ARTICLES

CAN THE CONVENTION ON BIOLOGICAL DIVERSITY SAVE THE SIBERIAN TIGER?

BY
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INTRODUCTION

On June 5, 1992, the Convention on Biological Diversity (the "CBD") opened for signature at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil.[1] By June 4, 1993, the CBD had received 168 signatures, and on December 29, 1993, it entered into force and became effective.[2] The ratification of the CBD marked the commitment of the interna-

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[1] *See* Convention on Biological Diversity, *An Introduction to the Convention on Biological Diversity* (visited Nov. 11, 2000) <http://www.unep.ch/bio/bio-intr.html>.
[2] *See id.*

tional community to conserve biological diversity, and share equitably in the benefits arising from the use of genetic resources.[3]

In the fall of the year 2000, eight years after the initial signing of the CBD and seven years after the CBD ratification, its force and effect remains unclear. This Article will examine the effectiveness of the CBD in saving the Siberian tiger, an endangered tiger species found in the Russian Far East. Part I will focus on the biology of the Siberian tiger. Part II will detail threats to the survival of the Siberian tiger. Part III will explain why the Siberian tiger should be protected. Part IV will examine the effectiveness of current international law regulating the conservation of the Siberian tiger. Finally, Part V will discuss strategies for ensuring the continued survival of the Siberian tiger.

I. THE SIBERIAN TIGER

Generally, tigers are an Asiatic predator and are not found in Africa or Europe.[4] Of the eight subspecies of tigers, three have gone extinct during the past century.[5] The latest population estimate for the Siberian tiger is 450 individuals.[6] Scientists estimate that viable wild population of tigers requires a minimum of 500 individuals.[7]

The Siberian tiger (*Panthera tigris altaica*) is the largest of all the tiger subspecies.[8] The males in the wild weigh up to 650 pounds, whereas the females weigh around 320 pounds.[9] The range of the Siberian tiger has never actually

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[3] David McDowell, *Foreword*, *in* LYLE GLOWKA, FRANCOISE BURHENNE-GUILMIN & HUGH SYNGE IN COLLABORATION WITH JEFFREY A. MCNEELY & LOTHAR GUNDLING, A GUIDE TO THE CONVENTION ON BIOLOGICAL DIVERSITY, Environmental Policy & Law Paper No. 30, IUCN – The World Conservation Union, 1 (1994) [hereinafter GUIDE TO THE CBD].

[4] PETER MATTHIESSEN, TIGERS IN THE SNOW 13 (2000)

[5] *See id.* at 101 (three extinct subspecies are Bali, Caspian and Javan); Geoffrey C. Ward, *Making Room for Wild Tigers*, 192 NAT'L GEOGRAPHIC 2, 13 (1997). The South China and Sumatran tigers may go extinct in the beginning of the twenty-first century. MATTHIESSEN, *supra* note 4, at 101.

[6] *See* MATTHIESSEN, *supra* note 4, at 163; Ward, *supra* note 5, at 13 (estimating 1500 individuals in the Indochinese tiger population, and 3000 individuals in the Indian tiger population). MATTHIESSEN, *supra* note 4, at 101. Over half of the tigers living in the wild are Indian tigers. *Id.*

[7] *See* MATTHIESSEN, *supra* note 4, at 163. Scientists believe that in a population of 500 tigers there is less inbreeding, and genetic drift. *Id.*

[8] *See* MATTHIESSEN, *supra* note 4, at 47; Kevin Schafer & Martha Hill, *The Logger and the Tiger*, 96 WILDLIFE CONSERVATION 22, 24 (1993).

[9] *See* MATTHIESSEN, *supra* note 4, at 47 (explaining that the weight of a tiger in captivity is not necessarily representative of a tiger's weight in the wild). A tiger will grow continuously, and its life expectancy in captivity is five years longer than in the wild. *See id.* at 48.

extended as far north as Siberia.[10] The south forests of Korea and China, on east by the Sea of Japan, on the north by the southern edge of Siberia, and on the west by Lake Baikal bounds the original range of the Siberian tiger.[11] The Siberian tiger's current range is in the Russian Far East, in the Sikhote-Alin Mountains along the Amur River basin.[12] It is roughly equivalent to in size and topography to the area from San Francisco to Seattle.[13] However, the climate is vastly different with winter temperatures as low as -40°F and snow 12–20 inches deep four months out of the year.[14]

The current habitat of the Siberian tiger in the Sikhote-Alin is unique. The mountains form a natural boundary between the vast boreal forests of Siberia and the temperate forests of southern Asia.[15] With more than 150 species of trees and shrubs, this is one of the most diverse ecosystems in Asia.[16] In the Sikhote-Alin Mountains, southern species of animals mix with northern species, such as moose and Sika deer, or marten and leopards.[17] In addition, there are several kinds of mammals that live nowhere else in Russia for instance, the Amur leopard, Sika otter, and Siberian tiger.[18]

One of the major concerns for preserving the current wild populations of Siberian tigers is the presence of an adequate density of prey.[19] The Siberian tiger feeds on elk, sika deer, small roe deer and wild boar and needs to eat ten pounds of meat a day.[20] In the Sikhote-Alin, the thin soil and long winters limit the populations of elk and boar.[21] Therefore, in order to get enough to eat, Siberian

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[10] *See* Schafer & Hill, *supra* note 8, at 24.

[11] *See id.*

[12] *See id.*

[13] *See* Howard Quigley & Maurice Hornocker, *The Siberian Tiger Project: Saving Endangered Species Through International Cooperation*, 11 ENDANGERED SPECIES UPDATE 4, 5 (1994).

[14] *See* MATTHIESSEN, *supra* note 4, at 8.

[15] *See* Quigley & Hornocker, *supra* note 13, at 5; Schafer & Hill, *supra* note 8, at 24. This forest is also considered one of the most diverse temperate forests in the world.

[16] *See* Quigley & Hornocker, *supra* note 13, at 5; Schafer & Hill, *supra* note 8, at 24.

[17] *See* Quigley & Hornocker, *supra* note 13, at 5.

[18] *See* Schafer & Hill, *supra* note 8, at 24; Quigley & Hornocker, *supra* note 13, at 5 (explaining that the Russian Far East is a combination of continental and milder maritime climates and that this combination of climates promotes a diversity of plants and animals from the northern boreal, Asian and temperate coniferous life zones).

[19] *See* Ward, *supra* note 5, at 23 (explaining that latest research indicates that loss of prey finally led to the extinction of Bali, Caspian and Javan tigers).

[20] *See* MATTHIESSEN, *supra* note 4, at 8.

[21] *See* Will Englund, *Russian Economic Crisis Threatens Siberian Tigers*, THE SEATTLE TIMES, Nov. 12, 1998, at A16.

tiger territories range about 175 square miles.[22] The Korean pine, known in Russian as the bread of the forest, is the primary food source for elk and boar.[23] Seeds are nutritious and rich in fat and allow animals like elk and boar to survive through the winter.[24]

The history of the Siberian tiger is not a pleasant one. In the late 1800s, Siberian tigers were deliberately eradicated due to the construction of Chinese Eastern Railway and the influx of Russian settlers to the Russian Far East.[25] By the late 1930s there were an estimated twenty to thirty Siberian tigers remaining in Russia.[26] In 1947 Russia outlawed the hunting of the Siberian tiger.[27] By 1985 the Sikhote-Alin contained an estimated 450 tigers.[28] However, due to international poaching, in 1994 there were maybe only 200 tigers left in the Russian Far East.[29]

Currently, the Siberian tiger is the subject of a long-term study called the Siberian Tiger Project, a joint effort between Russian tiger authorities and American wildlife biologists.[30] The Siberian Tiger Project is based primarily in the Sikhote-Alin Preserve, a Russian national park the size of Yosemite.[31] The American co-directors of the project, Maurice Hornocker and Howard Quigley, are both pioneers in the field of radio telemetry used to study large feline predators.[32]

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[22] *See id.* Contrast, in India, a Bengal female tiger needs little more than 6 square miles because of the higher prey density (and smaller body size). *See id.* In Nagarhole National Park in Southern India, adult female Bengal tiger eats 13 pounds of meat a day, which translates into 4700 pounds of meat a year. Ward, *supra* note 5, at 23. A tigress with two cubs demands more than 6800 pounds of meat a year.
See id. Biologists have found that Nagarahole, home to guar, the largest wild cattle on earth (weighing up to 2000 lbs.), provides 32,385 pounds of meat for every square mile. *See id.* This is because of the staggering amounts and variety of prey items. *See id.* The result is that three of India's largest carnivores to flourish in the one park, tiger, leopard, and wild dog. *See id.*

[23] *See* Schafer & Hill, *supra* note 8, at 24.

[24] *See id.*

[25] *See d.*

[26] *See d.*

[27] *See* MATTHIESSEN, *supra* note 4, at 11.

[28] *See* Maurice Hornocker, *Introduction*, *in* MATTHIESSEN, *supra* note 4, at xi.

[29] *See* Steven Galster, *Russian Rangers Complement International Pressure to Save the Siberian Tiger*, 11 ENDANGERED SPECIES UPDATE 7 (1994).

[30] *See* MATTHIESSEN, *supra* note 4, at 17. The Siberian Tiger Project started in 1992. *See id* at 18.

[31] *See* Maurice Hornocker, *Introduction*, *in* MATTHIESSEN, *supra* note 4, at x.

[32] *See* MATTHIESSEN, *supra* note 4, at 17-18. In addition, both co-directors understand the necessity for and the value of publicity. Maurice Hornocker writes an article in the National Geographic magazine every two to three years. Hornocker was also responsible for inviting author Peter Matthiessen to observe the Siberian Tiger Project in 1992. Maurice Hornocker, *Introduction*, *in* MATTHIESSEN, *supra* note 4, at xvi. In 2000, Peter Matthiessen wrote a book featuring the Siberian tiger and the Siberian Tiger Project. MATTHIESSEN, *supra* note 4.

By virtue of fact that it is a large carnivore, the tiger is at the summit of its ecosystem.[33] The health of the tiger population is the best indicator of the health of the habitat.[34] By regulating herbivore populations through predation, tigers ensure stability and biological diversity for the whole system.[35] The Siberian tiger serves as an umbrella species because protection of the tiger necessarily means protection that shelters and conserves other plants and animals in their habitat.[36]

II. THREATS TO SIBERIAN TIGER SURVIVAL

With the end of communism and the opening of the borders in 1989, Russia allowed international trade for the first time in fifty years.[37] This has introduced problems of international logging and Siberian tiger poaching in the Russian Far East.[38] In addition, the end of communism has resulted in large-scale unemployment, under-funded government organizations and unpaid government officials. More recently, the Siberian tiger is threatened by the decision of President Vladimir Putin to consolidate environmental regulator power in the Ministry of Natural Resources.[39]

A. The Problem of Logging in Siberia and the Russian Far East

The Russian Federation contains fifty-eight percent of the world's coniferous forest.[40] The Siberian forest, otherwise known as taiga, covers 2.3 million square miles, an area the size of the continental United States.[41] Largely ignored

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[33] *See* MATTHIESSEN, *supra* note 4, at 50.
[34] *See id.*
[35] *See id.*
[36] *See id.*
[37] *See* Paul Raeburn, *Scientists See Threat to Life in Siberian Wilderness*, THE SEATTLE TIMES, Feb. 14, 1991, at A10 (explaining that the Siberian wilderness is being threatened by the opening of the Soviet economy).
[38] *See id.* (explaining that economic exploitation of natural resources in Siberia will occur on a more massive scale than in the tropics).
[39] *See* Patrick Cockburn, *Putin puts Future of Siberian Tiger at Risk*, THE INDEPENDENT, July 5, 2000, at 15.
[40] *See* MATTHIESSEN, *supra* note 4, at 34–35. Coniferous forest consists of tree species such as pines, spruce and fir.
[41] *See* Armin Rosencranz & Antony Scott, *Siberia's Threatened Forests, Commentary*, 355 NATURE 293, 293 (1992). The taiga forest region spans from the Ural Mountains in the west, to the Pacific Ocean in the east. Danielle Knight, *Environment – Russia: Siberian Greens Press for Nature Preserves*, INTER PRESS SERVICE, July 30, 2000 [hereinafter *Siberian Greens*].

by the international environmental community, the Siberian forests are a critical carbon sink, which helps mitigate the effects of global warming.[42] The taiga stores as much as forty billion tons of carbon and one hectare of Siberian forest produces seven metric tons of oxygen per year.[43]

However, despite the vast size the of Siberian forests, the ecosystem is extremely fragile.[44] Tree regeneration in Siberia is slowed by long and severe winters.[45] The average tree growth is two to three times slower than in the rest of the Russian Federation.[46] In addition, logging operations in Russia either clear cut, or harvest through intensive selective cutting.[47] Clear-cutting in the northern permafrost converts the forests into swampland.[48] This phenomenon can be currently seen in the forests of the northern Amur region, which overlaps with the northern border of Siberian tiger habitat.[49] Clear-cutting exposes the ground to sunlight that in turn melts the permafrost.[50] The result is swamp-like conditions that prohibit native tree seedlings from taking root.[51] Without trees, this land can no longer support native animals such as moose, bear or deer.[52]

Animals like the Siberian tiger and elk have a better chance of survival in areas where logs are collected through selective harvesting.[53] However, selective cutting results in a larger infrastructure of logging roads, which cause soil erosion and siltation in the rivers.[54] Selective harvesting also requires a larger area of forest to yield the same return on investment as clear-cutting.[55]

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[42] *See* MATTHIESSEN, *supra* note 4, at 35; Rosencranz & Scott, *supra* note 41, at 293.

[43] *See* Julia Levin, *Russian Forest Laws — Scant Protection During Troubled Times*, 19 ECOLOGY L.Q. 685, 688 (1992). Siberian forest may contain 40,000 million tons of stored carbon, whereas Amazon rainforest account for 80,000 million tons of stored carbon. Rosencranz & Scott, *supra* note 41, at 294.

[44] *See* Levin, *supra* note 43, at 725 (explaining that increased timber harvesting could permanently destroy one of Russia's most valuable resources).

[45] *See* Rosencranz & Scott, *supra* note 41, at 293.

[46] *See id.*

[47] *See* Matthiessen, *supra* note 4, at 117; Quigley & Hornocker, *supra* note 13, at A6.

[48] *See Siberian Greens*, *supra* note 41.

[49] *See id.* (explaining what was once forest to animals like moose, bear and elk is now a swampy habitat). Fourteen percent of the Siberian tiger population lives as far north as the northern limit of the elk and boar. *See* MATTHIESSEN, *supra* note 4, at 119.

[50] *See Siberian Greens*, *supra* note 41.

[51] *See id.* (explaining that the northern areas that have already been clear-cut contain no animals, no creeks, just swamps and moss).

[52] *See id.*

[53] *See* MATTHIESSEN, *supra* note 4, at 117 (explaining that while tiger and elk cannot survive clear-cut forestry, they do better in areas of selective cutting).

[54] *See id.*

[55] *See id.*

Prior to 1989 and the opening of the borders, the government closed Russia to international trade.[56] Currently, international logging in Russia occurs on two fronts, both of which result from the fall of Communism and the current economic situation.[57] The first is on the level of the federal and regional governments. The Russian government is selling forestry rights to international lumber companies at bargain rates in an attempt to raise capital.[58] The second is on the individual level. With rampant inflation, and epidemic unemployment, Russian citizens in Siberia have turned to logging as a critical source of income.[59]

To attract foreign investment and hard currency, regional and federal branches of the Russian government have sold logging rights to international logging corporations based out of China, North and South Korea, Japan, and the United States.[60] In 1991, Hyundai Corporation of South Korea signed a thirty-year joint venture agreement to log half a million acres of virgin forest in the Primorsky Krai region of the Russian Far East.[61] This area is located in the middle of Siberian tiger habitat.[62] By 1992, it was already logged.[63] In 1993, Weyerhaeuser, an American timber company, was negotiating with Russia for control over an area the size of the state of Delaware in the Khabarovsk Krai region of the Russian Far East.[64] The proposed project will use clear-cutting in mountainous ter-

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[56] *See* Fred Hiatt, *Even Rangers Prey on Russia's Parks*, WASHINGTON POST, June 12, 1994, at A3 (explaining that with the economic collapse and breakdown of central authority, the Soviet Union can no longer protect nature reserves); Raeburn, *supra* note 37, at A10 (explaining that foreign businessmen were rushing to take advantage of new opportunities to exploit Siberian natural resources such as timber).

[57] *See* Danielle Knight, *Russian: Corruption, Illegal Logging Threaten Far East Forests*, INTER PRESS SERVICE, Aug. 6, 2000 [hereinafter *Corruption, Illegal Logging*] (explaining that regional governments across Siberia and the Russian Far East are responding to a deep economic crisis by facilitating export of natural resources in order to generate short term, hard currency).

[58] *See* MATTHIESSEN, *supra* note 4, at 34.

[59] *See* Schafer & Hill, *supra* note 8, at 26; Anatoly Medetsky, *Illegal Logging Biz grows in Russia*, AP ONLINE, July 5, 2000 (explaining that the majority of adults in logging villages are unemployed and earn their living by destroying the nearby woodland).

[60] *See Corruption, Illegal Logging*, *supra* note 57 (explaining that currently 60% of exported timber goes to Japan, 30% to China, and 10% goes to North and South Korea).

[61] *See* MATTHIESSEN, *supra* note 4, at 32.

[62] *See id.* at 1.

[63] *See* Schafer & Hill, *supra* note 8, at 28. Hyundai attempted to move its operation into the Bikin River basin where it was met with armed protests of the Udegei (indigenous Asiatic people), who have watched other Udegei settlements die out as their river watersheds were logged. *See id.* The Udegei have lived in the Sikhote-Alin Mountains for years, trapping for furs, and subsisting on meat and fish. *See id.*; MATTHIESSEN, *supra* note 4, at 33.

[64] *See* MATTHIESSEN, *supra* note 4, at 34; Schafer & Hill, *supra* note 8, at 28; Rosencranz & Scott, *supra* note 41, at 293; Cindy Brown & Sean Griffin, *In the Basket: Weyerhaeuser's Russia Deal could take Bite from Home Bark*, THE MORNING NEWS TRIBUNE, March 12, 1993.

rain, resulting in increased soil erosion.[65] The Khabarovsk Krai region represents the northern end of the Siberian tiger's range.[66]

China exerts additional logging pressure on Russia.[67] In 1998, China revised its forest management laws to prohibit domestic logging because it was causing soil erosion and massive flooding.[68] The result is that China expects imported lumber from Russia to satisfy national demand.[69]

Traditionally, Siberia is considered rich in terms of natural resources, and poor in terms of technology.[70] This history of inadequate technology has meant that despite the increase in logging, local forest communities continue to suffer economically.[71] Russian milling practices and facilities do not produce products of export quality.[72] International logging companies are only interested in exporting raw, unprocessed logs and are not interested in investing in local processing facilities.[73] Therefore, in order to raise capital for investment in its own forestry industry, Russia needs to sell more raw logs.[74] In addition, when international logging companies establish operations in Russia, they bring their own workers.[75] The result is that even with the burgeoning timber industry, individuals from Russian logging villages are still unemployed.[76]

Illegal logging is also a problem in the Russian Far East.[77] It is estimated that timber poachers cut down twenty percent of the official harvest.[78] Follow-

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[65] *See* Rosencranz & Scott, *supra* note 41, at 293.

[66] *See* MATTHIESSEN, *supra* note 4, at 1.

[67] *See Corruption, Illegal Logging*, *supra* note 57.

[68] *See Siberian Greens*, *supra* note 41.

[69] *See Corruption, Illegal Logging*, *supra* note 57.

[70] *See* Natalya Shulyakovskaya, *Wooden Wealth*, THE MOSCOW TIMES, Feb. 15, 2000 (explaining that this legacy is currently haunting eastern Siberia).

[71] *See* MATTHIESSEN, *supra* note 4, at 140; *Corruption, Illegal Logging*, *supra* note 57.

[72] *See* Rosencranz & Scott, *supra* note 41, at 293 (explaining that typical Russian milling practices use three times the amount of timber to produce a finished product compared to North American and Western European countries); Shulyakovskaya, *supra* note 70 (explaining that in Irkutsk, a Japanese and Russian joint venture operates one of the few mills creating timber products of export quality).

[73] *See Corruption, Illegal Logging*, *supra* note 57; Shulyakovskaya, *supra* note 70 (explaining that China refused to accept processed timber products from Russia, preferring to purchase round, raw logs).

[74] *See* Shulyakovskaya, *supra* note 70 (explaining that Russia has no choice but to continue exporting raw timber to China).

[75] *See Siberian Greens*, *supra* note 41 (explaining that the North Korea and Russian logging joint venture in Tynda, employed more than 6000 North Korean workers during the height of production).

[76] *See* MATTHIESSEN, *supra* note 4, at 140; *Corruption, Illegal Logging*, *supra* note 57.

[77] *See Corruption, Illegal Logging*, *supra* note 57; Medetsky, *supra* note 59.

[78] *See* Medetsky, *supra* note 59.

ing the fall of Communism in 1989, the government privatized state-run timber companies but the companies quickly went out of business.[79] Most poachers are villagers who lost their jobs when the state-run timber companies shut down.[80] The Primorski Krai region, the primary Siberian tiger habitat, accounts for one half of the Russian Federation's illegal timber harvest.[81]

Russia also lacks the economic resources to enforce their forestry laws.[82] Despite the fact that Russian law prohibits logging of Korean pine, it is one of the primary species of trees that Japanese and Korean timber operations selectively harvest.[83] Environmental activists fear that logging could cause the extinction of this economically and ecologically valuable tree.[84]

B. The Problem of Siberian Tiger Poaching in the Russian Far East

In Russia, hunting Siberian tigers has been illegal since 1947.[85] However, in the late 1980s, the illegal international tiger trade threatened to cause the extinction of the Siberian tiger.[86] Formerly in Asia, the tiger bone medicine trade had been respectable as well as profitable.[87] By the late 1980s, with China's tigers hunted almost to extinction and stockpiles of tiger bones depleted, poaching of tigers in other countries became a lucrative business.[88] Tiger poaching was initially observed in Indian national parks in 1986.[89]

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[79] *See* Shuylakovskaya, *supra* note 70 (explaining that 80% of the former state enterprises are now either bankrupt or facing bankruptcy in the Irkutsk region).

[80] *See* Medetsky, *supra* note 59 (explaining that 80–100% of adults in logging villages are unemployed).

[81] *See id.* (stating that in 1999, of the 21.1 million cubic feet of illegal wood harvested in Russia, 10.6 million cubic feet of lumber was harvested in the Primorye region).

[82] *See* MATTHIESSEN, *supra* note 4, at 140.

[83] *See id.* (explaining that Korean pine is the first species logged). The Japanese demand Korean pine, although cutting that kind of pine is illegal in Russia. *See id.* at 141.

[84] *See* Medetsky, *supra* note 59.

[85] *See* MATTHIESSEN, *supra* note 4, at 11.

[86] *See* Raeburn, *supra* note 37, at A10. The Siberian tiger population was estimated as low as 150 individuals in 1994. Galster, *supra* note 29, at 7 (stating that experts agreed that the Siberian tiger would disappear at that rate within five years).

[87] *See* MATTHIESSEN, *supra* note 4, at 111.

[88] *See id.* at 112; Ward, *supra* note 5, at 16.

[89] *See* Ward, *supra* note 5, at 16 (explaining that the initial disappearance of tigers from these parks was a mystery).

In Russia, the collapse of Communism in 1989 opened the Russian/China border and caused massive unemployment.[90] As a result, tiger poaching was rampant in the Russian Far East in 1992, 1993, and 1994.[91] The value of a dead tiger rose from $3,000 to as much as $10,000 within that period.[92] For a Russian hunter, the money was equivalent to four or five years' salary.[93] With the end of Communism, people's lives are in chaos and there is no longer any economic security for the majority of people in Russia.[94]

C. The Consolidation of Power Under the Ministry of Natural Resources

On May 17, 2000, President Vladimir Putin abolished two main environmental agencies, the State Committee for Environmental Protection and the Federal Forestry Service.[95] The State Committee for Environmental Protection was responsible for monitoring all aspects of the environment, except for nuclear safety, and for reviewing environmental impact statements.[96] Functions of both agencies have passed to the Ministry of Natural Resources.[97] Ministry's priority is economic development, no matter what the environmental cost.[98]

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[90] Galster, *supra* note 29, at 7 (stating that post-perestroika Russia politically freeing Russian citizens spells disaster for Russian tigers); Quigley & Hornocker, *supra note* 13, at 6 (explaining that the borders are open and the economic situation is unstable); Ward, *supra* note 5, at 28; Gareth Jones, *Rare Siberian Tiger Falls Victim to Russia's Economic Slump, Skin of the World's Largest Cat Can Bring $5,000 — A Fortune in Hard Times*, THE SEATTLE TIMES, April 25, 1993 at A17 (explaining that the Siberian tiger has become an enticing target for cash-strapped hunters of the Russian Far East).

[91] Ward, *supra* note 5, at 28; *Siberian Tigers Get New Protection*, AP ONLINE, May 2, 1998 (reporting the price of a Siberian tiger at $10,000).

[92] MATTHIESSEN, *supra* note 4, at 114 (explaining that a hunter may sell large Siberian male tiger for $8,000 which would eventually fetch $750,000 for its 15 kilograms of powered bones); Galster, *supra* note 29, at A7 (reporting that a whole dead tiger can fetch more than $30,000 on the black market in Taiwan or China).

[93] MATTHIESSEN, *supra* note 4, at 112 (explaining that $10,000 is more than what an ordinary Russian will make in five years); Schafer & Hill, *supra* note 8, at 26 (explaining that tiger skins sell for as much as 2000,000 rubles, the equivalent to four years' salary).

[94] MATTHIESSEN, *supra* note 4, at 145 (explaining that Russians have always had to grow and hunt all of their own food, but under the Communist regime, they were also able to put aside some savings).

[95] Andrew Kramer, *Ecologists Object to Closing Agency*, AP ONLINE, May 23, 2000; *Russian Environmentalists Sue President Putin over Dissolution of Environmental Regulator Agency*, ASCRIBE NEWS, Aug. 22, 2000 [hereinafter *Russian Environmentalists*].

[96] Kramer, *supra* note 95; *Russian Environmentalists*, *supra* note 95.

[97] *See Russian Environmentalists*, *supra* note 95; Patrick Cockburn, *Putin Puts Future of Siberian Tiger at Risk*, THE INDEPENDENT, July 5, 2000.

[98] *See* Cockburn, *supra* note 97.

In the past, the Ministry of Natural Resources has used their licensing and permit power to promote large-scale commercial exploitation of oil, gas, mining and water use.[99] Now this Ministry will have authority over permitting logging and environmental impact assessments.[100] The future effects of this are unknown, however it is speculated that the Siberian tiger may be one of the first casualties in the coming free-for-all in the use of Russia's natural resources.[101]

III. WHY THE SIBERIAN TIGER IS WORTHY OF PROTECTION

Of critical concern is the conservation of the Siberian tiger in its natural environment. Currently, more Siberian tigers live in captivity than in Russia.[102] However, advocating the conservation of an endangered species in its native habitat requires careful consideration because preservation may require short-term economic sacrifices.[103]

There are many reasons to protect the Siberian tiger. The first is that scientists commonly consider the Siberian tiger as having the best hope of survival in the wild compared to other species.[104] The Siberian tiger's advantage stems from "the fact that it is a single population in a single habitat that is more or less continuous throughout its range."[105] No other tiger population inhabits a vast and almost roadless area of forested mountains, very thinly populated by hu-

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[99] *See Russian Environmentalists*, *supra* note 95 (explaining that the Ministry has refused in the past to conduct legally required environmental impact assessments for mining and other resource extraction licenses).

[100] *See id.*; Cockburn, *supra* note 97.

[101] *See* Cockburn, *supra* note 97 (stating that the Siberian tiger and the Far Eastern leopard face their last days).

[102] *See* MATTHIESSEN, *supra* note 4, at 124 (explaining that these are the Siberian tigers with a well established lineage). Thousands of additional tigers of uncertain speciation live in private menageries. *Id.* An estimated 2000 of these tiger mutts live in Texas alone. *Id.*

[103] *See* Mark Sagoff, *On the Uses of Biodiversity*, *in* PROTECTION OF GLOBAL BIODIVERSITY, CONVERGING STRATEGIES 265, 265-66 (Lakshman D. Guruswamy & Jeffrey A. McNeely eds., 1998).

[104] *See* MATTHIESSEN, *supra* note 4, at 102 (explaining that Siberian Tiger Project scientists have always believed that the Siberian tiger has the best chance of any of the tigers). Quoting Dale Miquelle of the Siberian Tiger Project, "Yes there's still poaching. Yes, there's a lot of logging. Yes, there's too much hunting of ungulates. But there's still a big stretch of more or less intact forest. Human pressure is low — and not likely to rise. If the Russians extract timber at a sustainable rate, if hunters can be persuaded to remove prey

man beings.[106] In contrast to the Siberian tiger, the Indian tiger subspecies has greater numbers and greater prey density, but national parks are few and spread out throughout the country.[107] In addition, the human population pressure against the Indian tiger is enormous.[108]

There are two ways to examine the value of a species. One way is to examine the instrumental value. The instrumental value is examining the value of a species by examining its use to mankind. The second way to value a species is based on their intrinsic value. Intrinsic value is based on the idea that there is an inherent value to a species, separate from any useful function it may serve mankind.

In examining the instrumental value of the Siberian tiger, it becomes apparent that the animal may serve several uses. The first is pharmacological. The pharmacological value argument is used in many instances to advocate for the preservation of the rainforest. The idea is that there may be a plant or animal in the rainforest that may cure cancer or AIDS, therefore, governments should work to preserve the entire rainforest since no one knows which plant may possess valuable pharmacological characteristics.[109]

For Siberian tigers, conservationists could make a similar argument. There is actual confirmation that tiger bone medicine is an effective anti-inflammatory for arthritis.[110] Therefore, conservationists could argue that allowing limited amounts of legalized hunting of the Siberian tiger would provide Russian citizens with an economic incentive for saving the tiger in the wild. However, this does not seem like a very effective argument considering that China has decimated the domestic tiger population in an effort to supply the Asian tiger-bone medicine industry.[111]

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[106] *See id.* Contrast with Indian tiger populations that are scattered into over one hundred isolated units, strung out in unsustainable small bands and restricted to small pockets of sadly tattered habitat. *See id.* In addition, these national parks are surrounded by hordes of food-and-fuel seeking humans with their famished herds of livestock. *See id*; *see also* Ward, *supra* note 5, at 17 (describing Ranthambhore National Park in India as 150 square miles surrounded by ever growing numbers of desperately poor people). Foraging livestock has stripped bare the buffer zone area. *Id.*

[107] *See id.*

[108] *See id.*

[109] *See* Sagoff, *supra* note 103, at 274.

[110] *See* MATTHIESSEN, *supra* note 4, at 111 (explaining that while outside Asia, tiger bone medicine has been dismissed as superstitious, it's pharmacological benefits have also been asserted by researchers in Western laboratories).

[111] *See* Ward, *supra* note 5, at 16.

One of the dangers of the instrumental argument is that once there is an economic use for a species, nothing prevents the domestication of that species.[112] If a species is domesticated and the domestic production becomes more economically valuable than production from species found in the wild, does any motivation remain to preserve that wild habitat?[113] The discovery of instrumental value of a species may only guarantee preservation through domestication.[114] The result of discovering an economically lucrative instrumental value for the Siberian tiger may perhaps relocate preservation efforts to zoos or farms. Considering there are currently more Siberian tigers living in captivity than in the wild, it is highly likely that individuals or tiger-bone medicine corporations could successfully establish domestic farming operations.[115] However, preserving Siberian tigers in zoos, or amusement parks hardly seems equivalent to maintaining a viable tiger population in the vast Sikhote-Alin wilderness.[116]

An additional instrumental argument for preserving the Siberian tiger concerns the great ecological value of the habitat. Logging in this habitat may destroy this ecosystem and adversely effect local human populations as well as contribute to global warming. The Siberian tiger's status at the top of the food chain means that there is a correlation between the health of a population of tigers and the health of the overall ecosystem.[117] Saving the Siberian tiger, an umbrella species, requires saving the unique and diverse ecosystem found in the Sikhote-Alin Mountains.[118]

The European-Russian population living in the Far East is self-sufficient out of economic and practical necessity.[119] Elk, which people hunt out of the

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[112] *See* Sagoff, *supra* note 103, at 266 (using Atlantic and Pacific salmon as an example). Sagoff argues that wild fisheries lose value, as aquaculture becomes more efficient. *Id.* In 1964, when salmon was still harvested in the wild, consumers purchased 873 million pounds of salmon. *Id.* By 1993, with the success of domestic fisheries, consumers purchased 2.5 billion pounds of salmon. *Id.*

[113] *See id.* (explaining that the question turns on the motivation to preserve the wild fishery when the domestic fishery is more economically valuable and efficient).

[114] *See id.* at 267 (explaining that historically this has happened with chicken, and it is currently happening with Atlantic and Pacific salmon).

[115] *See* MATTHIESSEN, *supra* note 4, at 116 (explaining that the Hengdaohezi Tiger Breeding Center in Heilongjiang, China was once the main source of bones for tiger-wine manufacturing).

[116] *See id.* (explaining that the Hengdaohezi Tiger Breeding Center is now the Siberia Tiger Park where tourists may watch live tigers capture and eat chickens); Ward, *supra* note 5, at 29 (showing tigers feeding on meat hung off of a tourist bus in a South Korean amusement park).

[117] *See* MATTHIESSEN, *supra* note 4, at 50.

[118] *See id.*

[119] *See id.* at 145 (explaining that Russians have to hunt and grow all of their own food).

forest, is one of the staples of the diet.[120] In the summer, Russians cultivate bees for honey, and harvest wild ginseng root, mushrooms, berries, ferns and medicinal plants out of the forest.[121] Indigenous peoples in the Sikhote-Alin mountains are hunter-gathers and still rely on the meat and furs that they trap and kill.[122] The Udegei, an indigenous Asiatic group of people who are hunters and fishermen, live in this region.[123] The main settlement in Krasny Yar are militantly against logging because logging along their watershed means slow death.[124]

Logging in the Russian Far East affects global human populations as well because the forests serve as an important source of oxygen and help to mitigate the greenhouse effect.[125] The fragility of the ecosystem, the slower rate of forest regeneration, and the history of forestry practices indicate that timber is a less sustainable resource in the Russian Far East than in other parts of the world.[126] Therefore, preserving Siberian tiger habitat serves a global human need.

The intrinsic value of the Siberian tiger stems from a respect for nature and other species.[127] It is based on the knowledge that tigers have been around for 2 million years, perhaps influencing the evolution of other animals.[128] At the same time, scientists only dimly understand the evolution and history of tigers.[129] In addition, until recent decades, there was minimal systematic long-term field research due to the covert habits of tigers.[130] The Siberian tiger is a majestic and emblematic subspecies, which humans have yet to fully understand.[131]

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[120] *See id.* at 161 (finding a Russian citizen boasting that the elk and salmon had been hunted and fished by himself).

[121] *See id.* at 143 (explaining that a local hunting club may lease flora and fauna which effectively means the right to hunt and gather).

[122] *See id.* at 33; Schaefer & Hill, *supra* note 8, at 28.

[123] *See* MATTHIESSEN, *supra* note 4, at 33; Schaefer & Hill, *supra* note 8, at 28.

[124] *See* MATTHIESSEN, *supra* note 4, at 33; Schaefer & Hill, *supra* note 8, at 28 (explaining that the Udegei have witnessed other settlements die out as their river watersheds were logged).

[125] *See* Levin, *supra* note 43, at 688 (explaining that Russian forests help stem the greenhouse effect, by removing huge quantities of atmospheric carbon gases and replacing them with oxygen).

[126] *See Siberian Greens*, *supra* note 41 (stating the fear that there will be nothing left to log in fifteen years in the Amur forest despite the fact that it covers 22.9 million hectares).

[127] The idea of the Siberian tiger living and patrolling in an inhospitable, yet pristine wilderness and covering hundreds of miles of territory commands respect.

[128] *See* Ward, *supra* note 5, at 13. Such as a deer's quickness and sense of smell. *Id.* Tigers are exceptionally resilient animals, adapting to a wide range of habitats, from the Russian Far East, to India and Indonesia. MATTHIESSEN, *supra* note 4, at 39 (explaining that perhaps only *Homo sapiens* have survived in more diverse ranges of habitat).

[129] *See* MATTHIESSEN, *supra* note 4, at 39.

[130] *See id.*

[131] *See id.*

Intrinsic value also comes from the idea that there is a moral, ethical, or cultural justification for preserving the Siberian tiger. Some view causing the extinction of a species as a moral crime.[132] Others point out that "having a moral and ethical awareness is one of the hallmarks of being human. Therefore, in acting to forward morality, we are acting in a manner that enhances our humanity."[133] The moral or ethical argument is based fundamentally on the Golden Rule, which forms the basis for moral and legal code.[134] As John Seidensticker, of the Smithsonian National Zoological Park in Washington, D.C. explains, "[the experience of watching the extinction of the Javan tiger] was like mourning a death in the family."[135]

The cultural argument for preserving the Siberian tiger is based on the fact that the animal is the subject of much folklore within indigenous tribes in the Sikhote-Alin wilderness. The Udegei people used to revere the tiger; they considered it the spirit of the mountains.[136] However, attempts to create a unified Russian identity during Stalin's regime have paid off.[137] Currently, although some may say that the taiga would be boring without tigers, the Udegei have not retained any myths about the forest.[138]

IV. EVALUATION OF THE APPLICABLE LAW

There are two international conventions affecting the survival of the Siberian tiger. The first is the Convention on International Trade in Endangered Specials of Wild Fauna and Flora ("CITES"), which attempts to prohibit the international trade of the endangered species.[139] The second is the Convention

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[132] E.O. Wilson, *Resolutions for the '80s*, HARVARD MAGAZINE 22, 26 (1980).

[133] Marla Mansfield, *Protection of Global Biodiversity: Converging Strategies*, 10 COLO. J. INT'L ENVTL. L. & POL'Y 143, 150 (book review) (discussing the moral and ethical dimension of environmental protection).

[134] The Golden Rule dictates to "Do unto others as you would have others do unto you." *Matthew* 7:14.

[135] Ward, *supra* note 5, at 21 (explaining that Seidensticker witnessed the extinction of the Javan tiger first hand as a young field researcher).

[136] *See* MATTHIESSEN, *supra* note 4, at 5.

[137] *See* Mike Edwards, *Siberia, In from the Cold*, NAT'L GEOGRAPHIC 2, 14 (1990) (explaining that leadership of large indigenous groups was swept off to labor camps beginning in the 1930s).

[138] *See* MATTHIESSEN, *supra* note 4, at 143.

[139] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 6, 1973, art. II, para. 1, 27 U.S.T. 1087, TIAS No. 8249, 993 UNTS 243 (entered into force July 1, 1975) [hereinafter CITES].

on Biological Diversity, which attempts to preserve threatened species and their natural habitat.[140]

A. The Siberian Tiger Under CITES

Delegates signed CITES on March 6 1973, in Washington, D.C., and entered it into force on July 1, 1975.[141] The main purpose of CITES is to regulate and control the trade in threatened and endangered species.[142] CITES, despite being a general wildlife protection treaty, is in the category of treaties that attempts to conserve biological diversity by focusing on a species, or groups of species.[143] Treaties such as CITES achieve this objective by establishing procedures for listing species, and by developing regulatory systems protecting the listed species.[144]

The Siberian tiger is currently listed on Appendix I where it enjoys the maximum protection under CITES.[145] According to Article II of CITES, Appendix I lists species that are threatened with extinction, and any trade in those species is authorized only under exceptional circumstances.[146] The effect of CITES on the Siberian tiger is to prohibit all international trade of tigers and tiger parts.[147]

The international environmental community has used CITES as a regulation to effectively curb the threat that poaching presents to Siberian tigers.[148] The reasons for this success concern funding, education, enforcement of CITES, and the Siberian tiger itself. However, maintaining the effectiveness of CITES will require constant vigilance from the international community.

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[140] Convention on Biological Diversity, June 5, 1992, art. 8, para. f, 31 I.L.M. 818 (entered into force Dec. 29, 1993) [hereinafter CBD].

[141] Michael J. Glennon, *Has International Law Failed the Elephant*, 84 AM. J. INT'L L. 1, 10 (1990).

[142] CITES, *supra* note 139, art. II (stating that the fundamental principles of the convention is to regulate trade of species and specimens listed on Appendix I, II and III).

[143] Daniel M. Bodansky, *International Law and the Protection of Biological Diversity*, 28 VAND. J. TRANSNAT'L L. 623, 628-29 (1995) (explaining that one general category of treaties protecting wildlife focuses on listing species, the second category emphasizes habitat conservation, and the third category tries to address nature conservation through both species conservation and habitat protection).

[144] *See id.* at 628.

[145] *See* CITES, *supra* note 139, Appendix I.

[146] CITES, *supra* note 139, art. II

[147] *See* Glennon, *supra* note 141, at 11 (explaining that the net effect of CITES is to close down international trade of species listed on Appendix I, whether dead or alive).

[148] *See* MATTHIESSEN, *supra* note 4, at 163 (explaining that the most current estimate places the Siberian tiger population at 450 individuals, matching the high in the mid-1980s).

In 1985, scientists estimated the population of Siberian tigers at 450 in the Russian Far East.[149] By 1994, these same scientists feared that the number of Siberian tigers was as low as 150.[150] In 1993 and 1994, the Siberian Tiger Project embarked on a concentrated publicity campaign and raised money for anti-poaching patrols.[151] In 1994, using international aid, the Russian government launched a mobile anti-poaching force called Operation Amba.[152] Money donated by the World Wildlife Fund and the Tiger Trust of England outfitted Operation Amba with trucks and staffed with fifteen former park rangers and military men.[153] The strategy twofold, the first part was to dispatch patrols to poaching problem areas, and the second part was to conduct investigations in cities and along the borders where wildlife smugglers operate.[154] By 1996, a comprehensive census performed in the Sikhote-Alin recorded 350 adult Siberian tigers and around one hundred young juveniles.[155]

The success of Operation Amba stems from several factors. Not only were members of the local population hired and trained, but participators were also paid on time.[156] In addition, arrest authority accompanied anti-poaching patrols, informed groups educated local judges as to the severity of the crisis, and the government replaced corrupt customs officials at the border.[157] Operation

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[149] Maurice Hornocker, *Introduction*, *in* MATTHIESSEN, *supra* note 4, at xi; Galster, *supra* note 29, at 7 (explaining before the opening of the China-Russian border, tiger poachers were held at bay).

[150] Galster, *supra* note 29, at 7 (explaining that Russian authorities estimate they lost 20–25% of the Siberian tiger population between November, 1993 to March, 1994).

[151] *See* Quigley & Hornocker, *supra* note 13, at 6 (explaining that the Siberian Tiger Project delivered the first donation from the West to help in the anti-poaching effort); Schafer & Hill, *supra* note 8, at 29 (advocating saving the tiger; for information regarding conservation efforts of the Siberian Tiger Project, write to Maurice Hornocker, Direction of Hornocker Wildlife Research Institute).

[152] *See* MATTHIESSEN, *supra* note 4, at 115. The term "Amba" meaning tiger, was formerly used by the indigenous Udegei tribe. *Id.* at 143. The Udegei considered the Siberian tiger to be "the True Spirit of the Mountains," a wilderness deity who was the very breath and spirit of the taiga. *Id.* at 5.

[153] *See* Galster, *supra* note 29, at 8 (explaining that funding has brought ranger salaries up to $300 a month).

[154] *See id.*

[155] *See* MATTHIESSEN, *supra* note 4, at 163 (explaining that 500 tigers overall may ensure a secure future for the Siberian tiger).

[156] *See* MATTHIESSEN, *supra* note 4, at 115-116 (explaining that in the new Russia, timely paychecks are rare).

[157] *Id.* (explaining that the tiger trade was closed down by an anti-poaching patrol and the replacement of corrupt customs officials on the borders); Maurice Hornocker, *Siberian Tigers*, 191 NAT'L GEOGRAPHIC 100, 106 (1997) (stating that courts are treating convicted poachers more harshly); Ward, *supra* note 5, at 28 (stating that the Chinese border was better regulated).

Amba also used funds to compensate farmers in the Sikhote-Alin who lost livestock to hungry tigers.[158]

On the international front, in 1993, China banned internal trade in tiger bone, and the other Asian countries followed suit except for Japan and North Korea.[159] In April 1994, the United States levied limited trade sanctions against Taiwan for trading in endangered species, specifically tigers and rhinoceros.[160] In 1998, China outlawed all sales of tiger parts, and Chinese medicine manufacturers agreed to seek substitutes for tiger medicines to help reduce the traffic in rare creatures.[161]

Although poaching in the Russian Far East has not been completely eradicated, scientists believe that a healthy tiger population can tolerate a reasonable amount of hunting.[162] In a healthy tiger community, there is always a doomed surplus; as long as hunting does not exceed this surplus the tiger population will remain stable.[163] Currently, an additional threat to the Siberian tiger is that some Russians may eat tigers.[164]

B. The Siberian Tiger Under the CBD

The CBD was opened for signature on June 5, 1992 at the United Nations Conference on Environment and Development (the Rio de Janeiro Earth Summit).[165] On December 29, 1993, ninety days after the thirtieth ratification, the

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[158] *See* Galster, *supra* note 29, at 8 (explaining that compensation for lost livestock is vital to Amba's success).

[159] *See* MATTHIESSEN, *supra* note 4, at 115.

[160] *Id.* at 114-15; *United States Imposes Limited Trade Sanctions on Taiwan for Continued Trade in Endangered Species*, 11 ENDANGERED SPECIES UPDATE 1 (1994) [hereinafter *Taiwan Trade Sanctions*] (explaining that the United States restricted the import of wildlife products from Taiwan, worth about $22 million).

[161] *See* MATTHIESSEN, *supra* note 4, at 116 (explaining that today there is an expanded trade in non-tiger-bone nostrums, and mole-rat wine is apparently very popular).

[162] *See* Ward, *supra* note 5, at 26 (interviewing Ullas Karanth, field biologist working in Nagarhole National Park in India, working for Wildlife Conservation Society headquartered at Bronx Zoo).

[163] Ward, *supra* note 5, at 26 (Ullas Karanth explains that only 50% of tiger cubs survive to maturity, and of the ones which survive, they either disperse, or kill and replace an already existing tiger).

[164] *See* MATTHIESSEN, *supra* note 4, at 144. In the village of Melnichnoye on the border of the Sikhote-Alin Biosphere Reserve, "A third of the people in this room have eaten tiger, though they might not admit it. . . . A tiger used to travel along that hillside. Somebody saw him every year. But we don't see him anymore because we ate him." *Id.*

[165] Catherine Tinker, *A "New Breed" of Treaty: The United Nations Convention on Biological Diversity*, 13 PACE ENVTL. L. REV. 191 (1995); Convention on Biological Diversity, *supra* note 1 (explaining that the Intergovernmental Negotiating Committee, a division of the United Nations Environment Programme (UNEP), adopted the CBD at the Nairobi Conference in May 1992).

CBD entered into force.[166] The Russian Federation signed the CBD on June 13, 1992, and ratified it on April 5, 1995.[167]

The purpose of the CBD is to provide a holistic solution to preserving biodiversity on a global level by building upon existing conventions.[168] Preserving species alone is not enough to protect biodiversity.[169] The CBD falls into the category of international treaties that address wilderness conservation in a comprehensive fashion through both species and habitat protection.[170] However, this treaty is different from former conventions because it does not include any lists or annexes of protected species or areas.[171] Despite the lack of lists or annexes, the CBD is a species of "hard" treaty law that creates legally binding obligations.[172]

The nature of the CBD is that of a framework agreement.[173] Parties to the convention are responsible for determining how to implement most of the CBD provisions.[174] Generally, the provisions are expressed as overall goals and policies rather than hard and precise obligations such as those found in CITES.[175] This emphasis places the main decision-making at the national level.[176] The framework approach involves a two-step process of law creation.[177] In the first step, the parties agree to a relatively vague convention imposing few substantive duties.[178] In the second step, the document comes into force and parties meet to set

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[166] Amanda Hubbard, Comment, *The Convention on Biological Diversity's Fifth Anniversary: A General Overview of the Convention — Where has it Been and Where is it Going?*, 10 TUL. ENVTL. L.J. 415, 421 (1997).

[167] CBD, *supra* note 140, Ratification, August 14, 2000.

[168] *See* GUIDE TO THE CBD, *supra* note 3, at 1. The IUCN presents this Guide as a first step in facilitating the implementation process of the CBD. *Id.* at ix. The purpose of the Guide is to increase understanding of the CBD's text and its possible implication. *Id.*

[169] *See* Tinker, *supra* note 165, at 196 (explaining that corridors linking ecosystem habitats are necessary to support animals and plants).

[170] *See* Bodansky, *supra* note 143, at 629; Tinker, *supra* note 165, at 196 (explaining that the CBD is grounded in a broad ecosystem approach to conservation and sustainable use of biodiversity).

[171] *See* Bodansky, *supra* note 143, at 630.

[172] Lakshman D. Guruswamy, *The Convention on Biological Diversity: A Polemic*, *in* PROTECTION OF GLOBAL BIODIVERSITY, CONVERGING STRATEGIES 351, 351 (Lakshman D. Guruswamy & Jeffrey A. McNeely eds., 1998).

[173] *See* GUIDE TO THE CBD, *supra* note 3, at 1.

[174] *See id.*

[175] *See id.*

[176] *See id.*

[177] *See* Brent Hendricks, *Transformative Possibilities: Reinventing the Convention on Biological Diversity*, *in* PROTECTION OF GLOBAL BIODIVERSITY, CONVERGING STRATEGIES 360, 364 (Lakshman D. Guruswamy & Jeffrey A. McNeely eds., 1998).

[178] *Id.*

specific requirements.[179] This second step leads to separate and binding protocols on particular subjects.[180]

The CBD created an institutional structure responsible for implementing the second step consisting of the Conference of the Parties ("COP"), its legislative division.[181] The COP meets regularly and votes on protocols and amendments.[182] It has the power to amend the Convention by a two-thirds vote.[183] In addition, the Convention has created the Secretariat, an administrative agency that carries out CBD designated actions and COP delegated tasks.[184] The Subsidiary Body on Scientific, Technical, and Technological Advice is responsible for providing advice on technical matters and compiles the required scientific data for the COP.[185]

The explicit objectives of the CBD are to conserve the Earth's biological diversity for future generations, to exploit this biodiversity in a sustainable way, and to share the benefits of biodiversity in a fair and equitable manner.[186] In the conservation of biodiversity, the CBD promotes both *in situ* and *ex situ* programs.[187] The CBD defines biodiversity as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems."[188]

Several significant themes emerge from the CBD upon examination. First, the CBD recognizes that allocation of resources for biodiversity conservation does not alter the order of priority in developing countries.[189] Economic and social developments are ranked above conservation efforts.[190] Second, the CBD recognizes that states have sovereign rights over their own biological resources.[191]

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[179] *Id.*
[180] *Id.*
[181] CBD, *supra* note 140, art. 23, 31 I.L.M at 832; Hendricks, *supra* note 177, at 364.
[182] CBD, *supra* note 140, art. 23, 31 I.L.M at 832; Hendricks, *supra* note 177, at 364.
[183] CBD, *supra* note 140, art. 29, 31 I.L.M at 835; Hendricks, *supra* note 177, at 365.
[184] CBD, *supra* note 140, art. 24, 31 I.L.M at 833; Hendricks, *supra* note 177, at 364.
[185] CBD, *supra* note 140, art. 25, 31 I.L.M at 833; Hendricks, *supra* note 177, at 364–65.
[186] CBD, *supra* note 140, art .1, 31 I.L.M., at 823; Daniel T. Jenks, Comment, *The Convention on Biological Diversity — An Efficient Framework for the Preservation of Live on Earth?*, 15 NW. J. INT'L L. & BUS. 636 (1995).
[187] *See* CBD, *supra* note 140, art. 2, 31 I.L.M., at 824; Hubbard, *supra* note 166, at 420.
[188] *See* Hubbard, *supra* note 166, at 416-17.
[189] CBD, *supra* note140, Preamble, 31 I.L.M., at 823.
[190] *See id.* at 823. "Recognizing that economic and social development and poverty eradication are the first and overriding priorities of developing countries." *Id.*
[191] *See id.* at 822.

Article 3 of the CBD proclaims that states have the "sovereign right to exploit their own resources pursuant to their own environmental policies."[192] Finally, the CBD places the obligation to fund efforts to preserve biodiversity in developing countries on developed countries.[193] The premise is that biodiversity is a global resource, a common heritage, and those who can afford to should carry the financial burden.

Articles 6, 7 and 8 taken together preserve biodiversity by creating a holistic protection program.[194] Article 6 creates an obligation to develop a national plan implementing the provisions of the CBD.[195] Article 7 requires the parties to identify the components of biodiversity important for conservation and sustainable use.[196] The emphasis in this article is placed on components of biodiversity, which require urgent conservation and offer the greatest potential for sustainable use.[197] Article 7(c) calls for the identification of activities that destroy habitat, and requires Parties to monitor the effects of such habitat destroying activities.[198] Article 8 recognizes *in situ* conservation as the primary approach to biodiversity conservation.[199] *In situ* conservation is the conservation of ecosystems and natural habitats where viable populations are maintained and can continue to evolve.[200] Parties are required under Article 8, to regulate or manage their biological resources.[201]

Recently, the CBD initiated forestry measures in accordance with Article 8.[202] These *in situ* forest conservation activities include the establishment and management of protected areas.[203] They have an important role to play in the achievement of biological goals for sustainable forest management.[204]

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[192] *Id.* at 824; CBD, *supra* note 140, art. 3.
[193] *See* CBD, 31 I.L.M, at 830.
[194] *See id.* at 825-26.
[195] *Id.* at 825; GUIDE TO THE CBD, *supra* note 3, at 29.
[196] CBD, *supra* note 140, art. 7, 31 I.L.M., at 825; GUIDE TO THE CBD, *supra* note 3, at 33.
[197]CBD, *supra* note 140, art. 7, 31 I.L.M., at 825; GUIDE TO THE CBD, *supra* note 3, at 34.
[198] CBD, *supra* note 140, art. 7, 31 I.L.M., at 825; GUIDE TO THE CBD, *supra* note 3, at 36 (explaining that deforestation is an example of a harmful activity posing direct threat to biological diversity).
[199] CBD, *supra* note 140, art. 8, 31 I.L.M., at 825; GUIDE TO THE CBD, *supra* note 3, at 39.
[200] CBD, *supra* note 140, art. 2, 31 I.L.M., at 823.
[201] CBD, *supra* note 140, art. 8, 31 I.L.M., at 825; GUIDE TO THE CBD, *supra* note 3, at 40.
[202] Forest Biological Diversity, *Background* (visited on Nov. 11, 2000) <http://www.biodiv.org/Forests/background.html>.
[203] *See id.*
[204] *See id.*

In May 1998, at the fourth meeting of the Conference of the Parties in Bratislava, Slovakia, the COP adopted a major decision on forest biological diversity.[205] The purpose of the decision is to develop a work program for forest biodiversity, and direct the Subsidiary Body on Scientific, Technical and Technological Advice to synthesize and develop scientific information relating to sustainable forest management.[206] The decision as drafted calls for the parties to gather information related to the management of forests and to disseminate this information.[207]

The weaknesses of the CBD stem from both the inherent nature of the agreement as well as its language. First, the CBD as a framework agreement provides guidelines, but no concrete goals, resulting in an unenforceable document. Although Articles 6, 7 and 8 have the potential to preserve the Siberian tiger and its habitat, the reality is that these articles have little effect on Russian environmental conservation. Similar language qualifies the obligations of each article. Article 6 begins by stating that "Each Contracting Party, shall in accordance with its particular conditions and capabilities."[208] Articles 7 and 8 both begin with "Each Contracting Party shall as far as possible and as appropriate."[209] Therefore, the obligations in these articles are binding only to the extent that the parties want to be bound by them.

In addition, the Preamble of the CBD explicitly states that economic and social development takes precedence over preserving biological diversity.[210] The result of this principle may facilitate the Siberian tigers' extinction rather than prevent it. Uncontrolled logging is a result of Russia's dire economic situation. Therefore, Russian government officials can easily argue for the continuation of current logging practices at the expense of Siberian tiger habitat.

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[205] *See id* (explaining Decision VI/7).

[206] *See* Forest Biological Diversity, *Conference of the Parties, Decision IV/7, May, 1998* (visited Nov. 11, 2000) <http://www.biodiv.org/Decisions/COP4/html/COP-4-Dec-07.html>.

[207] *See id.*

[208] CBD, *supra* note 140, art. 6, 31 I.L.M., at 825.

[209] CBD, *supra* note 140 art. 7 & 8, 31 I.L.M., at 825.

[210] CBD, *supra* note 140, Preamble, 31 I.L.M., at 823.

V. Strategies for Ensuring the Continued Survival of the Siberian Tiger

Although CITES has had success in containing the problem of poaching, it is apparent that the presence of an international regulation is only part of the overall solution. In order for a regulation to be effective, it requires a multi-strategy approach. First, on the local level it was necessary to effectively abolish poaching by using anti-poaching patrols.[211] Second, on the international level the market for tiger-bone medicine was reduced.[212] In addition, it was critical for local populations to benefit from the survival of the Siberian tiger.[213] All of these actions required international funding, as well as the attention of the international environmental community.[214] Many argue that in order to save the environment, economic development and opportunity must come first. However, the CITES example is encouraging because despite the fact that Russia is still undergoing economic crises, the actions taken to prevent poaching were still effective.

In order to preserve the endangered Siberian tiger from the current threat of habitat destruction, the first step is to establish pertinent international regulations. One way to do this would be to add the Korean pine to CITES' Appendix I. Currently, it is illegal in Russia to harvest the Korean pine.[215] However, the Russian government lacks the funds to enforce this regulation.[216] Placing the Korean pine on Appendix I, would prohibit international trade of the tree.

Currently the CBD is a relevant international regulation; Articles 6, 7 and 8 preserve endangered species and their habitats.[217] However, these Articles have yet to affect Russian conservation strategies or legislation.[218] This drawback in the Articles can be remedied for several reasons. First, the CBD has provisions that allow for self-revisions.[219] Only two-thirds vote is required from the COP to

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[211] *See supra* notes 151-153 and accompanying text.
[212] *See supra* notes 159-161 and accompanying text.
[213] *See supra* note 156 and accompanying text.
[214] *See supra* notes 151-161 and accompanying text.
[215] *See supra* note 83 and accompanying text. The Korean pine is endangered with in Russia. In addition, populations of Korean pine in North and South Korea have supposedly been decimated, leaving the Russian Far East, the only remaining habitat.
[216] *See supra* note 82 and accompanying text.
[217] *See supra* notes 194-201 and accompanying text.
[218] *See supra* notes 208-209 and accompanying text.
[219] Hendricks, *supra* note 177, at 365.

revise the existing terms of the CBD.[220] Secondly, although the CBD is a framework agreement in nature, it is still an example of hard and binding treaty law.[221] Therefore, the COP could decide to revise Articles 6, 7 and 8 to delete the permissive language that prefaces each Article.[222] Revising the language in these Articles effectively obligates parties to the CBD to take affirmative action in planning, monitoring, and preserving endangered species habitats.

In addition, the COP should revise the CBD to reincorporate the idea of sustainable development. Currently, prioritizing economic development and poverty eradication over the conservation of biodiversity negates the concept of sustainable development.[223] Sustainable development is the idea that economic growth can relieve poverty based on policies that sustain and expand the environmental resource base.[224] The Preamble of the CBD rejects this idea by refusing to give parity of status to economic growth and environmental protection.[225] However, from the CITES poaching example, it is evident that Russia does not need to sacrifice preservation of biodiversity in exchange for economic development.

Once there are relevant international regulations governing the preservation of habitat for the Siberian tiger, actions must be taken on the local and international level. Within Russia, it is clear that authorities are not effectively enforcing logging regulations. This is due to corrupt government officials, and stressed economic conditions. Timber is currently the cash crop within the Russian Far East and the local population participates in illegal logging in an attempt to collect hard currency.

Whether regulations really work depends on funding and enforcement. It is critical for the international community to help bear the economic burden of enforcing Russian logging regulations.[226] Foreign assistance may support anti-poaching patrols that combat illegal logging. Again, funds from non-governmental organizations ("NGOs") and corporations would go towards the purchase of trucks, radios, and the payment of salaries. These patrols would be

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[220] *Id.*

[221] *See supra* note 172 and accompanying text.

[222] *See supra* notes 208-209 and accompanying text.

[223] Guruswamy, *supra* note 172, at 352.

[224] *See id.*

[225] *See id.* at 353.

[226] Formerly, organizations like the World Wildlife Fund and the English Tiger Trust gave money so Russian prohibitions on hunting Siberian tigers were enforced.

responsible for keeping international logging concerns and the mafia out of nature preserves. In addition, the patrols could enforce the permit requirement, and therefore prevent illegal logging.[227] The anti-poaching logging patrols may also keep intentional forest fires from being lit, and have the equipment to fight forest fires.[228]

However, in addition to providing for anti-poaching patrols, the international community must aid Russia in developing a sustainable and profitable logging industry. Foreign expertise is required to provide education on sustainable harvesting. In addition, international technology and methods on the production of finished timber products should be shared with Siberia. This would benefit local people by investing in local timber processing plants. The Russian forestry industry should be converted from one that exports primarily raw materials to one that exports primarily finished products. This kind of change results in an increased profit to the Russian government, as well as greater employment opportunities for local forestry communities.[229]

An additional strategy for preserving Siberian tiger habitat is to develop environmentally compatible uses for the land in the Sikhote-Alin wilderness. One example is the American Forests organization, which pays local villagers to plant and maintain 300,000 Korean pines in the Primorsky Krai region.[230] A second example is leasing the land to local hunting clubs and giving them the right to hunt as well as gather.[231]

Strategies for preserving the Siberian tiger habitat on the international level include reducing the market for illegal timber, Korean pine, and raw logs. In addition, it is necessary to close the porous border between Russia and China. In order to reduce international demand for Siberian timber, education efforts must continue regarding the fragile nature of the taiga ecosystem.[232] Shareholders of

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[227] Medetsky, *supra* note 59 (explaining that poachers fiercely defend their business).

[228] Russian forestry law actually provides incentive for intentional forest fires, because after a fire, forestry laws require logging in the surrounding area. Currently, forestry rangers have no equipment with which to fight fires. Over the past 30 years about 150 million square meters of forest have been logged in the Northern Amur while forest fires have destroyed about 200 million square meters of trees. *Siberian Greens*, *supra* note 41.

[229] It is much cheaper for countries to purchase logging rights than finished timber product.

[230] Deborah Gangloff, *On the Last of Nine Lives*, AMERICAN FORESTS, Oct. 1, 2000 (explaining that suitable planting sites are identified by local forestry officials in areas that overlap with Siberian tiger populations).

[231] *See* MATTHIESSEN, *supra* note 4, at 143 (explaining that the hunting club hoped the sales from the wild harvest would pay the lease fees).

[232] Japan is marketing Russia as the new "green" source for timber. Most Japanese think of the Russian Far East as a frozen wasteland where nothing lives.

international logging corporations must insist on the use of sustainable forestry methods in the Russian Far East. Once Russian timber mills are effective and producing export quality finished timber, the Chinese, Japanese, and North and South Korean markets must accept these products.

CONCLUSION

Currently, wild Siberian tigers can only be found in the Sikhote-Alin Mountains of the Russian Far East. If conservation efforts to protect this animal are not expanded, the Siberian tiger is threatened with extinction.[233] The Siberian tiger can only be saved if international treaties such as CITES and CBD effectively preserve ecosystem habitats as well as species. Critical to the development of an effective regulatory regime is international support of conservation efforts on a local and international level. With the dismantling of State Committee for Environmental Protection, it is now even more important for the CBD to realize its potential.[234]

In the words of Dale Miquelle of the Siberian Tiger Project,

> We have to find the magic formula that allows man and tiger to coexist. That's not a dreamy goal. Finding it may be the key to man's survival as well. After all, we share the same ecosystem. If we can't save the most magnificent animal on earth, how can we save ourselves? I don't believe the tiger's cause is hopeless. At least it's no more hopeless than our own.[235]

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[233] In 1992, when the tiger population had hit an all time low, scientists feared the Siberian tiger would be extinct by 2000. MATTHIESSEN, *supra* note 4, at 50.

[234] Cockburn, *supra* note 97.

[235] Ward, *supra* note 5, at 35.