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Sofia Houts

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**Community opinions on environmental action on Isla Porvenir and Whichub Walla in the
Guna Yala Comarca**

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Spring 2024

Abstract

The Guna Yala Comarca is the autonomous, self-governed territory of the Guna people, one of seven Indigenous groups in Panama. The Comarca is located on Panama's eastern Caribbean coast and includes 365 coral islands. Forty nine Guna communities and roughly 32,000 individuals live in the territory. The Guna General Congress is the highest authority, and each community has a local congress. As a low-lying coastal region, Guna Yala is especially vulnerable to climate change and is already impacted by sea level rise, biodiversity loss, and changing precipitation patterns. Sub-national, national, and international forms of governance and environmental action are crucial to mitigate climate change and other environmental issues. The Guna have implemented environmental policies and other environmental action in the Comarca. Some research reflects community opinions about climate change and specific marine conservation policies. However, little published research highlights community ideas for future environmental policies and action. The goal of this research is to understand what environmental action members of communities in the Guna Yala Comarca think should exist, with the goal of amplifying and drawing attention to these opinions. Sixteen semistructured interviews were conducted with community members on Isla Porvenir and Whichub Walla in the Guna Yala Comarca. Interviewees were asked about life in the Comarca, their opinions on environmental laws or action, and observed changes in climate. The most discussed environmental issue was trash. Participants proposed a range of solutions including laws, education, and waste collection. Most participants supported environmental laws, especially stricter conservation laws. Participants expressed different opinions about who should create these laws, including the Guna General Congress, individual communities, and the Panamanian government. All participants who were asked reported a change in climate, and the majority discussed changes in the rainy season and increased heat. Responses reflect how community members' daily lives influence the environmental action they think should exist. Policymakers and drivers of environmental action should consider these worldviews and lived experiences to create equitable climate solutions.

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Introduction

Location

The Gunadule, or Guna, are one of seven Indigenous Peoples groups in Panama (Hernández, 2022). The Guna have fought for their territorial autonomy and right to self-governance since before the 20th century and have largely been successful. They originally consolidated their territory in the Tulenega Comarca in 1871, the first autonomous Indigenous territory in Latin America, and further defended their rights against the Panamanian government in the 1925 Guna Revolution (Castillo, 2023). Following the revolution, the Panamanian government recognized the Guna's regional autonomy and designated their territory as the San Blas Reserve (Castillo, 2023). In 1938, after increasing pressure from the Guna, the Panamanian government incorporated more Guna land into the territory and changed the status to the San Blas Comarca (Castillo, 2023). In 1998 it gained its current name, the Guna Yala Comarca (Castillo, 2023). Its legal and administrative status is codified under a 1953 charter, which has served as a model for other comarcas in Panama (Castillo, 2023).

The Comarca includes about 480 km of coastal territory from the Caribbean side of Panama east of the canal to the Colombian border, encompassing about 365 coral islands and a diverse coral reef system (Seeman et al., 2023). There are high levels of biodiversity in its terrestrial and marine environments, including a well-preserved rainforest (Apgar et al., 2015). Forty nine different Guna communities and about 32,000 individuals live in the Comarca (Apgar et al., 2015; "Viviendas particulares," 2023). Tourism is the Guna's main source of income, generating approximately 2.2 million U.S. dollars annually (Castillo, 2023). Lobster fisheries, mola sales (traditional attire handmade by Guna women), and coconut exports are also significant economic drivers (Castillo, 2023; Seeman et al., 2023).

Literature Review

Guna Yala's Governance

The Guna's self-governance structure is shaped by a 2013 legal document called the Gunayala Fundamental Law (*Gunayar Iguardummadwala*) (Castillo, 2023). The Guna General Congress (*Onmaggeddummad*) is the highest authority and includes the General Congress of the Guna Culture (*Onmaggeddummad Namaggaled*), the cultural and spiritual authority, and the General Guna Congress (*Onmaggeddummad Sunmaggaled*), the political and administrative authority. The two bodies collaborate, and each has three chiefs (Castillo, 2023).

Community engagement is valued in Guna governance processes. Each of the 49 communities has their own local congress (*Neggwebur Onmagged*) and is represented by a *Salga* in Guna General Congress meetings (Apgar et al., 2015). Community members play a significant role in establishing their local congress (Castillo, 2023). Both Comarca- and community-level congress meetings follow a process of collective governance driven by dialogue and respect, key themes of the Guna's cultural and spiritual framework (the *Bab Igar*) (Apgar et al., 2015). According to one Guna focus group, leaders prioritize reflection, emotions, and identity in decision-making (Apgar et al., 2015). The *Bab Igar* also emphasizes respect for the natural world

and the Guna's responsibility to protect the Earth, and an attitude that informs individual and community actions outside of the government sphere (Apgar et al., 2015).

Vulnerability to Climate Change

As a low-lying coastal region, the Guna Yala Comarca is especially vulnerable to climate change (IPCC, 2023). According to the Intergovernmental Panel on Climate Change's 2023 Summary for Policymakers, greenhouse gas emissions from unsustainable energy and land use have increased global surface temperatures, rapidly shifted weather patterns, and threaten human wellbeing (IPCC, 2023). Impacts of climate change include reduced access to freshwater, smaller agricultural yields, increased heat and flooding events, and biodiversity loss (IPCC, 2023). These changes are already affecting Guna Yala. In interviews conducted in 2022, residents of Isla Narganá and Isla Corazón de Jesus described the impact of flooding due to sea level rise, increased rainfall, and extreme heat (Klosterman, 2022). They also listed declining fish stocks and a lack of waste management as prevalent environmental issues (Klosterman, 2022). According to one literature review, other environmental issues in the Comarca include overfishing to meet tourist demand for lobster, coral mining, and coral reef degradation (Seeman et al., 2023). According to other research, overexploitation of marine resources has changed the traditional diet of some communities, negatively impacting human health, culture, and the environment (Dam Lam, 2023).

Faced with rising sea levels, some Guna communities have already relocated to the mainland (Hoffman, 2019). For example, in 2010 the community Gardi Sugdub created a commission to facilitate the process, including acquiring territory on the mainland and securing financial and housing support from the Panamanian Ministry of Housing (Hoffman, 2019). Between 2010 and 2014, more than 300 families decided to relocate (Hoffman, 2019).

Environmental Policies in Guna Yala

The Guna General Congress and some Guna communities have created policies to protect their environment and address environmental issues. The Gunayala Fundamental Law specifies that the General Congress is responsible for protecting and conserving the Comarca's ecosystems and ensuring reasonable use of the Comarca's natural resources and biodiversity (Gunayala Fundamental Law, 2013). It outlines a range of specific environmental policies, such as a ban on mining and hydroelectric development in the Comarca (Gunayala Fundamental Law, 2013). There is also a seasonal ban on lobster, conch, and king crab between March and May, which is known as the *Veda* (Hoehn and Thapa, 2009). The Congress has established one formal protected area in the Comarca and there are some smaller, locally managed areas, but surveys are needed to determine their effectiveness (Seeman et al., 2022).

Some research has been done to gather public opinions on the *Veda* and locally managed protected areas. One study found that fishermen's opinions on sustainable fishing policies varied based on the degree to which their income depended on marine resources (Hoehn and Thapa, 2009). Interviews on the islands of Narganá, Corazón de Jesús, and Digir also found that many

fishermen were aware of seasonal bans on lobster, but their need to generate income and a lack of monitoring deterred some from complying with the bans (Moritz, 2014). On the other hand, a desire to support conservation and the threat of fines encouraged some compliance with the policy (Moritz, 2014). On the same three islands, a different study found that the regulations for community marine protected areas were not enforced, although community members felt positively about marine conservation and the protected areas (Nyquist, 2014). In terms of general environmental policies, participants in Klosterman's (2022) study had differing views on how prevalent climate change issues are in community meetings. Some participants stated that the *Salga* raised environmental issues, but others expressed that these issues were not prioritized (Klosterman, 2022).

Other Environmental Action in Guna Yala

In addition to formal laws, the Guna have taken other steps to protect the environment within the Comarca. For example, community members on Isla Digir established their own marine protected area, prohibiting fishing or other resource extraction within the area (Nyquist, 2014). In the past, a local organization called BaluWala managed the area instead of the Guna General Congress (Nyquist, 2014). According to one official on Isla Digir, the main enforcement mechanism was social pressure (Nyquist, 2014). Another community-based organization, Fuerza Unida de Seis Pueblos (United Force of Six Towns) brings together six Guna communities to address issues in the Comarca, including environmental problems (Hoehn and Thapa, 2009). Additionally, the concept of environmental stewardship is embedded in the *Bab Igar*, which influences Guna governance structures, community norms, and theoretically individual actions (Apgar et al., 2015).

Indigenous Perspectives in International Environmental Solutions

Outside of Guna Yala, there is a range of national and international environmental policies and actions. Panama has many environmental laws, but they are not always enforced. For example, protected areas such as Portobelo National Park exist, but weak management plans and a lack of political will has limited its success (Seeman et al., 2023). International climate governance is also needed to change individual, corporate, and state behavior. Although a wide range of countries and international organizations are working on solutions to climate change, international governance tools such as the United Nations Framework Convention on Climate Change (UNFCCC) are invaluable (Ford et al., 2015). Given the legitimacy of the United Nations, the formal rules and norms established by the UNFCCC have spurred financial, corporate, and national action (Ford et al., 2015). The IPCC (2023) further supports the idea that international governance is key to spreading sustainable practices in civil society and the private sector. Their 2023 Summary for Policymakers characterizes international climate governance as essential for effective climate action, given that international bodies can set clear goals and facilitate coordination among different actors (IPCC, 2023).

It is important to recognize that Indigenous perspectives have been overlooked in these international governance structures (Ford et al., 2015). For example, one analysis of the UNFCCC found that the convention has historically excluded Indigenous perspectives on adaptation (Ford et al., 2015). At times, Indigenous groups are afforded the same influence as non-governmental organizations (NGOs) in UNFCCC meetings (Leaness, 2015). However, NGOs, and consequently Indigenous groups, have less sway than formally recognized countries, which limits their ability to influence decision making. Further, the Paris Agreement does not include some suggestions from the International Indigenous Peoples' Forum on Climate Change (IIPFCC) (Leaness, 2015). For example, the IIPFCC advocated for a temperature goal of no more than 1.5 °C warming, as small-island nations will disproportionately be impacted by the effects of climate change through sea level rise. This goal was not included in the final treaty (Leaness, 2015). Multilevel governance is needed for climate change mitigation and adaptation, but this governance must include Indigenous perspectives to create equitable and truly sustainable solutions (IPCC, 2023).

In addition to formal environmental laws, it is crucial to incorporate Indigenous perspectives in all forms of environmental action, including conservation projects and the establishment of marine protected areas. Hoehn and Thapa (2009) found that conservation strategies established by external actors do not address social issues, that local communities are not sufficiently included in decision-making processes, and that these communities often experience the costs rather than the benefits of conservation efforts. Hoehn and Thapa (2009) found that the extent to which local stakeholders participate in conservation efforts determines the efforts' success. Given the variation between communities, it is essential to include local perspectives for conservation efforts to adequately protect the environment (Hoehn and Thapa, 2009).

Areas for Future Research

Research exists about the effects of climate change and environmental issues in the Guna Yala Comarca, and some literature represents Guna opinions on climate change and specific marine conservation policies. However, little to no research has highlighted individual ideas for future environmental policies or action. This does not mean these opinions do not exist. Community members are aware of the need for conservation, and the Guna's collective governance process includes community participation. The *Bab Igar's* emphasis on environmental stewardship and its role in shaping community norms suggests that environmental action exists outside of the policy realm. However, other than literature about community-established protected areas, there is little published research on environmental action and policies on an individual or community level within the Comarca. This paper aims to record some Guna community members' ideas for environmental actions and policies, with the goal of amplifying and drawing attention to their opinions.

Research Question

Research Question and Objectives

The aforementioned research gap leads to my research question: What environmental action do residents of communities in the Guna Yala Comarca think should exist? My first research objective was to understand the environmental action that residents of Guna Yala think should exist. My second research objective was to understand who residents think should create this action (such as governments or other actors) and the form it should take (such as laws or other types of action).

Changes in my Process

I modified my research question, objectives, and interview questions as I became more familiar with community norms in Guna Yala. My original research question was: What environmental policies do residents of communities in the Guna Yala Comarca think should exist? My research objectives were to understand the environmental policies that residents think should exist and how residents think these policies should be applied, including their enforcement and which governments should create them. My original interview questions focused exclusively on laws instead of other forms of environmental action (see Appendix A).

In creating my original interview questions, I had assumed that all residents would have an environmental policy they believed should exist. My first two interviews showed me this was a mistake. When asked if there should be laws to protect nature, both participants responded that laws already existed, even after I clarified that I meant new laws.^{1,2} I discussed this with my guide, who thought most people would give a similar response because they are not thinking about laws (personal communication, April 8, 2024). This was a necessary reminder that my experience studying environmental policies in Washington, DC has shaped my belief that policies are a solution to environmental issues, and not everyone shares this view.

As a result of my initial experiences and learning from my miscalculation, I expanded my research question to include environmental action instead of just environmental policies. I thought this would help me gather opinions from all types of people on Isla Porvenir and Whichub Walla. I kept my original questions about laws for officials such as Congress members and police officers because I thought their jobs would cause them to think more about laws (Interview Questions A). I created a modified set of questions about environmental action for other community members (Appendix A). Finally, I changed the order of my questions in my last two interviews: instead of asking about changes in climate last, I raised the subject before asking about environmental action. I thought it would be helpful for people to think about climate issues before climate solutions.

Methods

I conducted 16 semistructured interviews with individuals on Isla Porvenir and Whichub Walla in the Guna Yala Comarca. All interviews were conducted in Spanish, although in one interview my guide translated some questions and responses between Spanish and Guna.¹ Semistructured interviews follow an interview guide (Appendix A), which has an ordered list of

questions but is open to change based on the direction of the conversation (Bernard, 2017). I used this method because it focused my interviews on environmental action but left room for fluidity. As environmental action is a broad theme, it was essential I could shift the conversation according to topics interviewees raised. I did not ask all my questions in all the interviews—sometimes participants had already answered them, others were short on time and I prioritized certain questions. I interviewed 2 divers, 1 hotel manager, 4 tourism officials, 1 head of a conservation organization, 1 community member, 1 preschool teacher, 3 Panamanian policemen, 2 members of the Guna General Congress, and 1 marine biology student. All participants were Guna except for the policemen, who had worked in the Comarca for 5-7 years and were familiar with life there. Fourteen interviews were conducted in person on Isla Porvenir and Whichub Walla, and 2 were conducted by WhatsApp voice call.

To find participants, I largely relied on my guide to introduce me to people on Isla Porvenir and Whichub Walla. As Isla Porvenir houses the Guna General Congress building, officials and tourism guides often visited. I also reached out to community members I knew from my time in Guna Yala with the SIT group. Before each interview I read my informed consent statement and obtained verbal consent (Appendix B). For participants who agreed to a recording I used the Voice Memos app on my phone, and for those who did not I made notes after the interview. Twelve of the 16 interviews were recorded. Each day I transcribed recorded interviews, reviewed my notes for common themes, and brainstormed ways to improve my questions.

I used the thematic analysis method to analyze my results. The goal of thematic analysis is to categorize responses to open-ended interview questions by identifying common themes, or important repeated responses (Braun and Clarke, 2006). I followed Braun and Clarke's (2006) six step method to analyze my data: I reviewed my interview transcripts, identified common themes using color coding, created categories from these themes, revised the categories, reviewed my data for accuracy, and explained and analyzed my findings. I used inductive and semantic analysis: I used interviewees' responses to create themes and assumed that responses reflected individuals' genuine opinions (Braun and Clarke, 2006). I chose this method because I wanted to organize responses while not over-simplifying participants' opinions. I also wanted the ability to analyze similarities and differences between responses.

Ethics

Before starting my research, I completed the Human Subjects Review Application, which details how participants will be protected, how harm will be minimized, and how data will be stored. My research was approved by the Institutional Review Board (IRB). Before each interview I read an informed consent statement including the goal of my study, that participation was voluntary, and that I would not include identifying information such as names in my final paper (Appendix B). I did not proceed with the interview if participants did not agree, and I did not coerce participants in any way. I used code names instead of actual names to label my notes and recordings (for example, the first interviewee was Participant A). These were stored on my

password-protected laptop and phone, and only available to me. I only recorded participants if they consented, and I made it clear they could still participate without a recording. I explained that I would only use the recording to make notes after the interview, and that I would not share it with anyone else.

To assure participant wellbeing, I did not probe further if an interviewee responded with any form of “I don’t know” or seemed hesitant to answer a question. I was conscious of my body language and strove to be welcoming, humble, and kind. I introduced myself with a smile, expressed gratitude for interviewees’ participation, and practiced active listening.

Results and Discussion

I identified the themes of life in the Comarca, trash, environmental laws, other environmental action, and observed changes in climate and their effects.

Life in the Comarca

Understanding how residents perceive life in the Comarca in general provides context for what environmental action they think should exist. I asked 9 participants about life in the Guna Yala Comarca.^{1,2,7,8,9,13,14,15,16} More than half described life in the Comarca as calm, or “tranquilo”.^{1,2,7,8,14} This is similar to Klosterman’s (2022) study, in which 5 participants described life in Guna Yala as “quiet.” Three participants in my interviews said it was a relaxing place because of its physical attributes, such as the river or breeze.^{7,14,16} Three described a typical daily routine: some people go out to fish, others go to the mountain to farm, and some stay in the community to take care of the family.^{2,9,13} Participant M said, “here... in the island we are good”.¹³ Participant P said life was simple.¹⁶ Participant O said it was complicated because of issues with health, education, access to potable water, diet, changes in climate, and trash, but still thought life was “pretty”.¹⁵

I asked the same participants if there were good things and things that were not good in the Comarca.^{1,2,7,8,9,13,14,15,16} In addition to the positive descriptions above, one participant said his community’s solution to trash was good, and another said it was good that people spend time together.^{1,2} The most common negative response was trash, with 5 participants raising the issue outside the context of environmental problems.^{2,7,9,14,15} This speaks to the prevalence of the issue. Participant B said people have too many children and some children are not well cared for, and Participant P described a lack of electricity, hygiene, and unaddressed psychological needs in some communities.^{2,16} Participant H said there were good and bad things, but did not specify.⁸ It is important to remember that, as Participant G said, “there are good things and bad things in all communities”.⁸

Trash

By far the most raised environmental issue was trash. Eleven of 16 participants discussed the issue.^{1,2,7,8,9,10,11,12,14,15,16} Trash was also the most raised environmental issue in Klosterman’s (2022) study, with 17 of 18 participants discussing it, and in Nyquist’s (2014)

study, with all 25 participants characterizing it as the biggest environmental problem facing their community. In my study, 4 participants brought up trash when asked about environmental action or laws that need to happen.^{8,10,11,12} Participants J, K, and L thought environmental laws were necessary because tourists often throw beer cans or other trash in the ocean.^{10,11,12} Three participants brought up trash when asked about things in the Comarca that were not good, and Participants G and I both said children throw their trash on the street.^{2,7,9} Two participants mentioned trash when asked about life in the Comarca.^{14,15} Participant N said it was one of those problems that seems small but grows until it is eventually too late to solve, stressing the need to fix the issue now.¹⁴ The fact that these participants brought up trash unprompted highlights its prevalence. Participant P did not raise the subject until I specifically asked about it, but then said it was an issue because the Guna do not understand the difference between organic and non-organic waste.¹⁶ In the past, all the waste in the Comarca was organic, so it did not affect the environment.¹⁶ Now, there is plastic and other trash in the Comarca from Panama's industrial boats and the Guna themselves throwing plastic products in the ocean.¹⁶ Participant P believed that the Guna do not understand the difference between organic and non-organic waste, so they throw plastic in the ocean thinking it will biodegrade.¹⁶ Many participants in Nyquist's (2014) study described this same phenomenon. Two participants in Klosterman's (2022) study also stated that in the past, all waste was organic and could be thrown in the ocean, although it seems like these participants were aware that non-organic waste does not biodegrade. Another participant in Klosterman's (2022) study said more plastic products in the Comarca have increased waste. Only one interviewee in my study discussed trash in a positive light. When asked about good things in the Comarca, Participant A stated that "the good part of the town" was "that they help you" clean up trash: his community has a daily call for everyone to clean up their trash from the street.¹

Participants expressed a wide range of opinions about what needs to happen to solve the trash issue. Of the 11 participants who discussed trash, 8 proposed solutions.^{2,8,9,10,11,12,15,16} Five participants thought laws could help.^{10,11,12,15,16} Three of these participants suggested laws to prevent tourists from throwing cans on the beach, both in the Comarca and Panama.^{10,11,12} Three proposed education.^{2,8,16} Participant H spoke about educating children to put waste in the trash can instead of the street, and Participant P said education was crucial to make the Guna aware of the difference between organic and non-organic waste.^{8,16} The proposal to educate children speaks to Castillo's (2023) research, partially based on interviews with Guna community members and officials, that characterized youth as the foundation for the Guna's continued autonomy. Through this lens, it makes sense that participants would believe it is essential to educate children about proper waste disposal, as their actions determine the future of the Comarca. Two participants suggested a trash collection boat: Participant B referenced the trucks that pick up trash in Panama and said the Comarca should have a big boat that comes by each island.² Participant O thought a boat should come to each island every day and bring the trash to Panama City at the end of each week.¹⁵ Other proposed solutions included more trash cans, a permanent place for trash disposal, and a monthly training or dialogue to talk about the

issue with all community members.⁸ Participant P thought recycling could help.¹⁶ Participant G did not suggest solutions but stated that in the past, people have come from other places talking about creating a trash can, but did not do it.⁷ Participant N said there was talk of creating a collection and permanent trash disposal site, but it never happened.¹⁴ In Klosterman's (2022) study, 6 participants also proposed a recycling program, and 1 talked about the need for education.

Participants expressed a variety of responses about who should create solutions for the trash. Participant B thought that "our government should help us, not Panama, but the Guna General Congress".² They added that in theory the solution could come from communities, referencing Nalunega's community trash collection, but believed the Congress should help them.² Participant N believed it ultimately starts with the individual and each community to keep their space clean.¹⁴ Participant H thought there should be specific organizations, such as the health center, and said not many currently exist to care for the environment.⁸

Environmental Laws

I asked 14 participants if they thought there should be laws to protect the environment.^{1,2,3,4,5,6,7,8,10,11,12,13,15,16} Seven responded that laws already exist.^{1,2,3,5,10,11,12} Five participants mentioned the *Veda*, a seasonal ban on fishing certain marine species such as lobster.^{10,11,12,13,15} The majority of participants in Nyquist's (2014) study also mentioned the seasonal fishing ban on lobster and conch. Three participants said the mountains and sea were protected by law, including rivers, trees, and specific species.^{1,2,5} Participant O stated that mangroves were protected.¹⁵ Three said coral was protected,^{3,13,15} and Participants C and M described how the Congress had banned the use of live coral for construction.^{3,15} Participants' responses directly reflected the Congress's environmental laws as described in the Gunayala Fundamental Law (2013). For example, Article 39 establishes the *Veda* and Article 41 establishes protected marine and terrestrial areas, including protection for species (Gunayala Fundamental Law, 2013).

Ten of these 14 participants thought there should be laws to protect the environment.^{2,3,5,6,10,11,12,13,15,16} Five thought laws were necessary because people need the law as a motivation.^{6,10,11,12,16} Participant F said that "without control, without law, the world doesn't have a path. Without laws, everyone will act in their own way, 'I want to cut down this, I want to get rid of that.' But if there is law, I'll protect and care for nature".⁶ Participant J similarly expressed that "in Panama we're a country where people" aren't "responsible for caring, for example the environment".¹⁰ Two participants thought that environmental laws should exist, but the Comarca's current laws were enough.^{5,13} Participant B also believed "the laws about environmental protection inside Guna Yala are good," but thought there should be a new law about trash.²

Of the 8 participants who thought there should be new environmental laws, 6 said there should be stricter laws.^{3,10,11,12,15,16} Participant O said there are laws but people do not comply with them, such as the *Veda* and deforestation.¹⁵ Participants C, O, and P thought there should

be stricter laws to protect marine life.^{3,15,16} Participants J, K, L, and O thought the *Veda* needed to be better enforced.^{10,11,12,15} In Moritz's (2014) study, a Center for Environmental and Human Development official described an increase in contraband during the *Veda*. Only 3 of 12 interviewed lobster divers said they had observed marine monitoring during the *Veda* (Moritz, 2014). These results are consistent with my findings. Outside of stricter laws, 4 participants thought there should be laws to prevent tourists from littering or damaging coral.^{10,11,12,15} Four thought there should be a law about trash.^{2,10,11,12} Two thought there should be laws to stop people from cutting down trees: Participant P said trees are important for air quality, and Participant F referenced the threat of people wanting to build an ecotourism hotel in the mountains.^{16,6} Participant O thought the Comarca should adapt Panama's marine laws to fit the Comarca.¹⁵ My results were similar to Nyquist's (2014) study, in which 96% of her 25 interviewees said they believed Guna Yala needed more environmental regulation, 40% said current marine regulations were not strict enough, and 36% believed they were strict enough. The higher level of support for environmental regulation in Nyquist's study might be because she interviewed participants from Isla Narganá, Isla Corazón de Jesús, and Isla Digir, which are part of a formal protected area established by the Guna General Congress (Nyquist, 2014). Eighty percent of participants were aware that their communities were located within a protected area, which could suggest a higher level of familiarity with environmental regulations (Nyquist, 2014).

Of the 8 participants who proposed new environmental laws, 4 participants thought the Panamanian government should create the laws.^{10,11,12,16} Three of these participants were non-Guna, and thought the Panamanian Authority of Aquatic Resources should create laws to better enforce the seasonal fishing ban.^{10,11,12} Three participants thought the Guna General Congress should create the laws.^{2,3,6} Participant F thought laws should also come from local Guna congresses—he had worked with friends in his community to create a law to protect turtles, and said other communities could do this too.⁶ Participant P thought that the state and environmental minister should create the laws, but added that Guna communities have their own norms and traditions that protect the environment.¹⁶ This is similar to Apgar et al.'s (2015) findings that Guna cultural and spiritual rituals are essential to creating social change, as they foster engagement and innovation. However, Participant P added that Guna people are adapting harmful practices of non-Indigenous people, such as deforestation.¹⁶ Finally, Participant O thought that Panamanian and Guna governments should collaborate to create environmental laws.¹⁵ They believed the six Guna *Sailas* (chiefs) should communicate with the Panamanian government to adapt the laws of Panama to fit Guna Yala.¹⁵ They thought the law should be explained to people in the Comarca instead of just enforced, which happened with the *Veda*.¹⁵ This relates to one lobster diver's statement that young divers don't comply with the *Veda* because they do not understand the importance of conservation (Moritz, 2014). Participant O thought that if the law came from the *Sailas* and there was more communication with the community, people would respect and follow it more.¹⁵ Participant O's belief that dialogue is important to governance is similar to responses in Apgar et al.'s (2015) focus group. These participants described how Guna leaders considered community perspectives in decision making

and said collective decision making was essential to adaptation (Apgar et al., 2015). Participant O's response also exemplifies the findings of Seemann et al.'s (2023) literature review: that communication between stakeholders is crucial to effectively conserve coastal and natural resources, especially in countries like Panama that have diverse populations.

Three of the 14 participants I asked about laws thought that there should not be laws.^{4,7,8} Two participants thought environmental action should be driven by something else, like a "person who helps us economically"⁷ or an organization like the health center.⁸ Interestingly, Participant D was adamant that the Guna do not need environmental laws because their culture is concentrated on conservation.⁴ He described in length the Guna creation story, including how Mother Earth provides water, food, and a home for the Guna.⁴ Based on this story, "for us, this land, there is no discussion, there are no laws, there is just a need to conserve it... it cannot be disputed... it is a spiritual law".⁴ Participant D's response exemplifies Apgar et al.'s (2015) claim that the Guna view themselves as protectors of Mother Earth based on the creation story. One of the 14 participants did not state their opinions on the existence of environmental laws.¹

Other Environmental Action

In 3 of my 16 interviews I used the word "action" instead of "laws," asking "In your opinion, should there be action to protect nature?"^{7,8,9} One participant did not respond.⁹ Participant G thought it was important to not cut trees or use corals for construction, and Participant H thought people should stop throwing trash in the ocean.^{7,8} Three participants brought up other forms of environmental action unprompted.^{3,4,16} Participants C and P said there should be community education about the environment and conservation in general.^{3,16} More than 75% of participants in Klosterman's (2022) study also described a need for education to solve environmental issues, a greater number of participants compared to my research. However, participants in both studies thought it was important to educate children (Klosterman, 2022). When asked if they thought there should be action in response to observed changes in climate, Participant D supported adaptation instead of mitigation, stating that "to slow the change, we have to act in accordance with nature, not go against it".⁴ Of the 6 participants who spoke about environmental action, 1 thought that Congress should drive the change by giving educational seminars in each community, 1 thought someone should help them economically, 1 thought that organizations such as the health center should drive the change, and 2 did not specify where the change should come from.^{3,7,8,4,16}

Observed Changes in Climate and Effects

I asked 12 participants if they had seen a change in the climate. All said they had.^{1,2,4,5,9,10,11,12,13,14,15,16} One of the most commonly described changes was a shift in the rainy season: 6 participants said it should be raining now but was not.^{4,5,9,13,14,16} This has changed when community members would traditionally fish versus farm, and affected agricultural production— with less rain, there is less plant growth.^{5,16} Participant I said that without rain "we don't have potable water... there are some people who live from the rain. So we

have to go to the river to get water” to cook and bathe.⁹ Two participants said this change has not affected them, and 1 described the natural change in seasons.^{13,14,1} Just as common as a shift in the rainy season, 6 participants described increased heat.^{9,10,11,12,15,16} Participant K said the heat had dried out rivers and Participant L said it had affected diet, meat, and farming.^{11,12} Participant O said the heat has harmed health, electricity, and access to potable water.¹⁵ Participant P said he cannot sleep because of it, and that it has harmed animals.¹⁶ Ten participants from Klosterman’s (2022) study also described an increase in heat that has negatively impacted them. Two participants described sea level rise.^{2,15} Participant B said, “every year, Guna Yala drowns more... there is an estimate that in about 25 years there won’t be islands in Guna Yala”.² Both participants used the word “ahogarse,” meaning “drown,” to describe sea level rise (for example, some variation of “Guna Yala is drowning”). I was struck by how emotionally charged this was—it made me think of Guna Yala as a living thing that was suffering. Because of sea level rise, Participant B built a seawall and Participant O described how people have left their houses and started from zero to survive after losing everything.^{2,15} One participant described an increase in erosion, which could refer to sea level rise.⁴ In contrast to my results, the most commonly described change in climate in Klosterman’s (2022) interviews was sea level rise. While only 2 of 16 participants in my study raised the issue, 15 of 18 participants discussed it in hers (Klosterman, 2022). This difference could be due to our different study locations: I interviewed people on Isla Porvenir and Whichub Walla, while Klosterman conducted her research on Isla Narganá and Isla Corazón de Jesús. These islands are about a two hour boat ride west of my site and have far more infrastructure and population in comparison to the communities where I conducted my research (Klosterman, 2022; personal communication, April 6, 2024). It is possible that Isla Narganá and Isla Corazón de Jesús have been more affected by sea level rise. Finally, one participant described coral bleaching, which has harmed the fish and therefore the diet of Guna people.¹⁵ This response exemplifies the IPCC’s (2023) claim that losing ecosystems will especially affect groups of Indigenous people who directly depend on these ecosystems. Overall, responses reflected and lent credence to the IPCC’s (2023) findings that the tropics are at especially high risk of decreasing species and increased heat due to climate change.

Research Limitations

One limitation of my research was the number and type of people I interviewed. Because I largely relied on my guide to find participants, my pool was limited to people he had connections with. It was convenient to interview people who came to Isla Porvenir, but this was mainly the same type of people: Guna tourist guides or General Congress officials. I was only able to travel to one other community, and many people were hesitant to talk to us. It is notable that only 3 of my 16 participants were women. I would hesitate to generalize any community’s opinions based on only a few people’s responses, and because of my limited sample size I would not use my research to make conclusions about the opinions of the larger Guna Yala community. Another limitation and potential source of error in my research is the language and cultural barrier. I am proficient in Spanish, but it is possible I misunderstood some responses because of

regional phrases or lack of familiarity with Guna culture. My guide also translated some questions and responses between Guna and Spanish, and it is possible that meanings were lost in translation.

Conclusion

For the individuals I interviewed, I was able to answer my research question, “what environmental action do residents of communities in the Guna Yala Comarca think should exist?” I achieved my first research objective of understanding the environmental action that residents think should exist—the most suggested actions were solutions to trash, with 8 participants proposing ideas. Participants also supported general conservation education and marine protection. I achieved my second research objective of understanding who residents think should create this action and the form it should take. To address waste, some residents supported education. Others proposed a trash collection boat, more trash cans, a permanent trash disposal site, and laws. Participants believed these actions should come from the Guna General Congress, Guna communities, individuals, and the Panamanian government. Ten participants supported environmental laws and 8 thought there should be new laws. Most participants supported stricter laws about trash, coral harvesting, and the *Veda*. Participants believed these actions and laws should come from the Guna Congress and the Panamanian government. Finally, all 12 participants who were asked said they had seen a change in climate. The most reported changes were shifts in the rainy season and increased heat, and the most described effects were threats to agriculture and wellbeing.

I was surprised that the most desired form of environmental action was a solution to trash. As residents of a small-island region, I had assumed that Guna Yala community members would be most concerned about sea level rise. Before I expanded my research question to environmental action, I was also surprised that residents did not have an environmental policy they thought should exist. This project made me confront my own bias and privilege. As a student studying environmental policy in Washington, DC, I have had the privilege of learning about environmental issues through an academic lens that focuses on the long-term effects of climate change. Of course it makes sense that Guna Yala residents cared most about the environmental issue they see every day: waste. I am humbled and grateful for the opportunity to internalize what I tried to argue before I went to Guna Yala—the need to genuinely listen to communities such as the Guna in creating environmental action.

The IPCC states that climate solutions must prioritize equity, social justice, and inclusion of so-called vulnerable communities (2023). Understanding what environmental action Guna community members want is crucial to equitable environmental solutions, but of course my research only represents a small number of opinions. Future research should gather opinions from different parts of the Comarca, different types of residents, and different Indigenous communities in Panama and worldwide. The different opinions about environmental action between my study and Klosterman (2022), Moritz (2014), and Nyquist’s (2014) papers show that even within the same territory, there is a large range of opinions about environmental action. As

it is impossible to survey every individual, environmental policymakers should engage in dialogue with their communities and be aware of diverse perspectives. My study shows that the daily experiences of Guna Yala community members shape their desired environmental action. The personal stories shared are a reminder that everyone, from policy students to current lawmakers, should be aware of different worldviews and lived experiences.

Works Cited

Footnotes

1. Participant A, personal communication, April 8, 2024
2. Participant B, personal communication, April 8, 2024
3. Participant C, personal communication, April 9, 2024
4. Participant D, personal communication, April 9, 2024
5. Participant E, personal communication, April 11, 2024
6. Participant F, personal communication, April 11, 2024
7. Participant G, personal communication, April 11, 2024
8. Participant H, personal communication, April 11, 2024
9. Participant I, personal communication, April 14, 2024
10. Participant J, personal communication, April 15, 2024
11. Participant K, personal communication, April 15, 2024
12. Participant L, personal communication, April 15, 2024
13. Participant M, personal communication, April 17, 2024
14. Participant N, personal communication, April 18, 2024
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Appendix A

Interview Questions

Interview Questions A

¿Cómo es la vida en la comarca?

¿Hay cosas buenas? ¿Hay cosas que no son buenas?

Para estos problemas, ¿que debe pasar?

En su opinión, ¿debe haber leyes para proteger la naturaleza?

¿Debe haber leyes sobre el mar?

¿Debe haber leyes sobre la pesca?

¿Debe haber leyes sobre la basura?

¿Debe haber leyes sobre la quema?

En su opinión, ¿quién debe crear estas leyes?

¿Cómo debería aplicar estas leyes?

¿Ha cambiado el clima?

(If yes) Estos cambios le han afectado a usted o su familia?

How is life in the Comarca?

Are there good things? Are there things that aren't good?

For these problems, what should happen?

In your opinion, should there be laws to protect nature?

Should there be laws about the sea?

Should there be laws about fishing?

Should there be laws about trash?

Should there be laws about burning [trash]?

In your opinion, who should create these laws?

How should these laws be applied?

Has the climate changed?

(If yes) Have these changes affected you or your family?

Interview Questions B

¿Cómo es la vida en la comarca?

¿Hay cosas buenas? ¿Hay cosas que no son buenas?

Para estos problemas, ¿que debe pasar?

En su opinión, ¿debe haber acción para proteger la naturaleza?

¿Debe haber acción para proteger el mar?

¿Debe haber acción para proteger la pesca?

¿Debe haber acción para la basura?

¿Debe haber acción para la quema?

¿Qué tipo de acción?

En su opinión, ¿quién debe crear esta acción?

¿Ha cambiado el clima?

(If yes) Estos cambios le han afectado a usted o su familia?

How is life in the Comarca?

Are there good things? Are there things that aren't good?

For these problems, what should happen?

In your opinion, should there be action to protect nature?

Should there be action to protect the sea?

Should there be action to protect fishing?

Should there be action for trash?

Should there be action for burning?

What kind of action?

In your opinion, who should create this action?

Has the climate changed?

(If yes) Have these changes affected you or your family?

Appendix B

Informed Consent Statement

Mi nombre es Sofia y soy estudiante de un programa de intercambio. Me gustaría invitarle a participar en un estudio que estoy llevando a cabo para mi programa. Su participación es voluntaria. Voy a leerle un poquito de información sobre el estudio. Por favor, haga preguntas sobre cualquier cosa que no entienda antes de decidir si desea participar. Si decide participar, se le pedirá que me dé su confirmación verbal.

El propósito de mi estudio es entender las opiniones sobre la acción para cuidar a la naturaleza. Su participación consistirá en una entrevista conmigo y requerirá aproximadamente veinte o treinta minutos de su tiempo. No hay riesgos previsibles al participar en este estudio y no hay sanciones en caso de que decida no participar. Durante la entrevista, tiene derecho a no responder a ninguna pregunta o interrumpir su participación en cualquier momento.

Cualquier información identificable obtenida en relación con este estudio será confidencial. No voy a incluir nombres ni ninguna información identificable en mi papel final. Finalmente, estoy aprendiendo español y me ayudaría grabar un audio con mi teléfono. No voy a compartirlo con nadie, solo voy a usarlo para hacer notas después de la entrevista. Este audio será confidencial. Si no está de acuerdo con ser grabado en audio, todavía puede participar.

¿Tiene algunas preguntas? ¿Quería participar? ¿Está de acuerdo con ser grabado?

My name is Sofia and I'm a student in an exchange program. I'd like to invite you to participate in a study that I'm carrying out for my program. Your participation is voluntary. I'm going to read some information about the study. Please ask questions about anything you don't understand before you decide if you'd like to participate. If you decide to participate, I'll ask you to give me your verbal confirmation.

The goal of my study is to understand opinions about actions to care for nature. Your participation will consist of an interview with me and will require about twenty or thirty minutes of your time. There are no foreseeable risks of participating in this study and there are no penalties if you decide not to participate. During the interview, you have the right to not respond to any question, or to stop participating at any moment.

Any identifiable information obtained in this study will be confidential. I'm not going to include names or any identifiable information in my final paper. Finally, I'm learning Spanish and it would help me to take an audio recording with my phone. I'm not going to share this with anyone and I will only use it to make notes after the interview. This recording will be confidential. If you aren't okay with being recorded, you can still participate.

Do you have any questions? Would you like to participate? Are you okay with being recorded?