CITES is to ensure “Trade in specimens of these [threatened] species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances” (Convention 1973). Although there are certainly some flaws in the design and operation of the text, the drafters of CITES deserve considerable credit for being among the first of their kind to make a formal provision for a regulatory program on species trade. That aside, several issues have been difficult to overcome that have hindered the effectiveness of the document. These include: the variation in domestic application and enforcement of legislation to conform to the Convention; the

scope being limited to international trade without consideration of domestic occurrences; illegal trade which is relatively infeasible to report under the CITES database, and the understanding that not all countries are party to the Convention, and thus can engage freely in operations to the further detriment of threatened species (International Union 2000). Currently, there are about 5,600 species of animals and 30,000 species of plants recognized by CITES (Convention on International 2016, *Appendices*).

Oceans cover 70% of the planet, and house a “tremendous wealth of biodiversity and ecosystem services” within their depths (Convention on Biological 2010, *Marine*). Globalization and human development has not neglected to adversely affect marine environments its development pursuit, leaving oceans in need of the same attention to protection and preservation as land environments. The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) is thus an important multilateral environmental agreement for previously underrepresented ecosystems. As the “main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes,” it is integral in the protection of marine biodiversity from harmful pollutants (International Maritime 2016, *International*). Prior to the 1973 Convention, wastes like chemicals, plastics, and oils were discharged freely from thousands of ships. Shipping standards and discharge holding requirements were thus formally declared by the Convention, and are still predominantly what protects the bulk of the international waters from harmful substances. Today, it is understood that pollutants are a main driver of biodiversity loss, both degrading habitats as well as potentially killing marine life in direct contact with certain pollutants like plastic debris (California 2016). In 1978, several tanker accidents prompted a protocol to the original Convention text, both of which entered into

force that same year. Today, the Convention has 157 party members. Although standard compliance and worldwide enforcement has proved difficult at times, and accidental spills do still occur, several novel concepts introduced by the Convention have helped to prevent a significant amount of pollution that would have otherwise continued. These include double hull and bottom requirements for oil tankers that have proved less likely to accidentally discharge oil (Nauke 1992). Thus, the Convention has overall been deemed a success, having “been instrumental in the continuous decline of accidental oil pollution that has taken place over the last 30 years,” in addition to operational pollution (International Maritime 2016, “Marpol”).

The United Nations Convention on the Law of the Sea (UNCLOS) similarly works to protect the invaluable biological resources in oceans. As a wealth of resources coveted across the globe, including minerals, oil, and fish, oceans were being exploited at unparalleled rates, causing disputes among countries and catalyzing a realization that regulations of the ocean’s resources was necessary. Thus, the United Nations hosted the Conference on the Law of the Sea in 1973, with the intention of writing a comprehensive treaty for the protection of the resources beneath the water. The provisions in the treaty are extensive: “In short, the Convention is an unprecedented attempt by the international community to regulate all aspects of the resources of the sea and uses of the ocean, and thus bring a stable order to mankind’s very source of life” (Division 1998). UNCLOS was signed in 1982, and entered into force in 1994. Today, UNCLOS has 168 member parties (Division 2016). Unfortunately, UNCLOS has persistently been criticized for its ineffectiveness. Criticisms include a lack of compliance and subsequent enforcement of provisions and a lack of governance, meaning that the sheer expanse of the seas has left them largely unprotected despite the agreement

(Churchill 2012, Nathan 2016). Further, there are still concerns that “the health of the world’s oceans is in serious decline,” and that its precious resources continue to be exploited in pursuit of financial gain (Sobel et al. 2007).

Arguably, the most important international agreement for the protection of biodiversity specifically is the Convention on Biological Diversity (CBD). Following the publication of the World Commission on Environment and Development’s “Our Common Future,” it was determined that the global community must take efforts to “become less ecologically destructive.” Thus, the UNEP convened a group of experts to “explore the need for an international convention on biological diversity” in 1988 (Secretariat of the Convention 2000). Quickly, the group determined the necessity for international action to protect global biodiversity, and drafted the pivotal Biodiversity Convention text. It was presented at the historic “Earth Summit” in Rio de Janeiro to the “largest-ever” meeting on the international environment, entering into history as one of the three agreements intended to usher in a new philosophy of development and sustainable use. As a relatively novel undertaking,

“it stands as a landmark in international law. It recognizes—for the first time—that conservation of biological diversity is a ‘common concern of humankind’... past conservation efforts were aimed at protecting particular species and habitats, the Convention recognizes that ecosystems, species and genes must be used for the benefit of humans. However, this should be done in a way and at a rate that does not lead to the long-term decline of biological diversity” (Secretariat of the Convention 2000).

The main objectives of the CBD are the conservation of biological diversity, the sustainable use of the components of biological diversity, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. However, there are a broad scope of other important treaty commitments; these include establishing protected areas, rehabilitating degraded ecosystems, aiding in the recovery of threatened species, preventing and managing invasive species, and reporting on how respective countries are meeting the biodiversity goals. The CBD was formally signed in 1992, and entered into force in 1993. Today, the Convention has 196 member parties; this includes all United Nations member states, with the exception of the United States (Convention on Biological 2016, “List of Parties”).

Further, the CBD has two significant protocols, the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and the Fair and equitable Sharing of Benefits Arising from their Utilization, which have provided substantial protection for biodiversity in their own right. The Cartagena Protocol addresses “the potential risks posed by living modified organisms resulting from modern biotechnology,” following the spirit of the precautionary principle (Convention on Biological 2016, “Protocol” Convention on Biological 2000). This is significant in its trigger of a risk adverse management style that aims to preemptively regulate a potential issue or entity, specifically biotechnology advances, even before a proven issue has been created. Prior to the Rio Conference, environmental agreements had been reactive rather than proactive in managing environmental issues. Considering the nature of environmental issues, responding before costly degradation occurs is particularly important, and reaffirming the precedence created by the CBD has helped solidify that critical aspect of international environmental policy (Cooney 2004). The

Protocol was adopted in 2000, and entered into force in 2003. The Nagoya Protocol supplements the CBD through a framework for implementation of the “fair and equitable sharing of benefits arising out of the utilization of genetic resources” objective, ensuring benefit-sharing in instances when genetic resources become transboundary and standard conditions for subsequent access to those genetic resources (Convention on Biological 2010, *Nagoya*). Thus, the Protocol “creates incentives to conserve and sustainably use genetic resources and therefore enhances the contribution of biodiversity to development and well-being” (Convention on Biological 2016, “Nagoya”). The Nagoya Protocol was adopted in 2010, and entered into force in 2014. The Cartagena and Nagoya Protocols have 170 and 78 member parties, respectively (Convention on Biological 2016, “List”).

Although the CBD remains the foremost global attempt to reduce the loss of biodiversity, it has many critics, and has continually failed to meet its respective targets. Regrettably, the basis and continued relevance of the agreement originates from the understanding that “we continue to lose biodiversity at an unprecedented rate” (Convention 2016). Thus, the need for wholehearted commitment to targets in the CBD is essential to a future with healthy biodiversity and its invaluable ecosystem services. Unfortunately, many of the issues noted with the CBD is a lack of formal obligations because states simply are unwilling to accept them (Tollefson and Gilbert 2012). Undoubtedly, the drivers of biodiversity loss, including habitat loss and climate change, stem from activities that are otherwise economically beneficial to society. Those activities allow for industrialization, increased agricultural output, and overall more affluent societies. Thus, accepting compliance obligations that infringe on the sovereignty of actions within one’s one borders, albeit activities that harm biological resources, results in hesitance to voluntarily concede some

amount of economic power today for the protection of biodiversity in the future. However, there are also a myriad of other issues with the agreement that are likely to hinder its effectiveness into the future. These include a lack of national observational infrastructure to detect changes in the health of biodiversity, thus relying heavily on outside sources such as the IUCN's Red List for data on both local and global biodiversity. Further, the Convention has an overall lack of funding, which starkly cripples the CBD's ability to progress (Tollefson and Gilbert 2012). Although new objectives have been created, the 2020 Aichi Targets, it is becoming increasingly doubtful they will be met as the deadline looms closer as many participants belie pointed efforts to achieve the objectives (Vaughan 2014). That aside, the CBD continues to be a sign of hope for many, as the first concerted attempt to lessen the human impacts on crucial biodiversity.

In 1992, the United Nations Framework Convention for Climate Change (UNFCCC) was signed, becoming one of the three conventions presented at the Rio Conference. For the first time, climate change was enshrined as a globally salient issue. Having “near-universal membership” of 197 member parties today, the UNFCCC signified the understanding that human actions will continue to cause irreparable deterioration of the planet's environment without a stabilization of greenhouse gas (GHG) concentrations in the atmosphere (United Nations 1992). While this was a pivotal step in the recognition of climate change, it unfortunately did not contain legally binding emissions targets, and the concentration of GHGs continued to increase. Thus, the Kyoto Protocol was adopted as an enforcement measure in 1997, armed with internationally binding emission reduction targets. These targets were decided under the “common but differentiated responsibilities” principle, motivated by the understanding that “developed countries are principally responsible for the

current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity,” and should accept more significant responsibility for lowering emissions (United Nations Framework 2016, “Kyoto”). The Kyoto Protocol entered into force in 2005, and currently has 192 member parties. Unfortunately, the Kyoto Protocol has been plagued by a number of issues, and was unable to meet emissions reductions targets in its first commitment period (2008-2012) (Schiermeier 2012). Thus, a second commitment period began in 2012 under the Doha Amendment (United Nations Framework 2012). Once again, the Protocol proved disappointing as more states chose not to agree to commitments, and it appears the targets will fail to be met once again as the end of the commitment period in 2020 draws near. Issues include an explicit attempt to burden more industrialized states with reducing emissions and aid less industrialized states with development aid while less industrialized states had little to no formal emissions obligations. However, as those less industrialized states did accelerate in emissions, the document remained static, aiding in the growth of global emissions. In addition, several top emitters, like Canada and the United States, excused themselves from the agreement and continued to emit unabated. Without the regulation of some of the most industrialized states with a disproportional share of global emissions, the agreement is unable to achieve an ideal scenario, and is likely to continually fail objectives until the major economic majors agree to lower emissions as well (Tollefson and Gilbert 2012). The Doha Amendment has not yet entered into force, having the acceptance of only 66 states of the required 144 (United Nations Framework 2016, “Doha”). Although it is accepted that climate change is a major driver of biodiversity loss, there is currently a lack of international cooperation for climate change action. However, scientific consensus on climate change is undeniable, and hope for international cooperation still exists,

largely in the Paris Agreement (United Nations Framework 2015). On November 4, 2016, this agreement reached the prerequisite number of countries to formally enter into force, with at least 55 parties representing 55% of global GHG emissions having signed the 2015 text (United Nations Framework 2016, “Paris”).

The final convention originating from the Rio Conference is the United Nations Convention to Combat Desertification (UNCCD). Desertification refers to the process whereby land that was once arable becomes desert. Ultimately, it is one of the most severe forms of habitat degradation. Areas experiencing desertification also tend to be some of the most vulnerable ecosystems, and loss of essential biodiversity and ecosystem services can affect significant areas of land in over one hundred countries, as well as nearly one billion lives (Secretariat of the United). Although the issue of desertification had been internationally recognized previously at the United Nations Conference on Desertification in 1977, prior to the Rio Conference it was declared that the issue had only intensified. Thus, the text of the UNCCD was directly recommended at the Rio Conference as part of the Agenda 21. It was signed in 1994, entered into force in 1996, and today has near-universal membership at 195 member parties. While it should be recognized that the UNCCD has managed to create mechanisms and institutions to tackle a complex issue, the United Nations does recognize the challenges and constraints to meeting the goals. These include: high poverty levels in areas most vulnerable to desertification, climate variability, weak institutional capacity and enforcement of policies, and inadequate funding for the programs (Bassett and Talafre 2003, Economic 2007).

Following the historic Rio Conference and its associated agreements, international recognition of environmental issues continued to grow, and scientific assessments of

environmental health were likewise more frequent. Thus, discussion and subsequent agreements have become more recurrent in recent years. The Stockholm Convention on Persistent Organic Pollutants (SCPOP) is an example of this. Persistent organic pollutants (POPs), materials that resist typical degradation and “remain intact in the environment for long periods,” were recognized by the UNEP as a significant threat to both human health and the environment in 1995. These substances become “widely distributed geographically...[and] no one government acting alone can protect its citizens or its environment” from the effects of accumulation of POPs.” Effects associated with POPs are some of the most severe consequences associated with pollutants. These include: cancers, birth defects, dysfunctional immune and reproductive systems, and damaged nervous systems (Stockholm 2016). After further scientific assessment of POPs, twelve were included in the draft of the Convention, with the objective of protecting human health and the environment from harmful effects through the prohibition and elimination of certain POPs and the restriction of others. The POP was signed in 2001, and entered into force in 2004. Today, there are 180 member parties. Overall, the SCPOP has been deemed a success. Since its original draft, several more POPs have been added and regulated as science and knowledge on the issue progresses. However, there are recognized discrepancies of effectiveness and participation across the spectrum of countries to the Convention. Thus, the Convention notes persistence as a key factor to success moving forward (Secretariat of the Stockholm 2012).

Each of the aforementioned international conventions and agreements are undeniably integral to the foundation of international cooperation, multilateral strategies for action, and the protection of the environment and its biodiversity. As such, the agreements discussed comprise the basis for analyzing state participation in international biodiversity agreements.

That aside, it is important to recognize that there are a multitude of other environmental agreements that also touch on environmental protection and preservation that are important for the betterment of biodiversity. For more information on such agreements that are notable , but do not currently meet the aforementioned requirements to be discussed in this paper, see Appendix, Table 3.

III. U.S. participation in international agreements on biodiversity loss

“The State Department, along with other agencies, is working to protect biological diversity, particularly through negotiations, agreements, and initiatives to conserve forests, wetlands, and coral reefs—ecosystems all rich in biological diversity and critical for sustaining human life.”—The U.S. Department of State⁴

“Yet, America’s unwillingness to embrace a flawed treaty should not be read by our friends and allies as any abdication of responsibility. To the contrary, my administration is committed to a leadership role on the issue of climate change.”—President George W. Bush⁵

The United States, from the “shot heard around the world” that signaled its independence and entry into the international community as a sovereign power, has maintained a role as a major player in international relations unrivaled by most due to its robust size and power. While its foreign policy on many issue topics has varied throughout the decades, it has typically maintained a leadership capacity in international negotiations. However, that has not often been the case for environmental issues. Although “Americans have come to realize that adverse environmental changes beyond their borders can threaten environmental protection efforts at home or even dwarf domestic environmental problems in their proportions and consequences,” the United States has recently restrained from engaging in an active role on global environmental issues (Harris 2001, 3). Rather, the United States’ participation in environmental agreements has become an “elephant in the room,” as one of

⁴ The U.S. Department of State. 2001. “Environmental Diplomacy.” Accessed September 8, <http://www.state.gov/www/global/oes/earth.html#gore>.

⁵ The U.S. Department of State. 2001. “Remarks by President Bush on Global Climate Change.” Accessed September 8, <http://2001-2009.state.gov/g/oes/rls/rm/4149.htm>.

the largest states to repeatedly refrain from, or even abandon, international environmental agreements (Brunnee 2004). Thus, this section provides an assessment of the United States' participation via ratification status and subsequent compliance measures in regards to the aforementioned biodiversity agreements in chronological order of adoption year. The ratification trend of the United States is compared to other states via states by categories under human development rankings. Overall, the United States exhibits a lack of participation in agreement relative to that of other states, especially in regards to other 'very high' human development states.

The Ramsar Convention is the first significant example of restrained participation by the United States in binding environmental agreements. Although the United States did sign and ratify the agreement, it did not complete the domestic ratification process until 1986, eleven years after the Ramsar Convention met the minimum number of ratifications to enter into force. Notably, the United States ratified around the same general time as other states with 'very high' human development status, indicating that the slow start was not unique to the United States. In fact, the most developed states were the leaders in average year of individual ratification, having an average year of entry into force eight years before states with high human development status, and ten before states with medium or low human development status. The relative speed of the U.S.'s ratification process occurred during the Reagan administration. Notably, this administration benefitted from the recent creation of agencies and infrastructure supported by a powerful domestic environmental movement and responsive administrations that allowed for relative ease and little drastic change to meet compliance standards. However, it is important to note that the United States nonetheless ratified after the states of Canada, the United Kingdom, Germany, France, and Italy (Ramsar

Convention 2016, “Country”). Table 2 displays the breakdown of percentage of successful individual state ratification of discussed agreements and subsequent average year of individual entry into force by states in categories of human development levels as designated by the Human Development Index. Regardless of time to ratification, the State Department states that it still “actively supports the Ramsar Convention,” and this is largely true (U.S. 2001). Domestically, the United States Environmental Protection Agency (EPA) operates the Wetlands Protection and Restoration program to ensure compliance with the Ramsar Convention. This program monitors and assesses the health of wetlands, attempts to restore degraded wetlands, and provides funding for the better the capacity of local actors to “increase the quantity and quality of wetlands in the U.S.” (Environmental 2016, “Wetlands”). Further, while the United States does host thirty-eight sites designated as “Wetlands of International Importance (Ramsar Sites),” it should be noted that wetlands in the U.S. are still under threat. Although there have been periods of success to restore the nearly 50% of lost wetlands in the continental U.S., many areas have continued to experience decline (Ramsar Convention 2016, “United,” Dahl 2011). Further, considering the sheer size of the United States, it is reasonable to assume it would have at least as many, if not more, protected wetland areas than territorially smaller developed states. However, this is not necessarily the case. For example, France has forty-four, Italy has fifty-two, and the United Kingdom has 170 sites.

Table 2. Ratification and Average Year of Entry into Force of Biodiversity-Biodiversity Driver Agreements

HUMAN DEVELOPMENT CATEGORY	TREATY			U.S. TREATY STATUS
	<u>RAMSAR CONVENTION</u>			
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>RATIFIED</u> 1986
VERY HIGH	44	90%	1987	
HIGH	50	89%	1995	
MEDIUM	34	87%	1997	
LOW	37	84%	1997	
	<u>CITES</u>			
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>RATIFIED</u> 1975
VERY HIGH	47	96%	1987	
HIGH	55	98%	1991	
MEDIUM	34	87%	1989	
LOW	42	95%	1987	
	<u>MARPOL</u>			
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>RATIFIED</u> 1983
VERY HIGH	45	92%	1990	
HIGH	49	88%	1995	
MEDIUM	27	71%	1997	
LOW	22	50%	1998	
	<u>UNCLOS</u>			
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>SIGNED</u> 1994

VERY HIGH	43	88%	1997	
HIGH	49	88%	1995	
MEDIUM	31	79%	1995	
LOW	37	84%	1994	
CBD				
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>SIGNED</u> 1993
VERY HIGH	47	96%	1996	
HIGH	56	100%	1995	
MEDIUM	39	100%	1996	
LOW	44	100%	1996	
KYOTO PROTOCOL				
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>SIGNED</u> 1998
VERY HIGH	46	94%	2005	
HIGH	56	100%	2005	
MEDIUM	38	97%	2006	
LOW	43	98%	2006	
UNCCD				
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>RATIFIED</u> 2000
VERY HIGH	47	96%	1999	
HIGH	55	98%	1998	
MEDIUM	36	92%	1998	
LOW	44	100%	1997	
SCPOP				
	NUMBER OF STATE RATIFICATION BY HUMAN DEVELOPMENT	PERCENTAGE OF STATE RATIFICATION BY HUMAN DEVELOPMENT	AVERAGE YEAR OF INDIVIDUAL STATE ENTRY INTO FORCE	<u>SIGNED</u> 2001
VERY HIGH	42	86%	2005	

HIGH	54	96%	2006	
MEDIUM	33	85%	2006	
LOW	42	95%	2006	

Sources: Human Development Index Ranking 2015, Ratification data from Ramsar Convention, CITES, MARPOL, UNCLOS, CBD, Kyoto Protocol, UNCCD, SCPOP

Although the United States has a consistent record of lackluster participation in many international environmental agreements, CITES acts as a prime example of active U.S. participation and commitment to outcomes of multilateral negotiations. The United States was among the first to sign and ratify the agreement, alongside 96% of states with ‘very high’ human development status (Convention on International 2016, “List”). Per the provisions in CITES, each state must create a Management and Scientific Authority to ensure legal trade and determine when trade of a species would become detrimental. This is largely handled by the Fish and Wildlife Service in the U.S, albeit with some assistance from other agencies, and it continues to pursue active enforcement of CITES through frequent implementation reports and action transparency (Fish 2015). Further, the United States passed the Endangered Species Act (ESA) to coincide with its engagement in CITES. Although the United States actively encouraged, participated in, and worked to enforce CITES, this is a relative anomaly in its overall performance in international environmental agreements. However, one should recognize that the ratification of CITES and the environmental movement in the United States occurred around the same time, coinciding under the Nixon Administration. Similar to other ratifications surrounding the time of the environmental movement, the popular support for environmental regulation and protection was a clear indicator to the Senate that ratification would be approved by the general constituency. Thus, CITES negotiations and Congress’s ratification were endorsed by an enthusiastic and supportive populous. It is then reasonable to believe that state leaders

choosing to participate in CITES and bolster it with the ESA expected their decisions to be popular and well received, as were the majority of environmental protection laws established and implemented at the time. That aside, it is clear from the general success of CITES and the United States' active engagement with the agreement that the eager participation of the United States can be a significant contributor to the betterment of the state of the global environment and the health of its biodiversity.

The United States ratified the 1978 version of MARPOL in 1983, alongside many other party members, but prior to the average year of entry into force of all party members. Once again, this ratification occurred under the Reagan administration when awareness of environmental issues experienced heightened relevance in the United States. To meet compliance for the MARPOL annexes the United States is party to, the U.S. created the Act to Prevent Pollution from Ships (APPS) the same year of MARPOL ratification. Much of the enforcement is designated to the United States Coast Guard (USCG), although the Environmental Protection Agency (EPA) also has involvement with regulation processes (United States 2016, Environmental 2016, "Marpol"). While the U.S. has ratified the majority of annexes, I/II, III, V, and VI, it has notably not ratified Annex IV, which pertains to sewage discharge. However, the USCG states that it "has equivalent regulations for the treatment and discharge standards of shipboard sewage—the Federal Water Pollution Control Act, amended by the Clean Water Act and implemented by 33 USC 1251 and 33 CFR 159 (United States 2016). Although there may be other provisions within the United States that currently meet the requirements of Annex IV, it is notable that the United States persistently resists ratification of all but one annex. Thus, while the United States does participate in

international governance through MARPOL, it nonetheless exercises a level restraint and a refusal participate fully.

Although the United States was involved in negotiations concerning UNCLOS, it has signed, but continuously failed to ratify it. Unlike decisions not to ratify a MARPOL annex due to a redundancy of environmental protection policy, there has been active and contentious debate and opposition from members of Congress concerning the ratification of UNCLOS, and it continues fervently today (Patrick 2012). Although President Clinton signed the document in 1994, he was met with a skeptical and unwilling Senate. Although there are a myriad of reasons why senators continue to block ratification, the dominant argument focuses on a loss of sovereignty in the seas for the United States, largely in the right to “accessibility to an abundant supply of oil and natural gas reserves” within its territory (Kelly 2012, Sobel et al. 2007). As with other nearly universally ratified agreements, the United States’ credibility in international maritime disputes has been called into question due to its lack of participation in UNCLOS, and is creating further tension to finally ratify the Convention (McDevitt 2015). 88% of countries with ‘very high’ and ‘high’ human development status have an average year of entry into force of around 1995, with nearly twenty years of cooperation and multilateral efforts to ensure environmental protection that the United States is voluntarily excluded from participation within.

As perhaps the most comprehensive and pertinent international convention on the global integrity of biodiversity, active participation from all countries is important for the effectiveness of the Convention on Biological Diversity. Although the United States was once praised for its enthusiastic response to CITES, the decline in domestic relevance of environmental protection coupled with the loss in momentum of the environmental

movement created a political context that was far less willing to engage in multilateral environmental agreements. Unsurprisingly, the participation of the United States in the CBD has been restrained, if not a complete refusal, to engage in cooperative efforts. Although the U.S. signed most agreements it had involvement with, regardless of ratification status, the United States refused to sign the CBD under the leadership of President Bush. Upon election, President Clinton immediately signed the CBD, but was unable to ratify it during his presidency. Today, the United States still has not ratified the CBD. This contrasts the near universal membership of the agreement, with 96% of ‘very high’ human development countries and the totality of all other states, which have now ratified and are participating in direct attention to the globe’s biodiversity loss.

When the UNFCCC was signed, it was believed that a philosophy on sustainable development and attention to environmental externalities had entered the international community. However, while the United States signed the UNFCCC, it did not do so with an altogether shifted paradigm on the priorities between economic development and preserving environmental integrity. As previously discussed, due to the lack of binding enforcement in the UNFCCC, the Kyoto Protocol was then opened for signature and ratification. While the United States signed the Kyoto Protocol under the Clinton administration in 1998, it has yet to ratify it (United Nations Framework 2016, “Kyoto Status”). This refusal is significant when considering the 94% of ‘very high’ and 100% of ‘high’ human development countries ratified the document over ten years ago. While one reason for restraint from the United States is the weight of burden on the most developed countries, rationalized by their history of GHG emissions, that same reasoning has clearly not deterred the majority of other developed states. Although the United States has implemented some domestic policies, such

as automobile and building efficiencies, emissions produced have far surpassed any efficiency attempts. In fact, the emissions of the United States increased two percent from 1990 to 2013, even with calls for a drastic reduction from the Intergovernmental Panel on Climate Change (IPCC) (Environmental 2015, *Inventory*). Currently, “business-as-usual” scenarios in the United States are expected to show a significant increase in GHG emissions. As the United States is the largest per capita emitter of GHGs, its policies and subsequent enforcement commitment are pivotal for the severity of future global climate scenarios (Environmental 2015, *Climate*).

The UNCCD was signed by the United States, and subsequently ratified in 2000 under the Clinton administration (Secretariat of the United 2014). This ratification was alongside the significant majority of other “very high” human development states. Although the ‘low’ and ‘medium’ human development levels ratified the document earlier, 96% and 98% of ‘very high’ and ‘high’ development countries eventually ratified, and today there is a broad scope of states cooperating to address desertification. This ratification is especially notable considering the purpose of the UNCCD is largely beneficial to African countries that suffer the most from acute desertification. Often, the United States indicates a hesitance to engage in programs that require the funding of other countries without an overt benefit to the United States, and the ratification of the UNCCD represents an important exclusion from that general rule (Ivanova and Etsy 2004). This deviation from the U.S.’ general disengagement with multilateral environmental agreements should be recognized alongside the evident willingness of the Clinton administration to engage in global environmental efforts, clear from their signature of UNCLOS, the CBD, and the Kyoto Protocol. Notably, the most substantial compliance standards for the U.S. under the UNCCD are financial contributions,

not requiring the development of a “national action program” (Congress 2016). This contrasts with the alterations in state operations or emissions, essentially a concession of sovereignty, required by the treaties that failed the ratification process. Thus, overcoming political obstacles to ratify the UNCCD was relatively easier when considering the failed ratifications of other treaties under the Clinton administration. Biodiversity loss is an issue occurring globally, but it is important to recognize the areas that are most biodiverse-rich, and are likewise the most vulnerable countries to biodiversity loss. Thus, having the precedent of widespread cooperation under the UNCCD to address a driver of biodiversity loss that is largely beneficial to a certain region, but nonetheless requires international attention, is critical for the future of effective protection of global biodiversity in regions most adversely affected.

As another legally binding international agreement on a driver of biodiversity loss, the United States has yet to display a resounding shift in engagement with international law through engagement with the SCPOP. Rather, the United States signed the SCPOP under the Bush administration in 2001, but has yet to ratify the document (Stocholm 2016). This is relative to 86% of ‘very high’ and 96% of ‘high’ human development countries. While President Bush did sign the agreement, it was in the first several months of his presidency. The political context significantly altered following the terrorist attacks of 9/11, and the concern over environmental issues declined as a result (Gallup 2016). The United States has continued to show reluctance in ratifying the document for several reasons, including an unwillingness to eliminate select POPs recognized by the Convention, to provide funding and assistance to developing countries, and the overall reliance on the precautionary principle that is at the heart of the Convention (Brunnee 2004). As the most recent treaty on a driver of

biodiversity loss in force without the ratification of the United States, the SCPOP acts as the current precedent for the U.S.'s participation in international environmental agreements concerning biodiversity loss—an overall unwillingness to engage in multilateral efforts amidst active participation efforts from the preponderance of states in the international system.

IV. Domestic efforts to address biodiversity loss

“Here in the United States we turn our rivers and streams into sewers and dumping-grounds, we pollute the air, we destroy forests, and exterminate fishes, birds and mammals...But at last it looks as if our people were awakening.” –President Theodore Roosevelt⁶

Since its independence, the United States has grown to be among the largest territorially immense and diverse states in the international system (Central 2016). As such, the United States possesses a substantial number of different ecoregions, geographic areas with distinct ecosystems, within its borders (Bailey 1980). This has made the United States home to rich biodiversity from coast to coast that is largely unrivaled elsewhere in the world. Studies of the United States have found a distribution of both biodiversity rich regions, as well as areas experiencing acute loss of biodiversity (Sabensan 2008, Dobson et al. 1997, Flather et al. 1998, Poudyal et al. 2016). Considering the United States’ overall lack of participation in international efforts to address biodiversity loss, it is reasonable to assume explanation for its restrained engagement is due to a general disregard, or lack of value, for biodiversity. However, as this section illustrates, the United States has recognized the loss of diversity within its borders, and has taken concerted efforts to regulate and protect its natural resources. Thus, although the efforts of the United States have been imperfect at times, the overall acknowledgement and attempt to prevent further degradation of biodiversity is clearly

⁶National Park Service. 2016. “Theodore Roosevelt and Conservation.” Accessed July 19, <https://www.nps.gov/thro/learn/historyculture/theodore-roosevelt-and-conservation.htm>.

an inadequate explanation for the United States' refusal to engage in multilateral agreements on biodiversity loss.

The biodiversity of the United States has been cultivated through natural processes over millions of years, long before the borders of the United States were established and redrawn into the conventional fifty states, and is arguably among the most important parts of the nation's living history. Some of the areas richest in biodiversity include Hawaii, Southern California, the southeastern coastal states, and southern Appalachia (Sabesan et al. 2008). Considering the myriad of ecoregions the United States sustains, coinciding with its large population and development levels, it is not surprising that it houses a number of critical biodiversity hotspots. These refer to areas with high amount of biodiversity at an irreplaceable level that are acutely threatened by human activities within its borders, pieces of that living history at risk of being lost forever (Myers et al. 2000, Stein 2002). The hotspots that are internationally recognized as being within the United States include the California Floristic Province, the Caribbean, and Polynesia/Micronesia (Myers et al. 2000). Although the physical number of hotspots may not appear significant or alarming when considering the breadth of the Earth's mass, the level of endemism, referring to species being unique to a particular geographic area that will essentially be lost without swift and efficient intervention, is staggering, and a significant portion of that lies within the protection of the United States.

Although the human-driven actions that contribute to biodiversity loss are accelerating at a relatively unchecked rate in the U.S., there has been a growth of recognition over the trend recent years that fosters hope for positive intervention. This has come in a myriad of forms, among them being the rise of interest groups on environmental issues and

biodiversity loss specifically, nongovernmental organizations (NGOs), and government-related action. Due to the wide array of methods through which humans can inadvertently create biodiversity loss, nearly all environmental interest groups and NGOs advocate for the betterment of one or more issue points with the potential to improve the state of biodiversity. Since the environmental movement and the proliferation of environmental legislation in the 1970s, the influence of environmental groups in the United States has been noted repeatedly. While the success of environmental groups has oscillated since, interest groups and NGOs have continued to maintain some level of saliency with both the general public and policymakers (Kraft 2001). Examples of these groups are nearly countless, including the American Wilderness Coalition, Greenpeace, the Sierra Club, the National Wildlife Federation, the National Resource Defense Council, the Nature Conservancy, and the World Wildlife Fund (Stein and Beckel 2006). These groups work to raise funds and mobilize members towards broad goals of a cleaner environment, protection of natural resources, and biodiversity conservation. Often, one of the primary goals of environmental advocates is to incite change within a government entity (Bosso and Guber 2005). This can aid in the longevity of environmental regulation and protection, with policies enshrined in public law and government-sponsored programs. Today, there are many examples of environmental policy, administrations, and programs established to regulate or prevent environmental degradation in the United States.

Considering the biodiversity of the United States is one of the country's most precious and bountiful natural resources, the evolution of policy around it has been essential to prevent catastrophic degradation as the country developed and grew. Although statutes or programs for environmental health and protection were not particularly prevalent in

Congressional activity throughout much of U.S. history, the concept of conservation was symbolically taken on by the federal government with the establishment of the National Park Service (NPS) under the Presidency of Theodore Roosevelt. Believing that “It is also vandalism wantonly to destroy or to permit the destruction of what is beautiful in nature, whether it be a cliff, a forest, or a species of mammal or bird,” President Roosevelt helped establish precedent for the protection and conservation of natural resources on public land through the creation of several reserves, parks, and monuments encompassing thousands of acres (National Park 2016, “Theodore”). This precedent persistently evolved into the federal management and protection of land and resources today (Keiter 2016).

Although the environmental protection laws created during the early twentieth century were vital for the creation of protection precedent, and the subsequent present level of environmental regulation and preservation, much of that inertia stemmed off as the country continued to industrialize and prioritize development. While the early twentieth century acted as a kind of precursor to the environmental movement by establishing the first environmental protection laws under federal jurisdiction, the laws most commonly associated with the regulation and protection of the U.S. environment originated in the 1960s and 1970s. During this pivotal era, several factors coalesced to create an unprecedented environmental movement. Scientific knowledge on the state of environmental degradation became more prevalent and developed consensus, media coverage on environmental issues became more popular, a more affluent and activist-inclined culture emerged, and lawmakers who saw opportunities to pass widely favorable legislation converged to create a previously unprecedented window of opportunity for federal attention to the environment (Dunlap and Mertig 1992). The environmental decades “created the legal, political, and institutional

foundations of the nation's environmental policies" (Harris 2001, 5). Moreover, the Environmental Protection Agency was established to ensure the regulations created were appropriately enforced for the betterment of the environment and human health (Rolf 2016). Arguably, although the legislation proved paramount for the future of environmental protection, the most meaningful aspect of the environmental movement was not in the simple legislative acts passed or the creation of federal agencies. Rather, it was a shift in societal perspective that allowed for the burst of Congressional action that became the most unprecedented aspects of the environmental movement. Once again, it was believed that this paradigm would persist and that the United States would prove a leader not only in technological advances, industrial feats, and economic prowess, but also in sustained attention to environmental health. As will be illustrated later, this held true for a period. However, level of environmental concern and importance once again diminished relative to other widespread issues.

Considering the federal government currently holds ownership over approximately 28% of the land of the United States, a substantial amount of biodiversity falls directly under the government's jurisdiction of protection. The land is overseen by multiple federal agencies, including the Bureau of Land Management, the Fish and Wildlife Service (FWS), the National Park Service in the Department of the Interior (DOI), and the Forest Service (FS) in the Department of Agriculture (DOA) (Vincent et al. 2014). Through a myriad of programs within each of those agencies, sustainable use of land and protection of biodiversity are unifying efforts towards the overall goal of environmental health for current and future generations. For example, the National Conservation Lands program is overseen by the Bureau of Land Management (BLM). Under the term "conservation land," 32 million acres

of diverse lands are further classified, notably with not all being equal in amount of human interference permitted. For example, the most actively managed lands to preserve habitat health and biodiversity maintenance are typically deemed “wilderness areas.” These lands were established by the Wilderness Act of 1964 as, “an area where the earth and its community of life are untrammelled by man,” to “provide long-term protection and conservation of Federal public lands” (Bureau 2012, “Wilderness”). Each of the four aforementioned agencies administers this preservation system to some degree, with the National Park Service holding the largest percentage of designated wilderness land (Vincent et al. 2001). While this acts as one example of government attempt to protect biodiversity, it is important to recognize the majority of wilderness lands lie in the Western states, excluding the biodiverse rich state of Hawaii. Initially believed by many environmental advocates to be the “first concerted federal effort” to preserve wild habitats and biodiversity, it has fallen short of many hopeful expectations (Scott 2004, 24). For example, environmental advocates quickly realized that the system of national parks and wilderness protection was in steep competition with a goal of tourism promotion and “comfortable access” for vehicles (Scott 2004, 25, Monz et al. 2016). Although there is a value in citizens and tourists readily accessing the natural beauty and resources of the United States, it should be accompanied with the recognition that it can alter, and even harm, the livelihoods of those within the protected areas. Further, scientists have also expressed concern that the United States is, quite simply, not adequately protecting its biodiversity (Jenkins et al. 2015). Due to the “multiple use” concept imbedded within the majority of lands in the United States, society is permitted to utilize the lands and its biodiverse resources beyond conservation levels (Bureau 2012, “Bureau”). Notably, this allows the lands to be utilized for recreational, development, and

resource harvest, all of which harbor income and societal value for the land. However, the anthropogenic drivers discussed earlier are regulated, but not wholly prevented. As mentioned earlier, although much of the infrastructure necessary to ensure environmental preservation exists, the lack of consistent saliency of environmental issues suggests agencies will continue to operate in a way that allows for some level of environmental degradation in lieu of economic gain.

That aside, due to the concentration of federal lands in the Western territory, much of the country's biodiversity is within the confines of private land laws, and thus susceptible to the full-spectrum of harmful human actions. However, this does not mean the remainder of U.S. territory is open to unrestricted environmental degradation. Rather, there are an increasing number of laws that work to ensure a standard level of environmental quality. Examples of this include the infamous environmental movement laws of the 1970's, including the Clean Air Act, Clean Water Act, and the Safe Drinking Water Act. For an overview of important federal environmental laws in the United States, see Appendix, Table 4. In regards to the protection of species diversity, the most significant Congressional action remains the Endangered Species Act of 1973 (ESA).

Recognized as a significant issue during the environmental movement, the preservation of species in the United States was thought to be ensured through the passage of the Endangered Species Preservation Act of 1966. This statute provided "a means for listing native animal species as endangered," albeit with relatively limited protection (Fish 2016). Quickly, it was recognized that the law had several significant flaws hindering the effective protection of biodiversity. Following CITES, the United States finally acknowledged the necessity of a more enforceable preservation strategy, and passed the Endangered Species

Act the same year of the 1973 CITES convention agreements. The ESA expresses explicit concern that many of the nation's native plants and animals are in danger of becoming extinct, and thus the purpose is to "protect and recover imperiled species and the ecosystems upon which they depend (Endangered). In some spheres, the ESA is recognized as a "wild success" (Center 2016, *Systematic*, Center 2016, *American*). In others, there are critics who point to flaws in the implementation of the ESA. However, nearly all agree that the ESA has consistently been the United States' "best tool for saving species," regardless of any improvements that might be needed (Taylor et al. 2005, Greenwald et al. 2013). Many of the issues attributed to the ESA concern underfunding, creating a significant backlog at times and overworked and underpaid workers at others, as well as inflexibility. In addition, the ESA forces one to wait until species have reached the level of "endangered," a point in which the species is already in severe peril, before many of the provisions in the Act are triggered. Further, the Act is a key example of a method of problem-solving prevalent in the United States—treating the symptoms rather than the cause. For example, it is well-publicized that polar bears are an endangered species in the United States. As an integral part of the food web in the regions they are found, it is highly important that polar bears do not go extinct, and this fact has been recognized by the ESA with their listing of the polar bear as an endangered species to be protected. However, the Act provides no strategy for alleviating the main driver of polar bear endangerment—melting sea ice and accelerating loss of habitat due to climate change (Greenwald et al. 2013).

The United States has acknowledged the seriousness of biodiversity loss for some time, and has thus taken considerable measures to ensure there is adequate infrastructure and enforcement to regulate its use, and ensure its ultimate protection. Although there have

certainly been more active periods of environmental concern and action, there has nonetheless been a steady underpinning of environmental protection. Notably, the United States has exhibited a clear willingness to engage in unilateral action to preserve its national biodiversity. Thus, accounting for the United States' participation behavior in multilateral efforts to address biodiversity loss with the simple reasoning that it holds little or no value for biodiversity is inadequate. Undoubtedly, the United States places value for some degree of biodiversity and protection, yet it continues to refuse engagement in international efforts. Essentially, while other state actors in the international system continue to develop shared values and relationships through participation in multilateral efforts, the United States is voluntarily refusing to engage in those efforts, not because of a disbelief in the rapid loss of biodiversity, but likely due to the inherent characteristics of multilateral agreements. According to liberal and constructivist paradigms, the United States is thus potentially inciting negative implications for its future influence and capacity to fulfill foreign policy goals.

V. Liberalism and Constructivism: the U.S. in the future

“The question of when, if and how well national governments cooperate to address shared environmental problems, from climate change to biodiversity loss...is central to the relationship between international relations theory and the environment.” –Kate O’Neill⁷

Biodiversity loss is a phenomenon that is occurring throughout the globe, irrespective of sovereign state lines or perceived levels of state power. Thus, addressing biodiversity loss effectively will require cooperation on the international level, occurring between sovereign state entities and without a higher body to require altruistic behavior towards environmental issues. Active state participation in international legally-binding environmental agreements is thus essential for the preservation of biodiversity, and the ecosystem services associated with its health that exist today. Clearly, disbelief or lack of concern about biodiversity loss is not an adequate explanation for the behavior of the United States considering its efforts to address biodiversity loss nationally. Thus, the United States’ lack of participation may instead be tied to the nature of international efforts to address biodiversity loss—through legally binding multilateral agreements with regulations on economically valued resources and a concession of some level of sovereignty for the global good. While there are certainly reasons for not participating in drawn-out and costly international agreements, there are also compelling motivations for states, including the U.S., to actively engage in international

⁷ O’Neill, Kate. 2013. *The Environment and International Relations*. Page 1. Cambridge University Press: Cambridge, UK.

cooperation. This is addressed through international relations theories, designed to study the “relationships between or among the various states and other political entities of the world” (Smith and Malici 2012, 1-12). Thus, this section assesses the behavior of the United States and its participation with international biodiversity agreements through the liberal and constructivist theories of international relations. These theories are the most suitable for viewing an international system successful in cooperative efforts to stymie biodiversity loss, and thus present unique paradigms for understanding the potential ramifications of the United States’ current trend of international inaction. Further, as the shifts in distribution of power are believed to be moving away from U.S. hegemony and towards shared power, the United States is likely to be left without a history of sustained cooperation, and a precedence of positive cooperative efforts. Through this analysis, several important implications arise that suggest strategic motivations for the United States to begin active participation in present and future international efforts to address biodiversity loss.

Within the international system, state actors are viewed as sovereign entities, maintaining the right to autonomy within their respective borders. In essence, states have the right to operate and create policy within their borders without interference from other state actors. This is an integral concept in international system due to the anarchical nature of the international system, referring to the lack of a “supreme authority,” or a coercive power over all states. Rather, state actors can implement policies and take actions within their state borders, largely without regard to other state actors or consequences to the global environment. For this reason, understanding the actions of state actors, such as the United States, and their subsequent levels of participation in international agreements can be instrumental in working towards effectual solutions to biodiversity loss.

Regarding the study of international relations, there are several theories that are employed to understand the relationships, and subsequent implications, of interaction between state actors. These include realism, liberalism, constructivism, and radical approaches like Marxism. Liberalism is one of those foremost theories. Although it is largely focused on issues of state security, with examples like the Democratic Peace theory to avoid warfare, it also speaks to the importance of cooperation as a critical aspect to maintaining peace and state security. In liberalism, key actors are the states, non-governmental groups such as the World Wildlife Federation, and international organizations, such as the United Nations and its extensions like the UNEP. Most important, liberalists view the international system as anarchical, without a governing body to coerce states towards altruistic outcomes. Thus, liberal scholars find value in interdependence among actors, potentially reaching a state of international society in which “various actors communicate...they consent to common rules and institutions and recognize common interests (Mingst 2004, 84-85).” Although this is often embedded in the concept of collective security, and can even be due to self-interested motives for states to cooperate, it can result in positive outcomes in the form of dialogue and problem solving on global issues, such as environmental issues. Moreover, “liberals view the international system as an arena and process for positive interactions” (Mingst 2004, 85). Reaching this level of sustained cooperation between states would significantly aid in nurturing the active global solutions necessary to stall or reverse an issue as widespread and complex as biodiversity loss. This negotiation and coordination occurs through multilateralism, and in the creation of agreements such as those mentioned earlier. In regards to issues of the global environment specifically,

“Liberals have typically seen the environmental issue as appropriate to the international agenda for the twenty-first century. Their broadened view of security, coupled with the credence given to the notion of an international system described as interdependent, perhaps one so interconnected as to be called an international society, makes environmental issues ripe for international action” (Mingst 2004, 94-295).

Constructivism is also a prominent international relations theory that offers a useful paradigm for cooperation between states. It has become more popular in recent years, and continues to offer differing and useful insights into the actions in the international system. Constructivism offers a unique approach in which “state behavior is shaped by elite beliefs, identities, and social norms,” and these are what shape foreign policy (Mingst 2004, 75). Additionally, the influence of civil society, with examples like the U.S.’s environmental movement, can help to shape norms and influence state behavior. In other words, “reality” in the international system is socially constructed. Thus, objective or material facts have little meaning until observers assign them a meaning, and those socially constructed meanings are then treated as “facts.” Constructivism gives attention to the roles of ideas and identities as major roles in foreign policy. Through an evaluation of constructed and transforming identities and values on various topics, including environmental issues like biodiversity loss, it can help decipher changes in state actions in global governance and international law. In regards to issues of the global environment specifically,

“Constructivists, too, are comfortable with environmental issues as an arena for international action. Environmental issues bring out the salience of discourse.

Constructivists are interested in how political and scientific elites define the problem

and how that definition changes over time and new ideas become rooted in their belief sets (Mingst 2004, 295).”

A state’s foreign policy refers to its respective strategies for interactions with other actors in the international system. Influences on a state’s general foreign policy can include institutions, domestic environment, and capacity. The domestic environment within a state, such as popular interests like the environmental movement within the United States during the 1960’s and 1970’s, can propel a state to have a more involved foreign policy on those issues. Foreign policy is also associated with a state’s capacity, often in the form of power. A state can choose to exercise either hard or soft power, referring to military coercion or a state’s use of economic or cultural factors to persuade other actors, respectively. Thus, the size of a state’s military, economy, and populations are all important factors in the strength of the foreign policy it chooses to pursue.

In regards to the United States specifically, its foreign policy has undoubtedly been an influential force in the international system. Today, its foreign policy mission as stated by the U.S. Department of State, “is to shape and sustain a peaceful, prosperous, just, and democratic world and foster conditions for stability and progress for the benefit of the American people and people everywhere” (U.S. 2015). This has often manifested itself in an active foreign policy on the part of the United States, both in military excursions and diplomatic ties throughout its sovereign state history. However, when it comes to international law, the United States clearly has avoided taking a leadership role in many situations, especially in regards to binding environmental agreements. However, this has not always been the case. Rather, “For decades, the US was perceived as a leader due to its pioneering domestic environmental legislation and for the role it played in promoting various

global environmental agreements. It has, however, lost this image as it has failed to ratify several important global environmental agreements” (Schreurs 2012).

The United States has maintained its status of “exceptionalism” since its advent from the writings of Alexis de Tocqueville in the mid-19th century. Essentially, this is the idea that the United States is inherently different from other states because of its democratic ideals. Thus, while the concept typically has its roots in the “liberal character” of the U.S., its freedom in politics, economics, and society, it is also based in the prevailing “military primacy, economic dynamism, and political diversity” of the United States (Cox and Stokes 2012, 26). This notion is not necessarily untrue. In fact, the United States is becoming exceptional in a myriad of other ways. For example, its environmental footprint is larger than that of other nations and its “share of global resource consumption is considerably larger than its share of world population” (Brunnee 2004). The belief of exceptionalism may be manifesting itself in the United States’ hesitance to cooperate with international governance along with the rest of the states in the international system. Simply stated, “Not only is the United States said to be disengaging, and increasingly inclined towards unilateral action...it is exercising leadership precisely by walking away from an agreement” (Brunnee 2004). In other words, the United States’ lack of participation can significantly affect the success of a global agreement, with examples like the Kyoto Protocol. The question remains whether changing its leadership status, and engaging in passive participation or altogether rejecting participation, is in the best interest of the foreign policy goals of the United States. The continuation of “American exceptionalism” creates a double standard in that the United States takes or refuses actions that would be objectionable were they to be undertaken by

another state. Moreover, when the United States declines multilateral action, it can have powerful repercussions:

“US leadership has a unique potential to promote the development of international environmental law. Conversely, when the United States declines to exercise leadership, the impact is significant” (Brunnee 2004).

Often, the public reasoning for the United States’ voluntary exclusion from legally binding agreements is due to a perceived lack of clear scientific evidence that the issue in question will directly affect the primary goals of its foreign policy, including health of U.S. citizens or ensuring its robust economy (Harris 2001, 18). Thus, the United States has frequently shown an emphasis for economic gain in the short-term in lieu of resource regulation and environmental preservation in the long-term presented in most environmental agreements. The U.S. “instead pref[ers] that those resources be exploited to the exclusive benefit of U.S. companies” (Harris 2001, 12). In fact, action from the United States typically requires the clear presentation of a sizeable issue before its reactive style of action is triggered. Overall, “Robust action by the United States is much more likely if there is clear scientific evidence that the health of Americans or the U.S. economy” is under threat (Harris 2001, 17). Essentially, the United States has expressed clear preference for discretion in its level and timing of environmental protection, which would be in direct conflict with rules and set targets in international environmental agreements. In addition, when the United States does deem it necessary to act, it often prefers to avoid environmental agreements in the interest of preserving its sovereignty and the regulations enshrined in many of the aforementioned treaties (Harris 2001, 18). While the foreign policy paradigm of the United States is certainly corroborated across U.S. administrations, it only works to add to the idea

of an “exceptional” United States. Notably, this factor of “exceptionalism” is one that avoids engagement in international agreements amidst the growing trend of most other countries to utilize multilateral efforts and agreements. This lack of engagement in agreements is highlighted through the discussion of the aforementioned treaties. When the United States does engage in international environmental treaties, it appears to do so with conviction, often ratifying before or around similar states with ‘very high’ human development status (see Figure 1). Further, when the United States does ratify an agreement, it typically works to meet compliance and shows an overall trend of engagement in implementation. Notably, however, the United States has refrained to ratify half of the aforementioned treaties. This places the average number of agreements ratified by the United States far behind states with ‘very high,’ ‘high,’ ‘medium,’ and ‘low’ human development levels (see Figure 2).

Figure 1. Average Year of Entry into Force of States by 'Very High' Development Status and the United States

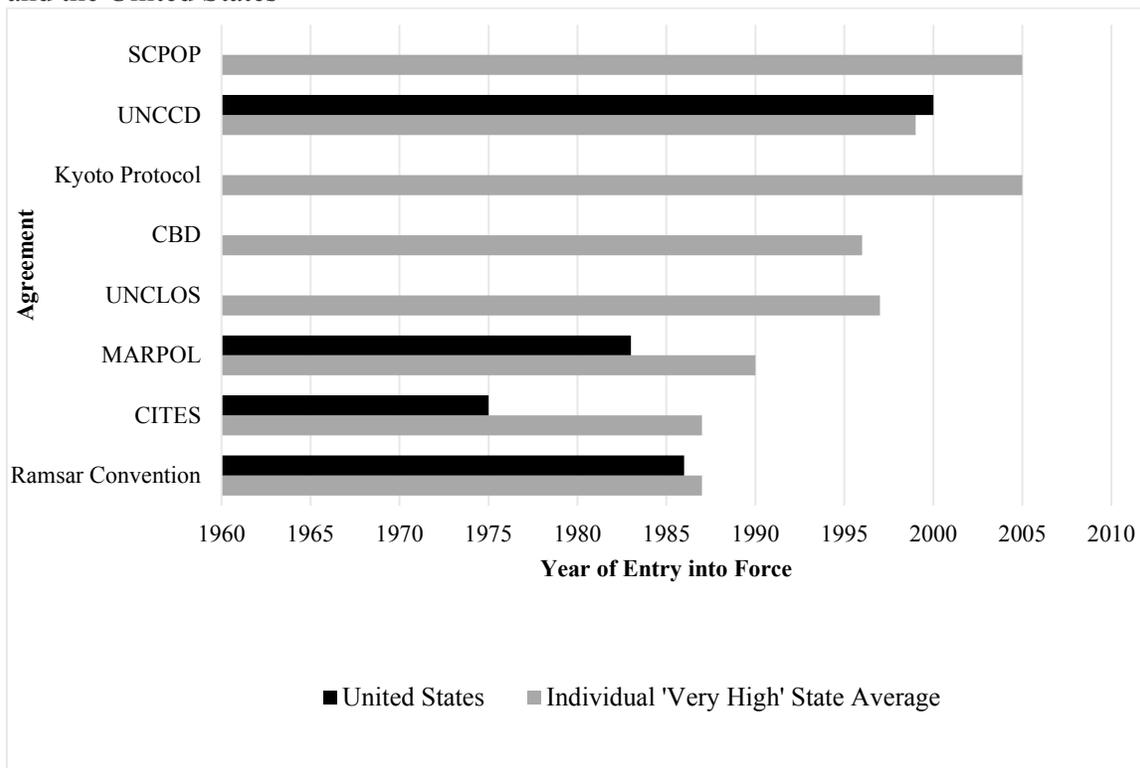
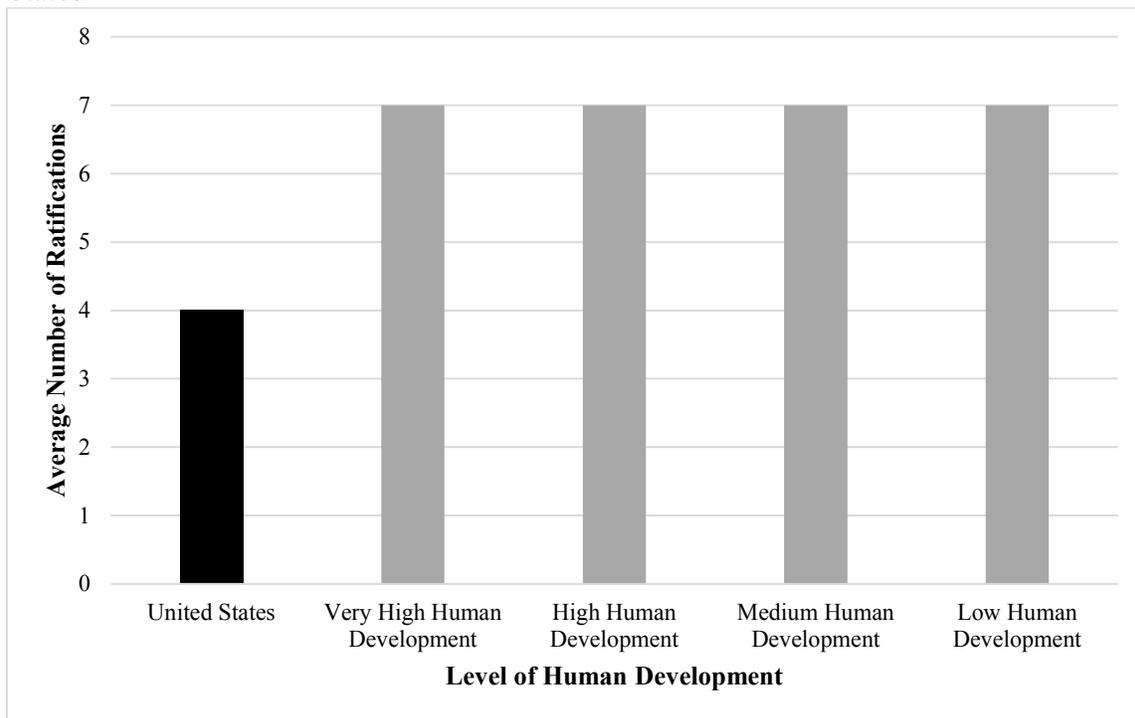


Figure 2. Average Number of Ratifications by Human Development Level and the United States



When considering the liberalist theory, several potential issues with the United States' current engagement, or lack thereof, with environmental agreements become apparent. The first is seemingly simple—a lack of cooperation and commitment to multilateral actions. However, that can eventually manifest itself into an absence of credibility, a far more complex issue. Liberalism subscribes to the idea of sustained dialogue and understanding between states, which is created through multiple and continued interactions. Like in the infamous prisoner's dilemma, states are likely unwilling to cooperate or achieve maximum benefits when the subsequent actions of the other actor are unknown. Unfortunately, the option with the most advantageous outcome to both parties, especially in regards to a shared resource like biodiversity and its associated ecosystem services, often requires cooperation. When states refuse to engage in current multilateral efforts, it is essentially undermining a foundation of understanding of other actors and a credibility for following through on cooperative agreements. Essentially, “the ongoing interactions and negotiations among parties to an MEA [multilateral environmental agreement] tend to generate patterns of expectations and normative understandings” (Brunnee, 2004). Fostering a perception as a reliable multilateral actor is key in developing credibility, an important facet of soft power. Credibility can often allow states to work together in ways that are beneficial in the long-term, even in the face of short-term drawbacks, like a small loss of sovereignty through regulation. The United States has often disregarded the idea of cooperation and multilateralism in favor of either unilateral action by addressing issues domestically rather than in the internationally binding arena, or not engaging in action to halt biodiversity drivers at all. Currently, this strategy is functional for the United States, and even favorable in some cases, due to its sizable distribution of power in the international system. Unilateral action

has advantages of a preferred course of action without a need for compromise, and sometimes efficiency of reaching a specific national goal. However, as that distribution of power shifts, potentially away from the reach of the United States, the credibility of the United States for cooperation becomes particularly salient. In fact, it is reasonable to assume that the United States could become heavily reliant on the understanding and subsequent cooperation of other state actors as equals to address fundamentally international issues that cannot be adequately addressed by a lone state actor. The importance of having a sustained perception as a reliable multilateral actor pertains not only to solving environmental issues, but also across the scope of international issues the United States may require cooperation on in the future.

All the aforementioned treaties subscribe to the liberal values of cooperation and state credibility on multilateral action. For example, in regards to a dismissal of the Kyoto Protocol,

“Ultimately, soft power rests on credibility. In this context, it matters that the Kyoto withdrawal is widely seen as part of a broader pattern. A country’s ability to get others to want what it wants will be diminished if it is perceived as a purely self-interested actor...In addition, over-reliance on coalitions of the willing, be it in the environmental context or beyond, undermines rather than enhances perception of the United States as a trustworthy, good faith actor” (Brunee, 2004).

This same concept applies to other examples from the aforementioned treaties, including UNCLOS. The United States has consistently noted solving conflicts in the South China Sea (SCS), a geostrategic location and source of international tension, as an “important U.S. national objective.” However, addressing the issue via diplomacy has proved a challenge.

Notably, several scholars argue that the United States' lack of ratification of UNCLOS presents a greater challenge as a mediator of conflict due to its lack of credibility in the region:

“The United States must ratify UNLCOS if it hopes to be a more credible player in preserving stability in the SCS. Whether the United States likes it or not, UNLCOS embodies customary international law. Ratification would increase the legitimacy of U.S. efforts...and would further enhance the image of the United States among many states in East Asia” (Mcdevitt, 2013).

In regards to the CBD, loss of credibility is perhaps most acute. As stated earlier, 99% of recognized countries have ratified the CBD. The United States' refusal to ratify the document makes it a lone state, attempting to address issues of biodiversity loss through unilateral means, or not at all. Essentially, the United States is voluntarily choosing to indicate a lack of willingness to engage in multilateral agreements, not strengthening and perhaps even lessening its credibility, while nearly all other states in the international system are at the negotiating table and nurturing relationships. As the most recent agreement addressing a driver of biodiversity loss, the SCPOP acts as the most recent conversation on global biodiversity loss the United States has opted not to formally take part in.

Another issue raised through a liberalist paradigm is a loss of soft power in the long-term. As already noted, credibility and perception is one important aspect of soft power. Another is economic prowess, something the United States is currently not lacking in as the world's largest economy. However, that may not always be true if business-as-usual practices, including allowing biodiversity loss to occur at unprecedented rates, is permitted. A loss of ecosystem services is a significant strain on economic power. While the science of

ecosystem service valuation is still being developed, it is already clear from present assessment that attempting to replace ecosystem services can be extremely costly. In some cases, replacement is impossible, and is often costlier than simply maintaining healthy ecosystems and their functions (Costanza 2014). Biological integrity, preserving biodiversity and controlling the drivers of its loss, is integral to ecosystem services continuing to exist (Steffen et al. 2015). This is not a small cause for concern. Rather, “at least 40% of the world’s economy and 80% of the needs of the poor are derived from biological resources. In the USA, for example, commercial fisheries, some of which rely on species in which the majority of populations have already gone extinct, provide approximately one million jobs and US\$32 billion in income annually” (Barnosky et al. 2014). Thus, the United States is essentially causing a long-term loss of economic resources in lieu of short-term financial gain from an over-exploitation of those resources and other drivers of biodiversity loss. As a state that relies heavily on its substantial economic power, using it to both create hard power in the form of a military with the largest government endowment in the international system, and be the largest donor to organizations such as the United Nations and the North Atlantic Treaty Organization (NATO), current biodiversity loss is an important consideration for future financial leverage.

Beyond economic capacity, cultural diplomacy is another form of soft power that can be depleted by a loss of biodiversity. Cultural diplomacy refers to the “exchange of ideas, information, art and other aspects of culture among nations and their peoples in order to foster mutual understanding” (Mark 2009). Although it is perhaps not the most obvious aspect of culture, biodiversity contributes to the culture within the United States, and its drivers subsequently degrade the environment of the U.S. For example, deforestation in the

United States and the overexploitation of cod fisheries in the Atlantic and the American beaver both created a collapse that in some way halted or irrevocably changed an aspect of livelihood and culture within the United States. Aspects of culture are important for relating to other countries on more than a relatively detached economic or military way. In fact, it is the understandings between countries that can be essential for collaboration and cooperation. Mentioned earlier, the Democratic Peace theory, which posits that countries connected on the premise of democratic values, are less likely to engage in armed conflict, is a core aspect of liberal theory, and is a prime example of cultural diplomacy fostering globally positive precedents (Kant 1957). Although there are certainly other important culture factors, the biodiversity in the United States and around the globe is one such factor that connects each country in the pursuit of preserving environmental integrity and resources.

Similarly, when considering the constructivist theory, several potential issues with the United States' current engagement, or lack thereof, with environmental agreements become apparent. The first is the shifts or development in values and identities surrounding environmental issues in the international system. For example, there is arguably a significant change in values occurring regarding the importance of a healthy environment, and specifically biodiversity. Clearly, from the high participation rates of most states in the international system in the aforementioned agreements, there is an overall recognition, and subsequent efforts, regarding the necessity to preserve and protect biodiversity. This shift is pronounced, especially in recent years, as agreements, such as those evaluated in this paper in which 80% or more of states recognized under the near-universal membership of the United Nations, are more common. Further, a state's willingness to undergo the lengthy process of negotiation and national ratification of a legally binding agreement represents a

shift in norms via a manifestation of salience to a country's overall policy outlook to address environmental issues.

The sheer value that is being developed for environmental protection is stated most eloquently by the agreements states are continually beginning to enter into. For example, directly from the text of the Convention on Biological Diversity:

“The Contracting Parties, Conscious of the intrinsic value of biological diversity...Affirming that the conservation of biological diversity is a common concern of humankind...Reaffirming also that States are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner...Noting that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind...[and] Determined to conserve and sustainably use biological diversity for the benefit of present and future generations” (Convention on Biological 2016, “Preamble”).

Those words were affirmed and ratified by nearly 99% of recognized countries. However, the development of global values has not been limited to only percent increases in agreement participation. Rather, this phenomenon has been recognized by scholars with increasing literature as well. Essentially, “In recent years, the ideology of ecological concern has become globalized, and may constitute a worldwide value-orientation as it has been institutionalized as part of global governance” (Lawrence and Abrutyn 2015). Pressures in the form of global non-governmental organizations, like the IUCN and the World Wildlife Fund, are examples of “emerging global movements” that aid in the shaping and strengthening of a value on environmental conservation that most states are thusly

responding to (Lawrence and Abrutyn 2015, Herd and Dunay 2010, 6-12). Moreover, a change or development in identities is likewise in the process of being socially and historically constructed. This occurs as values for environmental conservation and protection become persistent and enshrined in this period of state interaction, and more states adhere to an identity as environmentally conscious.

In addition, states appear to be placing more emphasis on the value of multilateral agreements and international governance as a strategy for addressing global issues. Once again, this is apparent in the sheer number of ratifications in the aforementioned agreements. In regards to environmental multilateral agreements, a general consensus of scientific knowledge concerning acute deteriorations in environmental integrity has spurred on a wave of enthusiasm for “international law and problem-solving through multilateral environmental agreements” (Brunnee 2004). This trend was most marked at the Rio Conference in 1992, and has only strengthened since.

Beyond the development of values and an identity for biological preservation and multilateral agreements, these shared values are important for a basis of cooperation. Often, cooperation is viewed as occurring “within the framework of a series of shared norms and values that build trust over time” (Herd and Dunay 2010, 6-12). Much like the beliefs posited by liberalists, constructivists often view shared and developed values, like those of environmental preservation, as the foundation for an understanding of trust and common ideals that make cooperation possible when states recognize those values as shared. Thus, the development of value for environment can support an even broader outcome beyond only environmental policy. Rather, shared values can evolve into tools interdependent state actors

draw on when exercising an extensive scope of foreign policy issues, including conflict and trade negotiations.

The United States, as the clear outlier to international environmental agreements, may lose its relevance within the international system as its values remain largely on economic growth and national security while other states are developing more broadly encompassing state priorities. Although the majority of state actors are indicating values on conserving environmental integrity and biodiversity, as well as a preference for addressing these inherently global issues through multilateral agreements and a development of international law, the United States has been either a “reluctant participant” or shows an overall disregard for global environmental protection via a kind of “reflexive unilateralism” (Ivanova and Etsy 2008). In fact, “US enthusiasm for international environmental law appears to have diminished since the Rio Summit...The US ratification record on other major MEAs {multilateral environmental agreements} negotiated since Rio has also been sluggish” (Brunnee 2004). This change in U.S. foreign policy tendencies appears to be occurring at a time when others are beginning to subscribe to the concept of international law, and are creating a precedent that may become historical; yet, the United States currently has no positive or significant role in that. Instead, the United States’ overt hesitance to accept the overall values emphasized by other state actors has appeared to persist even while the leadership, and even necessity for participation, of the U.S. appears to be declining. In essence: “while it is widely recognized that U.S. engagement and cooperation is not just important, but historically seen as essential for progress, other nations today seem willing to move ahead with or without the United States” (Ivanova and Etsy 2008). Arguably, the United States is voluntarily isolating itself from international governance and environmental values

at a time coinciding with a significant change in the international system into a world in which it may not be the strongest state actor and may be forced to rely on cooperative efforts to achieve global goals. Ultimately, the United States may not have the metaphorical footing in the historical context of international law, multilateralism, or commitment to the global environment that are becoming key components of other state identities and cooperation foundations.

When looking toward the future of the international system, the implications discussed above become even more acute, and provide further support for the United States to consider a shift in willingness to participate in international agreements. As the balance of power in the international system shifts, likely away from the current hegemony and powerful influence of the United States, achieving foreign policy goals will require dependence on other state actors, with relationships and precedence of cooperation that the United States currently is not fostering. The distribution of power in the international system, referred to as polarity, creates the context in which states operate. There are three main distribution of power systems—unipolarity, bipolarity, and multipolarity. During the Cold War, the distribution of power was largely between the two “superpowers” of the United States and the Soviet Union. Each had its own bloc of states under respective alliances (ie. North Atlantic Treaty Organization and the Warsaw Pact). These blocs were utilized as negotiation tools rather than the feared humanity-ending conflict between the two major powers. Since the Cold War and the fall of the Soviet Union, the consensus on the balance of power in the international system has been unipolar, with the United States as a regional hegemon, and the most consistently powerful state actor in the international system. Harkening back to the discussion of the United States’ vast resources that contribute to its

sizable exercise of both hard and soft powers, the control and leadership the United States has been able to exert in negotiations and foreign policy is largely rational. However, the distribution of power is appearing to shift, and many scholars believe the international system is moving towards a multipolar system, in which five or so influential states share the majority of the power. Understandably, the United States does not voluntarily want to lose its hegemonic status within the international system, and continues to clamor for a significant military and economic prowess. Even so, it is clear that other states, including U.S. allies such as Germany, China, and even India are positioned to be potentially influential state actors in the future.

Notably, under a multipolar system of power, the shared norms discussed under constructivism and the liberalist basis of cooperation are often understood as essential for the stability of the system (Mingst 2004, 86-90). Although the United States is certainly still a powerful state in the international system, and could easily remain one of the major powers in a multipolar system, it could be critical for the success of the U.S.'s foreign policy goals that it have a shared foundation of norms, values, and history of cooperation to foster positive interactions between and among states. Although the United States is currently pursuing a unilateral action within a unipolar paradigm, perhaps even in the interest of maintaining its present status, this strategy could ultimately be detrimental in the long-term.

The potential harm of the U.S.'s "go-it-alone" strategy has been recognized by many scholars (Brunnee 2004, Ivanova and Etsy 2008, McDevitt 2013). Notably, many of the core arguments for an overall re-engagement in international cooperation through environmental agreements have long-term basis for current change in participation. For example, as the issues that the United States encounter become increasingly transboundary in nature,

“America benefits from worldwide cooperation on these issues and must therefore be willing to invest in global governance” (Ivanova and Etsy 2008). Currently, the United States is voluntarily restraining from the international law it, and is thus bypassing development of a potentially advantageous precedence and legal infrastructure. Further, the missed opportunities to cultivate shared values and create a perception of cooperation may also result in setbacks in a multipolar system, and that “without credible proof of genuine U.S. leadership based on common values and the common good is likely to be met with distrust and opposition” (Ivanova and Etsy 2008). In addition to scholars, the importance of engagement has also been recognized by influential members of the bureaucracy, and even the leaders of the United States. For example, Timothy Wirth, former State Department counselor and Undersecretary of State for global affairs, once stated that the new administration must reestablish the U.S. leadership in environmental issues as, “the United States once again resume the leadership that the world expects of us,” recognizing that past efforts had been severely lacking (Harris 2001, 6). Unfortunately, that same sentiment has been expressed, and subsequently failed, by even the attempts of heads of state to result in lasting changes. While there has been progress towards multilateral action under the Obama administration, especially in regards to the formal entrance of the United States to the Paris Agreement, there are substantiated fears that change in leadership will result in a loss of precedent for the steps that have been slowly made thus far (Somanader 2016).

In essence, the United States’ strategy of unilateralism and refusal to engage in global multilateral efforts is largely afforded through its status and power in the unipolar system. However, that system appears to be changing towards a shared power system, regardless of the preferences of the United States. Thus, the United States’ lack of

participation in internationally binding environmental agreements on preservation of biodiversity today could be one factor in the ultimate hindrance of the United States in achieving its future foreign policy goals.

VI. Conclusions

“There can be no purpose more enspiriting than to begin the age of restoration, reweaving the wondrous diversity of life that still surrounds us.”
–Edward O. Wilson⁸

Biodiversity loss is a global issue that promises to endanger the health and livelihood of species and societies across the globe without concerted international effort to address its anthropogenic accelerators. Fortunately, the international community has increasingly become aware of the grave implications of the current trend of biodiversity loss, and has thus engaged in multiple negotiations to produce eight vital international agreements to address biodiversity loss and its associated drivers that are assessed in this paper. The United States, although arguably the most powerful and influential actor in the current international system, has repeatedly declined to participate in these agreements. In fact, of the eight agreements discussed, the United States has only ratified four. In contrast, nearly all other state actors have ratified at least seven. While the disengagement of the United States presents obstacles to the effective protection of the global environment, excluding one of the most affluent and densely populated state actors in the international system, the United States’ behavior also suggests negative implications for fulfilling its own interests. While other state actors are currently in the process of developing shared values and precedents of cooperative action, the United States is voluntarily choosing to preference unilateral action and a restrained, or completely inactive, participation in international environmental law. As the distribution of power in the international system shifts, it is likely that the United States will not maintain its

⁸ Rylander, Jason C. 2012. “Recovering Endangered Species in Difficult times: Can the ESA Go Beyond Mere Salvage?” *Environmental Law Institute* 42(1): 10017-10023.

current level of influence and power. Thus, using the liberal and constructivist paradigms, the United States will be dependent on cooperation with other state actors to achieve future foreign policy goals. However, without credibility in multilateral action and a lack of shared values, the United States may be unable to achieve its foreign policy goals, either to their fullest extent or at all. Thus, there are clear motivations for the United States to shift its current strategy of participation in international agreements through ratification of current agreements to one of active participation and ratification of future international efforts to stymie biodiversity loss.

This paper has presented a largely empirical approach to the United States' participation in multilateral agreements on biodiversity loss, presenting facts of participation and areas of potential motivations for a reevaluation of engagement in those agreements. However, it is important to recognize a wholly normative approach, in which the United States is consistently disregarding a duty, a kind of "ethical obligation," to participate in the aforementioned agreements (Harris 2001, 4). Due to the significant share of power and wealth the United States, it is reasonable it should share those resources in order to equitably protect the most precious living resources on the planet. Further, when considering the affluence within the United States, that the average child in the United States "will have 30 times more impact on the earth's environment during his or her lifetime than a child born in India," there is a significant argument that the United States owes a concerted effort to the rest of the world (Harris 2001, 15). The industrialization of the United States and the continued demand of resources from its citizens are responsible for a disproportionate share of the drivers of biodiversity loss, including land-use change for agricultural purposes and GHG emissions contributing to climate change. This has not gone unnoticed by the rest of

the world, with even the Kyoto Protocol designed in a way that fairly accounts for the undue burden the early industrialization of states like the U.S. has placed on the environment of today and tomorrow. Thus, it is up to the people of the United States and its leadership to engage in these agreements in the name of a fair and healthy planet in which all can benefit and prosper.

Normative statements aside, it is important to recognize the obstacles the United States will have to overcome in order to engage in legally binding treaties on biodiversity loss, and effectively address the global issue. First, the ratification process within the United States is a far more tedious process relative to the process for other states. The separation of powers ensured under the U.S. Constitution recognizes that “it is Congress, not the executive branch or the president, that has the final say over U.S. environmental policy, both at home and abroad” (Harris 2001, 20). Thus, even when there is leadership engaged in international agreements, contentions in Congress over sovereignty or economic loss have consistently stalled ratification and active U.S. participation. This is evident in the continued attempts under the Clinton administration to engage in UNCLOS, the CBD, and the Kyoto Protocol while Senate continually refused to ratify the documents. In order to overcome this, an emphasis on environmental protection and values placed on biodiversity must be significant enough within the populous that it remains on the agenda of Congress, and that representatives recognize those agreements as necessary under the “will of the people.” Societal movements, like the environmental movement, can have a significant influence in the engagement of the United States in these environmental agreements, demonstrated through the United States’ ratification and participation in the Ramsar Convention, CITES, and MARPOL. However, it is critical that environmental movements create lasting societal

norms. Illustrated through the U.S.'s behavior following the decline of environmental movement, without a clear desire from the populous for engagement in multilateral environmental agreements, the government is willing to allow for dangerous disengagement amidst severe environmental degradation.

Unfortunately, the topic of the environment and its protection has consistently been subject to other topics subverting its importance. Most notably, the understanding that there may be a short-term economic loss associated with protecting the environment is known to significantly change the environmental priority status of many Americans during times of financial duress (Gallup 2016). Unfortunately, the integrity of biodiversity continues to accelerate irrespective of the financial status of American voters. Ultimately, the devastating capabilities of biodiversity loss will most likely hurt the economy of the United States far more in the loss of valuable ecosystem services than the prevention of that loss today would cost, and this could even further lower the perceived importance of the environment for many Americans. Thus, the encouragement and development of civil society that has a core interest in the protection of the environment would help to gather and analyze scientific information on the issue, engage in agenda-setting processes, and ensure the compliance of policies once they are created. This includes the involvement of non-governmental organizations and community cooperation as drivers to necessary international cooperation, and strengthening these roles should be encouraged. Without a meaningful understanding of the services a healthy environment and biodiversity brings to the planet, it is likely that the normative approach of the United States engaging in multilateral efforts will never be realized. The power of NGOs and civil society in the name of the environment has been seen before during the United States' Environmental Decade. If that same enthusiasm for environmental

protection can be fostered and maintain longevity, the United States is likely to once again respond, actively engage in stopping the loss of precious biodiversity, and maintain a healthy planet for future generations.

Undoubtedly, biodiversity loss is one of the most significant and complex challenges the United States has encountered. However, it is a challenge that the United States should, and must, address with wholehearted commitment. Simply, “On many issues, US cooperation is therefore indispensable for problem-solving. Its technological and financial resources enable the United States to make decisive contributions to international environmental protection efforts” (Brunnee 2004). The United States has resources unrivaled by most all other countries. If it begins to actively engage in international efforts to address biodiversity loss, its leadership could ultimately be the decisive factor in ensuring ecosystem services continue to function and future generations thrive on the same healthy and beautiful planet.

Appendix

Table 3: Additional International Environmental Agreements Related to Biodiversity Loss

Name	Summary	Year Signed
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	Purpose to conserve terrestrial, marine and avian migratory species throughout their range	1979
Convention on Long-Range Transboundary Air Pollution (CLRTAP)	Intent to protect against and reduce air pollution	1979
International Convention for the Regulation of Whaling	Intent to conserve whale stocks and regulate the whaling industry	1946
International Coral Reef Initiative	Purpose to protect coral reefs and implement Aichi Target 10 of the CBD	1994
International Plant Protection Convention (IPPC)	Intent to protect world plant resources by preventing the introduction and spread of plant pests and promoting controls	1952
International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	Intent to ensure food security through the conservation, exchange and sustainable use of the world's plant genetic resources	2001
World Heritage Convention (WHC)	Identify and conserve the world's cultural and natural heritage	1972

Table 4: Overview of Notable Federal Environmental Statutes in the United States

Statute Name	Summary	Year Signed into Law	Citation
Antiquities Act	President has the authority to create national monuments from public lands (ie. protect objects of scientific interest)	1906	Public Law 59-209, Statutes at Large 34 Stat. 225
Clean Air Act	Controls air pollution	1963	Public Law 88-206, Statutes at Large 77 Stat. 392
Clean Water Act	Controls water pollution	1972	Public Law 92-500, Statutes at Large 86 Stat. 816
Coastal Zone Management Act	Encourages sustainable development and management of coastal zones	1972	Public Law 92-583, Statutes at Large 86 Stat. 1280

Federal Land Policy and Management Act	Ensures public lands are managed to ensure sustainable and enhancing practices	1976	Public Law 94-579, Statutes at Large 90 Stat. 2743
Fish and Wildlife Coordination Act	Intended to protect fish and wildlife and evaluate impacts of sewage, wastes, and pollution on wildlife	1934	Public Law 85-624, 16 U.S.C. 661-667e
Lacey Act	Protects plants and wildlife from being illegally obtained, possessed, transported, and sold	1900	16 U.S.C. 3371-3378
Marine Mammal Protection Act	Prohibits the taking of marine mammals, and prevents their import, export, and sale	1972	Public Law 95-522, Statutes at Large 86 Stat. 1027
National Environment Policy Act	Promotes the enhancement of the environment	1969	Public Law 91-190, Statutes at Large 83 Stat. 852
Marine Protection, Research, and Sanctuaries Act	Intended to regulate intentional ocean dumping and prevent any dumping of material that would adversely affect the welfare of the marine environment	1972	Public Law 92-532, Statutes at Large 86 Stat. 1052
Resource Conservation and Recovery Act	Provides assistance for the proper disposal of hazardous waste	1976	Public Law 94-580, Statutes at Large 90 Stat. 2795
Rivers and Harbors Act	Prohibits the discharge of refuse matter and the filling or changing of navigable waters without permit	1899	33 U.S.C. 401, 403, 407
Surface Mining Control and Reclamation Act of 1977	Regulates coal mining and land reclamation processes	1977	Public Law 95-87, Statutes at Large 91 Stat. 445
National Wild and Scenic Rivers Act	Protection for designated rivers	1968	16 U.S.C. 1271-1287

Works Cited

- Alitzer, Sonia, Richard S. Ostfeld, Pieter T.J. Johson, Susan Kutz, and C. Drew Harvell. 2013. "Climate Change and Infectious Diseases: From Evidence to a Predictive Framework." *Science* 341 (6145): 514-519. Doi: 10.1126/science.1239401.
- Bailey, Robert G. 1980. *Description of the Ecoregions of the United States*. U.S. Fish and Wildlife Service.
- Barnosky, Anthony D., James H. Brown, Gretchen C. Daily, Rodolfo Dirzo, Anne H. Ehrlich, Paul R. Ehrlich, Jussi T. Eronen, Mikael Fortelius, Elizabeth A. Hadley, Estella B. Leopold, Harold A. Mooney, John Peterson Myers, Rosamond L. Naylor, Stephen Palumbi, Nils Chr Stenseth, and Marvaley H. Wake. 2014. "Introducing the Scientific Consensus on Maintaining Humanity's Life Support Systems in the 21st Century: Information for Policy Makers." *The Anthropocene Review* 1(1): 78-109. Doi: 10.1177/2053019613516290.
- Bassett, Charles, and Joana Talafre. 2003. "Implementing the UNCCD: Towards a Recipe for Success." *Review of European, Comparative, and International Environmental Law* 12(2): 133-139. Doi: 10.1111/1467-9388.00354.
- Bellard, Celine, Cleo Bertelsmeier, Paul Leadley, Wilfried Thuiller, and Franck Courchamp. 2012. "Impacts of climate change on the future of biodiversity." *Ecology Letters* 15: 365-377. Doi: 10.1111/j.1461-0248.2011.01736.x.
- Bosso, Chrisopher J., and Deborah Lynn Guber. 2005. "Maintaining Presence: Environmental Advocacy and the Permanent Campaign," in *Environmental Policy: New Directions for the 21st Century*, 6th ed., Norman J. Vig and Michael E. Kraft. CQ Press: Washington, D.C.
- Brunnee, Jutta. 2004. "The United States and International Environmental Law: Living with

- an Elephant.” *European Journal of International Law* 15(4): 617-649. Doi: 10.1093/ejil/15.4.617.
- Bureau of Land Management. 2012. “The Bureau of Land Management: Who We Are, What We Do.” Accessed October 30, http://www.blm.gov/wo/st/en/info/About_BLM.html.
- 2012. “The Wilderness Idea.” Accessed September 1, http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/wilderness2/Wilderness_FAQ.html.
- California Coastal Commission. 2016. “The Problem with Marine Debris.” Accessed September 6, <http://www.coastal.ca.gov/publiced/marinedebris.html>.
- Center for Biological Diversity. 2016. *A Wild Success: A Systematic Review of Bird Recovery Under the Endangered Species Act*.
- 2016. *A Wild Success: American Voices on the Endangered Species Act at 40*.
- 2016. “White-nose Syndrome: Questions and Answers.” Accessed July 19, http://www.biologicaldiversity.org/campaigns/bat_crisis_white-nose_syndrome/Q_and_A.html.
- 2013. *Deadly Waters: How Rising Seas Threaten 233 Endangered Species*.
- 2011. “A Deadly Toll: The Gulf Oil Spill and the Unfolding Wildlife Disaster.” Accessed July 19, 2016. http://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/gulf_oil_spill/a_deadly_toll.html.
- Central Intelligence Agency. 2016. “Country Comparison: Area.” 2016. Accessed August 24, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html>.

- Charles, Heather, and Jefferey S. Dukes. 2008. "Impacts of Invasive Species on Ecosystem Services." In *Biological Invasions, 217-237*, edited by M.M. Caldwell, G. Heldmaier, R.B. Jackson, O.L. Lange, H.A. Mooney, E.-D. Schulze, and U. Sommer. Springer: Berlin Heidelberg.
- Charnovitz, Steve. 2009. "America's New Climate Unilateralism: A Better Approach to Copenhagen." *International Economy* 23(4): 50-52.
- Churchill, Robin. 2012. "The Persisting Problem of Non-compliance with the Law of the Sea Convention: Disorder in the Oceans." *The International Journal of Marine and Coastal Law* 27: 813-802. 10.1163/9789004245044_015.
- Collins, Margaret Goud. 2013. "International Organizations and Biodiversity." *Encyclopedia of Biodiversity* (4): 324-331. Doi: 10.1016/B978-0-12-384719-5.00395-6.
- Congress. 2016. "United Nations Convention to Combat Desertification in Countries Experiencing Drought, Particularly in Africa, With Annexes." Library of Congress. Accessed November 17, <https://www.congress.gov/treaty-document/104th-congress/29/resolution-text>.
- Convention on Biological Diversity. 2016. "About the Nagoya Protocol." 2016. Accessed September 7, <https://www.cbd.int/abs/about/default.shtml>
- 2016. "About the Protocol." Accessed September 7, <http://bch.cbd.int/protocol/background/>.
- 2016. "List of Parties." Accessed September 7, <https://www.cbd.int/information/parties.shtml>.
- 2016. "Preamble." Accessed October 15, <https://www.cbd.int/convention/articles/default.shtml?a=cbd-00>.

- 2010. "Biodiversity in 2010." Accessed October 10,
<https://www.cbd.int/gbo3/?pub=6667§ion=6711>.
- 2010. *Marnie and Coastal Biodiversity*. CBD: Quebec, Canada.
- 2010. *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*. Montreal, Canada.
- 2000. *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*." Montreal, Canada.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora. 2016. *Appendices I,II and III*. CITES: Geneva, Switzerland.
- 2016. "List of Contracting Parties." Accessed September 8,
<https://www.cites.org/eng/disc/parties/chronolo.php>.
- 2016. "What is CITES?" Accessed September 4, <https://cites.org/eng/disc/how.php>.
- 1973. *Convention on International Trade in Endangered Species of Wild Fauna and Flora*. 1973. Washington, D.C.
- Cooney, Rosie. 2004. *The Precautionary Principle in Biodiversity Conservation and Natural Resource Management*. 2004. IUCN Policy and Global Change Group: Gland, Switzerland and Cambridge, UK.
- Costanza, Robert, Rudolf de Groot, Paul Sutton, Sander van der Ploeg, Sharolyn J. Anderson, Ida Kubiszewski, Stephen Farber, and R. Kerry Turner. 2014. "Changes in the global value of ecosystem services." *Global Environmental Change* 26: 152-158. Doi: 10.1016/j.gloenvcha.2014.04.002.
- Cox, Michael, and Doug Stokes. 2012. *U.S. Foreign Policy*. Oxford: New York.

- Dahl, T.E. 2011. *Status and trends of wetlands in the conterminous United States 2004 to 2009*. U.S. Department of the Interior; Fish and Wildlife Service: Washington, D.C.
- Dell'Amore, Christine. 2014. "7 Species Hit Hard by Climate Change—Including One That's Already Extinct." *National Geographic*, April 2. Accessed August 21, <http://news.nationalgeographic.com/news/2014/03/140331-global-warming-climate-change-ipcc-animals-science-environment/>.
- Desai, Bharat H. 2006. "UNEP: A Global Environmental Authority?" *Environmental Policy and Law*, 36(3-4): 137-157. Doi: 0378-777X/06/\$17.00.
- Dirzo, Rodolfo, and Peter H. Raven. 2003. "Global State of Biodiversity and Loss." *Annual Review of Environment and Resources* 28: 137-167. Doi: 10.1146/annurev.energy.28.050302.105532.
- Division for Ocean Affairs and the Law of the Sea. 2016. "Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements." Accessed September 26, http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm.
- 1998. "The United Nations Convention on the Law of the Sea." Accessed September 7, [http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm#Third Conference](http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm#Third%20Conference).
- Dobson, A.P., J.P. Rodriguez, W. M. Roberts, and D.S. Wilcove. 1997. "Geographic Distribution of Endangered Species in the United States." *Science* 275(5299): 550-553. Doi: 10.1126/science.275.5299.550.
- Dunlap, Riley E., and Angela G. Mertig. 1992. *American Environmentalism: The US Environmental Movement, 1970-1990*. Routledge: New York, NY.

- Economic Commission for Africa. 2007. *Africa Review Report on Drought and Desertification*. United Nations: Addis Ababa, Ethiopia.
- Endangered Species Act of 1973, The*. Public Law 93. Accessed September 1, <https://www.fws.gov/endangered/esa-library/pdf/ESAall.pdf>.
- Environmental Protection Agency. 2016. MARPOL Annex VI.” 2016. Accessed September 8, <https://www.epa.gov/enforcement/marpol-annex-vi>.
- 2016. “Wetlands Protection and Restoration.” Accessed September 8, <https://www.epa.gov/wetlands>.
- 2015. *Climate Change in the United States: Benefits of Global Action*. EPA: Washington, D.C.
- 2015. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013*. EPA: Washington, D.C.
- Fish and Wildlife Service. 2016. “Endangered Species Act: A History of the Endangered Species Act of 1973.” Accessed August 23, https://www.fws.gov/endangered/laws_policies/esa-history.html.
- 2015. *U.S. CITES Implementation Report*.”
- Flather, Curtis H., Michael S. Knowles, and Iris A. Kendall. 1998. “Threatened and Endangered Species Geography.” *BioScience* 48(5): 365-376. Doi: 10.2307/1313375.
- Gallup. 2016. “Environment.” Accessed October 16, <http://www.gallup.com/poll/1615/environment.aspx>.
- Goode, Erica. 2015. “After Cecil Furor, U.S. Aims to Protect Lions Through Endangered Species Act.” *The New York Times*, December 20. Accessed July 19, <http://www.nytimes.com/2015/12/21/science/us-to-protect-african-lions-under->

- endangered-species-act.html?_r=0.
- Greenwald, N., A.W. Ando, S.H.M. Butchart, and J. Tschirhart. 2013. "The Endangered Species Act at 40." *Nature* 504(7480): 369-370. Doi: 10.1038/504369a.
- Harris, Paul G. 2001. *The Environment, International Relations, and U.S. Foreign Policy*. Georgetown Washington Press: Washington, D.C.
- Herd, Graeme P., and Pal Dunay. 2010. "International security, Great Powers and world order." In *Great Powers and Strategic Stability in the 21st Century*. Routledge: New York, NY, USA.
- International Maritime Organization. 2016. *International Convention for the Prevention of Pollution from Ships (MARPOL)*. 2016. Accessed September 6, [http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx).
- 2016. "Marpol Annex I—Prevention of Pollution by Oil." Accessed September 7, <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/OilPollution/Pages/Default.aspx>.
- International Organization of Supreme Audit Institutions Working Group on Environmental Auditing. 2007. *Auditing Biodiversity: Guidance for Supreme Audit Institutions*.
- International Union for the Conservation of Nature. 2000. *Trade Measures in Multilateral Environmental Agreements*. The Economics, Trade, and Environment Union.
- 2016. "About." Accessed September 4, <https://www.iucn.org/secretariat/about>.
- 2016. "Overview of the IUCN Red List." Accessed September 1, http://www.iucnredlist.org/about/publication/analyses#scientific_papers.
- IPCC. 2013. "Summary for Policymakers." In: *Climate Change 2013: The Physical Science*

- Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Ivanova, Maria, and Daniel C. Etsy. 2008. "Reclaiming U.S. Leadership in Global Environmental Governance." *SAIS Review of International Affairs* 28(2): 57-75.
- Jenkins, Clinton N., Kyle S. Van Houtan, Stuart L. Pimm, and Joseph O. Sexton. 2015. "US protected lands mismatch biodiversity priorities." *Proceedings of the National Academy of Sciences of the United States of America* 112(16): 5081-5086. Doi: 10.1073/pnas.1418034112.
- Jowit, Juliette. 2010. "Humans driving extinction faster than species can evolve, say experts." *The Guardian*, March 7. Accessed July 19, <https://www.theguardian.com/environment/2010/mar/07/extinction-species-evolve>.
- Kant, Immanuel. 1957. *Perpetual Peace*. New York: Liberal Arts Press.
- Keesing, Felicia, Lisa K. Belden, Peter Daszak, Andrew Dobson, C. Drew Harvell, Robert D. Holt, Peter Hudson, Anna Jolles, Kate E. Jones, Charles E. Mitchell, Samuel S. Myers, Tiffany Bogich, and Richard S. Ostfeld. 2010. "Impacts of biodiversity on the emergence and transmission of infectious diseases." *Nature* 468 (7324): 647-652. Doi: 10.1038/nature09575.
- Keiter, Robert B. 2016. "Introduction: National Parks at the Centennial." *Natural Resources Journal* 56(1):1-12.
- Kelly, Michael J. 2012. "United States Ratification of the Law of the Sea Convention:

- Securing our Navigational Future While Managing China's Blue Water Ambitions." *Case Western Reserve Journal of International Law* 45(1/2):461-472. <http://0-search.proquest.com.wncln.wncln.org/docview/1357561650?accountid=8337>.
- Koh, Lian Pin, Robert R. Dunn, Navjot S. Sodhi, Robert K. Colwell, Heather C. Proctor, and Vincent S. Smith. 2004. "Species Coextinctions and the Biodiversity Crisis." *Science* 305(5690): 1632-1634. Doi: 10.1126/science.1101101.
- Kolbert, Elizabeth, *The Sixth Extinction: An Unnatural History* (New York: Picador, 2015), 92-110.
- Kraft, M.E. 2001. "Influence of American NGOs on Environmental Decisions and Policies: Evolution Over Three Decades." In *The Role of Environmental NGOs—Russian Challenges, American Lessons: Proceedings of a Workshop*. The National Academies Press: Washington, DC.
- Lawrence, Kirk S., and Seth B. Abrutyn. 2015. "The Degradation of Nature and the Growth of Environmental Concern: Toward a Theory of the Capture and Limits of Ecological Value." *Human Ecology Review* 21(1): 87-108.
- Mark, Simon. 2009. "A Greater Role for Cultural Diplomacy." Discussion Papers in Diplomacy, Netherlands Institute of International Relations Clingendael.
- May, Robert M. 2010. "Tropical Arthropod Species, More or Less?" *Science* 329(5987):41-42. Doi: 10.1126/science.1191058.
- McDevitt, Michael. 2015. "The South China Sea: Assessing U.S. Policy." *American Foreign Policy Interests* 35(4): 175-187. Doi: 10.1080/10803920.2015.1006519.
- Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being Synthesis*. Island Press, Washington, D.C.

- Mingst, Karen A. 2004. *Essentials of International Relations*. W. W. Norton & Company: New York, N.Y.
- Mills, James N. 2006. "Biodiversity loss and emerging infectious disease: An example from the rodent-borne hemorrhagic fevers." *Biodiversity* 7(1): 9-17. Doi: 10.1080/14888386.2006.9712789.
- Monz, Christopher, Ashley D'Antonio, Steve Lawson, Jesse Barber, and Peter Newman. 2016. "The ecological implications of visitor transportation in parks and protected areas: Examples from research in US National Parks." *Journal of Transport Geography*, 51: 27-35. Doi: 10.1016/j.jtrangeo.2015.11.003.
- Myers, Norman, Russell A. Mittermeier, Cristina G. Mittermeier, Gustavo A. B. da Fonseca, and Jennifer Kent. 2000. "Biodiversity hotspots for conservation priorities." *Nature* 403: 853-858. Doi: 10.1038/35002501.
- Nathan, Alexi. 2016. "The Law of the Seas: A Barrier to Implementation of Sustainable Development Goal 14." *Sustainable Development Law & Policy*, 16(2): 36-52.
- National Aeronautics and Space Administration. 2016. "Global climate change." Accessed August 16, <http://climate.nasa.gov/>.
- National Wildlife Federation. 2016. "Global Warming." Accessed August 21, <http://www.nwf.org/Wildlife/Threats-to-Wildlife/Global-Warming.aspx>.
- 2016. "Habitat Loss." Accessed June 21, 2016. <http://nwf.org/Wildlife/Threats-to-Wildlife/Habitat-Loss.aspx>.
- 2016. "Invasive Mussels." Accessed July 19, <https://www.nwf.org/Wildlife/Threats-to-Wildlife/Invasive-Species/Invasive-Mussels.aspx>.
- 2016. "Invasive Species." Accessed June 21, 2016. <https://www.nwf.org/Wildlife/Threats-to-Wildlife/Invasive-Species/Invasive-Species.aspx>.

- to-Wildlife/Invasive-Species.aspx.
- 2016. "Overexploitation." Accessed June 21. <https://www.nwf.org/Wildlife/Threats-to-Wildlife/Overexploitation.aspx>.
- National Park Service. 2016. "Amphibian Chytrid Fungus." Accessed July 19, <https://www.nps.gov/pinn/learn/nature/chytrid.htm>.
- 2016. "Frogs in Trouble." Accessed July 19, <https://www.nps.gov/gaar/learn/nature/wood-frog-page-3.htm#Climate%20Change>.
- 2016. "Habitat Loss and Fragmentation." Accessed July 19, 2016. <https://www.nps.gov/samo/learn/nature/habitatloss.htm>.
- 2016. "Theodore Roosevelt and Conservation." Accessed on August 29, <https://www.nps.gov/thro/learn/historyculture/theodore-roosevelt-and-conservation.htm>.
- Nauke, Manfred, and Geoffrey L. Holland. 1992. "The role and development of global marine conventions: Two case histories." *Marine Pollution Bulletin* 25(1-4): 74-79. Doi: 10.1016/0025-326X(92)90190-H.
- Newbold, Tim, Lawrence N. Hudson, Andrew P. Arnell, Sara Contu, Adriana De Palma, Simon Ferrier, Samantha L. L. Hill, Andrew J. Hoskins, Igor Lysenko, Helen R. P. Phillips, Victoria J. Burton, Charlotte W. T. Chng, Susan Emerson, Di Gao, Gwilym Pask-Hale, Jon Hutton, Martin Jung, Katia Sanchez-Ortiz, Benno I. Simmons, Sarah Whitemee, Hanbin Zhang, Jorn P.W. Scharlemann, and Andy Purvis. 2016. "Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment." *Science* 353(6296): 288-291. Doi: 10.1126/science.aaf2201.
- O'Neill, Charles R. Jr. 1994. "The Introduction and Spread of the Zebra Mussel in North

- America.” Paper presented at the Fourth International Zebra Mussel Conference, Madison, Wisconsin, March.
- Patrick, Stewart M. 2012. “(Almost) Everyone Agrees: The U.S. Should Ratify the Law of the Sea Treaty.” *The Atlantic*, June 10. Accessed September 9, <http://www.theatlantic.com/international/archive/2012/06/-almost-everyone-agrees-the-us-should-ratify-the-law-of-the-sea-treaty/258301/>.
- Poudyal, Neelam C., Duncan Elkins, Nathan Nibbelink, H. Ken Cordell, and Buddhi Gyawaldi. 2016. “An exploratory spatial analysis of projected hotspots of population growth, natural land loss, and climate change in the conterminous United States.” *Land Use Policy* 51: 325-334. Doi: 10.1016/j.landusepol.2015.11.021.
- Ramsar Convention Secretariat. 2016. “Country Profiles.” Accessed September 8, <http://www.ramsar.org/country-profiles>.
- 2016. “United States of America.” Accessed September 8, <http://www.ramsar.org/wetland/united-states-of-america>.
- 2014. “International Cooperation.” Accessed September 4, <http://www.ramsar.org/about/international-cooperation>.
- “The Ramsar Convention and its Mission.” 2014. Accessed September 4, <http://www.ramsar.org/about/the-ramsar-convention-and-its-mission>.
- 2014. “Wetlands: a global disappearing act.” Accessed September 4, http://www.ramsar.org/sites/default/files/documents/library/factsheet3_global_disappearing_act_0.pdf.
- Ripple, William J., James A. Estes, Robert L. Beschta, Christopher C. Wilmers, Euan G. Ritchie, Mark Hebblewhite, Joel Berger, Bodil Elmhagen, Mike Letnic, Michael P.

- Nelson, Oswald J. Schmitz, Douglas W. Smith, Arian D. Wallach, and Aaron J. Wirsing. 2014. "Status and Ecological Effects of the World's Largest Carnivores." *Science* 343(6167): 1241484. Doi: 10.1126/science.1241484.
- Rolf, Carol A. 2016. "Environmental Protection Agency." *Salem Press Encyclopedia Starters*, EBSCOhost. Accessed September 1.
- Sabesan, Aarthy, Nagendra Singh, and Mark Tuttle. 2008. "Spatial Designation of Critical Habitats for Endangered and Threatened Species in the United States." *Journal of Map & Geography Libraries* 4(2): 348-355. Doi: 10.1080/15420350802142694.
- Schiermeir, Quirin. 2012. "The Kyoto Protocol: Hot air." *Nature* 491(7426): 656-658. Doi: 10.1038/491656a.
- Schreurs, Miranda. 2012. "Global Environmental Problems, US Unilateralism, and Japanese, Canadian and European Responses." *Rikkyo Hogaku* 86: 250-273.
- Scott, Doug. 2004. *The Enduring Wilderness: Protecting Our Natural Heritage through the Wilderness Act*. Golden: Fulcrum Publishing.
- Secretariat of the Convention on Biological Diversity. 2014. *Global Biodiversity Outlook 4*. Montreal, Canada.
- 2000. *Sustaining Life on Earth*.
- Secretariat of the Stockholm. 2012. *Success Stories: Stockholm Convention 2001-2011*. UNEP: Geneva, Switzerland.
- Secretariat of the United Nations Convention to Combat Desertification. *United Nations Convention to Combat Desertification*. UNCCD: Bonn, Germany.
- 2014. "Ratification List." Accessed September 12, <http://www.unccd.int/Lists/SiteDocumentLibrary/convention/Ratification%20list%20>

- May2014.pdf.
- Smith, Elizabeth S., and Akan Malici. 2012. "Why Do We Need a Science of Politics?" in *Political Science Research in Practice*. Taylor & Francis Ltd: London, United Kingdom.
- Sobel, Beverly G., Isaac Smith, and Armin Rosencranz. 2007. "The Melting and Partitioning of a Global Commons." *Environmental Policy & Law* 37(6): 467-470. Doi: 0378-777X/07/\$17.00.
- Somanader, Tanya. 2016. "President Obama: The United States Formally Enters the Paris Agreement." *The White House*, September 3. Accessed October 16, <https://www.whitehouse.gov/blog/2016/09/03/president-obama-united-states-formally-enters-paris-agreement>.
- Steffen, Will, Asa Persoon, Lisa Deutsch, Jan Zalasiewicz, Mark Williams, Katherine Richardson, Carole Crumley, Paul Crutzen, Carl Folke, Line Gordon, Mario Molina, Veerabhadran Ramanathan, Johan Rockstrom, Marten Scheffer, Hans Joachim Schellnhuber, and Uno Svedin. 2011. "The Anthropocene: From Global Change to Planetary Stewardship." *Ambio*, 40: 739-761. Doi: 10.1007/s13280-011-0185-x.
- Steffen, Will, Katherine Richardson, Johan Rockstrom, Sarah E. Cornell, Ingo Fetzer, Elena M. Bennett, Reinette Bigs, Stephen R. Carpenter, Wim de Vries, Cynthia A. de Wit, Carl Folke, Dieter Gerten, Jens Heinke, Georgina M. Mace, Linn M. Persson, Veerabhadran Ramanathan, Belinda Reyers, and Sverker Sorlin. 2015. "Planetary boundaries: Guiding human development on a changing planet." *Science* 347(6223): 1-10. Doi: 10.1126/science.1259855.
- Stein, Bruce A. 2002 *States of the Union: Ranking America's Biodiversity*. NatureServe:

Arlington, Virginia.

Stein, Jonathan, and Michael Beckel. 2006. "A Guide to Environmental Non-Profits."

Mother Jones, March/April. Accessed August 24,

<http://www.motherjones.com/environment/2006/03/guide-environmental-non-profits>.

Sterling, Eleanor J., Andres Gomez, and Ana L. Porezecanski. 2010. "A systemic view of biodiversity and its conservation: Processes, interrelationships, and human culture."

Bioessays 32: 1090-1098. Doi: 10.1002/bies.201000049.

Stockholm Convention on Persistent Organic Pollutants. 2016. "Overview." Accessed

September 7, <http://chm.pops.int/TheConvention/Overview/tabid/3351/Default.aspx>.

---2016. "Status of Ratification." Accessed September 12,

<http://chm.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/>

Default.aspx.

Taylor, Martin F.J., Kieran F. Suckling, and Jefferey L. Rachlinski. 2005. "The Effectiveness the Endangered Species Act: A Quantitative Analysis." *BioScience* 55(4): 360-367. Doi:

10.1641/0006-3568(2005)055[0360:TEOTES]

Tollefson, Jeff, and Natasha Gilbert. 2012. "Rio Report Card." *Nature* 486: 20-23. Doi:

10.1038/486020a.

United Nations. 2016. "Member States." Accessed September 4,

<http://www.un.org/en/member-states/index.html>.

---1992. *United Nations Framework Convention on Climate Change*.

United Nations Development Program. 2016. "Human Development Index." UNDP.

Accessed November 7, <http://hdr.undp.org/en/content/human-development-index-hdi>.

United Nations Environment Program. 2016. *Summary of the sixth global environmental outlook GEO-6 regional assessments: Key findings and policy messages*. UNEP: Nairobi, Kenya.

---2011. *UNEP Yearbook: Emerging Issues in Our Global Environment*. UNEP Division of Early Warning and Assessment , Nairobi, Kenya.

---2014. *Medium Term Strategy*. UNEP.

---2009. “The Ramsar Convention on Wetlands and its indicators of effectiveness.” Workshop convened by the UNEP World Conservation Monitoring Centre.

United Nations Framework Convention on Climate Change. 2016. “Kyoto Protocol.” Accessed September 7, http://unfccc.int/kyoto_protocol/items/2830.php.

---2016. “Paris agreement.” Accessed September 7, http://unfccc.int/paris_agreement/items/9485.php.

---2016. “Status of the Doha Amendment.” Accessed September 7, http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php.

---2016. “Status of Ratification of the Kyoto Protocol.” Accessed September 12, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php.

---2015. *The Paris Agreement*.

---2012. *Doha amendment to the Kyoto Protocol.*”

United States Coast Guard. 2016. “International Convention for the Prevention of Pollution by Ships—MARPOL 73/78.” Accessed September 8, <https://www.uscg.mil/hq/cgcvc/cvc/marpol.asp>.

U.S. Department of State. 2015. “Department Mission Statement.” 2015. Accessed

- September 9, <http://www.state.gov/s/d/rm/index.htm#mission>.
- 2001. "Environmental Diplomacy." Accessed September 8, <http://www.state.gov/www/global/oes/earth.html#gore>.
- Vaughan, Adam. 2014. "Global biodiversity targets won't be met by 2020, scientists say." *The Guardian*, October 3. Accessed September 26, <https://www.theguardian.com/environment/2014/oct/03/global-biodiversity-targets-2020-habitat-wildlife-scientists-say>.
- Vincent, Carol Hardy, Laura A. Hanson, and Jerome P. Bjelopera. 2014. *Federal Land Ownership: Overview and Data*. Congressional Research Service.
- Vincent, Carol Hardy, Betsy A. Cody, M. Lynne Corn, Ross W. Gorte, Sandra L. Johnson, and David Whiteman. 2001. *Federal Land Management Agencies: Background on Land and Resource Management*. Congressional Research Service.
- Waters, Colin N., Jan Zalasiewicz, Colin Summerhayes, Anthony D. Barnosky, Clement Porier, Agnieszka Galuzka, Alejandro Cearreta, Matt Edgeworth, Erle C. Ellis, Michael Ellis, Catherine Jeandel, Reinhold Leinfelder, J.R. McNeill, Daniel deB. Richter, Will Steffen, Fames Syvitski, Davor Vidas, Michael Wagemann, Mark Williams, An Zhisheng, Jacques Grinevald, Eric Odada, Naomi Oreskes, and Alexander P. Wolfe. 2016. "The Anthropocene is functionally and stratigraphically distinct from the Holocene." *Science* 351 (6269): 137-147. Doi: 10.1126/science.aad2622.
- Wilderness Act of 1964*, Public Law 88-577, *U.S. Statutes at Large* 78 (1964): 890-896.
- World Wildlife Fund. 2016. "Whales." Accessed August 21, <http://www.worldwildlife.org/species/whale>.