

THESIS

PATHWAYS TOWARD A POSTHUMANIST APPROACH TO WILDLIFE-HUMAN
COEXISTENCE: A CASE STUDY OF ENVIRONMENTAL POLICIES AND EDUCATION IN
COSTA RICA

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ABSTRACT

PATHWAYS TOWARD A POSTHUMANIST APPROACH TO WILDLIFE-HUMAN COEXISTENCE: A CASE STUDY OF ENVIRONMENTAL POLICIES AND EDUCATION IN COSTA RICA

This thesis project is a two-part evaluation of policy creation and environmental education in Costa Rica. Part I applies a posthumanist theoretical framework to a patchwork ethnography methodology to identify patterns within perceptions and implementation of environmental policy. Methods selected include semi-structured interviews and participant observation accomplished during a January 2022 pilot study in Costa Rica where the research team partnered with three wildlife rehabilitation centers of varying size. In conjunction with this posthumanist evaluation of current policy, actor perceptions, and creation of legislation, Part II assesses the use of a Vertical Integrated Project (VIP) model in correlation with environmental education practices and programs. Findings suggest, based on additional analyses of interviews and participant observation, that values play a significant role in the creation, content, and enforcement of environmental policies in Costa Rica. Further, the use of the VIP model in research methods directly mirrors many of the environmental education programs and techniques demonstrated by the partnering centers. These findings illustrate potential pathways forward for other environmentally conscious nations to foster coexistence and shift the way wildlife is perceived and valued on a national scale.

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Introduction

Costa Rica has garnered international attention among researchers and environmentalists due to its biodiversity, national culture, and protective federal statutes. Though geographically a small nation, it has some of the most vast protected spaces in the world and works closely with its neighboring countries to protect and preserve endangered species (Jimenez et al, 2017). The presence of many endangered species has led to the production of a multitude of protective policies and statuses and at present, more than a quarter of all land within Costa Rica falls under at least one protected designation (Sanchez, 2018). Further enforcing the protection of wildlife, hunting is prohibited country-wide with a few specific exceptions to the rule. With such a delicate ecosystem, Costa Rica presents both invaluable opportunities for research and a growing challenge to protect and preserve the current state of the environment (Broadbent et al, 2012). This challenge can be addressed most effectively through continued research and new ways of considering the relationship between humans and their environment. From legal precedence to early environmental education, there are many conduits through which humans continue to build the existing knowledge base around environmental issues. Research initiatives as discussed in this study are invaluable in furthering those connections and reframing wildlife-human relationships. We evaluate the location-specific key factors impacting wildlife-human relations in Costa Rica to identify patterns, make inferences, and provide a starting point for future research initiatives on the same or related topics.

This project utilizes data from a pilot study conducted in January of 2022 in Costa Rica evaluating the way environmental values and social structure impact the creation of environmental policy and affect the presentation of environmental education in the specific

community of Costa Rica. The study analyzed the values and opinions present among individuals working closely both with the Costa Rican government and with wildlife rehabilitation centers focused on assisting non-human animals. To accomplish this, the research team partnered with three wildlife rehabilitation centers of varying sizes and capacities to conduct ethnographic research such as semi-structured interviews and participant observation while in-country. This study employs a patchwork ethnography (detailed further below), completing the data collection within a period of 16 days. The research completed was assisted by the construction of a combined research team including both social scientists and veterinary science students. Methods for data collection involved one-on-one and group interviews conducted with employees, managers, volunteers and guests at each research center and the surrounding communities. With each subsequent interview, data was recorded for later analysis by members of the research team.

With much of Costa Rica's global recognition stemming from its "green laws" the creation of policy of such a caliber stands out as a principal topic for continued research (Sanchez, 2018). Primarily, this study seeks to understand what sets this small country aside from its international counterparts in environmental legislation. This includes both the creation and implementation of legal practices, research methods, and educational developments. Much environmental legislation includes broad themes and vague terminology, leaving it invariably open to interpretation by practitioners and courts alike. For Costa Rica, however, the laws and regulations for protected areas, endangered species, and native plants and animals are quite specific and heavily enforced not only by government officials but by the public as well (as discussed further in the following chapters). This public support for government involvement in the daily lives of citizens stands out as a discerning factor and calls into question whether the

nature of the value system in place for the population of Costa Rica. Specifically, whether the Costa Rican population simply bases public opinion of environmental policy on a value system quite unlike its fellow environmentally conscious nations, or if there are other factors at play. Though this question drives many of the research inquiries for this study, it is equally important to note that the findings of this study pertain to the specific respondent population of those interviewed and spoken with at the three wildlife rehabilitation centers and cannot be generalized to the full population of Costa Rica without significantly expanding the project via further research.

To evaluate these characteristics successfully, this study based its findings on a posthumanist theoretical framework. Posthumanism attempts to redefine the disproportionate distribution of power between humans and non-humans, setting them apart as equals, rather than allowing humans to maintain control of other species (Thomsen et al, 2021a). Posthuman research methods have been explained and discussed heavily in recent years (See Thomsen et al, 2021a; Chao et al 2022; Nayar, 2014), as they begin to reshape the way researchers view and interact with their research topics. Examining policy through a posthumanist lens creates additional requirements for defining success for legislation creation and implementation. Rather than simply including non-human species within the verbiage, a truly posthumanist policy will distribute equal value to humans and non-humans alike (Chao et al., 2022). Posthumanist assessment requires researchers to remove themselves from the equation and view the treatment of nonhumans as objectively as possible. For this study, treatment of nonhumans includes both written policy and environmental education methods. Posthuman research methods can only begin to break down the binaries of wildlife-human conflict and governance, but it is a step

towards the reframing of ideologies and towards inclusive policy production fostering coexistence for the near future.

With this critical evaluation strategy at the forefront of the evaluative methods selected for this study, Chapter 1 aims to identify patterns among the core values and subsequent policies present in Costa Rica's wildlife rehabilitation centers to determine key characteristics and add to the growing literature on the subject. Due to the size of the location selected, along with the public perception of wildlife, the relationship between the federal government and its population is a unique example of legal writing that works cohesively with the general public as opposed to working parallel to the value system and desires of the citizenry. This chapter receives its methods and data directly from the informal, semi structured interviews and participant observation completed in-country. Drawing from the posthumanist context, findings are assessed in response to the inquiry of what impact social values have on policy and what implications this may have for future legislators and practitioners. The chapter analyzes patterns and thematic repetition as key findings for the links between values and policy. The findings and discussion highlight the ways in which values may be varied between location, individual, and country, causing variations in the verbiage and severity of policy and federally supported social campaigns.

Chapter 2 of this study shifts the focus of its findings to the methods selected in formation of the research team and applies them in the context of environmental education. This portion of the study includes an assessment of the vertically integrated project (VIP) model as a research method and discusses construction of the research team in a manner that prepares this pilot study

for future teams to continue researching in a longitudinal study for additional findings (Harrigan, 1984; Strachan et al, 2019). By using the VIP model as a research structure, the study encourages active and equal participation from all research team members and increases group communication through data sharing and delegation of responsibilities. The VIP model is assessed in connection to the methods and practices used for environmental education in Costa Rica, breaking down the techniques that have garnered success in the past and discussing the viability of such techniques for use by teams formatted in the VIP model. Costa Rica's environmental education is some of the most thorough and inclusive in the world, laying the foundation for recommendations for future education to be made via additional evaluations in the longitudinal study (Jimenez et al, 2017).

The two halves of this thesis work as a cohesive study discussing not only the social impact on legislation, but the elements of environmental education directly resulting from Costa Rican value system and societal structure. The first half pulls focus to the interactions between individuals and the environmental policies in place or in production, while the second half appraises the methods of both the Costa Rican federal government and the research team itself. Though this project is only a pilot study, the patchwork ethnography methodology chosen elicited distinctive findings that set the stage for future research on the same or similar topics. This begins to fill the gap in current research literature on connections between values and policy by highlighting the involvement of cultural values in legislative processes. With the secondary focus of the project discussing use of the VIP model, the end-goal of this study is to provide context for research and informative findings not only for researchers, but for legislators and educators as well. Though this study ultimately summarizes several key findings and takes a

supporting approach to future use and elaboration of posthumanism in research and academics, the principal purpose is to provide a useful overview of the current state of environmentalism in Costa Rica, rather than suggest a change or specific course of action. The following chapters are to be viewed not as recommendations, but considerations and reflections on the current state of conservation and education as it relates to legislators and their work.

Chapter 1: The Social impact of wildlife policies on legislation: Costa Rica's unique environmental policies

Introduction

The relationship between humans and the environment has spurred debate concerning the role and worth of nonhumans, flora and fauna, in ecology and in society for decades (Kristensen, 1960; Spence, 1999; Kirksey and Helmreich, 2010; Kopnina, 2017; Thomsen et al., 2022). Humans' capacity to define Nature has evolved alongside human society (Kopnina, 2017), morphing to fit the anthropological perspectives that retain popularity at any given point in history, wildlife-human interactions are increasingly contested (Wylie, 2007; Thomsen, 2022). Multispecies livelihoods consider how humans can coexist with nonhumans in a shared time and space, with equal rights attributed to particular individuals no matter the species (Thomsen et al., 2021b). As multispecies relations adapt to the rampant climate changes brought on by the Anthropocene, new methods of socially-based policy formation are being adopted to succeed the anthropocentric ontologies; at the forefront of environmental literature in past decades. A global leader in environmental policy creation and implementation, Costa Rica epitomizes the use of protective policy (Sanchez, 2018; Trent 2005). Costa Rica's environmental legislation includes

diverse subject matter and emphasizes the role that nonhuman actors play in maintaining the global ecological balance.

Human dominance over other species persists as humans wield power to create legislation that directly impacts the agency of nonhumans (Donaldson & Kymlicka, 2016; Kopnina, 2017). This has led to contentious debate on the legal representation of nonhuman individuals by their human counterparts, particularly in the creation of environmental policy and ecologically protective policy. Within some legal systems, nonhuman beings require the employment of a human agent, representative, or spokesperson (Donoso, 2017). Pertaining to representation in a court of law, “the representation of nonhumans in courts, parliaments and other institutions reflects the (generally) recurrent human tendency to enlarge its legal and political constituencies” (Donoso, 2017, p. 607). Steven M. Wise (2012) states that there are four specific pillars to legal rights, “Level One asks whether a plaintiff has the capacity to possess any legal right, Level Two asks to what rights is she then entitled [...Level Three] asks: does our plaintiff have the private right to assert her cause of action?, [and] Level Four “standing” requires the defendant to have committed the act that injured the plaintiff and can be redressed by the court” (2012, p. 1281). This specificity calls into question the reasons that wildlife and environmental concerns are viewed and valued differently in various geographic locations. Rather, how are nonhuman animals (hereafter animals) viewed and protected around the world, and what does this tell us about the value system in societies like Costa Rica where they are so heavily valued and protected?

Costa Rica is a notable example of some positive human attempts to share the landscape with humans and animals alike. The country is globally renowned for ‘green laws’ that aim to protect and maintain the country’s lush natural environment (Sanchez, 2018). Costa Rica has placed itself among the few nations that have federal animal welfare laws dedicated to the protection of companion animals. For the purposes of this study, the word “policy” refers to principles adopted by a federal government and regarded as law, and legislation refers to written regulations or rules that are legally binding within that state. Though the term legislation is used to encompass both legislation and policy, it can be further delineated as courses of intended action made known by the government. An international view of current environmental legislation like that of Costa Rica, will aid in evaluating the determining factors on a cross-cultural scale to identify any patterns relating to cultural values, species protected, verbiage chosen, and key definitions. Current literature surrounding environmental policy uses phrases such as fundamental rights, bodily integrity, intrinsic value, relevant capacity, and representation (Wise, 2012; Anderson, 2004; Donoso, 2017). Internationally, the goals of nonhuman representation (whether political or legal) do not always align in terms of (humans’) long-term planning and objectives (Donoso, 2017). This may be, at least in part, due to cultural differences that place varying worth on different species. In the example of Costa Rica, endemic plants and animals are integral to the national culture and economy, resulting in unique protective policies and strong national sentiments towards nonhuman beings (Schelhas & Pfeffer, 2005). Though human values, attitudes, and beliefs toward nonhumans and environmentalism are prominent academic topics, there has only recently been an upward trajectory of research between humans’ values and the creation of nonhuman animal policy (Lundmark et al., 2014). This pilot study investigated the

distinct relationship of wildlife-human relations through environmental policy creation and participation in Costa Rica.

Literature Review

Values and Policy

To fully understand the creation of policy regarding animal welfare, wildlife-human coexistence, and environmental sustainability, a comparison can be made between the relationships that humans form with the landscape and their cohabitants, and the theoretical landscape of legal precedence. Policy is intimately tied with human value systems, translating core values (i.e., morals, economics, capital, familial obligations, etc.) into legislation that follows the attitudes of its constituents (Hurwitz et al., 1993). The authors recognize that the term “value” is highly contested and can be interpreted in numerous ways when applied to various contexts. The distinction between who or what is valued in combination with where the concept of value is sourced from can greatly influence the interpretation and definition given to the term. For this paper, the term “value” most closely follows Manfredo et al.’s (2017) definition of the term in which values constitute the driving force behind polarization of opinions and perspectives.

In a capitalist context, the term “value” signifies a monetary connection, emphasizing practices and items from which the greatest return is possible (Weiss, 2015). However, this is not the only definition of the term, particularly where policy is concerned. Though still employing a utilitarian outlook in which humans must benefit, many policymakers and land managers have utilized an anthropocentric approach in which “value orientation emphasizes the instrumental value of forests for human society, rather than their inherent worth (Vaske & Donnelly, 1999, p.

526). This provides an explanation for both items and actors who do not inherently hold monetary value, but are still highly valued socially and protected even so far as with legal action. Despite this justification, much policy is still viewed through an anthropocentric lens, and the question of values impacting policy when such a lens is removed remains. This paper calls into question how value systems are retained on a national scale, and engages with the societal construct of wildlife as it relates to their treatment and legality as nonhuman beings in a posthumanist context.

Developing and Defining Effective Policy

Policy creation is often viewed as being exclusive to those in the legal field and was not accessible to the general public until the late 1990's when nongovernmental organizations began to take on environmental causes (Manfredo et al., 2020). The role of placemaking and emotional ties in policy creation is heavily linked to culture and the ways that a population governs high-value places (Muers, 2018). "There is also empirical evidence of the important role that culture plays in determining both specific policy outcomes and general approaches to policy in different places" (Muers, 2018, p. 7). Norton and Hannon (1997) propose that local values are the driving force, directly affecting the content and protections of the legislation produced. They developed these ideas, asserting that "some form of territoriality is universal to all human cultures, especially to those aspects of culture that relate people and communities to their ecological, social, and cultural context" (p. 229). Wildlife policy constitutes the population of literature one must examine when comparing the effects of value on policy.

To expand on policy creation regarding human-wildlife interactions, it is plausible to make a direct comparison between the goals, values, and actions of one country versus another. Of course not all persons agree with the national level policies or actions taken by their federal government; here we simply refer to published national laws, norms, and goals in published literature to use as a basis of comparison and analysis. This permits the determination of a correlation between values and policy, albeit a flawed indicator that favors particular human individuals who hold power at a given point in time. Value-based policies often share the goal of ecosystem health, though application of such policies can prove to be controversial (Lackey, 2001). Lundmark et al. explain that “sociological, economic, and ethical aspects must be taken into consideration to make it possible to actually implement new findings about animal welfare in policies” (2014, p. 994). These difficulties are but a few of the complicated considerations that legislators must account for in preparation of policy.

Some scholars assert that policy and policy-making are inherently value based, while others imply that value-based concepts are simply generally accepted, but difficult to quantify (see Head, 2008; Lackey, 2001). Others argue that there is a disconnect between written policy and the values of those writing it (Berglund & Matti, 2006). Berglund and Matti (2006) explicate this disparity stating, “our assumption is that there appears to be a mismatch between environmental policy documents, where the importance of economic rationality and external motivation for individuals’ decision-making process are emphasized, and the intrinsic motivation and values held by people in general” (p. 551-552). In legal terms, environmental conservation legislation relates to sustainable land management and is “associated with native vegetation management, forest management, water management, land tenancy, pastoral land management, agricultural

land use protection, and watershed management” (Hannam, 1999, p. 96). Wildlife policy is defined as “what state, federal, and private wildlife management agencies and or organizations do for or to wildlife in the name of the public interest” (Clark, 1986, p. 11). In this case, “public interest” is directly tied to varying value systems, whether monetary, social, or cultural. This very disconnect may be the exact distinction between Costa Rica and comparable environmentally conscious countries such as Norway or Germany (Sen & Nagendra 2019).

Costa Rica’s deep support of environmental policy stems exclusively from its economic ties to sustainable development goals (see Martin, 2004; Berglund & Matti, 2006), but others indicate a deeper connection between the Costa Rican value system, the environment, and the resulting legislation protecting its flora and fauna. It should also be noted that Costa Rica abolished its military in 1948 following World War II, providing more economic resources to invest in health and education, among other issues, that the nation-state ranks highly for globally (Costarica.org, 2019). As seen throughout this study, the collective cultural values experienced by the research team in Costa Rica indicate a heavy reliance on nonhuman actors when discussing the creation of written nonhuman animal law. A posthumanist approach to policy combines the acknowledgement of nonhuman importance, with the necessity for human participation to create protective governance.

Posthumanism and Policy Creation

Critical posthumanism is a relatively new theoretical concept in the creation of environmental policy (see Thomsen, 2021a). A more inclusive and just definition of a “self-willed individual agent” (Nayar, 2014, p. 13), is needed to unpack who is deserving of legal protection and rights,

no matter the species. This applies to more than wildlife-human relations alone. Nayar suggests posthumanism can also imply “an ontological condition in which many humans [...] live with chemically, surgically, technologically modified bodies and/or in close conjunction (networked) with machines and other organic forms (such as body parts from other life forms through xenotransplantation)” (2014, p. 13). Nayar (2014) critically evaluates the definition of humanity pointing out that previous definitions of a “human being” are not inclusive and that nonhuman beings may fit into these definitions more closely. This bends the perception of posthumanist legislation not to separate humans from the subject of the legislation, but to place them in a protective role, allowing them to rank the needs of other actors before their own (Thomsen et al., 2022), redefining success for the justice system to extend past purely human motivations (Chao et al., 2022; Madden, 2004; McLaughlin, 2019).

Legislators are challenged with considering the human role of policy creation as “managing and developing places involves wrestling with issues that include multiple sectors and social issues [and] will only be successful if the resulting complexity is recognized and addressed” (Reimer, 2008, p. 5). Humans have taken it upon themselves to expand their role in the environment beyond mere participation and into the realm of governance as they construct laws, rules and norms, in addition to their alterations of the physical landscape in which they reside. This creates a natural hierarchy on the landscape, with humans and their legally bound social regulations at the top and everything else falling into subordinate categories (Thomsen et al., 2021a; Thomsen et al., 2022). Historically, some humans have even subordinated other humans, particularly Indigenous peoples (Thomsen, 2022), requiring them to “make their claims convincing to federal or state legislators, lawyers, and policy implementers and are often [forcing them to] argue for

their priority in time and stability” (Feld & Basso, 1996, p. 224). Legislative bodies almost always draw on social and cultural issues that represent core beliefs and values, often moralizing them to benefit the greatest portion of a population possible (Simas et al., 2021). The very existence of environmental policy blurs the abstract line between what is beneficial to humankind and what is best for the land and other living beings.

To move beyond a human-centric definition of justice, coexistence must be fostered between humans and nonhumans in a way that does not infringe upon the wellbeing of either party (Kopnina, 2017; Thomsen et al., 2021b; Chao et al., 2022). Conflict between wildlife and humans, most commonly seen as the damage to crops or the endangerment of humans and domestic animals, actively stands in the way of multispecies coexistence (Madden, 2004). Conflict presents itself when the livelihood of one species infringes upon the livelihood of the other; in this case, humans (Madden, 2004). A 2021 U.S. study from the *Society for Conservation Biology* found that the creation of policy regarding the development of wildlife-human coexistence drew from mixed human perceptions of the relationship with nonhuman species (Jiren et al., 2021). The study found “the most powerful actors were also perceived to receive the greatest benefits from wildlife (most notably, through revenue from trophy hunting), while being exposed to very low costs” as opposed to local communities that “received a larger share of disservices but had limited involvement in policy making related to wildlife” (Jiren et al., 2021, p. 1961-1963).

This study displays common sentiments expressed by many individuals, even on an international scale, as “Human–wildlife conflict is increasing in both frequency and severity world-wide and

will likely continue to escalate” (Madden, 2004). Local, state, and federal governments are searching for beneficial solutions that will provide conflict resolution and protect the species which hold the most value, culturally or otherwise. Hurwitz et al. (1993) imply that the core values held by a human population lead to general postures that produce specific policy attitudes and affect not only the vernacular of the policies created, but also the likelihood of similar values to remain present in subsequent rounds of policy creation as well. We examine below the respective values and policies already in place in Costa Rica.

Study Background

Costa Rica’s Predominant National Values and Current Legislation

Schelhas and Pfeffer (2005) described the high value placed on the environment and wildlife by citizens of Costa Rica. The authors concluded that this value system was internalized by enough of the population to be able to categorize it as a cultural value, embedded within many national efforts and sentiments in past years and in future aspirations (Schelhas & Pfeffer, 2005). As a result, Costa Rica implemented several pro-environmental programs and policies to uphold the pro-wildlife value system instilled in its population. Costa Rica has long been turning shared values into social capital at the federal level through “strengthened institutions, community participation at all stages, the creation of employment opportunities, education, and cultural activities” (Fuentes & Pirzkall, 2020, p. 298). Strategies like these transform culturally shared values into tangible outcomes that benefit the entire nation, including the production of new legislation and policy that aligns with this long-term orientation. Sustainable development, for example, is just one small aspect of the greater output produced by the environmental policies

established and maintained at the federal level, building the foundation for Costa Rica's global recognition as a leading authority in conservation.

The Costa Rican Government is known globally for its environmental protection laws and the creation of its Environmental Administrative Tribunal (Percival, 2007). This legislative protection is made abundantly clear from the moment of arrival in the country, with photos of endangered species, donation boxes for environmental causes, and maps with highlighted ecotourism locations where animals native to Costa Rican may be spotted located all around the Daniel Oduber Quirós International Airport. Over 25 percent of the country maintains some type of environmental protection status, leading its Gross Domestic Product (GDP) to rely heavily on (eco)tourism and, more specifically, ecotourism to prosper (Carvache-Franco et al., 2021; Sanchez, 2018; Thomsen et al., 2023). These protection statuses fall into several categories of environmental strategy including, but certainly not limited to “public protected areas management, designation of private conservation areas, reforestation programs, watershed protection, scientific research, and standards of environmental sustainable performance applied to the hotel industry” (Sanchez, 2018, p. 118-119). On an institutional level, Costa Rica employs the use of the National System of Conservation Areas (SINAC) as well as the Biodiversity Institute and the Certification of Sustainable Tourism (BICST) to ensure that national practices are actively taking into consideration the global state of the climate and working to protect the Costa Rican plants, animals, and people (Sanchez, 2018). Perhaps the most involved with species protection, SINAC is usually notified or contacted by rescue groups and rehabilitation centers for permission to release animals back into the wild after a period of recuperation upon rescue by wildlife centers or veterinary clinics. SINAC further cites The Law of Conservation of Wildlife

No. 7317, enacted in 1998, which “aims to preserve, protect and control the wildlife of Costa Rica” as its primary function (SINAC, 2022, par. 2). Wildlife in this context is defined as “the continental and insular fauna that lives in natural temporary or permanent conditions in the country and, flora living in natural conditions in the country” (SINAC, 2022, par. 2). A popular topic of conversation pertaining to Costa Rican law is Chapter 4, Article 14 of the “Ley de Conservación de la Vida Silvestre” (Wildlife Conservation Law), indoctrinated in 2017, which explicitly prohibits the hunting, collection, extraction, or holding of wildlife-with few stipulated exceptions (Ley de Conservación de la Vida Silvestre, 2012). Gray and Campbell (2007) suggest that the values most strongly associated with ecotourism in Costa Rica are the aesthetic, the economic advantages, and the ethical considerations. These core values have led to an influx of tourists entering the country and directly influenced the creation of policies such as the Ley de Conservación de la Vida Silvestre previously mentioned.

Methods

A multi-sited multi-species ethnographic pilot study on the interactions between members of society and government legislation laid the foundation for a deeper understanding of Costa Rica’s environmentally protective national culture (Kirksey & Helmreich, 2010). For this study, the research team joined three wildlife rehabilitation centers and a veterinary teaching hospital to evaluate the impact of values on wildlife-human relationships and environmental policy creation. This study draws on ethnographic methods in the field of anthropology, which follows an inductive, emic approach and thematic analysis in an attempt to understand the context that actors face (Creswell & Creswell, 2017). An early 2022 patchwork ethnography study conducted in Costa Rica provides the data for these observations and evaluations. Patchwork ethnography refers to “ethnographic processes and protocols designed around short-term field visits, using

fragmentary yet rigorous data, and other innovations that resist the fixity, holism, and certainty demanded in the publication process” (Günel et al., 2020, p. 3). By employing patchwork ethnography, researchers were able to reach saturation in the interview process within a relatively short period of time. As emphasized by Smolka (2021), the goal of this vein of ethnographic research is to combine key pieces of information into a cohesive, saturated end result that can be extrapolated into productive findings and observations. This pilot study is part of a larger longitudinal study, “wildlife rehabilitation for conservation” aiming to connect the role of wildlife rehabilitation centers to nonhuman conservation at both individual and species levels.

Data Collection & Analysis

In January 2022, 16 researchers traveled to Costa Rica to conduct field work at three wildlife rehabilitation centers in a pilot research study. The research team included two university faculty members, a wildlife rehabilitation practitioner, six Doctor of Veterinary Medicine students, five graduate students in Human Dimensions of Natural Resources, and an undergraduate wildlife biology student. Team members ranged from age 21 to age 60 with an even number of self-identified male and female participants. Four team members spoke fluent Spanish and were able to translate for the remaining team members when necessary, though it should be noted that many interactions were conducted in English.

Wildlife rehabilitation centers in Costa Rica range in size from an intake of less than 500 new patients annually to over 1000 intakes per year. For the purpose of this study, the research team worked with three centers of different sizes to gain a variety of interactions and observations.

The three centers can be classified as small, medium, and large based on the annual number of new-patient intakes. The small center reported less than 500 intakes per year, the midsize center reported between 500-1000 intakes per year, and the large center reported more than 1000 intakes per year. Though studies involving intercultural exchanges would certainly benefit from extended periods of time in-country, condensed but rigorous short-term stays can prove beneficial for student researchers as discussed by Thomsen et al. in this journal (2020). This study, however, will continue as part of a longitudinal study. Throughout the course of the 16-day study, over 130 semi-structured and informal interviews were conducted in addition to participant observation. Most interviews were not digitally recorded as the informal component was necessary to provide for the researchers' active participation in volunteer activities and hands-on interactions at each of the centers (Bernard, 2017). To replace a digital recording of each interview and interaction, each team member designated time twice per day throughout the to record their notes, impressions, and findings in the form of written field notes (Bernard, 2017). After returning from international travel, field notes were typed and organized into a digital format for ease of access by research team members and for convenience of data sharing. The resulting data was coded to extrapolate themes present. From this coding process, thematic findings were identified and summarized as, ecotourism, value-based culture, disparities in international approaches, and global reputation. At each center, team members rotated through participatory activities and volunteer functions in various sections of the facility. This allowed the social science students to gain perspectives from veterinary professionals, veterinary students engage with the social sciences, and for all researchers to gather information from a diverse group of interviewees and individuals.

Study Limitations

Though the results of this study were successful in identifying patterns and producing distinctive findings, it was not without limitations. This study could be improved upon through repeated patchwork ethnographies over a longer period of time (which this research group plans to do), adding to the collection of data from additional wildlife rehabilitations centers. This study would also benefit from the additional perspectives of legislators, policymakers, and local government officials. For this pilot study, these additions were not feasible, but as the study continues, their responses would further develop the findings for future research and would serve only to expand the current understanding of cultural values as they pertain to wildlife policy in Costa Rica.

Findings and Discussion

This pilot study proved valuable in identifying social patterns in the interactions between members of the public, wildlife professionals, and volunteers with Costa Rica’s federal laws regarding wildlife and treatment of animals. Each interview conducted added to the wealth of information used to review the process of environmental policy creation at the federal level. Though much important information was gleaned from the research conducted, the findings can be synthesized into three key discussion points outlined in Table 1 below.

Table 1. Key Findings

Key Findings		
Ecotourism & Environment	Biodiversity	Culture & Values
<i>Supporting Sub-categories</i>		

Financial support derived from ecotourism	Specificity of wildlife policy	Policy as a result of collective action
“Green Laws” as a draw for tourism and activism	Legal precedence for endangered species	Societal support spurs action for continued policy development
Nature-Based Travel as a method for policy enforcement	High number of protective statuses and protective areas	Inversion of value hierarchy

Finding #1: Costa Rica’s Ecotourism and the Environment

Costa Rica’s reliance on ecotourism drives not only the creation of environmental policy, but the adherence to it. At the small center visited, staff, volunteers, and coordinators described the heavy influence that ecotourism has not only on natural culture and values, but on the functions of the center itself. The small center relies on volunteers and donations to provide care, food, and medical attention to its animal residence. Interlocutors #1 and #6 described how volunteers often travel from countries all over the world to stay at the center, lend their time to temporarily working with the animals, and assist the employed coordinators and veterinarians with daily tasks. This temporary period of stay is a conduit for visitors to learn about Costa Rica’s ecosystem, endemic plants and animals, and national culture. Interlocutor #1 mentioned during the interview that the volunteers (whether international or local to Costa Rica) are quick to support the enforcement of the national laws in place and to promote the active reverence of nonhuman members of the Costa Rican population.

At the medium center, interlocutor #11 mentioned that they specifically chose to travel internationally to Costa Rica because of the ‘green laws’. She previously worked at a large zoo facility in Spain, and she stated that many of her coworkers felt that the legislation was not only

too lenient in terms of animal treatment, but not followed closely enough. At the large center in Costa Rica, though not reliant on volunteers, interviewees corroborated the statements of the small center interviewees, mentioning the various environmental policies. The workers showed the research team several educational placards and sign posts emphasizing adherence to the laws in place as a positive tool for safely interacting with animals. The connections between volunteer tourism and conservation are no new concept to conservation academics. Gray and Campbell (2007) reference the idealistic environment experience in Costa Rica is “attributed to the extensive interaction between volunteers, local residents and the environment, the involvement of and benefits to the local community, and the conservation ethic underlying the [programs]” (2007, p. 466). At each of the centers, the involvement of tourists (whether specifically considered ecotourists or not) created something of a ‘snowball effect’. Visitors appeared more likely to interact with animals in a healthy and respectful way if that was the norm already established at that center by previous visitors and fellow guests.

Ecotourism can be either an asset or a detriment to the environment, contingent on the activities and the methods of the tourists themselves. Thomsen et al. (2021b) state that ecotourism’s goal is to “balance human and nonhuman livelihoods through sustainable development, biodiversity conservation, and community development on [...] with local perceptions of wildlife (human and industry), education, and (positive) changing values/involvement” (p. 3). This balance is imperative to the success of nations like Costa Rica which depend on ecotourism to maintain a thriving economy (Sanchez, 2018). As a visitor at each of the three centers, it was highly evident that the end-goal was continued protection and increased respect for the nonhuman rehabilitation patients and residents. The reliance on ecotourists for volunteer efforts was brought up in several

of the team's interviews (Interlocutors #1,3,4,5,6,8 and 11 all mentioned ecotourism or ecotourists), citing an appreciation for the flow of passionate volunteers and visitors, particularly after the decrease in international travel during the Covid-19 pandemic. Throughout the team's experiences in Costa Rica, ecotourists were present from all reaches of the globe and all walks of life, drawn to the small country by its history of positive human-wildlife interactions. These interactions appeared to encourage adherence to federal policy by incentivising the continued positive treatment of wildlife while in-country. This balance of economic and value-based incentives categorizes Costa Rica as “the trade-off between agricultural and economic development and the protection of human and natural resources” (Wiedemann & Ingold, 2022). Without these incentives, policy would not only cease being successful, but its legislators would be forced to rethink the creation processes as well.

Finding #2: Costa Rica's Biodiversity and Endangered Species

The research team's participant observation resulted in exposure to a vast array of flora and fauna within minutes of entering the country. Four specific research team members were in awe of the health and variety of the many plant varieties that are found on a much smaller scale as houseplants in the United States. At the small center, Interlocutor #4 was kind enough to spend time pointing out varieties of flora found within the facility, educating the researchers on their names, uses, and herbivory for humans and nonhumans alike. For several team members, the animals (most native to Costa Rica) seen at each of the three centers were species that they had previously read or written about, but had never seen in the flesh. Each location presented a new variety of species and each interview conducted with a Costa Rican resident such as Interlocutors #4,5,6,7, and 10, who emphasized the pride taken in the protection of endemic species. The

team's observations and conversations confirmed that Costa Rica's system of protected areas is considered one of the most successful in Latin America. This is perhaps a credit to the strong pro-wildlife values and cultural appreciation demonstrated by the residents (Gonzalez-Maya, 2015).

At all three centers visited, staff who were interviewed referenced the specificity of the national environmental legislation like the *Ley de Conservación de la Vida Silvestre* (The law of wildlife conservation), which protects 85 species of birds, 15 species of mammals, 81 species of amphibians and 28 reptiles with reduced or threatened populations (Ley de Conservación de la Vida Silvestre, 2012; SINAC, 2022). Without the presence of these species, the centers' staff and volunteers may not have expressed the same national pride in protecting them as described. This isn't to say that all people value wildlife equally, but from the research teams' collective experience, the pilot study stood out by comparison to previous countries visited.

With increased momentum in the movement to protect its biodiversity and endemic species, Costa Rica's legal precedence is an extension of the cultural values at play. Though the general context in which specific animals and species were discussed was positive, the changing state of the environment was an underlying concern in many conversations. Worry over the environmental crisis has been growing in recent years as biodiversity in Costa Rica has been decreasing rapidly (Soley & Perfecto, 2021). The loss of biodiversity is a point of tension and fear for many individuals (both Costa Rican nationals and international environmentalists) as the state of Costa Rica's ecological systems is reflective of the global climate crisis. As a visitor discussing biodiversity and protective status with Costa Rican residents, it was evident that the

culture itself would be completely different without the presence of a vast variety of flora and fauna. Interlocutor #9, who traveled from her home country of Colombia to work as a veterinarian at the medium center, cited Costa Rica's 'green laws' as the reason she came to the country as the laws provide the population with a conduit through which to fight for what is important to them.

Finding #3: Costa Rica's National Culture and Placement of Values

Finally, the collective, predominant national culture present in Costa Rica is unique in that the perceived structure of the values present is inverted from that of larger, less biodiverse nations. Perhaps the most integral result from this study's interviews is the recurring theme of respect for nonhuman beings on an equal or higher level than that of their human counterparts, which correlates with Thomsen et al.'s (2021b) posthumanism and multispecies livelihoods (see also Copeland, 2022; Fennell et al., 2022; Thomsen & Thomsen, 2021). The small center was the most potent example of this pro-wildlife value system as the resident veterinarians often worked long, dedicated hours to maintain the health of their patients, no matter the size of the animal or the severity of their condition. This same dedication held at the medium center, but seemed to grow less apparent at the subsequent visit to the large center, as the apparent culture that was strongly reflected by the small center was overshadowed by the economic and continuity needs. However, it must be noted that individuals within these centers maintained the same sentiments as their small-center counterparts, echoing the prioritization of the environment and natural inhabitants alongside humans' needs. At each of the centers, volunteers mentioned biodiversity as a draw for having selected Costa Rica as a destination and implied a strong desire and commitment to protecting such levels of biodiversity by referencing adherence to current

legislation as well as support for continued production of new policies to maintain the ecosystem within the nation-state. Several team members echoed these observations throughout the study, remarking on the feeling of support for something ‘bigger’ (a cause greater than themselves) and the desire to learn from and recreate Costa Rica’s protective stance on environmental conservation. At the medium center, Interlocutor #10, a neighbor whose property shared one side with that of the center, remarked that he did not mind center volunteers taking branches and tree cuttings from his property as he himself had relocated to Costa Rica because of his own environmental passions and research interests.

To an outsider entering Costa Rica, the generalized national culture appears notably distinct from many other nations. A quick ‘dive’ into the current literature on the topic revealed that national pride in Costa Rica is ranked highly (within the top four countries of a 2018 study), contributing to the responses we encountered by those living and working in the country (Noh, 2018).

Through each interaction, conversation, or demonstration at the three centers, a clear pattern began to emerge surrounding wildlife-human interactions. The distinction that sets Costa Rica apart from its peers in global environmentalism is perhaps a pro-wildlife value system that seems to be inverted from what literature has deemed “normal” - a posthuman, pro-wildlife value system that influences and is supported by environmental policy through positive feedback loops. This legal and cultural system places animal welfare at its core, with nonhumans valued at the same level (or greater in some aspects) than humans. The policy written in relation to environmental protection echoes this inverted system, making Costa Rica unique in both content and creation of legislation. Each of these thematic conclusions solidify the connections between Costa Rican (generalized) cultural values and the production of environmental policy. The

placement of nonhuman beings at an equal or at times higher level than humans is perhaps the driving force behind the quantity, thoroughness, and severity of Costa Rica's environmental laws.

Chapter 1 Conclusion

This study highlights the foundational concepts that separate Costa Rica as distinctive in both environmental policy and policy creation. Many countries have protective environmental policies, but Costa Rica stands out from the others by having a posthumanist, pro-wildlife value-based approach to conservation and environmental concerns that has resulted in its high environmental standing and global reputation. The root of these differences seems to lie in the connections that citizens of Costa Rica have with their home, their sense of loyalty, and the placement of the ecosystem and nonhuman inhabitants as one of the nation's highest priorities. National-level emphasis on ecotourism and environmentalism demonstrate multispecies livelihoods in action, as governmental policies, and nonhuman livelihoods support human livelihoods (Thomsen et al., 2021b). In Costa Rica, multispecies livelihoods and an ethic of posthuman pro-wildlife values are not mutually exclusive with human needs. Law is written either with the cultural values of a group in mind, or by an individual attempting to convince others to share the values they have deemed important (Bastiat, 1987). The creation of policy in Costa Rica appears to maintain the quality of having value-based foundations, working with the nation's population instead of separately from it to protect what is culturally cared about the most.

Following the current literature on value-based cultural impacts, combined with the results and findings of this study, Costa Rican cultural values include wildlife, and have been previously

identified as relating to policy in three distinct ways: (1) ecotourism and the economic incentives of maintaining continuous tourism activities, (2) protecting the biodiversity and endangered species present in the country (3) upholding the national and cultural values (Yi, 2018, Gonzalez-Maya, 2015; Hurwitz et al., 1993). Costa Rica's government is more protective of wildlife, the environment, and the various draws for ecotourism. Viewing these processes through a post-humanist lens illuminates Costa Rica as an example for the interpretation of posthumanist cultural values into law.

By these inferences, one may ultimately conclude that environmental and cultural values have a distinct impact on wildlife and the environment, implying that policy will differ significantly from one country to the next. Despite this, more research on the connections between cultural, economic, and environmental values and policies are still needed (see Lundmark et al., 2014), leaving a gap in the literature where connections could be made between humans' socio-cultural values and the legislation they create for their nonhuman counterparts. Global environmental policy has the potential to be much more effective (both in writing and in practice) if a posthumanist, multispecies livelihood approach is embraced. To do so, future researchers and practitioners should better consider mutually inclusive policies that champion multispecies' rights, agency, and welfare in practice.

Chapter 2: Inclusive Environmental Education: The VIP Model in Costa Rica

Introduction

Whether exhibited as response to the impending global environmental crisis, a way of relating to the natural world and its inhabitants, or an attempt to give a voice to underrepresented

populations, environmental education is an integral facet of wildlife-human relations gaining traction in the world of conservation (Jukes et al, 2021; Lloro-Bidart, 2017; Stables & Scott, 2001). Environmental education is the starting point from which environmental values, behaviors, and identities are formed and shared with the world (Ruepert et al, 2016). As environmental concerns have grown in recent decades, some scholars are adopting a posthumanist lens to approach education; shifting educational methods towards a re-centered model that removes humans from the spotlight (Snaza & Weaver, 2015). The posthumanist movement relocates the placement of animals as beings inferior to the human race and redefines the natural hierarchy experienced in the environment, changing what it means to be “human” and “non-human” (Chavarría Alfaro, 2015). Posthumanism is undoubtedly a value-based framework, requiring an inherent shift of norms and power structure in all aspects of its employment (Thomsen et al, 2021). Posthumanist education emphasizes the importance of non-human considerations and adds value to ideologies and methodologies that place humans and non-humans on a horizontal axis as equals. With this reallocation at the core of many conservation goals, interdisciplinary projects are an excellent conduit for increased posthumanist environmental education (Ates, 2020; Thomsen et al 2020).

Environmental education ties emotion to action, linking actors' personal beliefs to their outward interactions with wildlife and the ecosystems (Lindgren & Öhman, 2019). This is especially important to include in early environmental education as reuniting humans with nature in a non-dominant role is imperative to furthering a positive framework for environmental consciousness and sustainability in the future (Malone, 2016). Lindgren and Ohman (2019) argue that posthumanism does not inherently discount human perspectives and participation in

environmental discourse, but opens the door for other interests to be considered while reorienting the conversation to include humans as one part of a whole, rather than centering around humans alone. Educational outreach and research aids in explaining the human role in posthumanism as values often indirectly predict environmental behaviors (Ruepert et al , 2016). For the purpose of this article, we chose to focus on the education in the environmental sector of Costa Rica, utilizing a vertically integrated project (VIP) approach to involve research team members in a way that highlights their unique assets. We selected Costa Rica as the setting for this project as it is a fantastic example of posthumanist environmental education at work, demonstrating wildlife-first education that is the foundation for future generations of environmentally and socially conscious citizens.

Costa Rica is recognized globally for its educational strategies to conserve and protect biodiversity (Jimenez et al, 2017). Government systems within the developing nation are crucial to citizens' collective action and the country's annual sustainability goals (Garcia Lozano, 2016). Due to the preexisting educational systems and leading environmental reputation, Costa Rica presents a prime location to evaluate educational interests from a posthumanist theoretical perspective. Further, the environmental protective statuses present in Costa Rican legislation facilitate wildlife conservation and rehabilitation from a top-down approach. At the federal level, Costa Rica has devoted time and resources to improving their education systems and teaching their youth the value of environmental conscientiousness (Briggs et al, 2019). A focus on project-based and collaborative learning fosters long-term values and perceptions of environmental topics such as sustainability and social conservation (Briggs et al, 2019). Adding a posthumanist framework to environmental education in Costa Rica opens the door for the VIP

model (and other methods like it) to be evaluated and implemented for use in conservation and research on resource management at the federal level. This study identifies trends in environmental education within Costa Rica utilizing a posthumanist theoretical framework and the VIP model as foundational elements to indicate key findings.

Literature Review

Posthumanist Identities

As defined by P.K. Nayar (2014), posthumanism is “a new conceptualization of the human” focused on “cultural representations, power relations and discourses that have historically situated the human above other life forms, and in control of them” (p. 13). Keeping with this definition, the continued need for new methods of environmental education is created and must then be adequately acknowledged in an attempt to progress past the anthropocentric ontologies that have remained at the forefront of environmental literature for the past few decades. An ethical dilemma is created by the human-to-human education relating to the livelihoods, rights, and agency of animals. Donaldson and Kymlicka (2016), discuss the narrow ethical mindset in environmental writing, explaining, “Much of the animal ethics literature takes as a given that humans always already have sovereign power over animals. Animals fall under our rightful authority and our jurisdiction, and the only issue is how to exercise our sovereign power (stewardship, management) more humanely or ethically” (p. 226). There have been previous movements attempting to “overcome anthropocentrism and environment/human opposition in social theory”, but they come with a heavy task of deconstructing the current norms and offering a posthumanist ontology in their place (Fox & Alldred, 278). To accomplish this, “posthuman policy assemblage must have the capacity both to capture the complexities of the affective

movements in this event assemblage and to formulate actions that will address adequately and appropriately both climate change and climate justice” (Fox & Alldred, 2020, pp. 278-279). In her piece for *Repositorio* (a publication by the National University of Costa Rica) Gabriela Chavarría Alfaro (2015) discusses the distinctive shift that posthumanism has initiated in what she calls “human identity”, changing the very definition of what it means to be “human” and placing the human race on a horizontal axis with animals and non-human actors (p. 102-103). This inquisition into the meaning of “human” and “nonhuman” perpetuates the need for environmental education through the posthumanist lens.

A common misconception of posthumanism is the idea that its prefix insinuates removing humanity from the ontological equation all together. This error mistakes theories like posthumanism, aimed at viewing the world from a standpoint that does not consider humans to be innately more important than any other living being, with the rejection of any and all traditionalist ideologies (Nayar, 2014; Valeria, 2014). Instead, posthumanism is a continuation of ever-evolving attitudes towards social interactions (solely human or otherwise). Posthumanism forces society to view the lines between humans and non-humans as ephemeral, increasingly blurred as the differences between species seem to fade in a constant progression with each passing decade (Badmington, 2000). This presents a challenge for humans to properly produce effective educational techniques that will have direct implications for the livelihoods of other living beings in the future, as discussed throughout this review and the corresponding study.

Environmental Education and Ecotourism

At the heart of Costa Rica’s “green laws” lies its continued development of environmental education not only for international visitors, but for Costa Rican nationals as well (Jimenez et al,

2017). It must be noted, however, that much of the financial resources associated with ecotourism and education are devoted to international educational campaigns rather than domestic programs (Sander, 2012). While many tourism-based economies are setting their sights on sustainable development as the singular goal for the near future, Costa Rica's environmental education programs provide the foundation for the country to blossom as a leader in addressing environmental concerns in combination with socio-economic improvements as well (Blum, 2008). From 2005-2014, the United Nations General Assembly declared the 'UN Decade for Education for Sustainable Development', aiming to "integrate the knowledge and values of sustainable development into all aspects of learning, and to encourage changes in behavior which will lead to a more sustainable and just society" (Blum, 2008, p. 348). Costa Rica quickly became an active participant in accomplishing the UN's goals with the Costa Rican Minister of Education, the vice chancellor of the national university, the director of the UNESCO office in Costa Rica, and the director of the Earth Charter Center for Education for Sustainable Development signing a national commitment to increased education and sustainable development in 2006 (Blum, 2008). This governmental support for educational programs directly influences the way law is written at the federal level.

With these commitments to sustainable development, it is easy to assume that Costa Rica's heavy reliance and high annual intake of ecotourism work hand-in-hand with these goals. However, ecotourism can have negative impacts if not accomplished with long-term orientation of environmental health in mind (Koens et al, 2009). When conducted without the proper education and awareness, "ecotourism" can result in loss of biodiversity, land erosion, air pollution, degradation of culture, and environmental disturbances (Koens et al, 2009). This only

further emphasizes the importance of environmental education both for those intending to practice ecotourism and for those residing in the host nation as well.

As discussed by Stapp et al, educated and informed citizens can influence effective and sound policy (1969). Alternatively, without environmental education, there is an inherent risk of legislation formed out of bias. As explained by Valatin and Dandy, “personal preferences are not invariant and [...] cognitive factors can lead to systematic biases which can inadvertently result in some behaviors that harm the interests of the individual concerned, as well as those of wider society” (2016, p. 28). Though public influence can certainly be used as an essential tool for policy-makers at the federal level, it is a tool which must be wielded wisely. An educated citizenry is the cornerstone of maintaining environmental concerns as a country-specific cultural value in nations like Costa Rica.

Gaps in the Current Literature

The wide range of current literature on environmental education illustrates its value and adaptability in interdisciplinary and global applications (Cullers et al, 2017; Vicent et al, 2015). There is a vast array of topics that fall under the term “environmental education”, but for the purpose of this study, we focus primarily on the ways in which increasing ecosystem knowledge and concern for environmentally-driven topics relate to accomplishing sustainable development and greater value placed on wildlife protections for future generations (Kopnina, 2014). The interdisciplinary aspects of environmental education define the connections between the theoretical framework of posthumanism used, research methodologies such as the VIP model selected, and topics of conversation discussed within this study.

Though this overview of current literature provides a substantial summary of posthumanism, value based systems, ecotourism, sustainable development, and environmental education it lacks key information connecting the links between each of these themes. Topics like ecotourism are discussed heavily, but not in terms of the cultural impacts it produces for whole societies, whether positive or negative or both, over an extended period of time. These gaps in the literature are the very themes this project begins to address and attempts to fill, though further research is certainly required. By beginning with the connections between values and education, this project aims to make the first few connections in this web of interconnected themes that construct the greater posthumanist theoretical framework as it applies to environmental education.

Methods

This pilot study uses a multi-sited multi-species ethnographic approach to evaluate the use and presence of environmental education within Costa Rica. (Kirksey & Helmreich, 2010). This study focuses on anthropologic ethnographic methods to formulate a thematic analysis of environmental education in this site-specific context (Creswell & Creswell, 2017). A patchwork ethnographic study conducted in Costa Rica in early 2022, provides the data for these observations and evaluations. Patchwork ethnography utilizes short-term field work using “fragmentary yet rigorous data,” to assemble a broad image of the study results without sacrificing depth or saturation (Günel et al., 2020, p. 3). This subsection of ethnographic research aims to collect key information before analyzing the data as a whole, leading to an end result that is cohesive and indicative of the study’s findings (Smolka, 2021). This pilot study is the precursor to a substantial longitudinal study, “wildlife rehabilitation for conservation” which will

connect the role of wildlife rehabilitation centers to nonhuman conservation at both individual and species levels.

Vertically Integrated Project (VIP) Structure

Vertical integration was initially introduced as a corporate leadership structure aimed at fostering high productivity through inclusive managerial practices (Harrigan, 1984). Eventually, the leadership style was applied to research methodologies leading to an innovative approach to constructing well-rounded research teams with diverse members (Harrigan, 1984). Strachan et al (2019) describe these teams as consisting of “students ranging from all year groups; encouraging students to work continuously on the same project (gaining academic credit) throughout their University career” (p. 1314). This integrated approach maintains a steady flow of new team members as senior members complete their time on the team and allows younger students to learn from their senior peers (Strachan et al, 2019). Teams built on the VIP structure are ideal for long term research projects where ambitious research topics can be thoroughly covered over a longer period of time. This project adopted the VIP model to diversify the demographics of team members in a way that did not prevent any one researcher from providing their input and producing valuable observations in a variety of scenarios and conversations.

This team, in particular, chose to incorporate the VIP model by including students as young as fourth-year undergraduate students all the way to experienced faculty and professionals. In addition to the range in completed higher education, this VIP project utilized a multidisciplinary approach while constructing the research team with faculty and students participating from several distinct programs, departments, and backgrounds (Cullers et al, 2017). With these factors and diverse influences, our team met the goals of a successful VIP project which has been

defined as a “rich, cost effective, scalable, and sustainable model for multidisciplinary project-based learning” (Cullers et al, 2017). Our findings for this project are based on the combination of environmental education trends identified through semi-structured informal interviews and participant observation and the dynamics observed from the integrated research team at each of the three wildlife rehabilitation centers in Costa Rica described in detail below. .

Data Collection & Analysis

A pilot study in January 2022 brought a research team of 16 faculty and students to Costa Rica for a stay of 16d days. The team partnered with three wildlife rehabilitation centers to conduct semi-structured interviews and participant observation as field work at three wildlife rehabilitation centers ranging in size. The research team included two university faculty members, a wildlife rehabilitation practitioner, six Doctor of Veterinary Medicine students, five graduate students in Human Dimensions of Natural Resources, and an undergraduate wildlife biology student. Team members ranged from age 21 to age 60 with an even number of self-identified male and self-identified female participants. Four team members spoke fluent Spanish and were able to translate for the remaining team members when necessary. However, many interlocutors spoke English, removing the need for a translator.

For this study, the research team partnered with three wildlife rehabilitation centers ranging in size from small to large with the smallest center accepting fewer than 500 patient intakes per year and the largest center accepting over 1000 patient intakes annually. Within the time constraints of the sixteen-day study, the team was able to participate in a rigorous, short-term ethnographic study which condensed study results and provided the basis for the study to

continue as a long-term longitudinal research project (Thomsen et al, 2020). The team completed more than 130 semi-structured and informal interviews as well as active participant observation. Interviews were not digitally recorded to allow for a hands-on interactive experience working with interlocutors at each center, but team members recorded field notes in written form twice per day throughout the 16-day study period (Bernard, 2017). The field notes were then shared amongst team members and coded to identify any recurring themes. Participant observation involved a rotating task list at each center, allowing for a well-rounded experience and interviews with a varied demographic of interlocutors.

Findings and Discussion

Finding #1: Environmental Education and Volunteerism

At each of the centers visited, environmental education appeared to be a driving force behind the daily interactions with visitors and volunteers. Particularly for the two larger centers, placards and informational displays were abundant, informing viewers not only about the various animal residents at the center, but also about Costa Rica's history with its native wildlife. Even at the smallest of the three centers, educational goals were pivotal for the success of animal rehabilitation. Interlocutor #6 was extremely knowledgeable about animal welfare and heavily discussed the importance of providing visitors and volunteers with a basic understanding of wildlife needs and environmental concerns before allowing them to assist with basic animal interactions or rehabilitation tasks. For the smallest center as well, outreach to the community and continued educational elements provided a constant flow of visitors and volunteers helping to accomplish the daily goals and tasks of the center. These volunteers would, in turn, educate visitors or newer volunteers. For the research team, this structure was a clear reflection of their

team's own VIP model, mirroring the education and sharing of information through the format of vertical integration. Interlocutor #7 explained the basics of volunteer tourism as a draw for visitors to select Costa Rica when considering environmentally-conscious locations to spend a period of time working with animals, and mentioned that many previous volunteers suggest volunteer tourism at rehabilitation centers to their friends and peers with similar interests.

Volunteerism is closely linked to successful environmental education (Liarakou et al., 2011) At each of the centers visited, volunteers or contract employees offered services for varying periods of time and in exchange either for room and board, monetary compensation, or experiential learning. The benefit of learning new information, skills, or methodologies is often a sufficient draw to bring in volunteers both within the country and internationally (Van Den Berg et al., 2009). At all three centers visited, both the presence of educational materials and testimonies from the interlocutors involved supported the idea that environmental education is extremely beneficial in fostering volunteerism aimed at accomplishing a common goal. Whether the end goal is education itself, or education used as a tool for conservation, the method of learners teaching their peers was present in all three locations. Motivations for environmental volunteers appear to be varied, but they all work towards the same goal based on their individual values and ideologies (Liarakou et al., 2011). With our team working in the VIP model, team members were able to connect with other volunteers and conduct interview processes in a top-down pattern that covered a wide range of topics in a short period of time and further simplified the process of data sharing. The research team broke into small groups to participate in volunteer activities related to environmental education and animal welfare with an even split of faculty and senior team members leading the less experienced members.

Finding #2: National Campaigns

A resounding theme addressed by interlocutors in all three centers was Costa Rica's use of national campaigns for environmental educational outreach. Interlocutor #1 was the first to discuss Costa Rica's "no selfie campaign" aimed at preventing humans from disturbing, touching, or handling wildlife. The campaign aims to prevent human visitors from photographing themselves in the frame with a wild animal in the hopes that it will reduce the number of wild animals in captivity as tourism attractions, forced to be handled or photographed. The campaign was mentioned by interlocutors at all three centers, but Interlocutors #'s 1, 4, 5, and 7 explained the campaign and its success in detail.

National environmental campaigns are popular among the global leaders in conservation and environmental policy, but the extent of their success is heavily determined by the power structure of the government they originate from (Rootes, 2013). Due to the democratic design of its federal government, Costa Rica's power structure has allowed it to easily utilize public opinion campaigns as a resource for accomplishing national goals such as conservation and sustainability (Silva, 2002). Even at the smallest of the three centers visited, interlocutors #'s 4 and 5 discussed the willingness of Costa Rican nationals to address and enforce social regulations supported by national campaigns (like that of the "no selfie" campaign mentioned above). Interlocutor #2 further discussed the topic explaining that his initial reasons for selecting Costa Rica as a location for extended stay had nothing to do with volunteering or wildlife conservation, but the national programs were quick to educate him on the value of wildlife rehabilitation, leading to his decision to volunteer.

Finding #3: Size to Participation Ratio

After visiting each rehabilitation center and completing participant observation with staff, volunteers, and guests, a clear pattern emerged in the style of environmental education used. At the smallest center (averaging less than 500 new patient intakes annually) the method of educating visitors was heavily hands-on. Interlocutor #3 mentioned that she had found the website for the center online and selected it specifically for the active role she would be able to take in caring for and interacting with the patient and resident animals. At this center, volunteers are able to learn about species rehabilitation, biodiversity, conservation, and environmental policy by taking an active role in preparing food and feeding animals, assisting with daily managerial tasks, and monitoring medical progress for animals in the rehabilitation process. This was slightly different at the mid-sized center (averaging 500-1000 new patient intakes annually). At the midsize center, volunteers still participated in the feeding and care of animals, but were required to sign on for a minimum stay of four months, and guests visiting the facility did not participate in animal interactions in the same manner. Interlocutor #9 discussed the varying levels of responsibility between volunteers with experience working with animals, medical training, etc. and those who were new to animal rehabilitation. At the largest center (averaging more than 1000 new patient intakes annually), only designated staff were able to directly interact with animals and the animals requiring medical attention or rehabilitation were only accessible to veterinary staff and professionals.

These findings follow a distinct pattern with higher volunteer-animal interaction at the smallest center and almost no volunteer-animal interactions at the largest center. There are a number of implications for these differences, but previous scholars point to legal and financial

responsibilities that would inevitably be proportionately more substantial at the larger centers (Aylward et al, 1996; Zavitz & Butz, 2011). Environmental tourism typically places economic profit in a tangential role to that of social and environmental benefits, though it is certainly still a prominent factor in determining the success of the facility (Zavitz & Butz, 2011). At each of the three centers, regardless of size, interlocutors cited financial strain as one of the biggest obstacles to expanding services and increasing patient intakes. Though active participation is lower at these sizable centers, there does not appear to be a lack of environmental education present. With a larger staff, there is increased opportunity for group education and audio visual educational aids, despite the frequency of one-on-one interactions being lower.

Chapter 2 Conclusion

Environmental education is an incredibly valuable asset for the field of conservation and animal welfare. As such, there is a constant need for new and innovative research initiatives to maintain interest and fulfillment in the field of education. This study reviewed the current educational practices and strategies used by three wildlife rehabilitation centers of varying sizes to highlight common themes while simultaneously implementing its own vertically integrated research structure. Several key tools such as national campaigns, active volunteer tourism, and the particularly important addition of vertically integrated projects have the potential to redefine success for environmental education. In a context as environmentally conscious as that of Costa Rica's wildlife rehabilitation community, education is a particularly integral aspect of successful conservation.

The VIP model utilized in this study is an educational tool that extends far beyond academic education (Cullers et al, 2017; Harrigan, 1984; Strachan et al, 2019). Strachan et al (2019)

describe utilizing this type of model as blurring the line between teaching and research, opening the door for its application in any number of scenarios, research-related or otherwise. Further research into applications of the VIP model in conservation education would benefit the academic community greatly as this study provides evaluation only for the specific context in which it was conducted. Though environmental education is a well-established presence for environmentally conscious nations, globalization has altered its definition of success in recent decades and uncovered a demand for innovative strategies and evaluative methods for researchers and students alike (Jickling & Wals, 2019).

Ultimately, this study combined the interdisciplinary talents of its research team members into a vertically integrated project that identified key successful strategies for environmental outreach as demonstrated by the three wildlife rehabilitation centers the team partnered with. With the results of this study, the team is able to continue the VIP model with future generations of students, building off a singular pilot study into a longitudinal project that will add to the current literature on educational practices and wildlife conservation.

Conclusion

The themes and connections discussed in this study are the foundation for the continued creation of effective, protective environmental policies by future generations of legislators. This thesis contains two, distinct chapters utilizing data from a pilot study conducted in January 2022 that, as a combined thesis, present several key findings and identify integral characteristics of wildlife-human perception and interactions in Costa Rica. The study suggests that Costa Rica's reliance on ecotourism combined with its high level of biodiversity among native plants and animals have led to high value being placed on conservation and positive wildlife-human

reactions which, in turn, impacted the continued development of pro-wildlife policies, campaigns, and educational practices. As discussed by Manfredo et al (2021), values are the driving force behind environmental behaviors and interactions, often forming the core of societal perceptions of non-human actors. These interactions, whether physical connections at a rehabilitation center, professional interactions derived from government implementation of policies, or educational interactions through environmental education, are affecting the viability of coexistence as a goal of conservation efforts. The first chapter of this thesis detailed an analysis of value on the creation of policy within Costa Rica, with a basis in data collected through semi-structured informal interviews and participant observation. The second chapter emphasized the vertically integrated project (VIP) model utilized by the research team and evaluated the model's success in conjunction with environmental education. Both chapters seek to unify the data collected in a cohesive manner that will further the progression of the study in subsequent chapters and a future longitudinal study. Through the use of a patchwork ethnography, the research team was able to condense detailed interviews and thorough participation into sixteen days in-country and were left with a substantial amount of data to be analyzed and coded after returning to the United States. This data analysis presented the key findings outlined in each chapter above and facilitated useful discussion on the topics included such as ecotourism, biodiversity, value structures, and environmental education.

The use of ecotourism to further the influx of volunteers and visitors has shaped the creation of environmental policy as the Costa Rican economy relies on the tourism industry to turn a profit (Sanchez, 2018). As with many other government entities, legislators will include valuable assets in protective policy to ensure economic stability. Economic stability has historically been a

driving force not only for determining what a population values, but how those values turn into behaviors at the group or individual level (Manfredo et al, 2021). For Costa Rica, this means protecting the wildlife and natural spaces that ecotourists flock to experience. Due to the high numbers of ecotourists visiting Costa Rica yearly, the laws in place are pointedly protective of the native plants and animals. Because Costa Rica is so biologically diverse, the national parks and protected areas are much more vast than would be expected of a country of Costa Rica's size and resources. Relative to its infrastructure, a massive portion of Costa Rica's land is protected via several legally recognized statuses all aimed at preserving the natural biodiversity. (Carvache-Franco et al, 2021; Sanchez, 2018). All of these characteristics along with the topics of discussion detailed in the semi-structured interviews conducted, leads to the perception that Costa Rica may have a value-system quite unlike many other nations. This value system appears to be inverted from countries like the United States where almost all legal recognition and reasoning pertains primarily to humans, with the interests of all other species being a secondary consideration. These differences are particularly apparent when evaluating legislation from a posthumanist framework as humans have remained a top priority for many previous policies and movements (Donaldson & Kymlicka, 2016; Nayar 2014; Thomsen et al, 2021a). This does not appear to be the case in Costa Rica, where non-humans are highly valued and protected and their human counterparts are expected to live their lives in acknowledgment of the importance of non-human livelihoods. This is, of course, not true of every location and human in Costa Rica, nor can the responses covered in this study be generalized to the entire population, but a distinct pattern of values did emerge in the process of data analysis. Ultimately, it can be concluded from the study that the value placed on wildlife and non-humans appears to have an impact on the content and direction of environmental policy and its enforcement.

In preparation for the study, the research team elected to work under the VIP model, leading to the inclusion of team members who brought varying levels of experience and unique perspectives on the research topics (Harrigan, 1984; Strachan et al, 2019). With the VIP model at the forefront of team interactions, members with high levels of experience were able to take on a leadership role for those with less experience and share their knowledge throughout the duration of the study. However, the VIP model strays from the simple leader-follower ideologies found within many research studies in that the opinions, experience, and contributions of non-leading team members are not excluded by senior figures and the team structure encourages active and equal participation from all members regardless of experience level (Strachan et al, 2019).

Though team members with more time in the field were certainly apt leaders in many research scenarios, members of the team with more knowledge on topics such as rehabilitation, legal studies, education, and similar topics, were able to share their experiences and information in a similar manner, leading to a team dynamic that distributed responsibility according to each team member's specific strengths and aptitudes. Under the VIP model, students are able to learn and teach simultaneously, effectively developing research skills that would otherwise require separate training and opportunities (Strachan et al, 2019). Evaluating the VIP model in the context of environmental education was an important connection between the research team and the study conducted. The parallels noted placed the researchers in both passive and active roles of observer and actor. Costa Rica has already earned international recognition for its extensive environmental education programs and work in the field of sustainability (Briggs et al, 2019; Garcia Lozano, 2016; Jimenez et al, 2017). The country has dedicated resources and energy to improving education and sustainability practices starting early in the academic process, leading

to environmental conscientiousness reflected in the adult population. In the same way that the CIP model encourages equal participation among team members, Costa Rica's environmental education programs encourage participation and education for students of all ages and demographics (Briggs et al, 2019). Due to the success Costa Rica has already exhibited in their environmental education strategies and programs, the VIP model was easily structured to evaluate educational initiatives in a way that mirrored the team's own learning process.

Though this project reached saturation in data analysis through the use of a patchwork ethnography, the results reflect a finite group of interviewees from a singular community of individuals. Due to the study limitations such as time, accessibility, and resources, generalizations cannot be made about the values of the Costa Rican population as whole without expanding the current study. However, the patterns identified among interviewee responses and participant observations presented key findings that pertain to wildlife conservation and rehabilitation in this specific context. Inferences were able to be made about the interactions between those interviewed and the federal policies on wildlife conservation and education as experienced by team members at each of the three rehabilitation centers visited. As this research initiative was meant to be the pilot study for an in-depth longitudinal study, the conclusions indicate a need for further research on a larger scale. By selecting the VIP model for compilation of the research team, the current team members have created pathways for future team members to continue the study with future ethnographic research to expand the present findings. Utilizing the connections made and the assessments completed will be integral to further study of the connections between values and policy on a broader spectrum than this pilot study allowed.

The findings of this study present valuable information for continued research involving Costa Rica and other countries that share its environmental consciousness. The study suggests that values heavily impact the creation of environmental policy and that environmental education may be the perfect conduit for forming those integral values at a young age through early education and nationally backed programs. Within the population of individuals who were interviewed or connected with the study, a pattern emerged in regard to their value structure that would insinuate a “flipped” structure in which human concerns are valued less than the welfare and livelihoods of non-human beings. By speaking directly with staff, volunteers, and visitors at wildlife rehabilitation centers in an unstructured and informal environment, the data collected displayed a true reflection of many stakeholders’ emotions and reactions to policy and wildlife-human relations. Due to the nature of this evaluation as a pilot study, further research is warranted and needed to make broader generalizations possible and accurate. The study leaves implications for future research and a basis for the current state of legislation and education in Costa Rica as it relates to the growing movement for conservation on a global scale.

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