ABSTRACT

Latin American Consumptive Wildlife Tourism:
An Analysis of the Industry as a Tool for Development

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This paper serves as an analysis of the impact of hunting and fishing tourism operations—referred to collectively as consumptive wildlife tourism—in Latin America. Foreign tourism plays an important role in many Latin American countries, and this particular form addresses a key niche within the industry. Funds from typical forms of tourism largely flow into developed areas such as major cities or long-established destinations such as beaches or major landmarks. The advantage of the consumptive wildlife tourism industry, from a national perspective, stems from its ability to function within developing rural areas. This provides a steady flow of capital and jobs that can vitalize rural communities, drives critical infrastructure development, and possesses other developmental or environmental benefits depending on the location and the wildlife present. The potential impact of big-game hunting and fishing will be evaluated to give an accurate representation of multiple forms of consumptive wildlife tourism, but the primary focus of the paper is on two areas of the industry that are both potentially very effective and yet underrepresented in terms of impact studies: recreational sport fishing in Brazil and wing shooting in Argentina and Uruguay.

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LATIN AMERICAN CONSUMPTIVE WILDLIFE TOURISM:

AN ANALYSIS OF THE INDUSTRY AS A TOOL FOR DEVELOPMENT

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CHAPTER 1

An Introduction to Consumptive Wildlife Tourism

Tourism has been recognized as the largest business enterprise in the world, with many billions of dollars, yen, Euros, and every other currency imaginable spent on travel every year. The airline industry, the hotel industry, and thousands of peripheral industries—as well as the hundreds of thousands of local businesses that cater to tourists—rely in differing degrees on this particular trade. More than the trade that it inspires or the hundreds of millions of jobs it creates, however, the tourism industry provides people with an extremely essential service in today's increasingly technological world: it allows people to experience the wonders of a reality different than their own through their eyes instead of a screen. There are many kinds of experiences that people seek when they travel—ranging from a visit to the next town over to climbing up a volcano—but they all include something that they can not experience at home. These experiences generally take three basic forms: discovering an unfamiliar culture, seeing a famous site, or spending time in nature. Within this third form—generally called nature tourism—subdivisions exist that involve activities such as experiencing some notable natural environment or ecosystem, engaging in an outdoor activity or sport, or observing animals in their natural habitats. One specialized form of nature tourism that combines the interaction with animals with an outdoor sporting experience is termed consumptive wildlife tourism.

Consumptive wildlife tourism includes both hunting and fishing activities, and makes up a surprisingly large percentage of the overall wildlife tourism industry. According to an analysis conducted using the percentage of 6 million Google search results containing search terms to approximate the level of interest in a particular form of tourism, hunting and fishing tourism together compose approximately 29% of the internet searches from people interested in tourism (Bauer and Herr 58). The term consumptive in the name differentiates it from types of tourism that involve viewing animals or interacting with them in a non-predatory way. Consumptive wildlife tourism involves activities historically associated with food production, though generally they are now more commonly used for sport or recreation in most developed countries or in the context of tourism. Traveling for a period of at least one night to hunt, fish, or trap animals in a location at least 40km from one's home for any reason other than paid employment or subsistence could be considered as the definition of consumptive wildlife tourism, and international forms of this pursuit are common (Harris and Howard vii). Fishing is included in this classification despite the fact that much of modern sport fishing is conducted on a catch-and-release basis because, with all of the minute distinctions that might be made regarding the treatment of the animal after its capture, it becomes easier to simply delineate the difference between observing an animal and catching one (Lovelock 1).

Consumptive wildlife tourism has been an increasingly popular phenomenon since the days when the nobility of many nations would travel to exotic locales to hunt dangerous beasts or to great gatherings where their skill in the sport of bagging certain

types of game would be tested. As time progressed and travel became more accessible, the practice eventually spread to demographics such as the British upper-middle class, where trophy hunting and sport hunting grew quite popular (Encyclopedia Britannica). Sport hunting remains especially culturally significant in Europe, and can be found represented throughout their art, their language, and even their music. It is estimated that around 30% of Europeans now travel abroad for hunting, but even Europe has been eclipsed as the region with the highest demand for hunting and fishing tourism by increasing demand in the United States (Bauer and Herr 65). Today, when increasing globalization has made travel more accessible than ever before, hunters and fishermen from all over the globe are able to conceive of a trip to a foreign land to indulge in their pastime. Although Africa, Europe, and North America have typically been the largest areas of focus for studies examining the effects of this trade due to their historic preeminence as sought-after destinations for both international and domestic wildlife sportsmen, the potential of South America as a destination for consumptive wildlife tourism cannot be ignored. Some of the greatest populations of doves, waterfowl, and flushing birds can be found in South America, and it is also recognized as the prime location for many sport fish species of both saltwater and freshwater varieties (Murton, et al. 85; Ward and Escot 320).

The opportunities for rural development that consumptive wildlife tourism holds, combined with forms of hunting and fishing found in South America that might potentially be more sustainable even than other equivalent activities in other regions, provide a unique avenue for an exploration of the impact of this industry on rural

populations in the Western Hemisphere. Though the sustainability of consumptive wildlife tourism is often evaluated, there is actually a whole category of nature tourism, "sustainable tourism," that is defined as tourism that "seeks to minimize the negative footprint of tourism developments and at the same time contribute to conservation and community development in the areas being developed" (Christ, et al. 5). The two forms—consumptive wildlife tourism and sustainable tourism—are not mutually exclusive, and given the past efforts of wildlife tourism operations to create sustainable development in the areas in which they operate, it seems that they could often be applied to the same organizations because of the nature of the relationships with local people that the business naturally engenders. The specifics of these efforts and the benefits and detriments of these relationships will be the topics explored throughout the course of this paper, but suffice to say that this opportunity can be one that allows governments of nations where the activity occurs to efficiently promote development, because the hunting and fishing industries provide jobs for local workers, encourage an ecologically minded populace, and help to establish infrastructure such as roads and power lines that benefit the community.

To examine the potential impact of the industry, the first topics of interest are forms of consumptive wildlife tourism in Latin America such as big-game hunting and big-game fishing, which—while they possess many benefits from a development perspective—are not the primary topics of interest of the study because they are both relatively well-researched and comparatively less effective than the two forms that are studied more in depth. Due to unique characteristics that make them especially effective

from a development perspective, Brazilian sport fishing and wing shooting in Argentina and Uruguay are the main focus of the study. To examine the benefits and potential problems of each type of tourism, their common practices and species sought are outlined first, and then the specific characteristics that make them a potential tool for development are examined, along with the most salient concerns that arise from their operations. As a whole, the study serves as an overview of the most effective forms of consumptive wildlife tourism, with an in-depth investigation of two specific types and a look at some of the best examples of sustainable practices within those types.

CHAPTER 2

Big-Game Hunting in Latin America

When it comes to consumptive wildlife tourism, the focus for most research has historically been on trophy hunting (also called big-game hunting) or big-game fishing operations. As defined by Bauer, "Trophy hunting is a form of hunting tourism that targets species depending on their size and body characteristics, such as antlers, tusks, or horns" (Bauer 186). Because of this, some of the most notable studies have been conducted in destinations such as Africa, because typically it has been the most important destination for trophy hunting (Higginbottom 62). Europe and North America enjoy some significant portion of the trade as well, but the prevalence of consumers in these locations means that many of the trophies are taken by domestic hunters rather than foreign ones. In fact, North America and Europe are the only markets with significant imports of trophies from other locations—due in large part to their relative wealth and cultural connections with the hunting tradition (Higginbottom 63). Latin America also has begun to gain attention as a destination for big-game hunting, with significant populations of red stag in Argentina and Chile (Weber and Gonzalez 442). While the impact of big-game hunting in Latin America is undoubtedly overshadowed by the massive developmental changes in some areas of Africa due to programs like the CAMPFIRE[1] program in Zimbabwe, the success of programs of this nature—regardless of location—only serves to lend further weight to the idea that big-game hunting can be a useful tool for

[1] Communal Areas Management Programme for Indigenous Resources

sustainable development (Hasler 3). Both forms of tourism deserve further attention as opportunities for development, and can benefit from increased support and regulation.

The primary big-game markets in Latin America are in Argentina and Chile, though smaller hunting operations exist within virtually every Latin American nation (Lavalle). While most of the species hunted are not native to the region, they have adapted to the ecosystem in ways that see them roaming in similar patterns to native species, and there is actually a greater variety of deer species in Latin America than anywhere else in the world (Weber and Gonzalez 443). The main species hunted can be broken down into four categories: deer and antelope, sheep and goats, pigs, and predators.

Species Hunted

Deer and Antelope

For deer and antelope, species such as red stag, axis deer, white-tailed deer, blackbuck, and fallow deer comprise the majority of the game taken; and these are generally species that are not native to the region (Weber and Gonzalez 445). Most of the hunting occurs on large, privately owned and managed ranches in the Southern Cone, and game populations appear to be increasing (Flueck 113). A desired package that foreign hunters purchase typically consists of 4-8 days of hunting for their target species. Some operations will offer packages that allow harvest of multiple species, which complicates estimates of costs per animal taken, but generally—from an examination of the top five search results for Argentine big-game websites—the pricing for a deer or stag package

will be approximately $300-1,000 USD a day, with additional trophy fees of approximately $2,000 USD for an axis or fallow trophy to up to $15,000+ USD for a trophy red stag (Big-game Websites).[2] This means that, for a four day red stag hunt, price ranges of $5,000 to $8,000 USD are typical, unless a premiere trophy is taken.

Sheep and Goats

Sheep and goats are hunted similarly to deer, and share much of the same habitat. The most common sheep species in South America are multi-horn rams, Scottish black face, and European mouflon; and various species of wild goat are taken as well (Big-game Websites). These species are generally found in more mountainous terrain, but their range also extends into lowland areas. Typical pricing of packages is comparable to that of the deer or antelope hunts, as is the format. For sheep and goats, the day prices are similar to those of deer and stag, but trophy fees are lower—approximately $900-1,500 USD except in the case of the mouflon ram, which average to approximately $3,000 USD (Big-game Websites).

Pigs

Due to the large populations of pigs in Latin America and their status as a pest, the prices of pig hunts are generally far lower than those for some of the previously described game species, and pig trophies are sometimes offered as an addition or bonus

[2] The 5 websites and the search terms used can be found in the bibliography with the label "Big-game websites." Prices were drawn from the price listings on each page, with either the average of the prices from all 5 sites or the range found across the 5 sites listed in the text. Other information such as the most common game species for big-game hunting was drawn from this source as well.

to another package (Big-game Websites). Feral boars are quite common and thus fetch low trophy fees of usually under $1,000 USD, but some species of peccary can fetch price ranges of approximately $1,200 to $1,500 USD (Big-game Websites). Some of the most commonly hunted species are the white-lipped peccary, the collared peccary, and many variations of the Eurasian boar that have developed from years of mixed breeding between the original pure-blooded boars and the local species (Altrichter 108). Pigs are some of the most popular game animals for domestic hunters as well—both for subsistence hunters and for upper-middle class hunters from more urban areas. One benefit to hunting this particular species is that the pigs are generally considered to be destructive and invasive, so any form of population control to help maintain manageable numbers in a particular region can be beneficial. As per their entry in the Global Invasive Species Database's top 100 invasive species list: "They [the pigs] damage crops, stock, and property and transmit many diseases such as leptospirosis and foot and mouth disease" (Lowe et al. 8). Usually, these animals are not the primary focus of international hunting, but serve as additions to the trip when other game is scarce or harvest quotas have been filled for other species.

Predators

In addition to the game animals listed above, one other popular species group for Latin American hunts in La Pampa and other similar regions is that of native predators. The primary predator species currently offered in game packages to international hunters is the puma, although in the past now-protected species such as the spectacled bear and the jaguar were hunted as well. Puma are also a recognized form of game in the United

States, though they cannot be legally hunted in all states (The Cougar Fund). Consumers typically pay an average of $3,250 USD for a Puma trophy, which is more than most other big game trophies in Latin America besides the red stag and water buffalo. The puma does not typically pose a threat to humans, nor does it have any negative environmental impact, so puma hunting does not provide any intrinsic benefits like those found in pig hunting, but does include many of the benefits common to any form of tourism in the rural areas in which it is practiced.

Development Implications of Big-Game Hunting

Big-game hunting in South America, though limited by the facts that larger markets exist elsewhere and that the specific practices of the trade create less development when compared to other forms of consumptive wildlife tourism, does possess some potential from a development perspective. With relatively high profit margins, given the fact that hunting itself costs very little (a trophy stag can be taken with one round from a high-powered rifle), transportation and lodging make up the bulk of the expenses. The lodge owners are thus able to invest more in infrastructure development to improve the hunting experience for their clients with new lodges, better roads, electricity, and sometimes even internet—a capability that results in more net benefit to the community. Although big-game hunting for the species above certainly has a positive economic impact on the areas in which it takes place, there are some key factors that limit its potential in South America. For one, the trophy-hunting market is eclipsed by much larger markets in the U.S. and Africa, and the domestic market has yet to see any significant growth (Bauer and Herr 62). Another factor specific to trophy hunting is the

practice of sending game to a taxidermist to prepare for display or to their home for personal consumption. Both of these behaviors result in increased economic output from the client, but the resultant funds flow to shipping companies and taxidermists located either in the client's home country or in major metropolitan areas in the host country rather than the local area around the hunting grounds. The type of hunting also affects its economic influence, because big-game hunts occur more commonly on large private ranches that are managed by a few owners. For comparison, wing shooting hunts occur on a numerous different properties depending on the season and the movement patterns of the birds. Given that the movement patterns of birds are affected more by hunting pressure than those of larger animals, bird-hunting operations must have relationships with many different ranch owners in their hunting grounds in order to follow the changing movement patterns of their prey (Miles et al.). Income from their activities is distributed among a larger number of landowners—thus affecting the region as a whole more than big-game hunting operations. Despite these limitations, big-game hunting has been shown to possess many benefits for the locations in which it occurs, and the potential of the industry in Latin America should be considered alongside other forms of consumptive wildlife tourism.

CHAPTER 3

Big-Game Fishing

Fishing in Latin America has been the subject of numerous studies to evaluate the economic benefit provided by big-game sport fishing activities, resulting in a well-documented industry when compared to that of big-game hunting (Jiménez 45). In fact, Latin America actually possesses the highest catch rates for some major trophy species, such as sailfish (Ehrhardt and Fitchett 1). The Merriam-Webster dictionary's entry for fishing is as follows:

> Forms of sport fishing practiced today include fly fishing (freshwater), in which a fly-like hook is repeatedly cast upon the water surface to attract biting fish; bait fishing (fresh- and saltwater), in which live or artificial bait is set or drawn below the surface; and big-game fishing (saltwater), in which heavy-duty tackle is used to land large marine species (including tuna, marlin, and swordfish) from a motorized boat (Merriam-Webster Dictionary).

Big-game fishing takes place in a saltwater environment, and therefore is limited to coastal regions. Large, generally specially designed boats take anglers out to deep waters (typically around 1000 fathoms or less, but some go deeper) and use heavy tackle to troll likely areas in hopes of drawing fish to the surface to feed (International Game Fish Association Database). The species caught range from the blue marlin, which can grow to 1,803 lbs, to various snappers and mullet that rarely grow to sizes larger than 50 lbs (IGFA Database). There are over fifty game-fish species recognized by the International Game Fish Association (IGFA), and the vast majority of those species can be found at one or more locations in Latin America (IGFA Database). In general, the three main categories of big-game fish are the billfish such as swordfish, marlin, and sailfish; sharks

such as mako, tiger, and hammerhead; and large tuna such as bluefin, yellowfin, and bigeye (IGFA Database). Due to the relative similarities in capture methods and the impact of each fish caught, there is little to be gained from a thorough exploration of the specifics of how each of these species is pursued, so this section will focus on the industry as a whole.

Economic Impact

Big-game fishing is a major industry in Latin America, and virtually all of the Latin American nations with coastlines host some form of sport-fishing operation (Cacutt 120). It plays a particularly important role for Central American and Caribbean nations like Costa Rica, Panama, Guatemala, Belize, The Bahamas, Jamaica, and Puerto Rico, where it forms a larger percentage of their total GDP than in larger nations such as Mexico, Venezuela, Brazil, Argentina, and Chile (Cacutt 115). For example, in Costa Rica in 2009, recreational fishing activities contributed 2.13% of the GDP, with $279 million USD in new capital and 63,000 jobs (Jiménez 4). Similarly, recreational fishing accounts for $48.4 million USD of Panama's GDP, and supports 9,500 Panamanian jobs (Southwick and Arean 4). In Mexico, on the other hand, though the industry accounts for $652 million USD in GDP, over 24,000 jobs, and $245 million USD in tax revenues in Cabo San Lucas alone, this is less than 1% of the total GDP of the country (Southwick and Arean 69). This does not rob the industry of its importance and potential in larger Latin American nations, but it does demonstrate by contrast just how crucial a role it can play in the smaller nations that depend more on tourism for their national income.

Development Implications of Big-game Fishing

Deeo-sea fishing operations are most often located near urban areas for several reasons: boats need to refuel periodically, a well-developed and secure harbor protects against adverse weather conditions, and it is not necessary to venture far afield to get closer to the game when it is many miles offshore. While the economic benefit of these operations to urban areas is often of great benefit to the regions in which they occur, governments could also seek to use the development potential of sport fishing to expand operations to new, less developed areas that can benefit even more from their growth. The potential of this particular form of sport fishing for development in Pacific nations was explored in a study conducted in 2013, which concluded that "Sport fisheries potentially provide an alternative livelihood strategy for vulnerable coastal communities in developing Pacific nations, and there remains an urgent need to evaluate this potential" (Wood et al. 311). The study is particularly relevant because it focused on more rural populations, and this is yet another indication of the importance of focusing on developing sport fishing operations in more rural areas rather than urban areas, where much of the current big-game fishing activity occurs. As stated in the study, however, the potential of this form of consumptive wildlife tourism must be further examined to discover all of the potential benefits and dangers it presents.

CHAPTER FOUR

Sustainable Recreational Fisheries in the Amazon

Although the impact of big-game hunting and fishing are important, less studied forms of consumptive wildlife tourism offer potentially even more direct benefits for the local areas in which they operate. This chapter will focus on one form and location of wildlife tourism as a particularly influential and underutilized opportunity for development and conservation: the Amazon sport-fishing industry. This particular form of wildlife tourism represents a notable development opportunity for Brazil because it addresses some problematic issues faced by the Brazilian government and the people it protects along the banks of the Amazon. With the threats posed by deforestation, the environmental imbalances caused by commercial fishing, and the often disastrous emigration of indigenous peoples from their rural homes to urban areas, the Brazilian government continues to seek any and all alternatives to the problematic practices currently at work in many of Brazil's rural Amazonian regions. Sport fishing could be among those alternatives, and this paper will address the specific reasons why it can effectively combat many of the challenges facing the Brazilian government and people living along the banks of the Amazon.

Classification and Description

The particular form of sport fishing examined is classified as freshwater sport fishing, and involves all forms of recreational sport fishing tourism that occur in the freshwater branches and tributaries of the Amazon. Typically, anglers will fly to a major

city near their chosen destination and take a charter plane or other smaller plane to the specific region, because most of the sport fishing operations in the Amazon operate in more remote areas with more sizeable fish populations and higher concentrations of trophy-sized fish (Vermillion, et al.). To access these locations, there are typically three types of infrastructure that fishing operators use to get their clients to the fish. Some build lodges near the fishing grounds and take small boats out daily with a guide and a small number of clients in each boat. An example of this would be the Água Boa lodge, located 200 miles northwest of Manaus, with a series of sizable bungalows in which clients stay (Água Boa Website). Others, such as River Plate Outfitters, use floating barges that move from location to location and send out boats to nearby fishing grounds (River Plate Outfitters Website). Some operators, such as Acute Anglers, also employ a third type of fishing infrastructure—a large "mothership" that contains multiple cabins and tows smaller fishing boats from place to place (Acute Anglers Website). Because of the mobile nature of many of these operations, they generally need to create contracts with numerous local groups in order to maintain access to multiple fishing grounds.

Varieties of Game Fish

The enormous variety of fish that populate the Amazon River have an obvious draw for those who depend on their bounty to sustain themselves, but, more importantly, draw anglers hailing from the far reaches of the globe. The motives that drive anglers to fly thousands of miles from their homes, to endure discomfort and long periods of travel time, and to spend huge sums of money in order to access the Amazon when they likely have access to fishing in a much closer and more inexpensive locale lie stem largely from

the unique set of game-fish species in the Amazon. These species, when found together as they are in the Amazon, simply provide a fishing experience that cannot be replicated anywhere else. There are over 3,000 distinct species of freshwater fish in the Amazon Basin, and this massive diversity represents around a third of all known fish species on the planet (Lambertini 52). Of these, there are three main orders that draw international anglers and local fishermen alike. These are Siluriformes, which contains most of the species we would refer to as catfish; Characiformes, which includes many of the toothy predators of the Amazon waterways; and Perciformes, which is made up of cichlids such as the peacock bass (Acute Anglers). Although these three are the primary varieties that are emphasized by the sport fishing industry, the behemoths of Osteoglossiformes are also sought after, and salt-water orders such as Sardinata and Pescada play a part in the industry as well (Acute Anglers). Each of these groups has particular characteristics that make them attractive to anglers, and taken together they form what many would consider the greatest collection of game fish on the planet. An understanding of the industry would not be complete without an idea of the species sought, and many of the particulars of the species are significant in that they possess distinct implications from a development perspective.

Siluriformes

The order Siluriformes contains a rich variety of fishes, and in fact ranks second or third among orders of vertebrates in the variety it contains. According to the Catalog of Fishes, there are 2,855 valid species of catfishes, and "About 1 in 4 valid species of freshwater fishes, 1 in 10 fishes, and 1 in 20 vertebrates is a catfish" (Eschmeyer 53).

Largely omnivorous, most catfish will eat plant matter, insects, or smaller fish; but some have more specific diets, including a few that are purely parasitic and feed on the blood of other creatures (Eschmeyer 50). Their primary identifying characteristic is the possession of barbells—colloquially referred to as "whiskers"—that they use to sense temperature differences and minute movements in the water. They have an extremely broad range of habitats, including both freshwater and saltwater environments on nearly every continent and in most of the oceans. They are particularly diverse in South America, and are sought after by both the aquarium and sport-fishing trades (Eschmeyer 60). Because of their diversity, catfish are sought both for their interesting varieties, such as the giant jelly catfish (also known as a *jaú*), and for their hard-fighting varieties such as the *piraíba* catfish, which can reach weights in excess of 400lbs (Lundberg et al. 845). Important characteristics relevant to their sport fishing appeal are their prodigious size and their relative stability when it comes to environmental changes or the availability of certain kinds of food (Lundberg et al. 852). Though the peacock bass is considered the "main attraction" by most high-end sport fishing lodges, catfish too play an important part in attracting clients from across the world to the depths of the Amazon.

The seven main species of catfish that are sought by most guiding operations are the *piraíba*, the *jaú*, the *pirarara*, the barred *sorubim*, the *jundiá*, the *barba-chata*, and the *dourado (Brown)*. The *piraíba* is the largest, and also is strangely athletic, making it a desirable challenge for many fishermen. The conventional method employed by sport-fishing guides looking to hook a monster *piraíba* is to search for deep holes in the river, usually one with some turbulence nearby to stir up detritus. Then, using a large circle

hook baited with something—usually piranha or *traíra*—they drop a wire-reinforced line down into the hole and wait for the fish to swallow it (Brown). Similar tactics are used for most catfish, but not all of them fight like the *piraíba*. The *jaú*, for instance, can grow to similar sizes, but is possessed of a much less agile body and usually uses its weight as its primary method of fighting when hooked. The *pirarara*, or redtail catfish, is generally slightly smaller, but is known for its distinct coloration and its powerful fight characterized by sustained runs and the ability to find clusters of roots or logs in which to tangle the line of the angler trying to bring it to the boat (Brown). The *pirarara* possesses extremely vibrant black and white markings, which, paired with the red tail with which it earned its English name, makes for an eye-catching catfish that is a very popular subject of photos for fishing lodges looking to advertise themselves to foreign anglers. The barred *sorubim* is similarly striking, with a network of "hieroglyphic" black markings that cover its slightly iridescent silvery brown body. Though the *sorubim* is usually much smaller than the massive *piraíba* or *jaú*, it can be quite attractive to fishermen because of its aggressive strike and agile fight. Unlike some of the previous catfish, *sorubim* are usually found at the edges of shallow beaches with nearby drop-offs to deeper water, and anglers will generally use smaller hooks and lighter tackle to bring them in (Brown). The j*undiá* is another smaller catfish, but its abundance and delicious flesh make it one of interest to fishermen as well. Often where one finds *jundiá*, there will also be *barba-chata* nearby, and these silvery catfish make for a pleasant addition to the catch of the day. The *barba-chata* is another mid-sized catfish, and is characterized by the flat whiskers for which it received its name, which means flat-whiskered catfish in

Portuguese. Though not of any particular interest, this catfish is caught enough to be considered a primary game fish when it comes to catfish. The final species of catfish that is commonly caught in the Amazon is the *dourado*—a word that means golden in Portuguese. The *dourado* is somewhat different from the other siluriforms in that it cruises open water in search of prey. Because of the different area in which they are found, they exert themselves more often, and this results in flesh that is highly prized for its firmness by the native people (Brown). The *dourado* or gilded catfish has a golden and slightly iridescent body, with a strongly forked tail optimized for cruising the open waters of the Amazon.

Any of these siluriforms would be a welcome sight to fisherman on the Amazon, and thousands of them are caught by both foreign fishing tourists and local fishermen each year. The difference between fishing tourists and the locals, which is especially pertinent for catfish with their succulent flesh, is that the locals are incentivized by potentially larger profit margins to catch and keep every fish they can, while the guides and anglers of the fishing tourism operations are incentivized by their desire to continue to operate to do everything they can to keep the fish alive.

Characiformes

The order Characiformes includes what is possibly the most emblematic fish of the Amazon to foreigners—the piranha. As such, it is not surprising that one of the distinguishing characteristics of the order is that most possess teeth. They almost universally possess scales and an adipose fin, and distinctly lack any form of barbells (Araujo-Lima 2). Examples of characiformes include toothy predators such as the wolf

fish (Hoplias), the *pacú* (Colossoma macropomum), and possibly the hardest-fighting game fish in the Amazon, the payara (Hydrolycus scomberoides) (Araujo-Lima 3). While the greatest variety of Characins can be found distributed throughout Latin America (more than 1,200 species), there are also a fair amount in Africa (more than 200 species), and less abundantly in parts of North America and Asia (Oliveira et al. 275). As for their feeding habits, most are predatory, but they also contain some subspecies with other modes of feeding as well. For sport fishermen, Characins make up a good part of the game fish found in the Amazon, with 6 out of the 11 primary sought-after species groups contained within the family (Araujo-Lima 3). The Pacú in particular plays an important role in both the sport fishing industry and the aquaculture industry in South America. It grows to about 40kg, and is valued because of its size, its ability to live in mineral-poor waters, and its resistance to disease (Araujo-Lima 4). Many of the fish that anglers will catch in the Amazon will be Characins, and their fiercely predatory strikes serve as their most notable attribute.

Perciformes

The order Perciformes, which means "perch-like," contains about 40% of all bony fish, which makes it the largest order of vertebrate with over 10,000 species (Vieira et al. 745) Of these, around 2,000 species live in freshwater, with a distribution that includes all of the major continents that support freshwater fish (Sobreiro et al. 1018). Perciformes, because of the varied nature of the species within its categorization, contains both predators and prey. It includes tiny reef fish and huge yellowfin tuna, along with two of the major North American game fish: largemouth bass and various types of perch. Due

to the wide variations in size, appearance, feeding habits, and other behavior, Perciforms are usually categorized by a couple important features. The defining characteristics of Perciformes are "pectoral fins on the sides; spines on the dorsal and anal fins, probably for self-defense; pelvic fins on the abdomen with one spine and up to five soft rays; dorsal and anal fins that are detached from the caudal (tail) fin, which has fewer than eighteen principal rays; and a jaw that can be thrust outward to suck food into the mouth" (Helfman, 315). In the Amazon, there are many tiny, colorful Perciforms that draw collectors seeking them for their aquariums, but the primary division sought after by sport fishermen are the cichlids, which include both the Jacunda (Crenicichla Sp) and the Peacock Bass (Cichla Temensis) (Vermillion, et al.). The peacock bass is the greatest attraction for foreign fishing clients, and attracts thousands of anglers searching for its bright colors and aggressive strikes.

These orders each contain very different fish that draw anglers with their varied attractive features, but it is together that they form the set of freshwater game fish in the Amazon that distinguish it from other fishing destinations and establish it as a unique challenge that draws fishermen willing to pay a premium to access Amazon waters. With all of the funds entering the country from this industry and flowing to rural areas, the question becomes: What does this influx mean for the country in general and the local people specifically?

Development Implications of Amazon Recreational Fisheries

To answer the previous question, I will first outline some problems that currently face the indigenous people living in the areas where fishing companies operate, then

examine how fishing activities could potentially both present opportunities to solve those problems and create new ones. The currently available information suggests that fishing would be an effective way of reducing—at least to a small degree—some of the more pressing concerns for villages along the Amazon, but there are always further effects of the industry that may not have been seen.

Existing Problems in the Region

The most commonly cited problem in the Amazon is that of deforestation, and though it is well-known, the drivers behind it are complex and difficult to address. Luckily, rates of deforestation have been dropping fairly steadily since 2005, with the rate in 2012 being 84% lower than that in 2004, yet deforestation remains a serious problem. Currently, the major drivers behind deforestation are clearing for cattle pasture, small-scale subsistence agriculture, large-scale commercial agriculture, legal and illegal logging, and mining (Butler 5). Of those, cattle ranching represents an incredible 70%, and is very difficult to limit because it has become such an important industry for the nation—thus wielding considerable political power (Butler 8). The federal government has instituted laws to force landowners in heavily forested areas to leave at least 80% of their land forested, alongside measures to protect indigenous reservations and create other legal reservations, but these steps are often inffective (Butler 5).

The problem that makes these policies less effective is the difficulty of maintaining control over large Indian reservations and predatory ranchers who use settlers to take advantage of the existing laws incentivizing land settlement—taking property away from other, law-abiding ranchers. The rules supporting squatter's rights

are quite favorable in Brazil due to the overabundance of unused land, an opportunity that the Brazilian government tries to take advantage of through a particular legal structure:

> In Brazil, each squatter acquires the right (known as a usufruct right) to continue using a piece of land by living on a plot of unclaimed public land and "using" it for at least one year and a day. After five years the squatter acquires ownership and hence the right to sell the land (Butler 7).

Aggressive land speculators can use this law to conduct business on the edge of legality, and often employ numerous squatters to live on unwatched lands in order to acquire them—buying the land from these squatters after a prescribed amount of time (Ayotte and Smith 15). Coupled with the difficulty of maintaining large tracts of land obscured by dense rainforest, this concern makes it hard for ranchers to justify leaving the officially mandated 80% of uncultivated rainforest when that portion is threatened by interlopers. Similarly, indigenous tribes face the same problem. Having been granted large areas of land by the government in an effort to protect their way of life (12.9% of all surface area in Brazil is designated as belonging to indigenous populations), they still face the problem of trying to ensure that their lands are not encroached upon by loggers, miners, or speculating ranchers (Coordenação Geral De Geoprocessamento Feb. 24).

Overfishing provides another threat to the people that live along the Amazon and to the natural fisheries that support them. Inland fish production in Brazil has been declining since 2004, and according to a recent report by the FAO (Food and Agriculture Organization of the U.N.), overfishing is one of the primary reasons for the decline (FAO 52). This same report acknowledges a simultaneous rise in recreational fisheries, and highlights this newer form of fishing activity as “particularly important to the economies” of the areas in which it occurs (FAO 52). Given that fishing stocks are always subject to

the “tragedy of the commons” effect where all parties involved are incentivized to overuse public resources, it becomes ever more important that property rights be clearly defined in these regions and that oversight be available to ensure the enforcement of these rights.

The simplest way to deal with this problem is to cordon off the overfished area and allow it to recover, but there are several problems with this approach. First, restrictions of this nature would have to be very carefully designed and enforced in order not to destroy the livelihoods of the very people whose fishing grounds they attempt to protect. It would be quite ironic to bar the indigenous people from fishing in their own waters in an attempt to preserve their ability to fish in those waters. Secondly, positive human influence in these freshwater fishing environments can facilitate faster recovery when properly bounded by efficient regulations, as shown in a recent study evaluating the effectiveness of catch and release techniques (Reiss et al. 4). Finally, and similarly to earlier concerns about land encroachment, poachers can be a major concern when many miles of river are involved and the infrastructure required to properly manage and maintain the resource is not present.

Instead of cordoning off the area and restricting fishing completely, there exists a more effective alternative in the form of catch and release sport fishing. This particular form of consumptive wildlife tourism can be quite sustainable indeed, and the industry already possesses a strong demand, a developed infrastructure, and a demonstrated beneficial effect towards the fisheries it uses and the indigenous people that inhabit the regions around them (Reiss et al. 6).

Benefits of Recreational Fisheries in the Amazon

There are many possible tactics to address the problems listed above, but the option of sustainable sport-fishing operations as a tool for development has not been a policy focus for the Brazilian government, and it holds untapped potential that the Fundação Nacional do Índio (FUNAI) and other organizations concerned with development can explore. The potential of consumptive wildlife tourism has been shown quite clearly by the recreational fishing industry in the U.S., which brought in approximately $50 billion USD in 2009, with a value added impact of around $23 billion USD. In addition, even hunting—which necessarily causes a greater ecological impact than catch and release fishing due to the fact that animals are harvested—has been recognized in previous chapters to be beneficial to local areas and the environment. The benefits of consumptive wildlife tourism are numerous, and include a greater awareness of the value of wildlife on the part of the local people, a stronger incentive to deter poachers and other illegal actors in the area, a more sustainable alternative to other forms of employment such as cattle ranching or logging, significant community income, incentives for responsible land use, opportunities for secondary industries that cater to tourists (typically low-impact industries), an introduction of the tools and infrastructure necessary to patrol previously unregulated waterways or land area, and a local form of income that can induce people from nearby villages to remain in their village rather than seeking other employment in more urban areas (Brown). All of these benefits are present in the sport-fishing industry in Brazil, and with closer government involvement to both aid and regulate the industry, some of the problems facing small fishing villages along

the Amazon could be addressed in a sustainable manner that places little drain upon the government. The positive impact of foreign fishing tourism in these locations takes two main forms: economic and environmental.

Economic Impact

In economic terms, the industry—while not as large as ranching or mining—does make a sizeable contribution to the Brazilian economy, with an estimated $16,500,000 USD in gross revenue from the top eight fishing operations and an additional $5,000,000 USD in aggregate from other small-scale operators (Larsen). The economic impact to the local area comes from the employment of guides (including tips); logistical costs such as boats, food, or fuel; and any money clients spend while fishing. The average guide working for a sport fishing operation in the Amazon is from one of the local villages so that the outfitter can benefit from a deep knowledge of the waterways and fish distribution, and they receive both wages and tips for their services. In fact, according to Luis Brown, owner of River Plate Anglers—one of the largest sport fishing operations in Brazil—these tips range from around $50-150 USD a day, and are highly sought-after by fishermen eager to become guides (Brown). When a day of fishing brings in $50-150 USD in tips, the guides begin to see increased value from the activity compared to their average monthly wage with commercial fishing—which for small boats is an average of $257 USD (Almeida et al. 263). With even two days of fishing, it is possible for a guide to surpass his previous monthly income, and therefore the supply of guides desiring fishing jobs will naturally increase. One problem that the outfitter often deals with is trying to find ways to more evenly distribute tips because the supply of willing guides is

much greater than the available slots. Mr. Brown employs guides on a regular basis, but also rotates them semiannually so that the tips are distributed to a greater number of local fishermen. This results in a more even distribution of the incoming funds among the indigenous guides. Mr. Brown's operation is similar to other operations in the region, though few have implemented the same strategies he has to distribute tips more widely. One recent innovation by River Plate Anglers is the investment of a percentage of the tips into other sustainable forms of employment such as the creation of plantations of fruit trees, which also allows for a more even distribution of the income from the fishing activity that mitigates some of the wealth inequality that could come about with the introduction of this new source of income. With increased regulation using this tactic as a model, FUNAI and the Brazilian government could more effectively ensure a beneficial relationship between sport-fishing outfitters and the local communities.

Environmental Impact

The environmental impact of the industry is closely tied with economic factors because of the nature of the occupations of the local people, which nearly all involve nature in some way. Sport fishing can help fight the encroachment of illegal actors on indigenous land and work towards the goal of maintaining sustainable fisheries. It has both of these impacts naturally, without requiring any special incentive or subsidy, which is what makes it such an effective form of addressing the issues. Historically, one major problem for indigenous people when defending their land has been that there is simply too much land with borders that are often not clearly demarcated for them to successfully maintain it against the encroaching forces of ranchers, miners and loggers. With

increased infrastructure and new incentives to preserve the ecological balance of their rivers and the lands that surround them, sport fishing can both increase the motivation of the indigenous people to combat this problem and aid them in accomplishing this goal. Violent clashes are not uncommon between indigenous people and trespassing ranchers, and oftentimes they result in injury or death on one side or the other (van Solinge 270). By instituting a more thorough and controlled system of monitoring the river ways—and by extension the lands surrounding them—the sport-fishing industry can be a valuable tool to those within the Brazilian government who have sought ways to correct this problem for many years (van Solinge 272). The Amazon is a key transportation network in the Brazilian rainforest, and with fishing operations sending boats out to patrol or providing the indigenous people with boats of their own so that they may safeguard their waterways, the area is kept safer from these predations than it could have been under only the natives' supervision. An added benefit of this relationship is that both parties are incentivized to maintain it. By aligning the desires of both the lodge owners and the indigenous tribes in a manner that drives both to seek the protection of the waterways and the wildlife contained within, the industry naturally and sustainably aids in the protection of these areas.

Potential Problems with the Industry

More recently, concerns over monopoly control of Amazon waterways have prompted new and potentially positive changes in the way that sport-fishing outfitters work with indigenous villages to negotiate their use of the river. Traditionally, sport fishing operations have set up their own agreements with the locals, but this has caused

conflicts in the past, as exemplified by incidents involving Phillip Marsteller in 2010. His operation, though it has since shut down, ran largely out of two hotels, the Rio Negro Lodge and a massive hotel-boat called the Amazon Queen II, and he brought both tourists and sport fishermen to the Amazon. While his website advertised luxury accommodations and great fishing, it neglected to mention conflicts with the local people over his operations (Mowforth et al. 151). According to some reports, he was "pressuring some Indians to abandon their land," and the relationship was described as "tense" (Mowforth et al. 151). To alleviate concerns that sport fishing operations in the future might conduct business in this manner, the Brazilian government has stepped in and blocked sport fishing operations from accessing major sections of the Amazon while they investigate the legitimacy of the claims being made on the river (Brown).

In order to retain their access to the river in the future, some sport fishing operators may be forced to find new ways to legitimize their relationship with the local communities. One example of this is a new approach being developed by the aforementioned Mr. Brown in which he helps the local people to set up their own cooperative that allows them to direct the fishing operations on the river themselves. Mr. Brown believes that, by shifting to a more logistical and advisory role, he can both better preserve his business and better preserve the lives and culture of the local people. This is only one example of a specific initiative by a sport fishing operator, so the importance of the example is not as a representation of a common practice, but rather as a possible model that could be encouraged by FUNAI and the federal government.

CHAPTER 5

Sustainable Wing Shooting Tourism in Argentina and Uruguay

Classification and Description

The term wing shooting applies to any form of bird hunting where the bird is shot while flying, or "on the wing." It encompasses a broad range of species, from the tiny pygmy ground dove (Columbina minuta) to the Magellan Goose (*Chloephaga picta*) that can grow to 60-72.5 cm long (Murton et al. 45). Wealthy hunters from around the globe travel to Argentina and Uruguay to engage in this activity, bringing in foreign dollars to local economies, and sparking growing domestic markets for the trade in many of the host countries as well. These hunters are willing to pay thousands of dollars for the chance to engage in what is known as the best wing shooting on earth, and this means that outfitters planning to entertain them must develop facilities that cater to their tastes (Miles, et al.). This involves buying expensive food and wines (which generally includes local vintages), building luxurious lodges, building and maintaining roads, and stringing power and telephone lines into remote locations (Miles et al.). These lodges employ dozens of chefs, bird boys, drivers, guides, and hosts or hostesses from the local population, and often bring in professionals from other parts of the host country (Miles et al.). Similarly, the vast majority of operators of this type of tourism are from the nation in which they operate, and as such their income does not leave the nation.

It is quite expensive, so the hunting must be superb to draw clients thousands of miles across the globe. Argentina and Uruguay share certain characteristics that make them particularly attractive to hunters seeking a wing shooting experience. First, the

combination of agricultural development and wetland areas makes for perfect habitat for a great assortment of species. Though the game birds found there have different habitat requirements, they have certain characteristics in common—characteristics that can be found abundantly in Uruguay and Argentina. The perfection of the ecosystem causes some of the species to hatch several times a year more than they do anywhere else (Murton, et al. 34). The habitats and varieties of the three most commonly hunted varieties of game bird can be found below.

Varieties of Game Bird

Columbidae

This classification of birds, known as a family or a clade, represents a group of species that have evolved from common ancestors and share homologous features. This particular family contains five subfamilies and 308 species, but most fall within the classifications of dove or pigeon. For doves, the primary species sought by hunters in Argentina and Uruguay is the Eared Dove (Zenaida Auriculata), so named because of the distinctive black coloration above the ear cavity. They are approximately 24 cm long, with brown plumage and some darker black coloration in their tail feathers. They are native to the Americas, and can be found throughout most of North and South America, along with several Caribbean islands (Murton et al. 44). With great adaptability to many climates and a relatively short gestation period, these birds have built up significant populations in many of these areas, and are described as “common” throughout the hemisphere (Stotz et al. 54). In many areas, they are actually regarded as a pest, and pose a significant threat to farmers because of the sheer size of their voracious swarms that can

descend on a farmer's fields and strip them bare. This aspect will be explored in more depth later in the paper, as it plays a significant role in their interaction with humans. They are so numerous in part because of their breeding habits, which allow them to have up to five broods per season (Bucher and Ranvaud 566). They build their nest in a small cup shape in trees or rocky outcroppings, and their broods are usually from 1-2 eggs (Bucher and Ranvaud 564). Their breeding is usually dependent on the availability of food or favorable lighting conditions that signal the correct season, and in some locations can be year-round if conditions remain optimal (Bucher and Ranvaud 564). This is especially true in South America, where favorable agricultural conditions provide an overabundance of food near suitable roosting locations and weather conditions are not extreme enough to interfere with breeding patterns. The perfect conditions for Columbids result from a combination of three factors: "(1) Increased availability of grain from crops, spilled harvest grain and weed seeds, (2) forest fragments suitable for colonial breeding, and (3) handy water sources" (Bucher and Ranvaud 567). According to an article in Fish and Game New Zealand, "[Colombids] are uncommon in cast forested areas, marshes, swamps, and other places where open land and bare ground are scarce" (Jackson 6). The Colombids' preference for open ground comes from their quick reflexes and desire to feed in open spaces where they can see approaching predators. Given that Colombids have relatively high predation rates, it is no surprise that they have developed natural defenses against predators such as foxes, hawks, or other animals looking to snap up one of the thousands that gather in fields to feed. According to Jeff Jackson, a wildlife specialist at the Warnell School of Forest Resources:

> Doves are such common birds in agricultural areas that it's easy to assume they are abundant everywhere, but this is not so. Doves are adapted to open country, and are most abundant in the naturally open grasslands of the central prairie…agricultural activities help dove populations by keeping land open. Doves are uncommon in vast forested areas, marshes, swamps and other places where open land and bare ground are scarce (Jackson 6).

Certain areas of Argentina and Uruguay fit these descriptions perfectly, and as such provide breeding grounds for these species which hunters find so desirable. The best-known places for doves in the world are in Argentina's Córdoba and Salta provinces, along with agricultural areas in the provinces of Buenos Aires and Entre Rios (Miles, et al). Uruguay also has plentiful areas for doves in the agricultural areas around the towns of Carmelo and Colonia. Argentina issues more than ten times the number of hunting licenses a year issued by all of the other Latin American states taken in aggregate, and this number has grown consistently (Forestry Department 3). Jose Luis Grasso, owner of JJ Cacería Outfitters, figures that 10,000 to 14,000 dove hunters come to hunt annually in Cordoba alone, served by about 50 registered guides (Grasso).

Anatidae

The family Anatidae includes ducks, swans, and geese. "There are 17 types of ducks in South America, and 10 are commonly hunted. The estuary, marsh, lagoon and river systems of South America coupled with the abundant agriculture provide the best duck hunting opportunities in the world" (Boal 200). There are three subfamilies of Anatidae: Anatinae, which includes most species of ducks, Anserinae, which includes swans and geese, and Dendrocygninae, which includes those species referred to as

"whistling ducks." Members of all three subfamilies are hunted in Latin America, with Anatinae as the primary prey in most locations.

> They are most commonly associated with large ponds, lakes, and coastal wetland areas. Wetland areas with open water are required for safe refuge. Like most birds they are insectivorous as young but they have evolved as effective grazing herbivores as adults. Therefore, Anatids also require open grassland or agricultural fields in proximity to the wetlands needed for reproduction and resting (Boal 208).

This affinity for wetlands with the added requirement of open grassland means that Anatids share many habitat preferences with Colombidae, leading to several hunting grounds that offer what is called a "mixed-bag" hunt that includes outings for multiple members of the popular game species: doves, ducks, geese, and partridges. Waterfowl are primarily found in Entre Rios and Santiago del Estero provinces in Argentina, and in the Rio Negro province of Uruguay. The provinces of Buenos Aires and Entre Rios also serve as the wintering grounds of many geese.

Phasianidae

The primary term for Phasianidae in English is partridge. This family of birds includes all pheasants, turkeys, quail, grouse, and other partridges. They are largely terrestrial ground dwellers, and most lay their eggs in flat nests on the ground. Their habitat varies largely depending on the subfamily to which they belong, and of these there are four primary divisions: Meleagridinae, which includes all species of turkey; Phasianinae, which includes pheasants and junglefowl; Tetraoninae, which includes grouse and ptarmigans; and Perdicinae, which includes partridges and quail (Stotz 35). The subfamily most commonly hunted concurrently with waterfowl and doves is

Perdicinae, and within that subfamily the wild spotted tinamou and the elegant crested tinamou are the two species most commonly sought after by hunters (Miles et al). These two species are generally found in areas of tall grass interspersed with brush and small trees, and are typically hunted with bird dogs because of the difficulty of locating them in the vast expanses of the La Pampa region of Southern Argentina unaided. They roost in areas with trees or bushes, and eat mostly in open fields. Typical partridge habitat is characterized by a mixture of bushes, tall grass, trees, and open areas with small bodies of water interspersed throughout (Miles et al.). They inhabit many of the same locations as the doves and waterfowl because the grassy areas that shelter nesting doves and the open agricultural fields where waterfowl find grain serve as prime habitat for terrestrial partridges. Partridges pose little threat to agricultural activities, and are generally not materially affected by lead levels in ponds around their habitat, so the only real issue involved in the hunting of partridges is effective management of their populations so that they do not face depletion as hunting pressure increases (Miles et al.).

Development Implications of Wing Shooting

Positive Aspects

The positive aspects of wing shooting tourism are numerous, and even some common objections to it end up as arguments for how beneficial it can be. Some of the benefits of wing shooting tourism are common in other forms of tourism, such as an influx of funds for very little resource use (when compared to agricultural or manufacturing industries). Other effects, however, are more specific to this unique form

of tourism; effects such as the rural location of the activity, the focus on infrastructure development to satisfy demand for luxury accommodations, and the provision of nutrition directly to the rural population. The most common objections to the trade include concerns that overhunting will strip the host area of its resources and decimate game species populations; and concerns that it could result in a concentration of power in the lodge owner, whose preferences and goals may not match those of the local people.

Where typical forms of tourism funnel consumers to major attractions or urban areas, the benefits of spreading foreign funds to more rural areas has been evidenced many times through the course of this study, and this benefit is particularly applicable to wing shooting tourism because wing shooting—even more so than other forms of hunting—requires an organic connection to local inhabitants of the hunting area. This comes about for two main reasons: the reliance of the wing shooting operator on information about bird movements from landowners in the area, and the manner in which bird-hunting operations employ bird boys to hand the hunters shells and water and to collect all of the birds after the hunt is finished (Miles, et al.). To effectively follow bird movements—especially those of the more capricious Anatidae family—lodge owners must constantly have scouts roaming the habitat area, but scouts by themselves cannot see all of the birds' movements, so they resort to using close relationships with local landowners to ascertain where the birds have gone (Miles et al.). As for the bird boys, most wing shooting operations employ numerous local youths on dove hunts, who typically take home a small fee along with any tips hunters give them and however many birds they can gather after the hunt is over (Lavalle). Generally, almost all of the birds

taken will be retrieved and donated in one form or another, but those that left behind are quickly eaten by foxes, hawks, and other native predators (Lavalle). Because of these factors, wing shooting has more of a positive impact on local communities than other forms of hunting tourism, and possibly more than other forms of rural tourism as well.

Another factor that contributes to the effectiveness of wing shooting as a tool for development is that it attracts clients expecting a luxury experience. With trips that cost an average of US $5500, hunters expect commensurate lodgings, food, and service (Lavalle). To provide this in rural areas, wing shooting operators must construct elaborate lodges equipped with electricity and often internet in locations that may not have such infrastructure in place. The operator develops electrical and phone lines out to the lodge, which in turn drives the development of these resources in the areas around the lodge as well. Tourism has long been recognized as a tool for infrastructure development in rural areas, but in some developing countries there also arises the problem that the government does not have the funds to develop rural locations enough that they would support tourism, and private entities are less likely to invest in these areas due to a lack of government support (Meyer 2; Opperman 279). So, when there are private entities willing and able to invest in these areas because of the potential profits from the lucrative wing shooting trade, it provides a potentially beneficial opportunity to a government wishing to take advantage of it. In the example of Sierra Outfitters, an outfitter operating in the Salta province of Argentina, the government recognized the potential growth that could occur due to this form of tourism and began to create roads and power lines leading to the village of Las Lajitas, to facilitate its establishment. They also began the construction of a

250 student agricultural school in the area, an investment made possible largely due to the increasing infrastructure in the region (Lavalle). This serves as an example of how private involvement can drive public development, and how—because of the high profit margins that allow prospective lodge owners to invest in areas where typical tourism operators could not—wing shooting in particular can be an efficient driver of infrastructure development in rural areas.

Besides the development of infrastructure, wing shooting also has a particularly unique benefit to the community in that it also contributes directly to the nutritional needs of the community with an influx of protein. From a survey of several of the major wing shooting operators in Argentina and Uruguay, the common practice among them regarding the use of the taken game birds is to take all of the animals shot on these types of hunts and donate them to the local villages or to the families of the bird boys (Miles et al.). This causes hundreds of pounds of meat to reach the often-insufficient larders of the local residents. When hunters often shoot over 800 doves a day, and sometimes shoot up to 4000, the contribution 5-10 hunters can make is sizeable (Miles et al.). This meat typically goes to either the farm or ranch owner for the day's hunt, the bird boys and their families, or local food pantries (Miles et al.). One interesting fact to consider about this influx of food is that it benefits the community in a very direct way that is potentially less likely to be misused than monetary contributions. This is quite possibly the only form of tourism that possesses this benefit, and thus this factor deserves to be included in any discussion of the merits of wing shooting tourism.

Potential Concerns

The most obvious objection to the wing shooting trade concerns overhunting. With thousands of hunters per year coming to these lodges and shooting birds—sometimes by the thousands—it would seem that the native population would be decimated in short order. In reality, as demonstrated below, there is little danger of this occurring. According to a study of factors influencing the populations of Latin American wildlife, overhunting barely ranks among other causes for population deficits. According to a panel of experts polled by the authors of the study, the two most worrying factors were habitat destruction and the indifference and lack of support that the government habitually displays towards wildlife in Latin American countries (Forestry Department 25). With populations estimated at 12 million for Buenos Aires province, 20 million for Córdoba province, and 100 million for Salta province, the doves in these locations are far more likely to face overcrowding than a threat from overhunting (Lavalle). The limiting factors on dove population are availability of roosting area and food, and each dove killed only helps to maintain the population at a more sustainable number. The factor that actually turns this argument on its head and makes it into a benefit of wing shooting tourism is that these doves are actually a plague for local farmers. According to a study of bird damage problems in Latin America, "Sport hunting is the method usually recommended to reduce waterfowl damage" (De Grazio 166). So not only does wing shooting tourism pose a negligible risk of overhunting, it helps to control dove populations that can potentially devastate the crops of local farmers. From the farmer's

perspective, it is a win-win situation. They are paid by the lodge owner to have hunters come in and hunt the "pests" that destroy their crops.

While overhunting ends up not actually posing a serious problem for the wing shooting, industry, there are other valid concerns, and one of these is the issue of the potential power the lodge owner could come to have in a rural community given the role they can play in developing the area. For instance, if the lodge owner finances the construction of new infrastructure such as roads or power lines, they could potentially possess a strong influence on the placement of these resources and their accessibility to others. The power possessed by influential private actors in rural areas where there are few other major industries is known to be a potential problem because of the imbalances it can create, and the so-called "economic addiction" that it fosters in local communities (Freudenburg 305). This problem is virtually unavoidable, and could certainly be present to a degree in wing shooting tourism, but there are also some reasons why this issue is comparatively less problematic when it comes to this particular industry. For one, the issues raised in studies of the problem of economic addiction in rural communities deal mostly with extractive industries, and the "absence of realistic alternatives for diversified development" that they create (Freudenburg 1). Wing shooting tourism, because it is not an extractive industry, creates a different set of priorities regarding the role of the operator in the local community. Because wing shooting operators rely on the local community for hunting leases and information, it is absolutely paramount that they maintain a good relationship with the local people. A factory, for example, requires workers and desires to avoid legal action, but beyond that they have less incentive to

consider their relationship with the community. Also, regarding the ability of extractive industries to limit the diversification of other development, wing shooting operators again have a different set of incentives. For a tourist operator, the development of other industries in the area can be complementary to the services they provide, so long as the industries increase the attractiveness of the area. Given that the wing shooting industry may have certain priorities that help to limit its harmful effects, there still remains a problem in that the wing shooting operator could have enough influence to limit the development of industries such as large factories that would not complement their activities. The recognition of this fact by the local and federal governments would hopefully allow them to find a balance between encouraging potentially useful activities such as wing shooting and regulating them sufficiently to limit any harmful effects they may have on the balance of power in the regions in which they operate.

CHAPTER 6

Conclusions

In conclusion, consumptive wildlife tourism as a whole has demonstrated that it can serve as an effective tool for rural development because it attracts often-wealthy tourists to locations that generally receive little attention from foreigners and can benefit greatly from new sources of income. These operations also possess the added ecological benefit of increasing awareness of the value of native flora and fauna among the local people, which can lead to better preservation and management of natural resources such as forests and rivers. The creation of lodges and other facilities for consumptive wildlife tourism involves a high level of infrastructure development because of the nature of the activity as a luxury good, and this can lead to increased government support of other types of development in the area as well. Individually, the two types of consumptive wildlife tourism examined in more depth each display particular strengths and weaknesses, but both appear to be significantly more effective when it comes to development than the industry as a whole.

Sport Fishing Overview

Sport fishing in the Amazon possesses the unique advantage of encouraging strong ties with the indigenous tribes along the river, providing them with alternative forms of employment that allow them to avoid the logging industry or the often-harmful practices that come from moving to the city to find work. It also augments their capacity to patrol and protect their lands from poachers or encroaching ranchers, while

simultaneously encouraging them to more clearly establish their legal rights to the waterways and the lands that surround them. These advantages are tempered by concerns that lodge owners may attempt to gain monopolistic control over sections of the river and that squabbles may arise between the tourism operators and the indigenous people. Fortunately, the government has demonstrated an interest in keeping the waterways open and competitive, and with increased attention directed at the industry it could develop some new methods of structuring the trade, such as those proposed by Mr. Brown. The potential of this form of tourism has only recently been the subject of government attention, and in coming years the trend of increased government awareness and involvement in it will likely increase.

Wing Shooting Overview

Similarly to Amazon sport fishing, wing shooting tourism in Argentina and Uruguay have demonstrated unique characteristics that show strong development potential in the regions in which they occur. These characteristics include a similar level of community involvement to that of sport fishing because of the need for aid in finding and accessing mobile bird populations and the provision of food to the local population in the form of birds killed. These two characteristics make it so that wing shooting tourism can be a major benefit, but it is also important to weigh these against concerns that the tourism operators will shape further development in the area to suit their needs—potentially limiting the growth of the area in some ways. This is not a problem unique to wing shooting tourism, but is one that must be considered in any further investigation into the most efficient way to both encourage and regulate this potentially vital industry.

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