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GLOBAL AND REGIONAL PERSPECTIVES ON LARGE-LANDSCAPE AND
TRANSBOUNDARY CONSERVATION

By

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Thesis

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Abstract

With the growing pressure of environmental degradation and exploitation to social and ecological landscapes around the world, conservationists are looking for new approaches to address the complex nature of transboundary issues. Large-landscape conservation supports conservation and management of ecosystems, wildlife, and resources in a more holistic approach that extends beyond protected area boundaries. Transboundary conservation, a distinct form of large-landscape conservation, operates across political and spatial scales by involving two or more countries cooperating to protect a border resource or ecosystem. Though the recognition of large-landscape and transboundary conservation is growing, there is limited understanding of trends across these types of initiatives and how they function on-the-ground. This study addresses these gaps through two phases of research. Phase One implemented a survey to two International Union for the Conservation of Nature (IUCN) Specialist Groups on Transboundary and Connectivity Conservation to evaluate trends in the field of large-landscape and transboundary conservation. The survey explored topics such as local community involvement, challenges, defining success, and landscape-scale governance. Phase Two focused on evaluating the potential for large-landscape, transboundary conservation between Chile and Argentina around three protected areas in the Southern Patagonian Ice Fields. Qualitative interviews were used to evaluate local stakeholder perspectives on current and future transboundary collaboration. The results of this thesis suggest that a gap remains between global and regional perspectives on large-landscape conservation. In addition, the results suggest that the field of large-landscape conservation must work to move beyond traditional conservation paradigms that have not adequately involved and recognized local and Indigenous communities. Lastly, this study demonstrates the importance of recognizing and supporting informal, local transboundary collaboration. These results increase our understandings of large-landscape and transboundary conservation and inform best practices to increase success of these initiatives and support more effective and equitable future transboundary conservation initiatives.

Keywords: Transboundary, Large-Landscape Conservation, Patagonia

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Chapter One: Introduction

Biological diversity ignores political and jurisdictional boundaries (Batisse, 1997; Lindsay, Chase, Landen, & Nowak, 2017). Political borders have been drawn with little consideration for natural resources or conservation priorities, creating issues for regional or large-landscape conservation (Donald et al., 2007). However, as our understanding of ecological science and conservation progresses, it has become clear that conservation governance must extend across political boundaries and barriers to help connect large landscapes and allow for improved protection of critical resources (Abbitt, Scott, & Wilcove, 2000; Zbicz, 2003). With land-use and land-cover change rapidly increasing, large-landscape, transboundary conservation is seen as an effective way to preserve shared ecosystems that cross jurisdictional and political borders (Vasiljević et al., 2015).

Large-landscape conservation involves focusing on a regional scale rather than a single protected area (Rudnick et al., 2012). The landscape approach is a “framework to integrate policy and practice for multiple land uses, within a given area, to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change” (Reed et al., 2014, p. 1). Large-landscape conservation is often complex, collaborative, and demanding. The differentiating components of large-landscape conservation involve working across “traditional” boundaries of conservation, such as protected area borders, and including human landscapes and social objectives in conservation (Sayer, 2009).

Transboundary conservation is a distinct form of large-landscape conservation and international environmental governance that operates across political and spatial scales by involving two or more countries working collaboratively to protect a shared resource or ecosystem (Andonova et al., 2009). Although there is overlap between large-landscape and

transboundary conservation, transboundary involves multinational cooperation, while large-landscape conservation does not always cross international boundaries. Transboundary conservation does not have a universal designation, form or process and can include protected areas, migration corridors, and ocean resources (Vasiljević et al., 2015). In some parts of the world, “transfrontier” is a term used interchangeably with transboundary. However, transboundary work also requires working across scales from the local to the international governance scale, as well as working across each of these scales to connect with diverse groups of stakeholders (Vasiljević et al., 2015).

Transboundary work can extend across scales from local communities up to governments and international bodies to help resolve conflicts over natural resources (Metcalf, 2003; Vasiljević et al., 2015). There has been significant work done by the International Union for the Conservation of Nature (IUCN) and its World Commission on Protected Areas (WCPA) on both large-landscape and transboundary environmental conservation, including the development of resources designed to challenge traditional conservation paradigms and techniques. The IUCN also has solidified networks of initiatives from around the world who conduct transboundary and large-landscape work through the IUCN Transboundary Conservation Specialist Group and the IUCN Connectivity Conservation Specialist Group. The Connectivity Conservation Group works to support reducing habitat fragmentation and increase connectivity for wildlife migration on all scales by creating resources and support for large-landscape conservation projects. The Transboundary Specialist Group encourages and supports transboundary cooperation for ecosystem protection (World Commission on Protected Areas). The groups have overlap in members, but the Connectivity Group can operate on all scales while the Transboundary Group focuses on transnational cooperation. These groups provide resources and support of large-

landscape initiatives, in addition to strongly influencing guidelines and documents on connectivity and transboundary work in practice.

Governance and management of large-landscape and transboundary work provides many challenges (Vasilijević et al., 2015). Landscape conservation requires many considerations to include in management (Lindenmayer et al., 2008). Consultation is consistently a local-level challenge in large-landscape work, as involving locals can be the most crucial and complex aspect of an initiative (Scarlett & McKinney, 2016). Challenges for large-landscape collaboration lie in limited management resources and shared ecological resources (Guerrero et al., 2015). There are many policy differences that can create coordination and management challenges for large-landscape and transboundary conservation (Scarlett & McKinney, 2016). Curtin and Tabor (2016) note that the biggest challenge of large-landscape work is making the management locally relevant. Large-scale environmental threats, such as wildfires that cross boundaries and borders, complicate the management scale of large-landscape work (Scarlett & McKinney, 2016). These challenges carry over into transboundary conservation, which has more distinct jurisdictional challenges due to its international and multilateral context.

As transboundary conservation becomes an increasingly popular focus of conservation and environmental protection, the WCPA developed guidelines in 2015 for transboundary work that provide steps for translating transboundary principles into practice. These guidelines (Vasilijević et al., 2015) outline potential benefits of transboundary conservation, who should be involved, to what capacity they are involved, the steps in the process, and several case studies. However, there is a gap in understanding how and if those guidelines are met in practice and translate to a local scale of conservation management. Our understanding of transboundary conservation and what influences successful transboundary initiatives remains largely

understudied (Taggart-Hodge & Schoon, 2016). Additionally, perspectives of “success” when evaluating transboundary conservation can vary depending on scale and stakeholders (Metcalf, 2003). Understanding these components can help improve the collaborative nature and effectiveness of transboundary conservation.

Due to the gaps identified in our understanding of large-landscape conservation in practice, my study included a survey of the IUCN Transboundary and Connectivity Conservation Specialist Groups (Phase One) and an in-depth case study on transboundary conservation in Patagonia (Phase Two). Specifically, the research explored the following question and sub-questions:

Overall Research Question: What factors influence success of large-landscape and transboundary conservation on global and regional scales?

1. Who is involved in the different stages of large-landscape conservation governance?
2. Once initiatives are established, how do they function in terms of governance and management priorities?
3. How do those involved in large-landscape conservation define “success”? What factors influence the success of initiatives?
4. How do large-landscape initiatives impact local communities? How do these impacts affect governance and implementation at the local scale?
5. How do local stakeholders perceive transboundary collaboration in Southern Patagonia around Torres del Paine, Bernardo O’Higgins National Parks?

IUCN Specialist Groups

The International Union for the Conservation of Nature (IUCN) is the world’s authority on nature conservation and sustainable use of natural resources. The Union is composed of over

1,300 members, including governments and civil society organizations, a Secretariat of over 900 staff, and 15,000 experts distributed across six Commissions. The IUCN World Commission on Protected Areas (WCPA) is a network charged with advancing the science, policy, and management of protected areas and other area-based conservation measures. To support this mission, and further develop a global network of expertise and resources, the WCPA has guided the creation of several Specialist Groups dedicated to the various elements of effective Protected Area management. This study focuses on the Transboundary Conservation Specialist Group (TCSG) and the Connectivity Conservation Specialist Group (CCSG) under the WCPA. Both of these Specialist Groups work to advance large-landscape conservation and their membership includes some overlap. Their membership consists of specialists and experts, who professionally work on initiatives of large-landscape and transboundary conservation. These group members are professionals with a variety of affiliations and roles, including researchers, protected area managers, and non-profit employees. While the CCSG operates across all geographic scales, the TCSG focuses specifically on transnational cooperation. Both groups provide resources in support of transboundary initiatives, and strongly influence the policy and practice of connectivity and transboundary conservation.

The TCSG was launched in 2009 as a way to provide support for those who are focusing on transboundary initiatives. The TCSG has over 270 members who represent 83 different countries. The TCSG provides guidelines and information for transboundary conservation members, with the latest iteration being the 2015 *Transboundary Conservation: A Systematic and Integrated Approach*. The TCSG enhances knowledge and capacity building for transboundary work (World Commission on Protected Areas, 2018). The mission of the group is “to promote and encourage transboundary conservation for the conservation of nature with

associated ecosystem services and cultural values while promoting peace and co-operation among nations, through enhancing knowledge and capacity for effective planning and management of transboundary conservation areas, in fulfilment of the Durban Action Plan and CBD Programme of Work on Protected Areas” (IUCN World Commission on Protected Areas, n.d.).

Founded in 2016, the CCSG is a global network of experts working to advance connectivity conservation across large land- and seascapes. The CCSG has a total membership of 900, with about 500 members actively contributing to the group’s initiatives. Members represent 85 different countries, with the largest representations from North America (32%) and Europe (17%), in addition to 14% from Asia, 13% from South America, 12% from Oceania, and 11% from Africa. The network seeks to develop and share best practices that advance connectivity conservation as a primary means of protecting biodiversity and facilitating climate change adaptation. CCSG members seek to enhance the conservation value of protective areas through the identification and effective management of ecological corridors and ecological networks. The CCSG also includes a Transport Working Group with a mission of mitigating the impacts of transportation infrastructure on ecological connectivity, and a Marine Connectivity Working Group concerned with introducing connectivity conservation into the effective management of marine and coastal ecosystems (Gary Tabor, personal communication, February 28, 2019). The CCSG is in the process of providing its first iteration of connectivity guidelines for the WCPA.

Case Study Site: Southern Patagonia, Chile and Argentina

South America has high potential for transboundary cooperation due to its ecosystems and distinctly large landscapes that cross international borders, particularly in the Andes (Mason et al., 2020). Chile and Argentina are two Andean countries that make up the lower part of South

America. The two countries share linked histories, cultural similarities, and one of the longest borders in the world. Environmental conflict and resource extraction are hot topics within both countries, as economic priorities can overshadow environmental ones due to the pressure for economic development (Reboratti, 2012). Military dictatorships have been part of the recent histories of both Argentina and Chile, with these legacies leaving imprints in today's environmental governance (Carruthers, 2001).

Both countries have different institutions for environmental conservation (Hochstetler, 2003). National parks in Chilean Patagonia are managed by the half-private half-public Corporación Nacional Forestal (CONAF) that works with the national government to sustainability manage protected areas across the country. There is also an Indigenous presence in Patagonia, demonstrating a separate cultural landscape from the rest of Chile and Argentina (Sepúlveda and Guyot, 2016). Protected areas are also claimed by Mapuche and Kawesqar communities, so both countries have tried to integrate them into management (Sepúlveda and Guyot, 2016). There have been bilateral meetings to discuss the potential of making an international corridor (Keller, 2007). Other forms of conservation in the region can influence the potential success of transboundary collaboration between the two countries, such as private conservation (Sepúlveda and Guyot, 2016), seen through Tompkins Conservation initiatives across both countries.

Chile and Argentina share a history of disputed territorial claims (Perry, 1980). They have had several conflicts over territory in the region of Patagonia (Keller, 2007). These conflicts have gotten so severe that they at one point required mediation from Pope John Paul II (Lindsley, 1987). In 1984, a treaty was ultimately agreed upon over the Beagle Canal territory, but remnants of conflict remain in the region (Keller, 2007). Child (1983) classifies the conflict

between Chile and Argentina as a resource, territorial, border, and migratory conflict. This background of conflict is important to consider for any cooperation moving forward.

The Patagonia region of South America a glaciated, mountain zone shared by Chile and Argentina, which is home to several world-famous national parks and protected areas. At the center of these protected areas are the Southern Patagonian Ice Fields, an area that still has controversy in its demarcation. Patagonia is known for aesthetic mountainous landscapes and various forms of conservation and protected area management. The region includes the world-famous Torres del Paine and Fitz Roy mountain peaks. CONAF manages parks like Torres del Paine in the Magallanes Region and Bernardo O'Higgins in the Aysen Region. On the Argentinian side of Patagonia, Los Glaciares National Park in the Santa Cruz Province and other protected areas are managed by the Administración de Parques Nacionales (APN). APN is modeled after the United States' National Park Service.

This study focuses on the Torres del Paine-Bernardo O'Higgins-Los Glaciares Transboundary Complex in southern Patagonia. This transboundary complex was in the IUCN and World Conservation Monitoring Center (WCMC) inventory of transboundary protected areas in 2007. These three parks are instrumental in the Patagonia landscape and could provide an essential connectivity corridor for wildlife conservation with all three bordering the Southern Patagonian Ice Fields, a crucial resource for both countries, as seen in Figure 1. There have also been discussions on a transboundary biosphere reserve in the area (Sepúlveda and Guyot, 2016). Transboundary cooperation in Patagonia is a major step for resolving years of border conflict between Chile and Argentina, both of which were involved in talks about transboundary cooperation. This instance provides an excellent potential case-study to investigate what

potential there is for transboundary conservation around this area, specifically in a context of historical border disputes over regions like Patagonia.



Figure 1. A map that details the three parks centered around the Southern Patagonian Ice Fields, Bernardo O’Higgins National Park (Chile), Torres del Paine National Park (Chile), and Los Glaciares National Park (Argentina) (Abraham, 2018).

There is little documented information about transboundary conservation around Torres del Paine, Bernardo O’Higgins, and Los Glaciares National Parks outside of the International Union for the IUCN 2007 Inventory of Transboundary Protected Areas. Brenner and Davis (2012) mention the transboundary complex in their article on the transboundary inventory, claiming that “the Glaciares-Torres del Paine-O’Higgins Complex of South America’s southern cone consists of nine reserves protecting 67,855 square kilometers of the southern Andean high

peaks.” According to conversations with several stakeholders, some transboundary work on the national scale may have existed until 2009, but local concerns over shared benefits may have caused it to stop. I also have been told that there was no transboundary cooperation to begin with and nobody knows why the Transboundary Complex is in the IUCN Inventory. Overall, little is understood about the details of this project. This calls for more research into the background of the situation in Patagonia to further understand the nature of the conflict and its potential for peaceful solutions to benefit local communities as well as the countries. Due to the local unfamiliarity with any previous transboundary collaboration, this study was carried out on the assumption that there was no previous work, but the potential for future transboundary collaboration. This specific transboundary site will allow for my research questions to be addressed, such as who could be involved in transboundary collaboration, local definitions of success, and the effect that transboundary collaboration could have on local communities. This will allow for an understanding of the local perspectives on the potential for future transboundary collaboration in the Patagonia region.

The following chapters contain a literature review on large-landscape and transboundary conservation in Chapter Two, as well as a methods section in Chapter Three. Then there is Chapter Four on Phase One of the thesis, followed by Chapter Five on Phase Two. Each of these two chapters is set up as a journal article. Lastly, there is Chapter Six that connect the findings from each phase and concludes the thesis.

Chapter Two: Literature Review

Large-Landscape and Transboundary Conservation Overview

Landscape-scale conservation has become more utilized in the field of conservation to protect critical ecosystems (Locke, 2011; Scarlett & McKinney, 2016; Vasilijevic et al. 2015). Fragmentation and the lack of connectivity is an emerging concern for global conservation efforts (UNEP, 2019). Large-landscape conservation is emerging and has developed out of the need for more comprehensive and wide-ranging solutions to global environmental problems and climate change mitigation. One must acknowledge that comprehensive and holistic conservation practices were already being utilized by communities around the world before colonialism changed what society accepts as conservation. The modern field stems from landscape ecology, based on combatting fragmentation of landscapes and conservation areas (Reed et al., 2014). Fragmentation can be detrimental for conservation goals and enhance the theory of island biogeography, leading to disastrous effects for threatened species (Reed et al., 2014). Large-landscape collaboration involves including working landscapes and larger spatial areas in conservation. This approach has become the foundation for the field of large-landscape conservation. Large-landscape conservation is (1) multijurisdictional—the issues being addressed cut across political and jurisdictional boundaries; (2) multipurpose—they address a mix of related issues including but not limited to environment, economy, and community; and (3) multistakeholder—they include public, private, and nongovernmental actors (McKinney et al., 2010).

Transboundary conservation is the coordination of ecological management between two or more countries that works to protect diverse, unique, and culturally-important ecosystems (Sandwith et al., 2001). Due to its complicated nature, there has been widespread confusion about what transboundary conservation and governance entails (Vasilijević et al., 2015).

Definitions for transboundary conservation have shifted over time, but the most recent articulation is in the International Union for the Conservation of Nature's (IUCN) 2015 guidelines. In these guidelines, transboundary conservation is defined as the "process of cooperation to achieve conservation goals across one or more international boundaries" (Vasilijević et al., 2015).

Transboundary conservation has been spearheaded by the IUCN's World Commission on Protected Areas since the mid-1990s (Sandwith et al., 2001). However, transboundary conservation is also promoted by the United Nations' Educational, Scientific, and Cultural Organization (UNESCO) in the form of transboundary biospheres as well as through other international programs (Vasilijević et al., 2015). Conservationists are now understanding that environmental protection must occur across political borders, leading to transboundary natural resource management becoming just as acclaimed as community-based natural resource management (Büscher, 2010b). According to Zbicz (2003) and Vasiljevic et al., (2015), transboundary conservation is becoming a requirement for environmental management in the face of drastic environmental change.

Transboundary conservation has been a more recent development in the conservation and development field, with an increased popularity in the last two decades (King & Wilcox, 2008). Discussion about the potential for transboundary work has amplified, especially with successful examples of transboundary collaboration and increased resources for transboundary work (Vasilijević et al., 2015). Many countries have clusters of protected areas on boundaries (Zbicz, 1999a), which implies that there is high potential for increasing transboundary conservation. Transboundary conservation initiatives are even considered the newest "fashion" in conservation (Büscher, 2010a), implying that transboundary conservation provides a different template for

how to carry out conservation initiatives. This leads to increased attention and support of transboundary work. Like other environment and development initiatives, transboundary conservation attempts to find the balance between human needs and conservation (Büscher, 2010a). However, defining this balance and the practice of transboundary conservation has been a difficult process (Petursson et al., 2013).

Goals around large-landscape, transboundary work include working to conserve and protect ecosystems while improving the well-being of communities (Büscher, 2010a; Schoon, 2013). Large-landscape conservation work considers and includes social objectives alongside biological ones (Sayer, 2009). Transboundary initiatives supports conservation at larger scales and can address political conflicts in conservation (Büscher, 2010b). One main goal of transboundary conservation is cooperative management among many actors (Vasilijević et al., 2015) as well as leadership and representation from local communities (Niewiadomski, 2011; Vasilijević et al., 2015). These goals are similar for large-landscape conservation in general. Other types of goals can include community development, increasing tourism, establishing peace, and more (Ali, 2002; Ioannides et al., 2006; Metcalfe, 2003).

There are numerous benefits of large-landscape and transboundary conservation. In terms of ecological benefits, transboundary conservation provides large-landscape connectivity (Vasilijević et al., 2015). Establishing connectivity is critical for ensuring that biodiverse wildlife is protected, especially in a period of habitat loss and climate change (Hannah, 2011). Large landscape-scale conservation provides numerous benefits in terms of species biodiversity and the resilience of the managed ecosystem (Scarlett & McKinney, 2016; Vasilijević et al., 2015). Migratory and threatened species have a higher chance of survival through large landscape

transboundary conservation (Vasiljević et al., 2015). Ecosystem management is improved with transboundary conservation, allowing for a better management of threats (Sandwith et al., 2001).

Beyond ecological benefits, both large-landscape and transboundary initiatives have socioeconomic benefits for local communities as well as national governments. The United Nations Sustainable Development Goals can overlap with large-landscape conservation work to increase socio-economic development and prosperity (Reed et al., 2014). Livelihood development is rooted into transboundary conservation (Erg et al., 2012). Some socioeconomic benefits of transboundary conservation include trade across borders, human/wildlife conflict resolution, transboundary tourism, and cultural prioritization (Ioannides et al., 2006; Sepúlveda & Guyot, 2016; Vasiljević et al., 2015). Transboundary conservation can allow for Indigenous communities to be able to have more control over their culture and traditional practices (Sepúlveda & Guyot, 2016; Vasiljević et al., 2015). Additionally, transboundary conservation can increase political stability and improve relationships between states, while also improving day-to-day management of ecosystems (Vasiljević et al., 2015). Many donors are attracted to funding large-landscape and transboundary conservation which surpasses other forms of conservation (Büscher, 2010b; Williams, 2011), which can assist in community development and tourism income. Conflict resolution can also result from transboundary environmental initiatives, with the potential to establish peaceful and engaging relationships between countries (Mittermeier et al., 2005).

Large-landscape conservation requires broader governance and networks. Governance includes the interaction and mixing of various institutions and organizations that contribute to the process of governing and decision-making (Bever, 2012). Environmental governance generally is defined as the various institutions, networks, processes, and mechanisms used to shape outcomes

(Lemos & Agrawal, 2006), in this case environmental conservation actions. Environmental governance becomes more complex on the large-landscape and transboundary scale as more jurisdictions and stakeholders are integrated into these various processes (Scarlett & McKinney, 2016). Governance must be rooted in the socio-economic context of the geographic area. Collaborative governance for large-scale conservation can help mitigate conflict and ensure stability in complex initiatives (Fisher et al., 2020).

Transboundary conservation requires transboundary environmental governance. Transnational or transboundary governance, involving institutions and stakeholders across borders, is the decision-making and processes around transboundary conservation and collaboration (Vasilijević et al., 2015). Zbicz (1999b) describes six levels of transboundary conservation of protected areas between countries based on cooperation, which have been adapted in the IUCN's 2015 *Transboundary Conservation: A Systematic and Integrated Approach*. Initiatives must have strong leadership and network support to be executed and maintained (Imperial et al., 2016). The adapted levels of cooperation range from communication and information sharing, consultation, coordinated action, and joint implementation of decisions (Vasilijević et al., 2015). Although there are several definitions for transboundary initiatives, there are some unifying aspects of transboundary collaboration. A large portion of transboundary work can occur at the local management level, even if it is not official through bi-national agreements (Zbicz, 2003).

In tandem with the benefits of large-landscape work, there are crucial challenges that complicate initiatives. The multiple scales, contexts, and dynamics can complicate large-scale conservation (Beever et al., 2014). Different skills and expertise are required with landscape conservation (Sayer, 2009). Large-landscape conservation also brings management challenges in

allocation of resources and funding (Beever et al., 2014). Some of the major challenges to large-landscape conservation include a lack of proper information and data, a lack of capacity, a lack of coordination, the lack of adequate policy tools for governance, and a lack of funding (McKinney et al., 2010). Transboundary governance is also more complex due to the presence of international boundaries (Petursson et al., 2013). Additionally, transboundary governance is associated with higher costs of time and resources for coordination, political cooperation, and continued management by high-level state officials, which can lead to a bigger power disparity in the inclusion of local communities (Metcalf, 2003). Decentralization, a tenet to achieving environmental justice in environmental governance, is more difficult in transboundary governance, because transboundary work involves national governments (Andonova et al., 2009). Transboundary areas are primarily managed by high-level actors (Taggart-Hodge & Schoon, 2016).; thus, significant border conflicts between countries can affect the dialogue and willingness of transboundary cooperation (Keller, 2007). Governance of transboundary conservation initiatives can be challenging because the extent to which communities are involved varies between different countries (Metcalf, 2003). Although communities can work together, they are still reliant on formalization of transboundary areas from national governments (Metcalf, 2003).

Overall, large-landscape and transboundary conservation are rising tools for sustaining large landscapes and ecological processes while also addressing social-economic issues. Understanding transboundary cooperation and how it works is important to improve the discipline (Vasilijević et al., 2015; Zbicz, 1999a). Yet there are still many unknowns in the practice of large-landscape conservation and its potential. There is uncertainty in how large-landscape and connectivity conservation are practiced throughout the world. Despite the growth

of transboundary initiatives (Vasiljević et al., 2015), there is limited understanding of the levels of local involvement needed to establish longevity of transboundary work, in addition to a lack of understanding of different conceptualizations of success. There also remains a gap in the perspectives of Specialist Group members and how they evaluate the large-landscape conservation they have worked on.

Top-Down vs Bottom-Up Approaches

There are several different approaches to large-landscape and transboundary conservation that can affect its process, stakeholders, and outcome. Top-down large-landscape conservation often starts in national governments or the engagement of states by third-party organizations, like the IUCN. Bottom-up initiatives take the form of community-driven, grassroots campaigns for collaboration or local-level collaboration by managers. Both types of conservation approaches are seen in large-landscape conservation across the globe.

Top-down and bottom-up approaches result in different levels of local involvement (Schoon, 2013). Top-down initiatives can result more easily in a formal agreement (Sandwith et al., 2001; Vasiljević et al., 2015), giving an official backbone to the transboundary conservation area. High-level initiatives have their own strengths, such as working relationships across nations (Schoon, 2013). They also can provide leadership, communication means, and facilitation to help progress transboundary conversations (Zbicz, 2003). Governments can encourage or pressure participation from other sectors to ensure more support for transboundary conservation (Sandwith et al., 2001). Sandwith et al. (2001) note that transboundary conservation can emerge and develop from high-level initiatives (top-down), local initiatives (bottom-up), and third-party initiatives. However, top-down transboundary conservation without local participation is bound to fail (Zbicz, 2003), as top-down approaches can give power to scientists and other authorities

(Wolmer, 2003b). Top-down transboundary work can result in little mutual understanding between communities and governments (Petursson et al., 2013) and can be problematic since they do not establish trust on the local-level (Schoon, 2013). Strictly top-down approaches may increase the difficulty in achieving equity and justice for locals (Metcalf, 2003) and may also have difficulty in distribution of resources to the local communities (Petursson et al., 2013).

Bottom-up or local approaches to large-landscape, transboundary conservation can start with a single protected area staff member from each country (Sandwith et al., 2001). Metcalfe (2003) states that environmental justice and inclusion could be achieved when transboundary work is motivated from local communities, rather than a top-down government approach. Bottom-up approaches are more likely to be seen as informal arrangements, particularly if they are without a formal agreement between the involved state governments (Vasilijević et al., 2015). Balance between livelihoods and the environment is a key to grassroots transboundary initiative (Wolmer, 2003b). Policy support can be helpful for formalizing transboundary cooperation and providing more resources and authority (Sandwith et al., 2001). Since bottom-up large-landscape cooperation is informal until it reaches higher levels, participants can lack resources and funding. In addition, local managers may be limited in their authority to commit to large-landscape, transboundary collaboration until approved by the government.

There are similar issues faced in top-down and bottom-up transboundary initiatives. A comparative study of the Kgalagadi Transfrontier Park in Botswana and South Africa (bottom-up approach) and the Great Limpopo Transfrontier Park in Zimbabwe, South Africa, and Mozambique (top-down initiative) identified several similarities and differences between the two types of transboundary conservation (Schoon, 2013). Both initiatives faced issues with local communities in terms of relationships and management, as well as human-wildlife conflict

(Schoon, 2013). Funding is more fragmented for transboundary work due to the various numbers and levels of actors (Büscher, 2010b). Another issue faced in both initiatives is how to divide tourism revenue (Schoon 2013). However, bottom-up transboundary areas, like Kavango Zambezi transboundary conservation area in Africa, are often viewed as more successful in the eyes of locals than top-down transboundary areas because locals are involved throughout the process, but they are more difficult to establish and formalize (Metcalf, 2003).

Issues should be addressed at multiple levels in effective collaboration (Schoon, 2013). Bottom-up initiatives can still benefit from some sort of top-down support and management (Guerrero et al., 2015). The top-down or bottom-up structure of the transboundary conservation initiatives influences how issues are prioritized and managed (Schoon, 2013). Top-down large-landscape, transboundary conservation cannot work if it is imposed on locals (Zbicz, 2003). There can be more coordination on the issues highlighted in the study for the bottom-up approach, implying higher operational efficiency (Schoon, 2013). Zbicz (2003) claims that although top-down structures can provide support, the origin of transboundary initiatives must come from the bottom up.

Aspects of both top-down and bottom-up approaches are important for well-established and continuous large-landscape, transboundary cooperation (Guerrero et al., 2015; Knight et al., 2011; Zbicz, 2003). The goals of the specific transboundary cooperation influence the balance of aspects of top-down and bottom-up approaches (Schoon, 2013). There is a difference in the type of collaboration from top-down and bottom-up processes, which is noted by bottom-up having more local field collaboration (Schoon, 2013). Large-scale transboundary conservation may be motivated from external actors, such as third-party organizations, rather than just top-down (Zbicz, 2003). Regardless of whether a transboundary initiative is top-down or bottom-up, there

is a larger priority on sustained multi-level relationships throughout the process and stakeholders must meet regulatory and openly exchange information for a successful and equitable transboundary relationship (Martin et al., 2011). There is a need for the right balance of top-down and bottom-up components in both large-landscape and transboundary governance (Guerrero et al., 2015; Jacobs & Anderson, 2012). However, the field of transboundary conservation is facing a challenge in combining the two approaches (Braack et al., 2006).

After reviewing the literature, it appears that components of both top-down and bottom-up approaches are important to large-landscape and transboundary conservation. However, it seems that solely top-down approaches have a higher potential to fail compared to bottom-up approaches which can function informally without a formal policy agreement. As Wolmer (2003b) notes, there is no blueprint for transboundary conservation. Large-landscape, transboundary conservation can benefit by integrating aspects of both top-down and bottom-up arrangements into governance, with a prioritization of local community involvement.

The Role of Local Communities

Similar to other forms of conservation, local communities play an integral role in the establishment and management of large-landscape conservation. Zbicz (2003) notes that transboundary work without local involvement is likely to fail. However, with a top-down reliance of transboundary conservation to attain formal bi-national cooperation, local communities can potentially be excluded from important conversations. Top-down approaches may demonstrate that community considerations are secondary to those of national authority (Wittmayer & Büscher, 2010). However, community involvement is essential, especially with Indigenous communities who possess a cultural connection to the land (Sandwith et al., 2001).

Local community involvement does not guarantee success but is fundamental for maintaining transboundary agreements and management (Zbicz, 2003).

There are several different ways to involve local communities in large-landscape, transboundary initiatives. Empowering local communities relies on giving them access to both land and natural resources (Wolmer, 2003b). Public participation in the planning and decisions for establishment can also include and prioritize local voices (Metcalf, 2003). Systems are very important to local people, so using a systems approach can help motivate public participation in transboundary governance (Gallardo et al., 2013). Stakeholders should meet regularly to share knowledge (Metcalf, 2003). Community involvement can extend to equal partnerships with technical and government officials. Promoting co-management helps involve local communities in a long-term manner (Metcalf, 2003).

Large-landscape and transboundary governance also can lead to the creation of new institutions, such as committees, third-party mediators, and networks which can aid in achieving community equity and representation through facilitation (Bixler et al., 2016; Schoon, 2013). Overall, community support is obtained through a prioritizing of benefiting goals for rural livelihoods (Metcalf, 2003). Using a community-based natural resource management model in transboundary initiatives and corridors can help integrate communities into day-to-day management (Quinn et al., 2012). Actions to incorporate communities into transboundary work includes dialogue and early engagement, identifying shared values, identifying cultural values, anticipating disputes, and more (Sandwith et al., 2001).

Involving and prioritizing local communities in large-landscape, transboundary conservation can be beneficial in terms of equity and support for the initiative. Transboundary conservation can reunite communities that are separated by international borders (Sandwith et

al., 2001). Involving local communities can provide representation and make transboundary conservation more equitable by allowing for concerns and opportunities to be voiced (Chiutsi & Saarinen, 2017). Immediate rights to access and formal inclusion can be obtained by local communities through community-based management of transboundary initiatives (Quinn et al., 2012). Border communities may be ethnically similar and split by boundaries while they also can be poor and isolated populations that may benefit from a transboundary initiative (Sandwith et al., 2001). Specifically, involvement with land ownership, employment, and selling goods can benefit local communities (Metcalf, 2003). Communities can also work with authorities to prevent habitat destruction and illegal wildlife poaching (Quinn et al., 2012).

It has been difficult to integrate communities equitably into large-landscape, transboundary conservation initiatives. Post-colonial states have been partial to keeping state management and view co-management with the private sector rather than communities (Metcalf, 2003). Historical legacies, such as previous government corruption and persecution, may affect communities' willingness to collaborate. In some cases where communities play a role in management, they may not have been a part of a collaborative planning process to begin with, souring the rest of the process for them (Metcalf, 2003). Transboundary conservation initiatives may give more power to the central authority than actually allowing for community voices be heard (Wolmer, 2003b), since international law recognizes national actors rather than local communities (Metcalf, 2003). Therefore, transboundary conservation can marginalize community interests by focusing on state governments (Watson, 2015). Issues also lie with the objectives for local communities in large-landscape and transboundary work. The role of locals in transboundary conservation can be vague and unclear (Wittmayer & Büscher, 2010). This can result from lack of clarity of socio-ecological objectives or superficial involvement. There is a

paradox of the role of locals, with one view of local communities as intruders in the natural space of transboundary conservation while also being managers and stewards of the initiatives (Wittmayer & Büscher, 2010). This paradox complicates efficient and equitable community involvement. Overall, international organizations cannot impose transboundary conservation (Zbicz, 2003), so local communities play a role in the overall outcome of large-landscape transboundary initiatives.

There are complicated issues that arise with local community involvement in large-landscape and specifically transboundary conservation. Collaborative conservation still often lacks Indigenous voices (Thomas & Mendezona Allegretti, 2020). Communities can be excluded from critical decisions in transboundary management. An example of locals being overlooked involves big-game translocation in transboundary areas when communities are not consulted, affecting their safety and livelihoods (Metcalf, 2003). There can be conflicting positions in local communities about participating and supporting transboundary conservation (Wittmayer & Büscher, 2010). Competition in community leadership can impede an efficient process (Metcalf, 2003). In the case of the proposed transboundary initiative between North Korea and South Korea, issues arise in attempting to make a singular community identity out of multiple that have evolved over time (Watson, 2015).

Communities face challenges in management too, which can be complicated in identifying objectives and those who are responsible. Local communities can lack an understanding of rights in transboundary cooperation and agreements (Metcalf, 2003). Questions of land access not always resolved after the establishment of transboundary initiatives and there can be a continued fear of displacement from local communities (Wittmayer & Büscher, 2010). Transboundary governance, like other forms of international governance, can

risk displacing communities from their traditional lands. This displacement damages communities and cultural traditions (Wolmer, 2003b). Fears of displacement can also negatively affect community livelihoods and stability (Wolmer, 2003a). Displacement can cause widespread anger at governments, influencing the communities' willingness to participate in collaboration and management of the protected areas. In addition, the changes that transboundary conservation bring to landscapes and their management can jeopardize community livelihoods (Wolmer, 2003b).

Involving local communities in large-landscape, transboundary conservation can prove difficult in balancing the initiative while also ensuring local support and management for maintaining it. There is a limited amount of information in guidelines and recommendations for transboundary conservation, specifically because there is no one model of involving local communities (Vasiljević et al., 2015). However, researchers outline the importance of involving local communities for large-landscape, transboundary conservation, as well as its complications. In terms of representation, equity, and longevity of conservation initiatives, it is important to have strong and active community involvement in every stage of large-landscape conservation.

Large-Landscape Governance Challenges

Large-landscape conservation can provide different scales for conservation and governance (Guerrero et al. 2013). These varying scales and dynamics can cause various issues and challenges (Beever et al., 2014). Consultation is consistently a local-level challenge in large-landscape work, as involving locals can be the most crucial and complex aspect of an initiative (Scarlett & McKinney, 2016). Collaboration and consultation often happens right before a decision, rather than continuously (Fisher et al., 2020). Large-landscape conservation must fully understand and incorporate the local social context, which many often fail to do adequately

(Sayer, 2009). Local landscapes can lack proper data and information for large-landscape structures (Scarlett & McKinney, 2016). Local land types, such as public or private lands can also be a challenge for large-landscape conservation (Loeb & D'Amato, 2020). Further challenges include partnerships, trust, and communication (Beever et al., 2014).

Governance and management of large-landscape work provides many challenges (Scarlett & McKinney, 2016). Landscape conservation requires many considerations to include in management (Lindenmayer et al., 2008). Challenges lie in management resources and shared ecological resources (Guerrero et al., 2015). There are many different policy institutions that can create coordination and management challenges (Scarlett & McKinney, 2016). Curtin and Tabor (2016) note that the biggest challenge of large-landscape work is making the management locally relevant. Large-scale environmental threats, such as wildfires that cross boundaries and borders, complicate the management scale of large-landscape work (Scarlett & McKinney, 2016). These challenges carry over into transboundary conservation, which has more distinct scalar challenges due to its international context.

Specific Challenges to Transboundary Governance

Both large-landscape and transboundary conservation governance have significant challenges. However, due to the more complicated nature of transboundary work, there are even more issues that can arise from initiatives. Major challenges span scales and center around local issues, state-level issues, and international issues. These challenges are similar to the challenges in large-landscape conservation work.

Local-Level Challenges

Some issues can result from a lack of consultation of local communities, as well as a limited understanding of the transboundary process and goals (Wolmer, 2003a). As outlined in

an earlier section, relationships with communities can be a significant challenge for transboundary conservation (Schoon, 2013). Cultural tourism has been proposed as a revenue source for transboundary tourism, but often this can be unrepresentative of the local context and be tokenization of the culture (Wolmer, 2003a). Overly optimistic tourism expectations can also negatively affect local interactions (Amerom & Büscher, 2005). This inadequate understanding can stem from little explanation by higher-level actors and an absence of resources for local communities.

Since transboundary work aims to connect landscapes for wildlife conservation, resulting human-wildlife conflict can also be a critical challenge in transboundary communities (Schoon, 2013). Poaching can be a serious concern for transboundary conservation initiatives (Ferreira, 2004). Illegal logging and other activities can also be an issue for transboundary conservation (Duffy, 2005). Language barriers can impede transboundary cooperation (Bhatasara et al., 2013). Seasonal variation in local landscapes can also influence transboundary governance (Lambertucci et al., 2014). Transboundary conservation is further complicated by the varying set of rights and duties permitted by each country to its communities (Petursson et al., 2013). Transboundary governance can also cause interethnic/intercommunity blame and conflict due to the larger number of actors from varying backgrounds and neighboring countries (Martin et al. 2011; Gallardo et al. 2013), which can preserve local community conflict itself (Wittmayer & Büscher, 2010).

National-Level Challenges

On the national level, there is another distinct set of challenges that transboundary cooperation faces. Historical tensions and colonial influence can lead to conflict in transboundary governance (Ali, 2002; Barquet, 2015a). Political will is a strong influence on

transboundary collaboration between nations (Kim, 1997). Risk of spreading animal diseases into new countries can affect transboundary governance (Amerom, 2002). Countries are not uniform entities, but rather display various identities and groups, which can complicate representation and involvement in national decisions around transboundary governance (Watson, 2015). TBPAs can also run against national interests (Wolmer, 2003a), which can jeopardize political stability in participating nations. Political issues with government transitions and corruption may also complicate transboundary governance (Chiutsi & Saarinen, 2017). The creation of barriers also influences the success of transboundary conservation and can affect future prospects (Linnell et al., 2016). Visa laws can restrict the visitors and tourists that can access transboundary conservation areas (Kemkar, 2006). National industry and development can threaten the commitment to transboundary conservation (Healy, 2007; Mackelworth et al., 2013). Private landowners can also influence transboundary governance and have complicated relationships with national governments (Keller, 2007). Border law enforcement also becomes a challenge for nations involved in transboundary conservation (Duffy, 2005).

International-Level Challenges

International interactions can provide challenges for transboundary governance. The Western concern of a “global commons” drives conservation in developing countries (Jones, 2005), and this concept instills a competitive nature into countries participating in transboundary negotiations (Martin et al. 2011). Competition is worsened when state actors are unequal partners in terms of power (Wolmer, 2003b; Zbicz, 1999). Since transboundary conservation is the privileging of biophysical over political units (Wolmer, 2003b), it can bring about issues with national security since borders are removed from particular transboundary conservation areas (Zbicz, 1999).

Environmental governance becomes more complex on the large-landscape and transboundary scale as more jurisdictions and stakeholders are integrated into these various processes (Scarlett & McKinney, 2016). Transnational or transboundary governance, involving institutions and stakeholders across borders, is the decision-making and processes around transboundary conservation and collaboration (Vasilijević et al., 2015). Transboundary governance presents questions about sovereignty and territorial control (Barquet, 2015a), which is further complicated by third-party involvement (Watson, 2015). Transboundary initiative boundaries are hard to enforce, and transboundary practices limit border sovereignty (Petursson et al., 2013). Similar to international negotiations, nations can refuse to compromise or insist on taking the high ground (Zbicz, 1999), affecting the dialogue on transboundary cooperation.

For transboundary conservation, funding is also split between multiple governments and third-party organizations, making operations more complicated and less efficient (Büscher, 2010b). Mistrust and animosity can ensue between border-states (Jones, 2005), especially in regard to investment and revenue sharing. Transboundary governance can also lead to conflict in terms of how countries and communities will split tourism revenue benefits, making distribution equity more complicated (Jones, 2005; Schoon, 2013). There is also little long-term funding, since many transboundary initiatives are funded by one-time grants from international organizations (Amerom & Büscher, 2005). Without this long-term and sustainable funding, transboundary conservation can be abandoned before it is even executed.

There are some significant challenges that transboundary environmental governance faces. Many of the issues center around the local scale, as well as additional challenges with interactions on the national and international scales. These challenges are similar to those in other forms of conservation governance but remain more complicated because of the complex

nature and actors involved in transboundary conservation. Although these challenges are significant, there is still potential for them to be properly addressed in transboundary conservation initiatives and for the transboundary conservation to provide benefits for those involved.

Defining Success for Large-Landscape, Transboundary Conservation

Conceptualizing success can be complex for conservation initiatives. Only recently have there been efforts to delineate how to monitor and review transboundary areas for success. Petursson et al. (2013) note that evaluating involved parties in transboundary governance is important in analyzing the justice and equity of conservation work since different transboundary actors have varying levels of power, rights, and duties. Several factors have been categorized as influences on success in transboundary conservation from previous studies, including profitability, funding, security, third-party involvement, long-term planning, legislation, number of participants, environmental status, transparency, motivation, stakeholder interests, balance, engagement, national efforts, monitoring and evaluation, common values, and learning from other initiatives (Portman & Teff-Seker, 2017). Thomsen & Caplow (2017) note that defining success has become increasingly complicated for large-landscape conservation. Brooks, Franzen, Holmes, Grote, & Borgerhoff Mulder (2006) noted that there are few developed evaluations of success in conservation. Most studies do not identify factors for success in transboundary cooperation in their evaluation of initiatives (Weiler et al., 2012). Zbicz (2003) notes that international agreements are often used as a measure of success, but overall, they can easily fall apart and not represent what is going on at the local scale. However, there are some major themes that can be pulled from literature on conservation success. In addition, transboundary case studies use various views on success.

Ecological evaluations of success have been the traditional lens to landscape conservation initiatives. Taggart-Hodge and Schoon (2016) claim that the focus of transboundary work has negatively shifted from environmental conservation, while Sayer (2009) has stated that large-landscape work emphasizes biological success over socio-economic successes. Nevertheless, concepts of connectivity and conservation are still important to initiatives. Hannah (2011) uses connectivity as a proxy of conservation outcomes, emphasizing the need for connectivity of protected areas as an adequate response to climate changes threats to biodiversity. Researchers can also use technical conservation metrics as a measure of success. Taggart-Hodge and Schoon (2016) reviewed transboundary success through ecological measures, with spatial analysis of forest cover and beech tree abundance. Hannah (2011) noted that the most appropriate way to simulate connectivity may be species distribution models, which will help to connect protected areas. Ecological outcomes can be reliant on other social measures, such as community involvement and management (Brooks et al., 2006). Ecological success is an important consideration for large-landscape conservation outcomes, but transboundary work is a highly political and complex field that requires other considerations for success.

Economic measures of success are commonly seen in large-landscape conservation research, since many large-landscape initiatives are conservation and development projects. Market access and success is viewed to be extremely important for economic development of communities (Brooks et al., 2006). Schoon (2013) recognizes that economic goals play a part in transboundary work and successes can come in generating tourism revenue, demonstrating a definition of economic success through tourism. Ioannides, Nielsen, & Billing (2006) use the theme of tourism as economic development throughout their evaluation of a European transboundary initiative. Large-landscape conservation initiatives have become rooted in

conservation and development (Sayer, 2009), leading to economic measures of success. Ecological success can even benefit from a transboundary framework that emphasizes the role of the market (Brooks et al., 2006). Schoon (2013) idea of success discusses the benefits of economic and formal agreements in transboundary cooperation. High economic success can be seen in conservation projects that have less restrictions on protected area and more access to resources (Brooks et al., 2006). However, this viewpoint on success can jeopardize ecological success, demonstrating the complicated relationship between different facets of success.

Social and cultural measures of success are emphasized in large-landscape, transboundary conservation literature. Sepúlveda and Guyot (2016) state that conservation is not necessarily the goal of the proposed transboundary biosphere reserve. Social-science frameworks are important to the evaluation of conservation success (Brooks et al., 2006). Thomsen and Caplow (2017) highlight the important role of relationships as a measure of large-landscape success. Waylen et al. (2010) found that all outcomes and initiative success were associated with cultural context, as cultural and traditional-use protections can be integral to transboundary success (Sepúlveda & Guyot, 2016). Common goals between stakeholders are also important to develop in transboundary governance (Zbicz, 1999b)

An emphasis on relationships with local communities and contexts can benefit large-landscape conservation in other measures of success. Community control and involvement predicted successful attitudinal and economic outcomes of conservation interventions (Waylen et al., 2010). Success relied on local-level interactions and involvement to sustain the transboundary cooperation (Zbicz, 2003), which improves longevity and durability in transboundary work. Conservation interventions are more successful with supportive community outreach and engagement (Waylen et al., 2010). Weiler et al. (2012) note that trust and long-term

relationship building are important to defining success. Emphasizing Indigenous community involvement and promoting the principle of co-management can also contribute to transboundary success (Sepúlveda and Guyot, 2016).

Although several views on large-landscape and transboundary conservation success have emerged from academic literature, there are few studies that highlight the key importance of continuity and longevity of initiatives. Full implementation of transboundary conservation is a potential way to achieve success (Ioannides et al., 2006). Success may be the long-term sustainability and durability of transboundary projects (Zbicz, 2003), moving away from the evaluation of success having a central focus on the beginning stages of cooperation. In addition, most literature on large-landscape conservation only highlights the perspective of academic researchers as case studies are discussed and evaluated by literature reviews and theoretical frameworks. Thomsen and Caplow (2017) focused on the perspectives of Specialist Group members for large-landscape conservation, while Zbicz (2003) survey managers of transboundary protected areas. There is a need for more research on perspectives outside of academics, as well as local community perspectives.

Chapter Three: Methods

This study included two phases of research. Phase One included a survey of initiatives part of the IUCN Transboundary Specialist Group and the IUCN Connectivity Conservation Specialist Group. Phase Two included a case-study on the potential for transboundary collaboration around the Torres del Paine-Bernardo O'Higgins-Los Glaciares area in Southern Chile and Argentina.

Phase One: Specialist Groups Survey

To gain a better understanding large-landscape conservation within international networks, the study consisted of an electronic survey administered to members of the IUCN Transboundary Specialist Group (TCSG) and the Connectivity Conservation Specialist Group (CCSG). The Chairs of the TCSG and CCSG assisted in developing the survey questions and organized survey distribution to their membership, communicating via email and the online collaboration platform Basecamp.

The survey covered several topic areas that are covered in the *Transboundary Conservation: A Systematic and Integrated Approach* (Vasiljević et al., 2015), including governance mechanisms, planning processes, and the engagement of communities. Participants were asked to convey their opinions on elements that define successful conservation, as well as the factors that enable effective local community involvement. Question format included multiple choice, check all that apply, and open-ended questions. This study built off of a previous survey conducted with the Practitioners' Network for Large Landscape Conservation, which investigated similar research questions through a strictly North American lens (Mickelson, Thomsen, & Bixler 2017; Thomsen & Caplow, 2017). The present study evaluated international

networks to understand global perspectives and comparisons between large-landscape initiatives across spatial and temporal scales. Survey questions can be found in the Appendix I.

The survey was open from August 12, 2019 until September 30, 2019 and distributed via email by Specialist Group chairs and staff. Reminders were sent out via email to the IUCN groups twice after the initial distribution of the survey. The survey sample included 141 total responses from the two Specialist Groups. There were 122 total responses from members of the Connectivity Conservation Specialist Group, 46 responses from members of the Transboundary Conservation Specialist Group, and 30 responses coming from respondents who were members of both groups. The Transboundary Specialist Group had a 16.67% response rate while the Connectivity Specialist Group had a 17.94% response rate.

The survey results were analyzed to highlight key findings from the CCSG and TCSG members. Results were graphed to show descriptive statistics and overall trends. I used chi-squared tests of association for several crosstabs of related questions and did one Fisher's exact test for a contingency table with a low number of observations. The chi-squared test was chosen since the crosstab data was categorical, in frequencies, and binary. These were used to test if there were statistically significant differences between categories of respondents.

There were several open-ended questions in this survey. The main open-ended question asked participants to write their own definitions of large-landscape success, while the rest of the open-ended questions were provided as an "other" option for participants whose answers did not reflect the options given. Open-ended questions were coded and analyzed qualitatively (Böhm, 2004). The written responses from participants were categorized based on the identified themes within responses. Each open-ended response was coded in such a manner.

Phase Two: Case Study Interviews

The second phase of this research project focused on a case study with the aim of being descriptive or explanatory (Babbie, 2004). The case study focused on the potential for transboundary conservation with several protected areas that the Patagonia Transboundary Complex in Argentina and Chile to better understand the potential for future transboundary collaboration and the specific role of local communities in transboundary conservation in the region.

The case study took place between August and November of 2019 and included interviews with managers, conservation practitioners, and local communities that surround the transboundary area. I partnered with Fiorella Repetto from the Cequa Research Center in Chilean Patagonia to connect with park management and local community groups. Through my connection with the Cequa Research Center, I used chain referrals to connect with individuals from the interview groups. The categories of people I interviewed are listed in Table 1. I completed 40 interviews until thematic saturation in responses was reached (Hennink, Kaiser, & Marconi 2017). Table 1 displays the various affiliations of interviewees. More interviews (N = 24) were completed in Chile, compared to Argentina (N =16) due to the presence of two protected areas of interest in Chile. The interviews focused on Torres del Paine and Bernardo O'Higgins National Parks in Chile and Los Glaciares National Park in Argentina. Interviews were mainly conducted in Spanish, with only 3-4 in done in English.

The emphasis of the interviews was on local communities, with questions about their perspectives and involvement, in the potential transboundary cooperation. Interview questions are listed in Appendix III. Follow-up and clarification questions were specific to the person and

their relationship to the protected areas. cooperation and how local communities perceive future transboundary efforts.

Table 1

The numbers of interviews conducted in the field in Chile and Argentina

Theme/Group of Participant	Chile Count	Argentinian Count	Justification
Tourism worker or guide	5	5	These tourist operators' day-to-day operations could change with transboundary cooperation. I have informally been told that the initial transboundary talks ended because of local tourism conflicts.
Protected Area/National Parks employees	5	6	Park staff will be a large part of the transboundary cooperation and management.
Government representatives	3	0*	These officials may know about how previous transboundary talks have gone as well as the potential for more international coordination
Community and citizen leaders	3	1	These community members recreate in and care for the parks, which will help to learn how transboundary connectivity may influence their activities
Conservation organization employees	5	4	Conservation groups will be able to give an idea on how local conservation goals can be affected by transboundary conservation
Indigenous community members	3	0**	These Indigenous community members may be able to give perspective to the cultural importance or lack of in the potential initiative

*I was unable to contact any representatives in Buenos Aires due to the transition in the government that was taking place after a presidential election in October 2019 in Argentina.

**With limited time, I was not able to make adequate efforts to contact Indigenous community descendants in Argentina. This was further complicated by conflicting information about the presence of Indigenous communities in the south of Argentinian Patagonia.

Due to the complex and extended actors in transboundary conservation, I was required to travel to various locations to do the interviews. I spent one week of time in the capital cities of Santiago and Buenos Aires to try to connect with government representatives who may know more about the transboundary conservation that occurred in the past and may express opinions

on future transboundary cooperation between the two countries. In Chile, I split my time focusing on Torres del Paine National Park in Puerto Natales and Puntas Arenas. To connect with communities influenced by Bernardo O'Higgins Park, I traveled to Caleta Tortel, a hamlet located on the edge of the national park, for interviews. After finishing up in Chile, I spent three weeks in the El Chalten and two weeks in El Calafate nearby to Los Glaciares National Park. The interviews focused on understanding how involved local communities perceive the potential for transboundary conservation and how they could be involved in the transboundary process.

Analysis

After completing interviews, they were transcribed via GoTranscript services. Several interviews were translated into English and coding structure was made with other members of the Thomsen Research Group. Next, all the interviews were coded using NVivo qualitative data software using the coding structure. The first round of coding emphasized comprehensive collection of themes with broad nodes. For the second round of coding, I organized existing nodes into sub-nodes that had more specificity in content. The last round of coding worked to organize overlaps in coding and finalize the structure of all nodes and sub-nodes.

Coding reflected grounded theory open and axial coding to categorize themes from the interviews (Böhm, 2004). I analyzed the themes from these interviews and will report out major findings from the interviewed groups, including the level of local involvement and knowledge about the transboundary work as well as local ideas of what makes transboundary work successful. I also looked at similarities and differences across the two countries and stakeholder roles.

Chapter Four: IUCN Specialist Group Survey

This chapter shares the results of the survey distributed to the IUCN Specialist Groups on Connectivity and Transboundary Conservation. The chapter is in preparation for submission to the International Journal of Protected Areas and Conservation, which is managed by the IUCN WCPA.

Introduction

Biological diversity ignores political and jurisdictional boundaries (Batisse, 1997; Lindsay, Chase, Landen, & Nowak, 2017). Political and jurisdictional borders have been drawn with little consideration for natural resources or conservation priorities, creating issues for regional or large-landscape conservation (Donald et al., 2007). However, as our understanding of ecological science and conservation progresses, it has become clear that conservation governance must extend across political boundaries and barriers to help connect large landscapes and allow for improved protection of critical resources (Abbitt, Scott, & Wilcove, 2000; Zbicz, 2003). With land-cover change rapidly increasing, large-landscape conservation is an effective way to preserve shared ecosystems near borders in order to increase the commitment to conservation areas across the globe (Vasilijević et al., 2015).

The landscape approach is a “framework to integrate policy and practice for multiple land uses, within a given area, to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change” (Reed et al., 2014, p. 1). Large-landscape work is often complex, collaborative, and demanding. Its two differentiating components from protected area conservation involve working across “traditional” boundaries of conservation, such as protected area borders, and including human landscapes and social objectives in conservation (Sayer, 2009). Large-landscape conservation involves focusing on a regional scale

rather than a single protected area (Rudnick et al., 2012). Transboundary conservation is large-landscape conservation centers around shared resources and crosses international political borders (Vasiljević et al., 2015). An early example of large-landscape conservation is the Yellowstone to Yukon Conservation Initiative, which also is a transboundary initiative that links borders (Imperial et al., 2016). Landscape-scale conservation has become more utilized in the field of conservation to protect critical ecosystems (Locke, 2011; Scarlett & McKinney, 2016; Vasiljevic et al. 2015) and to address fragmentation and the lack of connectivity for global conservation efforts (UNEP, 2019). The field stems from landscape ecology, based on combatting fragmentation of landscapes and conservation areas for more comprehensive and wide-ranging solutions to transboundary environmental problems (Reed et al., 2014). Large-landscape conservation is (1) multijurisdictional—the issues being addressed cut across political and jurisdictional boundaries; (2) multipurpose—they address a mix of related issues including but not limited to environment, economy, and community; and (3) multistakeholder—they include public, private, and nongovernmental actors (McKinney et al., 2010).

There has been significant work done by the International Union for the Conservation of Nature (IUCN) and its World Commission on Protected Areas (WCPA) on both large-landscape and transboundary environmental conservation, including the development of resources designed to make the fields more accessible and equitable. The IUCN also has solidified networks of people from around the world who conduct transboundary and large-landscape work through the IUCN Transboundary Conservation Specialist Group and the IUCN Connectivity Conservation Specialist Group. The Connectivity Conservation Group works to support reducing habitat fragmentation and increase connectivity for wildlife migration on all scales by creating resources and support for large-landscape conservation projects. The Transboundary Specialist Group

encourages and supports transboundary cooperation for ecosystem protection and has over 270 members from around the world (World Commission on Protected Areas). The groups have overlap in members, but the Connectivity Group can operate on all scales while the Transboundary Group focuses on transnational cooperation. These groups provide resources and support of large-landscape initiatives, in addition to strongly influencing guidelines and documents on connectivity and transboundary work in practice.

It is necessary to understand large-landscape initiatives and how they translate down to the local scale. Studying Specialist Group member and local perspectives of large-landscape and transboundary conservation can help indicate what guidelines were not met in the establishment of initiatives and who or what needs to be involved in the process to ensure longevity. However, there remains gaps in our understanding of the practice of large-landscape conservation (Vasilijević et al., 2015). Understanding these components can help improve the collaborative nature of large-landscape conservation. A survey of IUCN networks on transboundary and large-landscape conservation could allow for member perspectives on these ideas of success and local community involvement.

The purpose of this study was to evaluate the field of large-landscape conservation and evaluate perspectives on topics that include success, local community involvement, and challenges. The aim of this project was to understand perspectives from members of the IUCN Specialist Groups and local stakeholders. Due to the gaps identified in our understanding of large-landscape conservation in practice, my study addresses the following research question: What factors influence success of large-landscape conservation? More specifically, the study's sub-questions include:

1. Who is involved in the different stages of large-landscape conservation?

2. Once initiatives are established, how do they function in terms of management and priorities?
3. How do those involved in large-landscape conservation define “success”? What factors influence the success of initiatives?
4. How do large-landscape initiatives impact local communities? How do these impacts affect governance and implementation at the local scale?

This research study’s findings improve this complex and important form of collaboration by providing a basis to understand what perspectives of success in large-landscape efforts and explore the utility of IUCN WCPA guidelines. In addition, this project enhances our understanding of challenges and different interpretations of success that can strengthen the efficacy of transboundary and large-landscape initiatives in meeting conservation goals.

Literature Review

Local Community Involvement and Governance in Large-Landscape Conservation

Similar to other forms of conservation, local communities play an integral role in the establishment and management of large-landscape conservation. Zbicz (2003) notes that transboundary work without local involvement is likely to fail. However, with a top-down reliance of transboundary conservation to attain formal bi-national cooperation, local communities can potentially be excluded from important conversations. Top-down approaches may demonstrate that community considerations are secondary to those of national authority (Wittmayer & Büscher, 2010). However, community involvement is essential, especially with Indigenous communities who possess a cultural connection to the land (Sandwith et al., 2001).

Local community involvement does not guarantee success but is fundamental for maintaining transboundary agreements and management (Zbicz, 2003).

There are several different ways to involve local communities in large-landscape, transboundary initiatives. Empowering local communities relies on giving them access to both land and natural resources (Wolmer, 2003b). Public participation in the planning and decisions for establishment can also include and prioritize local voices (Metcalf, 2003). Systems are very important to local people, so using a systems approach can help motivate public participation in transboundary governance (Gallardo et al., 2013). Stakeholders should meet regularly to share knowledge (Metcalf, 2003). Community involvement can extend to equal partnerships with technical and government officials. Promoting co-management helps involve local communities in a long-term manner (Metcalf, 2003).

Involving and prioritizing local communities in large-landscape, transboundary conservation can be beneficial in terms of equity and support for the initiative. Transboundary initiatives can reunite communities that are separated by international borders (Sandwith et al., 2001). Involving local communities can provide representation and make transboundary conservation more equitable by allowing for concerns and opportunities to be voiced (Chiutsi & Saarinen, 2017). Immediate rights to access and formal inclusion can be obtained by local communities through community-based management of transboundary initiatives (Quinn et al., 2012). Border communities may be ethnically similar and split by boundaries while they also can be poor and isolated populations that may benefit from a transboundary initiative (Sandwith et al., 2001). Specifically, involvement with land ownership, employment, and selling goods can benefit local communities (Metcalf, 2003). Communities can also work with authorities to prevent habitat destruction and illegal wildlife poaching (Quinn et al., 2012).

Large-landscape conservation can provide different scales for conservation and governance (Guerrero et al. 2013). These varying scales and dynamics can cause various issues and challenges (Beever et al., 2014). Consultation is consistently a local-level challenge in large-landscape work, as involving locals can be the most crucial and complex aspect of an initiative (Scarlett & McKinney, 2016). Collaboration and consultation often happens right before a decision, rather than continuously (Fisher et al., 2020). Large-landscape conservation must fully understand and incorporate the local social context, which many often fail to do adequately (Sayer, 2009). Local landscapes can lack proper data and information for large-landscape structures (Scarlett & McKinney, 2016). Local land types, such as public or private lands can also be a challenge for large-landscape conservation (Loeb & D'Amato, 2020). Further challenges include partnerships, trust, and communication (Beever et al., 2014).

Governance and management of large-landscape work provides many challenges (Scarlett & McKinney, 2016). Landscape conservation requires many considerations to include in management (Lindenmayer et al., 2008). Challenges lie in management resources and shared ecological resources (Guerrero et al., 2015). There are many different policy institutions that can create coordination and management challenges (Scarlett & McKinney, 2016). Curtin and Tabor (2016) note that the biggest challenge of large-landscape work is making the management locally relevant. Large-scale environmental threats, such as wildfires that cross boundaries and borders, complicate the management scale of large-landscape work (Scarlett & McKinney, 2016). These challenges carry over into transboundary conservation, which has more distinct scalar challenges due to its international context.

Defining Success for Large-Landscape Conservation

Conceptualizing success can be complex for conservation initiatives. Only recently have there been efforts to delineate how to monitor and review transboundary areas for success. Petursson et al. (2013) note that evaluating involved parties in transboundary governance is important in analyzing the justice and equity of conservation work since different transboundary actors have varying levels of power, rights, and duties. Several factors have been categorized as influences on success in transboundary conservation from previous studies, including profitability, funding, security, third-party involvement, long-term planning, legislation, number of participants, environmental status, transparency, motivation, stakeholder interests, balance, engagement, national efforts, monitoring and evaluation, common values, and learning from other initiatives (Portman & Teff-Seker, 2017). Thomsen & Caplow (2017) note that defining success has become increasingly complicated for large-landscape conservation. Brooks, Franzen, Holmes, Grote, & Borgerhoff Mulder (2006) noted that there are few developed evaluations of success in conservation. Most studies do not identify factors for success in transboundary cooperation in their evaluation of initiatives (Weiler et al., 2012). Zbicz (2003) notes that international agreements are often used as a measure of success, but overall, they can easily fall apart and not represent what is going on at the local scale. However, there are some major themes that can be pulled from literature on conservation success. In addition, transboundary case studies use various views on success.

An emphasis on relationships with local communities and contexts can benefit large-landscape conservation in other measures of success. Community control and involvement predicted successful attitudinal and economic outcomes of conservation interventions (Waylen et al., 2010). Success relied on local-level interactions and involvement to sustain the

transboundary cooperation (Zbicz, 2003), which improves longevity and durability in transboundary work. Conservation interventions are more successful with supportive community outreach and engagement (Waylen et al., 2010). Weiler et al. (2012) note that trust and long-term relationship building are important to defining success. Emphasizing Indigenous community involvement and promoting the principle of co-management can also contribute to transboundary success (Sepúlveda and Guyot, 2016).

IUCN Specialist Groups

The International Union for the Conservation of Nature (IUCN) is the world's authority on nature conservation and sustainable use of natural resources. The Union is composed of over 1,300 members, including governments and civil society organizations, a Secretariat of over 900 staff, and 15,000 experts distributed across six Commissions. The World Commission on Protected Areas (WCPA) is a network charged with advancing the science, policy, and management of protected areas and other area-based conservation measures. To support this mission, and further develop a global network of expertise and resources, the WCPA has guided the creation of several Specialist Groups dedicated to the various elements of effective Protected Area management. This study focuses on the Transboundary Conservation Specialist Group (TCSG) and the Connectivity Conservation Specialist Group (CCSG) under the WCPA. Both of these Specialist Groups work to advance large-landscape conservation and their membership includes some overlap. While the CCSG operates across all geographic scales, the TCSG focuses specifically on transnational cooperation. Both groups provide resources in support of transboundary initiatives, and strongly influence the policy and practice of connectivity and transboundary conservation.

The TCSG was launched in 2009 as a way to provide support for those who are focusing on transboundary initiatives. The TCSG has over 270 members who represent 83 different countries. The TCSG provides guidelines and information for transboundary conservation experts, with the latest iteration being the 2015 *Transboundary Conservation: A Systematic and Integrated Approach*. The TCSG enhances knowledge and capacity building for transboundary work (World Commission on Protected Areas, 2018). The mission of the group is to encourage transboundary conservation and promote peaceful cooperation through the development of resources and in fulfillment of the Durban Action Plan and the Convention on Biological Diversity Program of Work on Protected Areas.

Founded in 2016, the CCSG is a global network of experts working to advance connectivity conservation across large land- and seascapes. The CCSG has a total membership of 900, with about 500 members actively contributing to the group's initiatives. Members represent 85 different countries, with the largest representations from North America (32%) and Europe (17%), in addition to 14% from Asia, 13% from South America, 12% from Oceania, and 11% from Africa. The network seeks to develop and share best practices that advance connectivity conservation as a primary means of protecting biodiversity and facilitating climate change adaptation. CCSG members seek to enhance the conservation value of protective areas through the identification and effective management of ecological corridors and ecological networks. The CCSG also includes a Transport Working Group with a mission of mitigating the impacts of transportation infrastructure on ecological connectivity, and a Marine Connectivity Working Group concerned with introducing connectivity conservation into the effective management of marine and coastal ecosystems (Gary Tabor, personal communication, February 28, 2019). The CCSG is in the process of providing its first iteration of connectivity guidelines for the WCPA.

Methods

To gain a better understanding large-landscape conservation within international networks, the study consisted of an electronic survey administered to members of the TCSG and the CCSG. The Chairs of the TCSG and CCSG assisted in developing the survey questions and organized survey distribution to their membership, communicating via email and the online collaboration platform Basecamp. The survey was open from August 12, 2019 until September 30, 2019. Reminders were sent out to the IUCN groups twice after the initial distribution of the survey.

The survey covered several topic areas that are covered in the 2015 *Transboundary Conservation: A Systematic and Integrated Approach* (Vasilijević et al., 2015), including governance mechanisms, planning processes, and the engagement of communities. Participants were asked to convey their opinions on elements that define successful conservation, as well as the factors that enable effective local community involvement. Question format included multiple choice, check all that apply, and few open-ended questions, that were qualitatively coded to sort participant responses. This study built off of a previous survey conducted with the Practitioners' Network for Large Landscape Conservation, which investigated similar research questions through a strictly North American lens (Mickelson, Thomsen, & Bixler 2017; Thomsen & Caplow, 2017). The present study evaluated international networks to understand global perspectives and comparisons between large-landscape initiatives across spatial and temporal scales. Survey questions can be found in the Appendix I.

The survey results were analyzed to highlight key findings from the CCSG and TCSG members. Results were graphed to show descriptive statistics and overall trends. I used chi-squared tests of association for several crosstabs of related questions and did one Fisher's exact

test for a contingency table with a low number of observations. The chi-squared test was chosen since the crosstab data was categorical, in frequencies, and binary. These were used to test if there were statistically significant differences between categories of respondents.

There were several open-ended questions in this survey. The main open-ended question asked participants to write their own definitions of large-landscape success, while the rest of the open-ended questions were provided as an “other” option for participants whose answers did not reflect the options given. Open-ended questions were coded and analyzed qualitatively (Böhm, 2004). The written responses from participants were categorized based on the identified themes within responses. Each open-ended response was coded in such a manner.

Results

Study Sample

The survey sample included 141 total responses from the two Specialist Groups. Approximately 66.7% of the total responses came from members of the CCSG, 11.6% responses from members of the TCSG, and 21.7% responses came from respondents who were members of both groups. Based on the membership of the Specialist Groups, the TCSG had a 16.7% response rate and the CCSG had a 17.9% response rate. Most respondents (51.8%) are researchers who work on large-landscape initiatives, Around 28.1% of respondents chose the response option of “Other” and named the different roles they played in initiatives, including executive directors, outside experts and consultants, non-profit staff, and project coordinators. Lastly, 22.3% of respondents are protected area managers.

Respondents identified the regions and countries where they work on large-landscape conservation. These regions were based off the regions in the IUCN statutes. However, there was an initial error in the survey of IUCN Region of “East Europe, North and Central Asia”

displayed as “East Europe, North and Central Europe.” This was corrected in the survey, but there may be some inaccuracy with representation of East Europe, North and Central Asia. Respondents had the ability to go back and change their response region if they did not see the correct countries displayed, so we do not think it played a significant role in data collection on regional locations.

Twenty-five percent of respondents are from the North America and the Caribbean region (see Table 2). However, close to 18.8% of respondents work on initiatives in Africa, while 15.6% work in the South and East Asia region. Close to 7.8% of respondents participate in transcontinental work as well, such as migratory flyways. The United States is the country with the most initiatives (N = 25) followed by Canada (N = 22). West Europe is the region that has the most countries (88.9% of region) having at least one large-landscape initiative.

Table 2

Region and country information of survey respondents

IUCN Region	Number of Respondents	Percent of Respondents	Number of Countries out of total in region	Percentage of countries in region represented
Africa	24	18.8%	29/54	53.7%
Meso & South America	11	8.6%	13/20	65%
North America & the Caribbean	32	25.0%	6/15	40%
South and East Asia	20	15.6%	17/23	73.9%
West Asia (Middle East)	2	1.6%	2/14	14.3%
Oceania	6	4.7%	2/16	12.5%

East Europe, North & Central Europe	13	10.2%	25/30	83.3%
West Europe	10	7.8%	24/27	88.9%

We wanted to investigate perspectives of membership in global networks of conservation and how that membership can affect the work they do. We asked participants what benefits they receive individually from their membership in the IUCN Specialist Groups on Connectivity and Transboundary Conservation and also how membership in these groups benefits their initiative's work. The biggest benefit that members view for themselves and their initiatives is the network of peers (89.1% and 80.5%, respectively). Professional development and access to resources are also common benefits for members (see Figure 2).

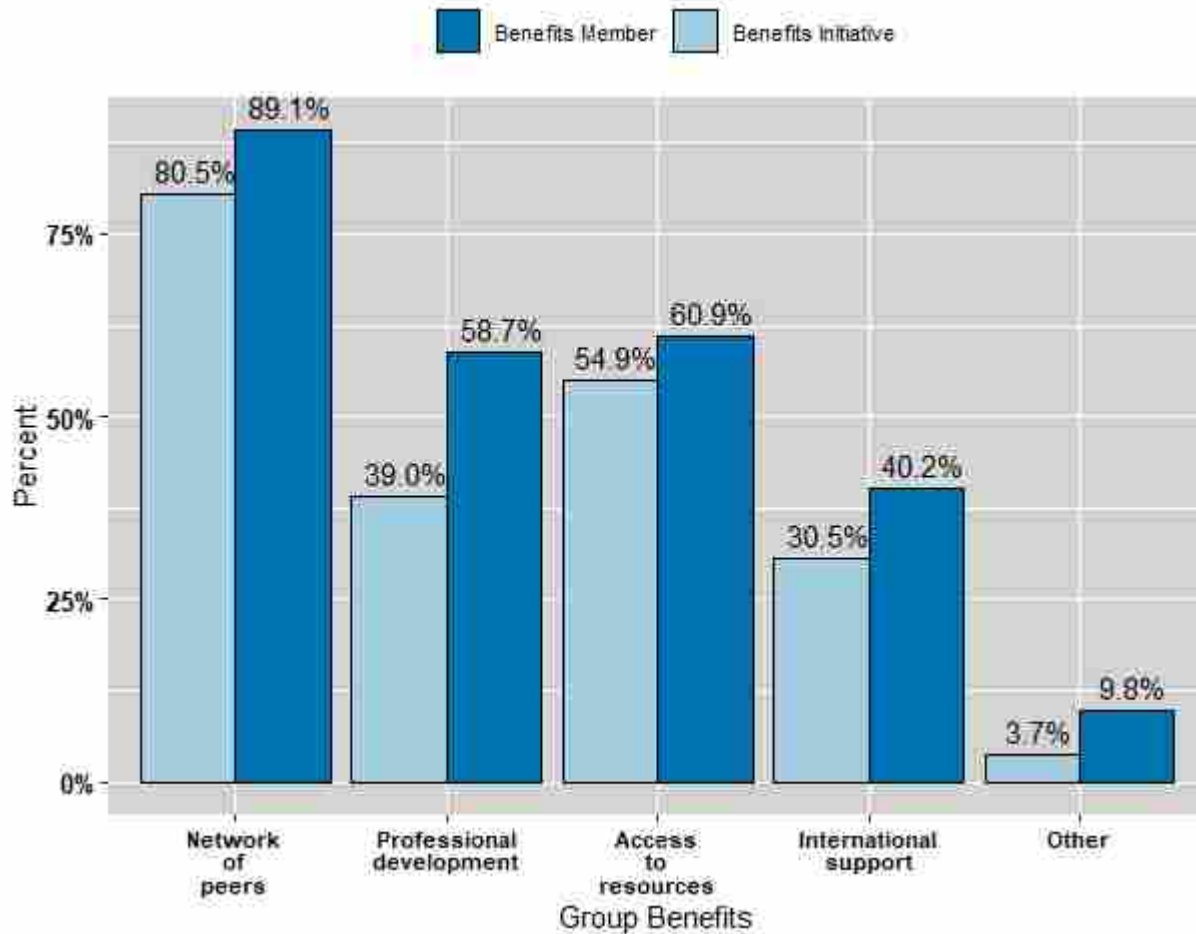


Figure 2. The benefits of membership that respondents selected in the IUCN Specialist Groups.

Characteristics of Large-Landscape Initiatives

Large-landscape work can take on many different forms and span various landscapes. Nearly 90% of initiatives that focused on terrestrial realms followed by 33.9% on freshwater realms and 23.5% on marine realms. Large-landscape initiatives are driven by a variety of priorities, including a focus to protect and conserve specific species (see Figure 3). There were 64.3% of initiatives that are focused on conserving mammalian carnivores, 63.5% on non-mammalian carnivores, and 54.8% on bird species. Yet, only 29.6% of initiatives have a focus on amphibians, and 24.3% focus on invertebrates and bats.

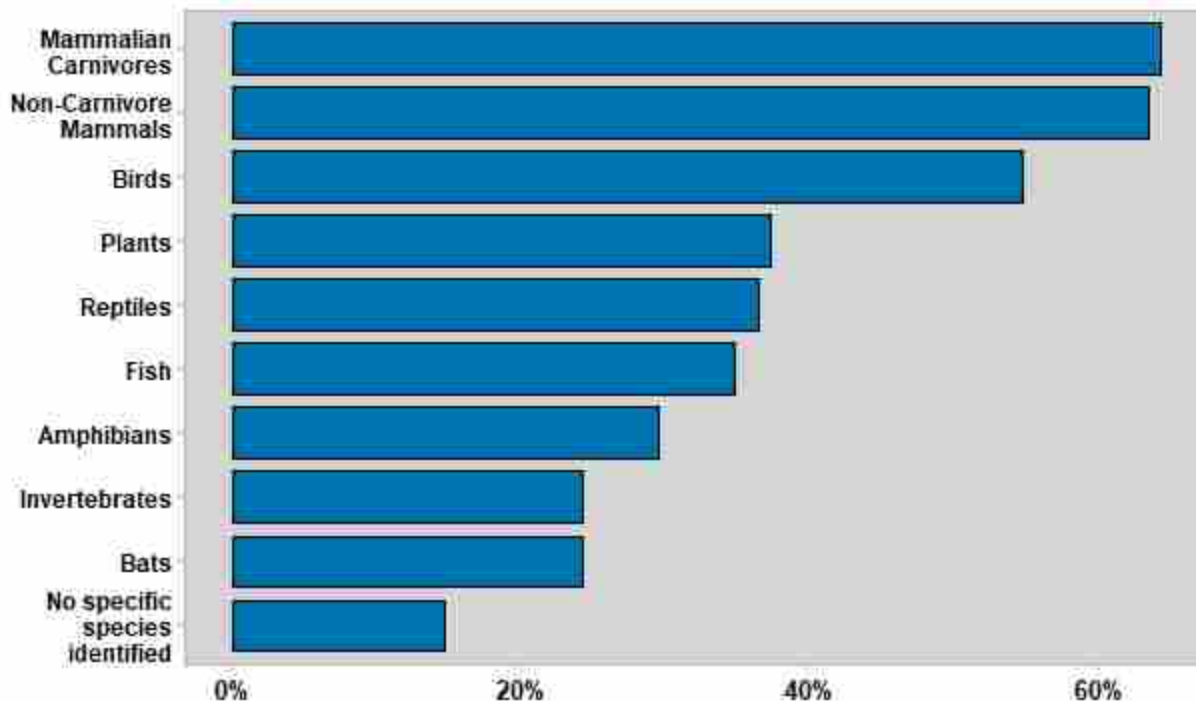


Figure 3. The species of focus for large-landscape initiatives from the survey. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

The age of initiatives is relevant for understanding the growth of the field. Survey results indicate that respondents’ described initiatives as fairly young with 64.8% of initiatives less than 15 years old, 25.6% of initiatives between 15-30 years old, and only 9.6% of initiatives older than 30 years. In terms of the size of initiatives, 18.2% are less than 202,000 hectares (see Figure 4). While 17.5% are more than 40 million hectares in size, another 17.5% of respondents are unsure about the exact size of the initiative they worked on.

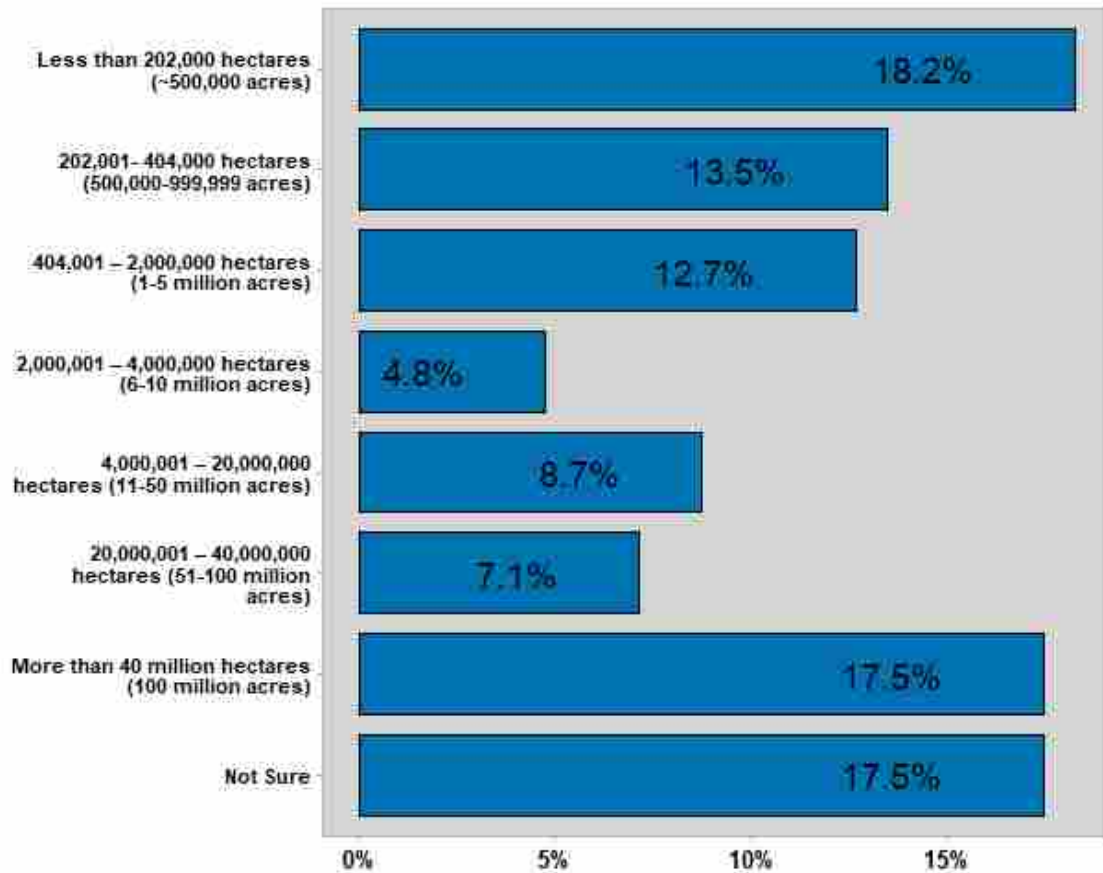


Figure 4. The size of large-landscape initiatives from the survey.

To further provide insight about initiative characteristics, survey respondents shared which groups were involved in the planning of their large-landscape initiatives (see Figure 5). Non-governmental organizations (84.0%), regional and local governments (77.7%), and conservation organizations (77.7%) are the most involved groups in the planning of initiatives followed by national government officials (60%) and the private sector (43.6%).

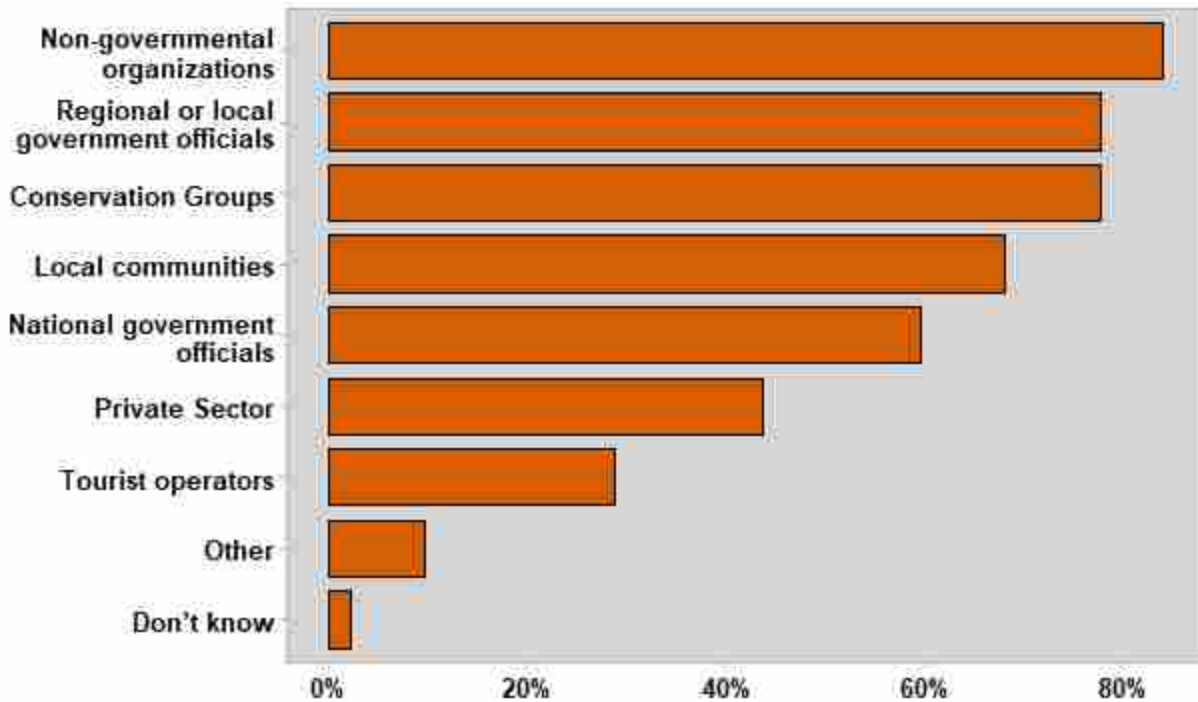


Figure 5. The various groups involved in the planning of large-landscape conservation initiatives. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Respondents indicated that there is political commitment for initiatives at various scales including local (63.9%), subnational (63.9%), and national (65.1%) governments; however, only 30.1% of respondents claim their initiatives have political commitment at the international scale.

To further understand challenges to large-landscape initiatives, we asked participants to score a list of threats to their conservation work on a scale of 1 to 5, with 1 being the least concerned and 5 being the most concerned (see Figure 6). Climate change is the biggest perceived threat with a mean response of 3.84 on a scale of 5 followed by linear infrastructure development (i.e. roads, railroads, and pipelines) with an average score of 3.6, and lack of awareness or education about conservation with an average score of 3.5. Loss of cultural and

historic character is seen as the least pressing threat, with concern over the threat averaging 2.6 out of 5.0.

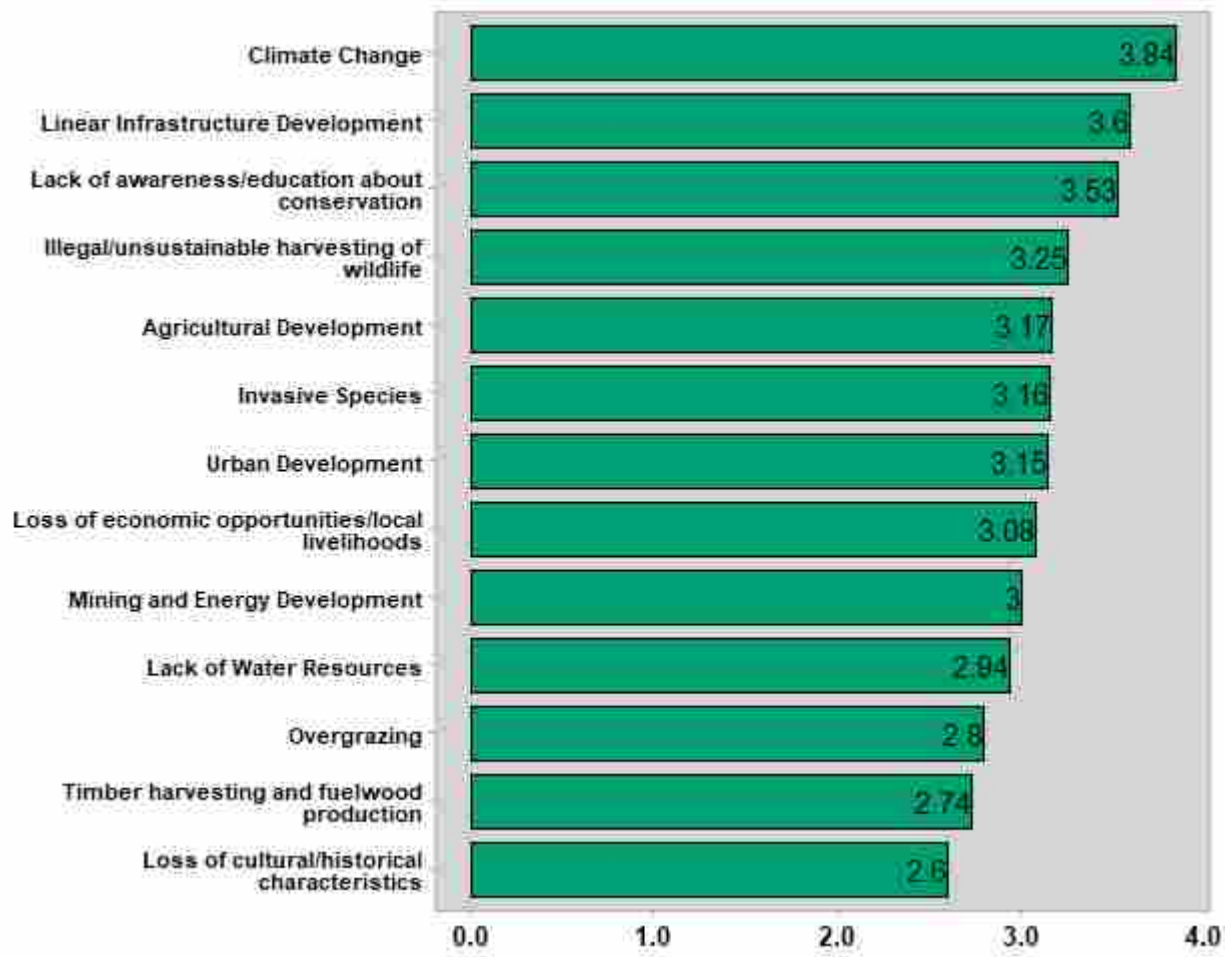


Figure 6. The scoring of threats by Specialist Group members by level of concern on a scale of 1-5, with 1 being the least concerned and 5 representing the most concerned.

The Administration of Large-Landscape Initiatives

The second research question addressed how well the initiatives surveyed reflected the 2015 *Transboundary Conservation: A Systematic and Integrated Approach*. The 2015 guidelines discussed varying types of transboundary conservation initiatives, processes, tools, and policy mechanisms for initiatives and their establishment. Looking into processes that were used for large-landscape initiatives, we asked about what types of plans were associated with participants'

work (Figure 7). Protected area site management plans are the most common sort of plans (68.4%) of responses followed by government wildlife management plans (47.4%) of respondents’ initiatives, other government land use plans (43.9%), and National Biodiversity Strategy and Action plans (41.2%).

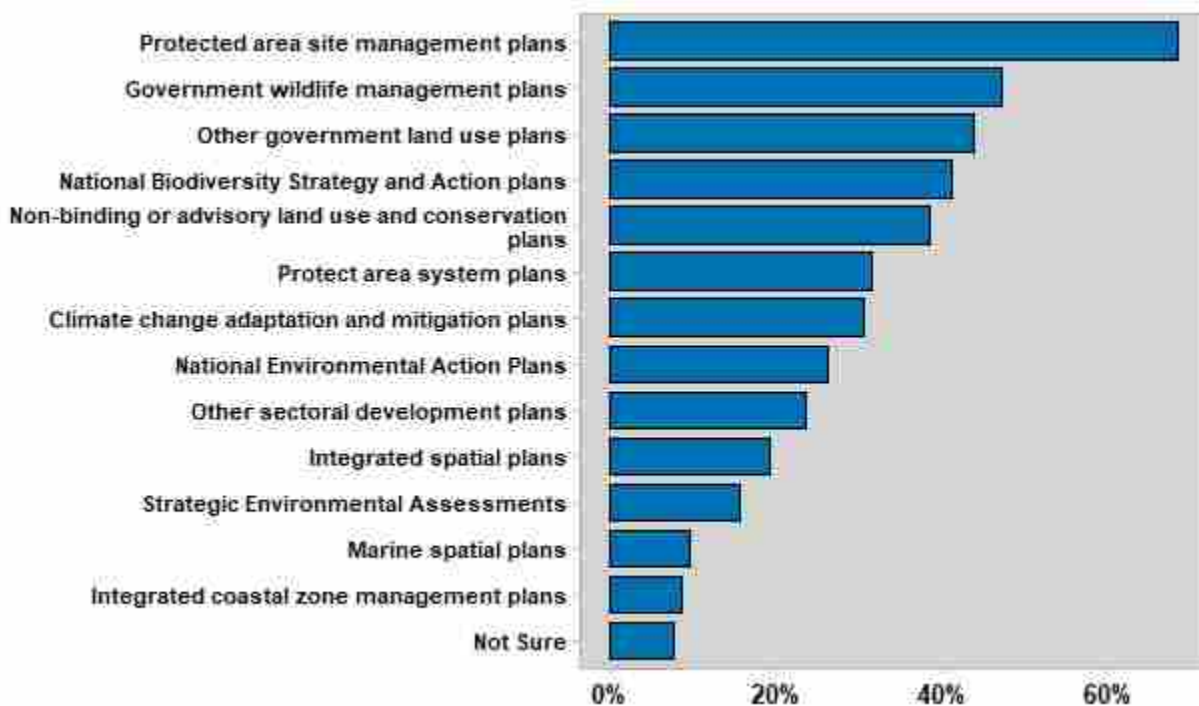


Figure 7. The various plans involved in large-landscape conservation initiatives. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Many respondents have used some sort of resource or publication provided by the IUCN (see Figure 8), with the most popular being the 2015 *Transboundary Conservation: A Systematic and Integrated Approach* (37.3%). However, 33.6% have not used any IUCN resources and less than 20.0% of respondents have utilized IUCN resources on tourism management, Indigenous peoples and protected areas, and ecosystem services tools. For those who did not use IUCN resources, 56.8% of them say the reason was that they were not aware of the IUCN resources and publications.

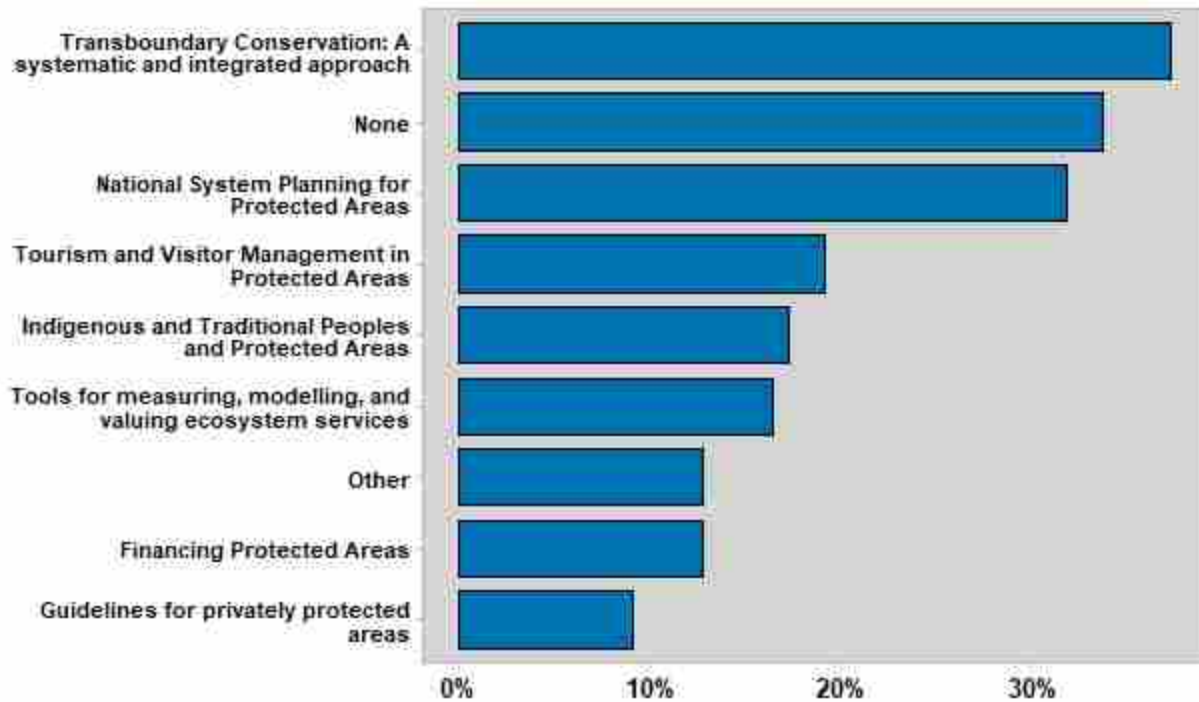


Figure 8. IUCN resources and guidelines used by participants. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Many different policy mechanisms are used to establish large-landscape conservation initiatives demonstrating the variability in large-landscape conservation work (see Figure 9). Non-binding resolutions are the most commonly used (39.1%) mechanism when establishing a transboundary, large-landscape, or connectivity conservation initiative followed by a regional cooperative framework (33.7%) and informal agreements (26.1%). Formal and binding agreements are a less common mechanism used, with 17.4% of respondents having used them in their large-landscape initiatives.

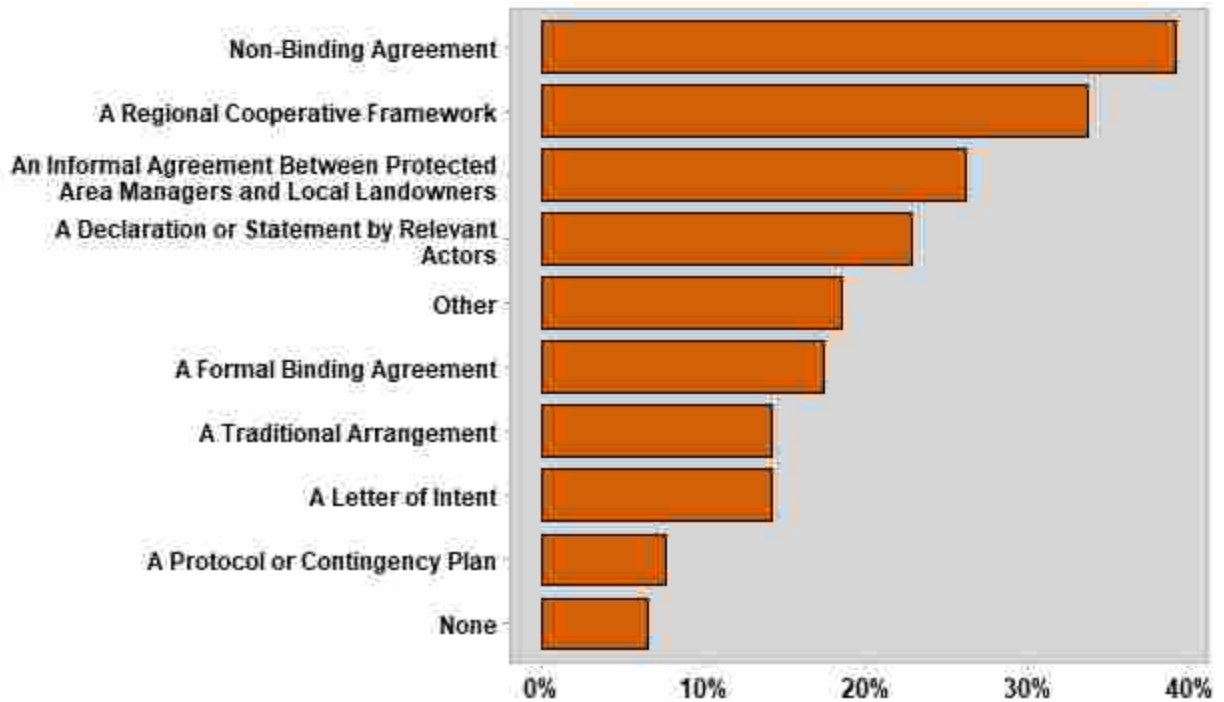


Figure 9. The types of policy mechanisms used in the establishment of large-landscape initiatives. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Respondents identified many different tools in large-landscape conservation; however, many initiatives did not actually implement the tools identified (see Figure 10). The most common tools that were identified and implemented for initiatives are conservation management activities (69.9% and 61.2%, respectively) and outreach/education (69.9% and 61.2%, respectively). Another popular tool for large-landscape initiatives are trainings and technical assistance for members. Both financial incentive tools and property tools are underutilized in planning and implementation.

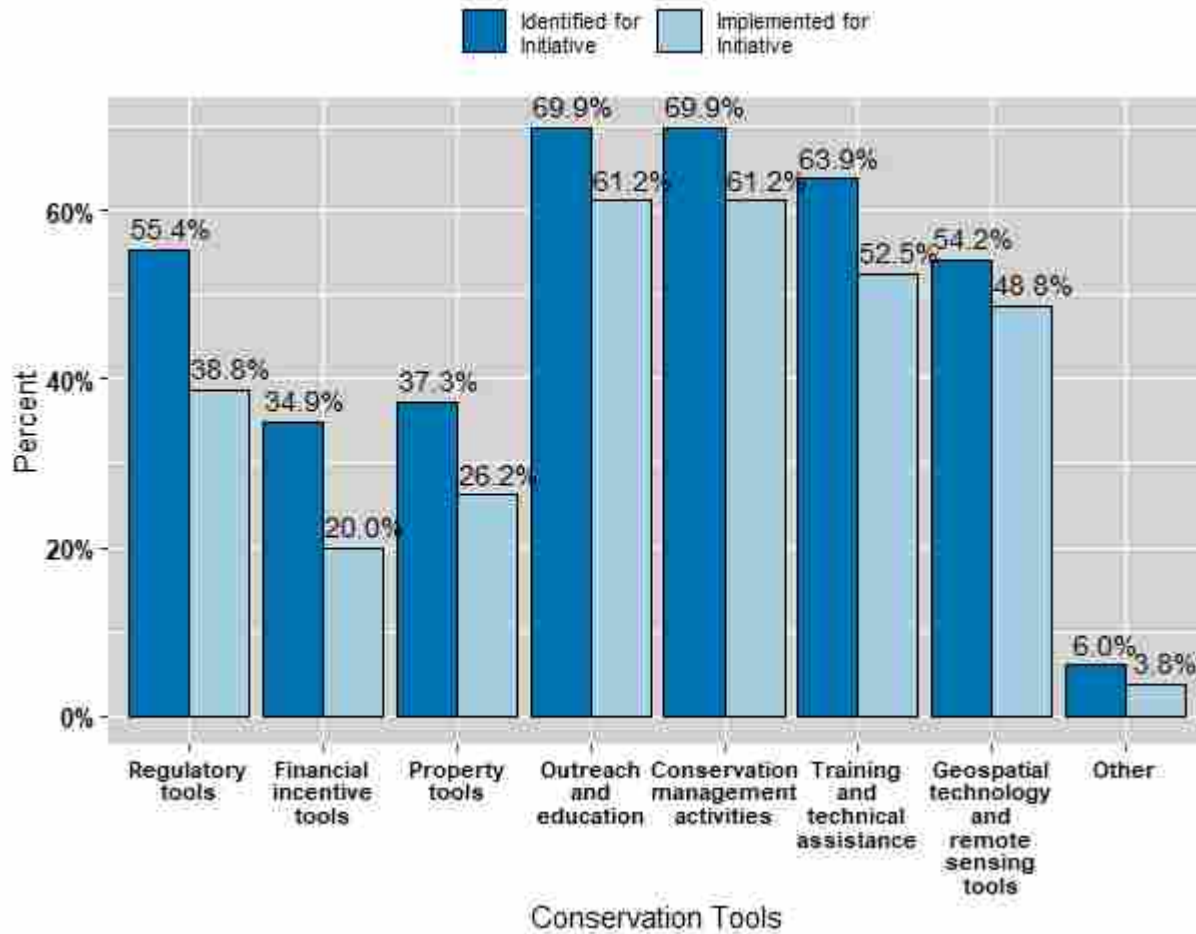


Figure 10. Conservation tools identified and implemented in large-landscape initiative plans. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Success in Large-Landscape Conservation

The third research question focused on how members define success for large-landscape conservation. In an open-ended question, respondents were asked to define success for large-landscape conservation. These written responses were coded into categories based on the main focus and content of the written definitions (see Table 3). 50.0% of these definitions relate to ecological/conservation priorities and policy, 36.9% of responses highlighted human-environment co-existence and socio-ecological priorities, and 13.1% of responses focused on collaboration and shared vision. The sub-codes for the two most common categories of success

are in Table 3. For the categories with the highest frequency, the written responses were further coded into sub-categories by the research team. The codes that were sub-coded included those from ecological/conservation priorities and policy and those of human-environment co-existence and socio-ecological priorities. Connectivity priorities, stewardship of biodiversity and ecosystems, and species-specific foci are the most frequent types of ecological definitions. About a third of the socio-ecological definitions focus on the co-existence of humans and nature within large landscapes.

Table 3

Categories of written definitions for success with counts and sub-codes.

Categories of Success	Counts & Percentage	Sub-Codes	Counts & Percentage (within category)
Ecological Conservation Priorities and Policy	42 (50.0%)	Connectivity networks, landscape and corridors	8 (19.1%)
		Stewardship of biodiversity and processes	8 (19.1%)
		Species-specific focus and longevity	8 (19.1%)
		Prevent degradation and development	5 (11.9%)
		Policy and jurisdictional goals	5 (11.9%)
		Effective and adaptive management	3 (7.1%)
		Conservation areas and plans	3 (7.1%)
		Movement of genes and species	3 (7.1%)
Human-Environment Co-Existence and Socio-Ecological Priorities	31 (36.9%)	Co-existence of nature and people	10 (34.5%)
		Sustainability and sustainable use	7 (24.1%)
		Community engagement, livelihoods, and ownership	6 (19.4%)
		Collaborative partnerships and engagement	4 (13.8%)
		Implementation and management	4 (13.8%)
Collaboration and Shared Visions	11 (13.1%)	Example 1: “Coordinated response sustained by a collaborative governance entity working at appropriate scales.” Example 2: “Accomplishment of Shared Goals and Integrated Approach”	
Total	84 (100%)		

Participants were also asked to choose outcomes, long-term successes (5+ years or longer), and factors considered important for evaluating their initiatives. Protected biodiversity is the most common outcome, long-term success, and evaluation factor (92.0%, 82.5%, and 95.9%, respectively) followed by partnerships and collaboration (83.0%, 67.0%, and 81.4%, respectively). Economic development is an important factor for evaluation (58.8%), but is only a main outcome for half of initiatives and a long-term success for just 39.2% of initiatives (see Table 4).

Table 4

Percentages of respondents who chose options as main outcomes, long-terms successes, and factors for evaluation for large-landscape conservation initiatives.

Answer Option	Main Outcome	Long-Term Success (5+ years)	Important Factor for Evaluation
Partnership and collaboration among actors	83.00%	67.01%	81.44%
Peace and stability	13.00%	7.22%	17.53%
Increased tourism	28.00%	21.65%	28.87%
Climate change mitigation or adaptation	34.00%	26.80%	48.45%
Protected biodiversity	92.00%	82.47%	95.88%
Economic development for local communities	50.00%	39.18%	58.76%
Increased trust in government	27.00%	16.49%	29.90%
Other	9.00%	3.09%	9.28%

There are many factors that are considered factors that contribute to an initiative’s success (see Figure 11). The most common response (67.4%) is funding and financial stability followed by community management and involvement (66.3%). Government support, leadership, and government participation are important factors for success for more than half of respondents.

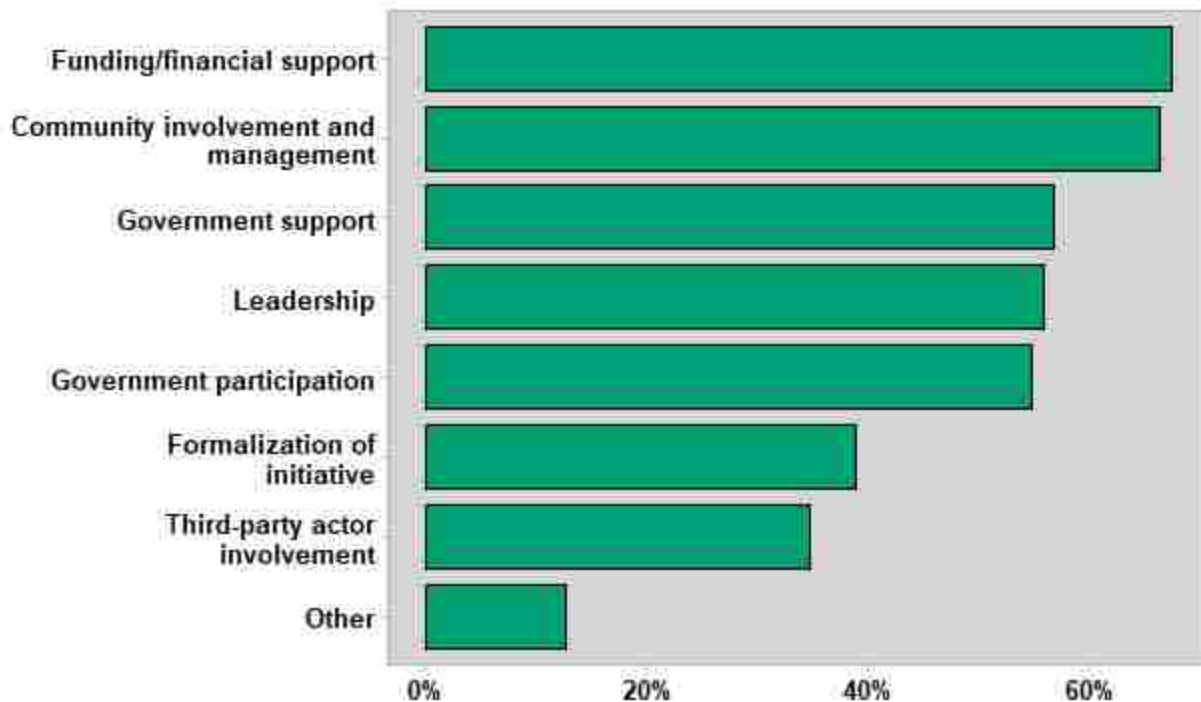


Figure 11. Factors that influence large-landscape conservation success. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Challenges can play a critical role in impeding successful large-landscape efforts (see Figure 12). The challenges for initiatives somewhat mirrored the factors for success. Lack of funding (64.9%) is seen as the biggest challenge to success followed by lack of coordination among actors (43.6%), and a lack of government support (40.4%).

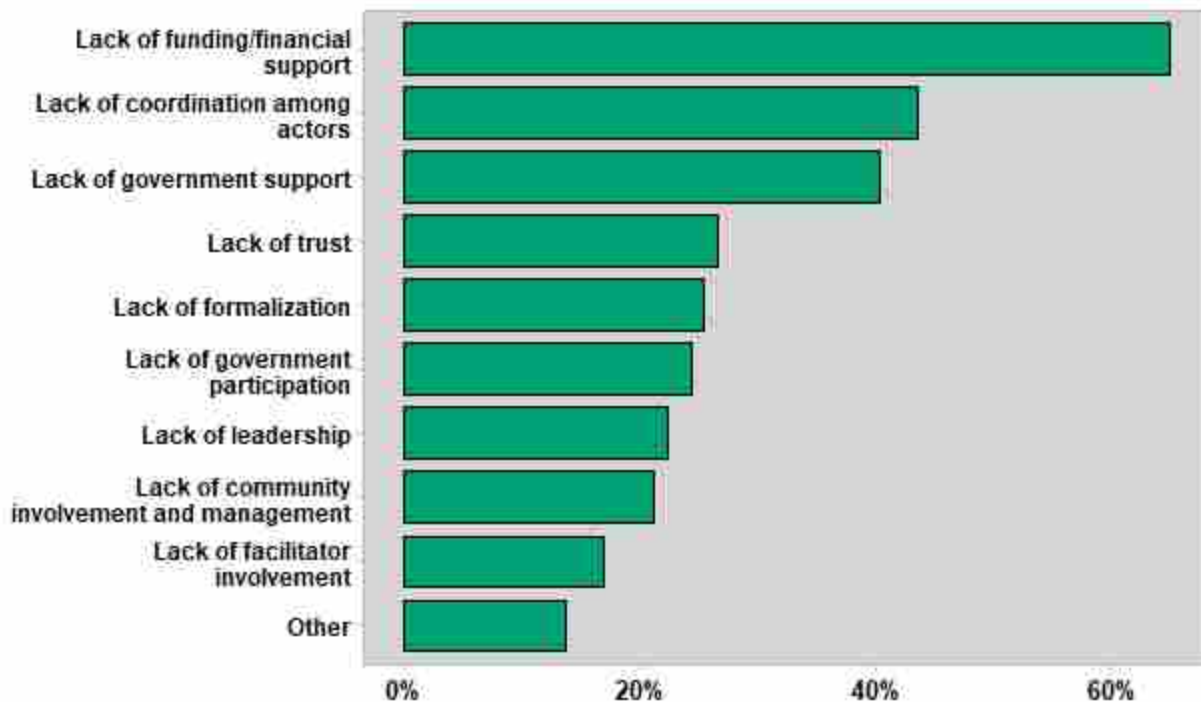


Figure 12. The main challenges for large-landscape conservation initiatives. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Funding was perceived as the biggest challenge for large-landscape initiatives. Approximately 67.2% of initiatives have annual operating budgets of \$500,000 USD or less. In addition, 27.4% of initiatives have 76-100% of their total budget secured, while 29.8% of initiatives have less than 25% of their budget secured. Different strategies are used by Specialist Group members to address the issue of funding in conservation. The main strategies to secure long-term funding for initiatives are applying for grants (65.6%) and having a diversity of funders (51.6%). About 35.5% of initiatives use private sector and NGO funding as a strategy for their initiatives. There is little reliance on international development agencies (25.8%) for global large-landscape initiatives.

Local Communities and Large-Landscape Conservation

Our fourth research question focused on how large-landscape initiatives affect local communities and the role that they can play in initiatives. The survey asked respondents about the level of local community and Indigenous community involvement in their initiatives (Figure 13). Most commonly, local communities are occasionally involved (28.3%) or infrequently involved (27.4%) in initiatives. Indigenous communities are infrequently involved (26.5%) or occasionally involved (18.6%) in initiatives. Only 11.5% of local communities and 5.3% of Indigenous communities are involved every day in large-landscape initiatives.

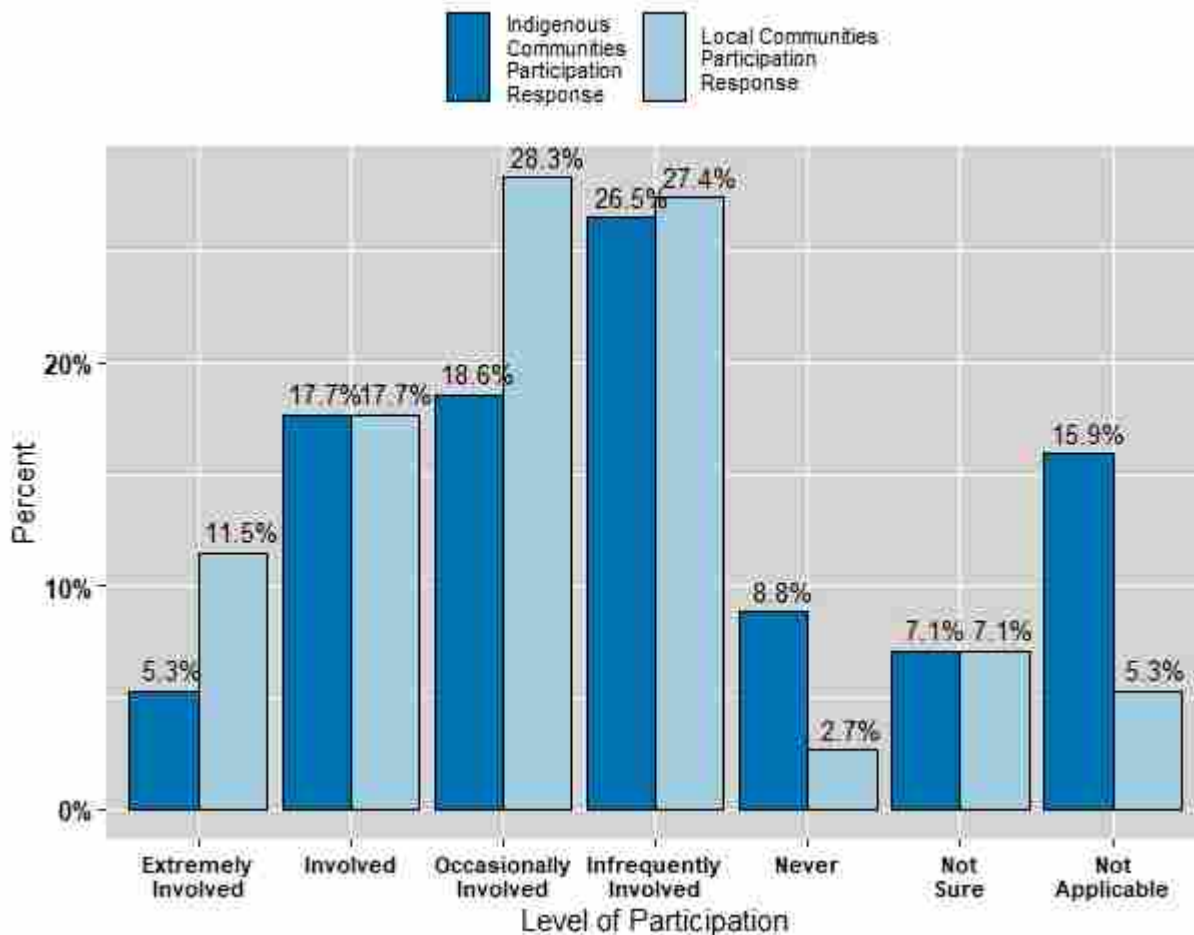


Figure 13. The relative levels of involvement for Indigenous communities and local communities in initiatives.

Communities mainly have consultation (75.3%) and decision-making influence (58.4%). Nearly half of initiatives (48.5%) had communities use co-management with other parties. Only 11.9% of initiatives give communities autonomous management, demonstrating that large-landscape work is often still driven and managed by those outside of local communities. There were different motivations for including and involving local communities in large-landscape initiatives. Respondents view better management (78.6%) and promoting cooperation (75.5%) as the main motivations for working with local communities. There are 63.3% of respondents who motivated to work with locals because of equality and inclusion in initiatives, while 53.1% of respondents are motivated for economic development and 49.0% focus on local cultures. The least common reason (23.5%) for working with local communities was a formal law that requires public participation in conservation.

There seems to be an overall pattern of higher frequencies of long-term successes for those who have co-management with local communities (see Figure 14). Of those who selected “Increased trust in government” as a long-term success, 68.8% of respondents selected that locals have co-management compared to 31.2% whose initiatives did not have co-management. This figure displays the initiatives’ long-term successes by if local communities had the role of co-management.

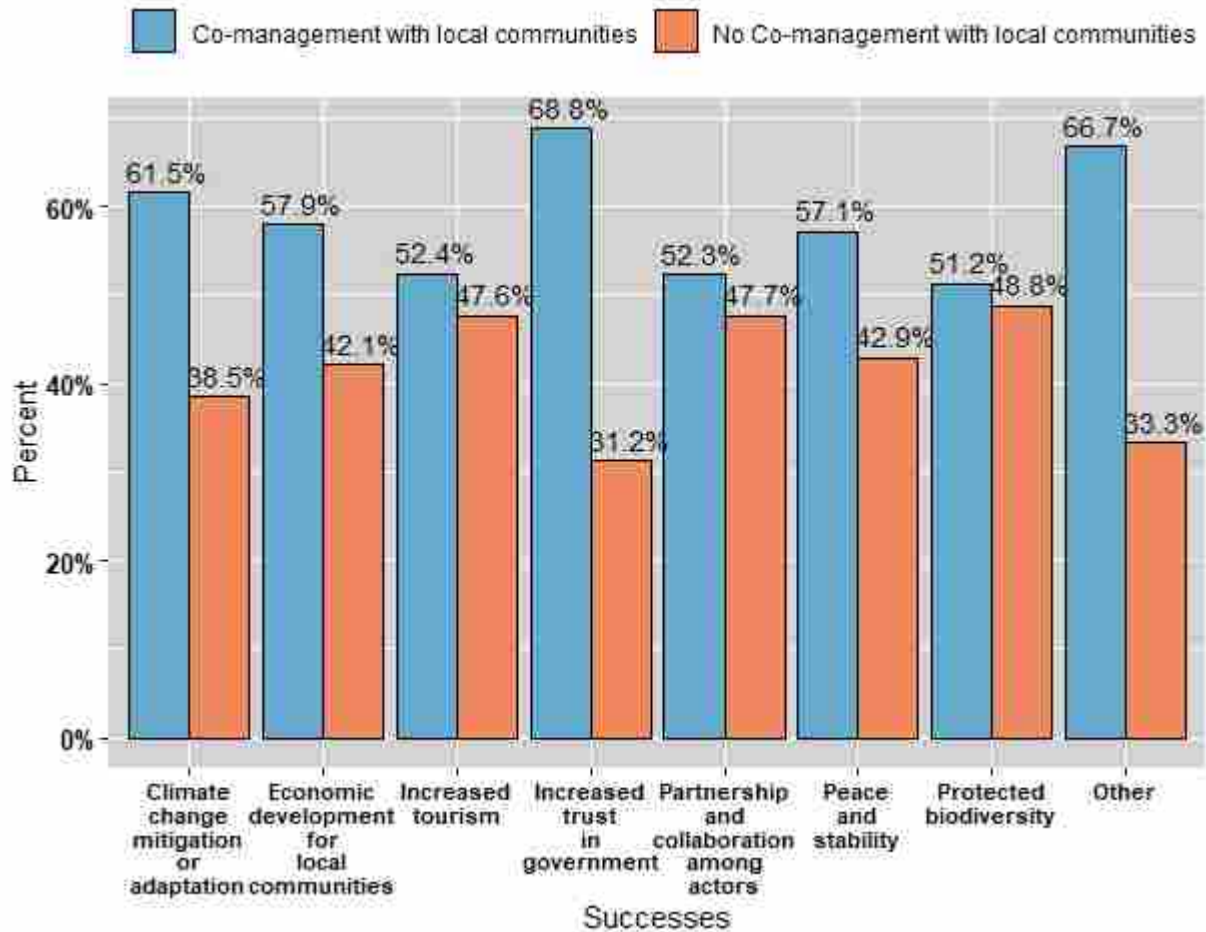


Figure 14. The long-term successes of initiatives by if local communities had a role with co-management or not. The percentages of this figure exceed 100% in total because this figure displays the results of a “check all that apply” question, where respondents could select more than one answer.

Those who work with Indigenous lands had a higher frequency of selecting the long-term success of protected biodiversity (see Figure 15). 80.0% of those who work with Indigenous-owned lands selected protected biodiversity of success, compared to 36.8% of those who do not work with Indigenous lands. This relationship between working with Indigenous-owned lands and initiatives protecting biodiversity as a long-term success was significant in a chi-squared test on contingency tables ($X^2 = 16.54, p < 4.763e-05$).

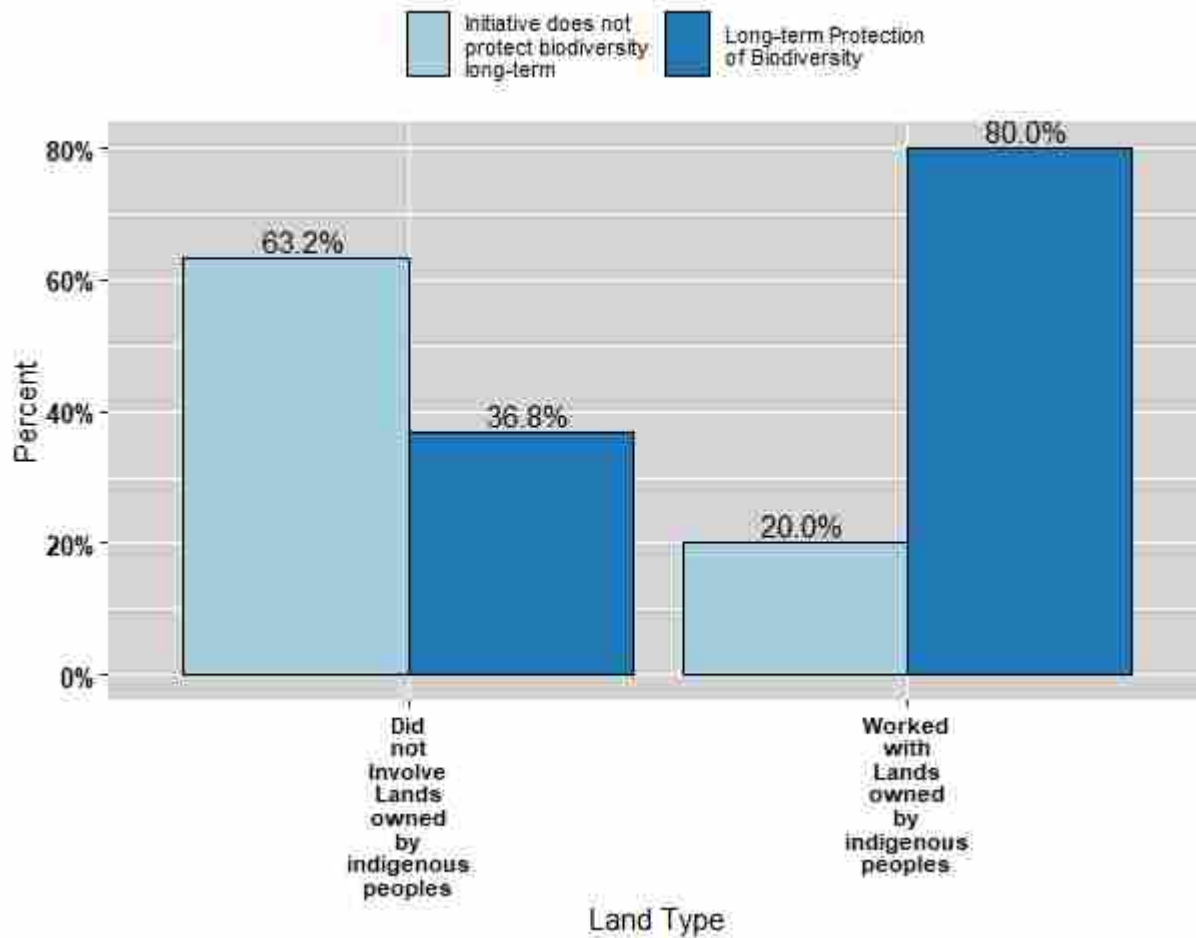


Figure 15. The protection of biodiversity as a long-term success by if Indigenous lands were included in initiatives.

The relationship between working with local communities in the planning phase of large-landscape initiatives and the use of traditional ecological knowledge was significant in a Fisher's exact test ($p < 3.233e-13$). Involving local communities can bring more types of information and data into the planning of large-landscape conservation initiatives (see Figure 16).



Figure 16. The use of traditional ecological knowledge by if local communities were involved or not in initiatives.

Discussion

This is the first international assessment of Specialist Group members within networks of large-landscape conservation. The aim of this study was to better understand the field of large-landscape conservation in practice and explore current perspectives on success, local community involvement, and challenges for initiatives among other topics. The findings highlight trends about international large-landscape and transboundary conservation that can strengthen our conceptual understanding of these efforts and inform future governance and on-the-ground

management for initiatives. The following sections discuss key themes that emerged from the research and conclude with recommendations for future research and practice.

Large-Landscape Conservation is an Emerging, Growing Field with Specific Focus Areas

Large-landscape efforts are a global strategy in conservation that is growing rapidly. The majority of the initiatives were less than 15 years old suggesting the field is an emerging field receiving more attention in conservation that works beyond traditional conservation standards, boundaries, and ideologies (Baldwin et al., 2018). Over 118 countries were represented in the surveyed initiatives. While large-landscape work was highest in North America, there were many countries with initiatives in Western Europe and Southern Africa. This mainly mirrored the CCSG membership that had the largest representations from North America (32%) and Europe (17%), but only 11% from Africa. However, there are still some geographic gaps in where large-landscape conservation is practiced. Although the CCSG had 14% of members from Asia, 13% of members from South America, and 12% of members from Oceania, there was inadequate representation of these regions in the surveyed initiatives. This may suggest that active engagement of members varies from membership alone, as there were less participants in the survey than members from certain regions. Similarly, large-landscape and transboundary research has strongly focused on North American initiatives like Yellowstone to Yukon (Chester, 2015; McKinney et al., 2010). More studies in geographically underrepresented areas, such as Northern Africa, the Middle East, Central Asia, and Latin America, are important to further understand the field and how large-landscape conservation varies in form depending on local geographic context. International organizations and conservation funders can prioritize these underrepresented areas and encourage more diversity in large-landscape initiatives, since large-landscape conservation must be relevant to local conditions (Curtin & Tabor, 2016).

There was wide variation in the size of large-landscape initiatives, demonstrating the vagueness of the term “large-landscape.” Both ends of the range of area size provided in the survey were common answers. In addition, another common response was that respondents were unsure about the total size of the initiatives they worked on. This finding reflects other large-landscape and transboundary conservation research as there are a variety of case studies that highlight existing and potential initiatives of varying sizes (Keller, 2007; Knight et al., 2011; Metcalfe, 2003). The role that scale and size may play in large-landscape conservation is not fully understood, as transboundary initiatives’ size may not influence any prospects of peace and dispute resolution (Ketil & Barquet, 2014). However, as large-landscape initiatives grow in total area size, they become more complex in terms of governance and engagement with local communities (Curtin & Tabor, 2016). The range in size of large-landscape initiatives found in the survey implicate that within the disciplines of large-landscape and transboundary conservation, there are different needs and challenges that can reflect initiative scale. It is important that these size differences are acknowledged and addressed as the fields further develop in practice.

Large-landscape initiatives can focus on geographies and habitats, individual species, or both (Lindenmayer et al., 2008). Similar to other fields of science and conservation, mammals were the dominant focus of large-landscape initiatives (Trimble & Aarde, 2010). This presents an opportunity for respondents to evaluate the inclusiveness of their conservation efforts to help conserve and protect more biodiversity. There were not as many initiatives that prioritized less-charismatic species, such as amphibians. This finding is problematic because non-mammal species can be highly threatened by climate change. For example, amphibians are one of the most highly threatened groups with 11-15% of amphibian species vulnerable and already

threatened (Foden et al., 2013). Yet, this survey demonstrated that less than a third of initiatives focused on protecting amphibians. This vulnerability has implications for global biodiversity and stability. Large-landscape conservation aims to work beyond traditional conservation to be more holistic in terms of ecosystems and biodiversity protection (Curtin & Tabor, 2016); however, our study suggests that there is a need for more diversification in species prioritization in large-landscape initiatives.

One of the most interesting findings from this survey focused on the threats to the landscapes in which members work. Climate change was the most pressing threat to landscapes, reflecting a trend of shifting conservation to address climate change (Lawler et al., 2015). Meanwhile, linear development of infrastructure, such as roads and highways, was the second highest scored threat highlighting the difficulties in improving connectivity and corridors for wildlife with the expansion of infrastructure and development. Given landscape conservation's emphasis on connectivity and reducing fragmentation, this finding is unsurprising. Species' populations can decline with roads and other linear infrastructure, demonstrating the importance of minimizing infrastructure development (Benítez-López et al., 2010). Working to connect landscapes for wildlife involves adaptive and proactive planning around infrastructure threats (Lister et al., 2015). Specialist Group members must prioritize opportunities to collaboratively address road development within landscapes and work towards comprehensive, forward-thinking planning to integrate wildlife-friendly infrastructure into large-landscape conservation efforts.

Lack of education and awareness about conservation efforts was also a highly ranked threat which scored higher than mining, overdevelopment, and the loss of water resources. This implies that members have a serious concern about the level of education and awareness that is needed to achieve large-landscape conservation goals. While this provides an opportunity for

community and public engagement, there are significant challenges in outreach when operating at the landscape-scale due to the multi-jurisdictional nature of the practice (Beever et al., 2014). For example, in the case of transboundary conservation initiatives, languages can be different within one initiative (Bhatasara et al., 2013), making the production of communication materials and events difficult and more extensive. Making resources and information accessible for stakeholders both within and outside of collaborative conservation is crucial (Thomas & Mendezona Allegretti, 2020). This communication and outreach are a critical part of ensuring large-landscape conservation success, as efforts with more engagement had better implementation (Beever et al., 2014).

Large Landscape Success is Multifaceted

A main objective of this study was to understand varying definitions of success for large-landscape conservation. Half of participants interpreted success based on ecological conservation priorities; yet, over a third of respondents provided definitions of success that included a social component such as co-existence of nature and local livelihoods. Ecological management objectives have long been at the center of large-landscape initiatives (Beever et al., 2014). While it is unsurprising that large-landscape conservationists have an ecological focus, it is encouraging to see the recognition of social components of conservation as a necessity for success. Large-landscape initiatives must find ways to maximize ecological and social benefits (Curtin & Tabor, 2016). This study's initial understanding of success in large-landscape work provides a foundation for further dialogue about the interdisciplinary nature of the field and how members can be more comprehensive and inclusive in how they measure initiative success.

The definitions of success reflect the theme that landscape conservation often has stronger biological focuses than social ones (Sayer, 2009). Ideally, respondents will equally

prioritize the social and ecological components of large-landscape conservation. This mirrors the tenet that large-landscape conservation cannot isolate the connection between the social and the ecological (Jacobson & Robertson, 2012) and reinforces the call for socio-ecological evaluative frameworks for networks working on large-landscape conservation (Bixler et al., 2016). Co-management and local engagement is necessary for large-landscape conservation longevity and durability (Curtin & Tabor, 2016), and this study demonstrated the importance of co-management. Leadership, government participation, and government support were also important factors for success, demonstrating the role of other stakeholders and social institutions in furthering large-landscape initiatives. Both practitioners and researchers in large-landscape collaboratives must tackle questions of trust and power in stakeholder engagement and leadership (Thomas & Mendezona Allegretti, 2020). This result can encourage Specialist Group members to look for ways to increase engagement with stakeholders, such as through outreach campaigns and regular in-person meetings or dialogues. It is imperative to work collaboratively on large-landscape conservation as partnerships and relationships are similarly a key component of past studies of large-landscape success (Thomsen & Caplow, 2017).

Funding and financial support was the most important factor for success and the biggest challenge for initiatives which mirrors another study of select large-landscape initiatives (Beever et al., 2014). Large-landscape conservation has unique funding characteristics that amplify the need for adequate and consistent funding. Large-landscape work happens on a much larger scale than local-based conservation, so the funding is increasingly fragmented (McKinney et al., 2010). This challenge makes it difficult for large-landscape initiatives to be sustainably established. In addition, large-landscape and transboundary work is often multi-jurisdictional, so there are different financial systems and priorities at play (McKinney et al., 2010). These

difficulties in funding large-landscape conservation are affecting initiative success across the world. Creative and regular engagement as well as integrating multiple objectives into initiatives can be useful for these networks of members to further stabilize the field of large-landscape conservation (Beever et al., 2014).

Improving the Inclusion of Local and Indigenous Communities

Most participants had local and Indigenous communities occasionally involved (several times a month) and infrequently involved (several times a year). The 2015 Transboundary Guidelines highlight the importance of frequent community involvement to build local ownership of initiatives among other benefits (Vasilijević et al., 2015). In addition, members indicated they are motivated to work with locals not because they are mandated, but because they view it as a way to better their efforts and management. Findings indicate that community management and involvement was important for success, implying that participants recognized that community buy-in and engagement was critical if their initiatives were to be successful. This demonstrates a gap between the current level that communities are involved and how much they should be involved. Adequate and appropriate community involvement is key to inclusive and equitable conservation (Martin et al., 2016). Some level of bottom-up self-organization is necessary for collaborative conservation (Guerrero et al., 2015). Traditional conservation models cannot be relied on for “blueprint” for equitable inclusion and engagement (Martin et al., 2016). This study has demonstrated that large-landscape conservation has yet to achieve a more just practice and members must create their own strategies for incorporating equitable inclusion of locals.

Inclusion and engagement of communities across scales is a “pre-condition” for the conservation of large-landscapes (Curtin & Tabor, 2016). In addition, the levels of local and

Indigenous community involvement represented in this survey indicate that there is less local ownership in initiatives than guidelines suggest (Vasiljević et al., 2015). More involvement can benefit large-landscape work, as community engagement throughout decision-making leads to agreement with local conservation policies (Andrade & Rhodes, 2012). For holistic approaches to landscape conservation and collaboration, local stakeholders must be included from the beginning of the process (Bartuszevige et al., 2016). Large-landscape conservation requires that Specialist Group members understand the social context and have more diverse skills than traditional protected area conservation to ensure adequate integration of biological and social priorities (Sayer, 2009). This finding has important meaning for the field, demonstrating that current levels of community involvement can further exclude and cause conservation inequities. It also demonstrates that local buy-in is still missing from many large-landscape initiatives.

This study found a significant relationship between those who worked with Indigenous-owned lands and the long-term protection of biodiversity of initiatives. Similarly, there was a significant relationship between those who worked with locals and the use of traditional ecological knowledge in conservation initiatives. Indigenous voices are extremely underrepresented in collaborative conservation in both research and practice (Thomas & Mendezona Allegretti, 2020). The overall benefits seem apparent to respondents, leaving the question on how to close the gap between current levels of community involvement and the desired and beneficial levels of engagement. New dialogues, frameworks, and trainings around local inclusion is needed for members in networks of large-landscape conservation.

While working across boundaries, there are more local communities within initiatives areas. The different scales of large-landscape work makes engagement and coordination with partners a challenge (Beever et al., 2014). Adequate inclusion and involvement of locals is a

complex effort, as there are competing priorities and identities that must be balanced alongside authorities and conservationists. Respondents need to reflect on this inclusion and engagement gap and work collaboratively and creatively to address this issue within the field of large-landscape conservation. As large-landscape conservation emerges as an alternative to traditional conservation approaches, Specialist Group members must ensure that their initiatives and efforts are not furthering the social inequities and potentially oppressive nature of traditional conservation.

Conclusion

Overall, large-landscape conservation is an emerging field that has made great strides, but has room to improve and grow. There is the need for more research, especially that which highlights initiatives with diverse and underrepresented geographic locations. More case studies are needed to evaluate how local community involvement specifically operates in ongoing transboundary initiatives, as there is use in integrating different approaches, such as top-down and bottom-up management (Guerrero et al., 2015). There is also the need to breach the gap between research and practice for the field to ensure that questions of local community involvement, addressing challenges, and geographic diversity are addressed. We recommended continued dialogue, peer learning, and critiquing in the discipline of large-landscape conservation to improve its ability to serve as an innovative and inclusive approach to conservation.

Overall, the participants in the survey found membership of the IUCN Specialist Groups to be useful for both themselves and their initiatives. There was an emphasis on the role that the network of peers can play within the groups. Networks are an important component of large-landscape conservation as a supplement to governance structures (Scarlett & McKinney, 2016).

Knowledge exchange is a crucial component of governance of large-landscape networks that can facilitate the development and management of initiatives (Curtin & Tabor, 2016). While many participants had used some IUCN resources, there was still a significant group of members who had not used resources. The most common reason for participants not using resources was due to their lack of awareness that these IUCN resources existed. This provides both Specialist Groups and the IUCN WCPA the opportunity to expand its engagement with its membership and find creative ways to publicize the resources it offers members.

Several recommendations have emerged out of the findings of this study specifically for the IUCN WCPA Specialist Groups on Connectivity and Transboundary Conservation:

1. This survey serves as a starting point for further research with these Specialist Groups. It was as a broad assessment, but there are many more questions and topics to explore with global networks like these. Research following up on some of these survey topics is encouraged, with more in-depth foci on topics such as include policy tools and financial mechanisms.
2. It would be helpful to do regular evaluations through a survey on similar topics. We suggest conducting similar studies every 5-10 years as a way to track how the field of large-landscape conservation evolves and improves over time.
3. There is the need for more regular engagement with Specialist Groups to understand more about members and their needs. This study can serve as a starting point for dialogue, peer learning sessions, and network building. These learning sessions can center around the identified opportunities for growth from this study, specifically on engaging local and Indigenous communities regularly and equitably. In addition,

these dialogues can also center around ideas of success and how monitoring and evaluation of large landscapes can be done.

4. IUCN Specialist Groups can evaluate their membership and assess if they are adequately reaching practitioners in the field or if their membership is predominantly made up of Western researchers. This will allow for the opportunity to engage more conservation work on-the-ground and the ability to provide resources to the variety of professionals working on large-landscape initiatives from the local to international scale.
5. Furthermore, there is the possibility for more collaboration with IUCN Specialist Groups on Marine and Freshwater topics to encourage more dialogue and action around large-landscape practices centered on marine and freshwater realms.

Chapter Five: Southern Patagonia Case Study

This chapter shares the results of the case study with interviews in southern Chile and Argentina. The chapter is in preparation for submission to a journal that focuses on topics of Latin American geography and conservation.

Introduction

Biological diversity ignores political and jurisdictional boundaries which creates issues for regional or large-landscape conservation (Batisse, 1997; Donald et al. 2007; Lindsay, Chase, Landen, & Nowak, 2017). However, as our understanding of ecological science and conservation progresses, it has become clear that conservation governance must extend across political boundaries to help connect large landscapes and strengthen protection of critical resources (Abbitt, Scott, & Wilcove, 2000; Zbicz, 2003). Large-landscape, transboundary conservation is an effective way to preserve shared ecosystems that transcend borders to bolster conservation outcomes across the globe (Vasilijević et al., 2015).

The landscape approach is a “framework to integrate policy and practice for multiple land uses, within a given area, to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change” (Reed et al., 2014, p. 1). Large-landscape work is often complex and involves transitioning from “traditional” boundaries of conservation, such as protected area borders, to a more regional scale that integrates human and social aspects into conservation planning (Sayer, 2009; Rudnick et al., 2012).

Transboundary conservation is a distinct form of large-landscape conservation and international environmental governance that operates across political and spatial scales by involving two or more countries (Andonova et al., 2009). Although there is overlap between large-landscape and transboundary conservation, transboundary conservation involves

multinational cooperation. Transboundary governance has some distinctions including higher costs of resources and dependence on coordinated management by high-level state officials (Metcalf, 2003; Martin, Rutagarama, Cascão, Gray, & Chhotray, 2011). However, transboundary work also requires working vertically from the local to international scales, as well as horizontally, working across each of these scales to connect with diverse groups of stakeholders (Metcalf, 2003; Vasiljević et al., 2015).

The International Union for the Conservation of Nature (IUCN) World Commission on Protected Areas (WCPA) developed guidelines for translating transboundary principles into practice (Vasiljević et al., 2015). However, our understanding of transboundary conservation and what influences successful transboundary initiatives remains largely understudied (Taggart-Hodge & Schoon, 2016). Definitions and perspectives of “success” to evaluate transboundary conservation can vary depending on scale and stakeholders (Metcalf, 2003). Specifically, South America, which has some of the most critical conservation priority areas on the globe, needs coordinated, multigovernmental conservation to ensure protection of its biodiversity (Costa and Barletta, 2016). This Patagonia case study provides an opportunity to discover what inhibited important transboundary collaboration and how practices can be improve transboundary collaboration. Specifically, the study addresses (1) What factors influence transboundary conservation in Patagonia? And (2) How can local and Indigenous communities be included in transboundary conservation in Patagonia?

Case Study Site: Southern Patagonia, Chile and Argentina

South America has high potential for transboundary cooperation due to its ecosystems and unique species, particularly in the Andes (Mason et al., 2020). Chile and Argentina are two Andean countries that make up the lower part of South America (see Figure 17). The two

countries share linked histories, cultural similarities, and one of the longest shared borders in the world (Lindsley, 1987).



Figure 17. A map of South America with Chile and Argentina highlighted in green. Made by Sanober Mirza.

Environmental conflict and resource extraction are hot topics within both countries, as economic priorities can overshadow environmental ones due to the pressure for economic development (Reboratti, 2012). Military dictatorships were both parts of the recent histories of Argentina and Chile, with these legacies leaving imprints in today's environmental governance (Carruthers, 2001). Chile and Argentina share a history of disputed territorial claims (Perry, 1980) and several conflicts in the region of Patagonia (Keller, 2007). In 1984, a treaty was

ultimately agreed upon over the Beagle Canal territory, but remnants of conflict remain in the region (Keller, 2007). Child (1983) classifies the conflict between Chile and Argentina as a resource, territorial, border, and migratory conflict. This background of conflict is important to consider for any cooperation moving forward.

The Patagonia area of South America a glaciated, mountain zone shared by Chile and Argentina, which is home to several world-famous national parks and protected areas. At the center of these protected areas are the Southern Patagonian Ice Fields, an area that still has controversy in its demarcation. Patagonia is known for aesthetic mountainous landscapes and various forms of conservation and protected area management. The region includes the world-famous Torres del Paine and Fitz Roy mountain peaks. Both countries have different institutions for environmental conservation (Hochstetler, 2003). Argentina accepted the IUCN's protected area categories in 1970, while Chile did in 1984 (Sepúlveda and Guyot, 2016). National parks in Chilean Patagonia are managed by the half-private half-public Corporación Nacional Forestal (CONAF) that works with the national government to sustainability manage protected areas across the country. CONAF manages parks like Torres del Paine in the Magallanes Region and Bernardo O'Higgins in the Aysen Region. On the Argentinian side of Patagonia, Los Glaciares National Park in the Santa Cruz Province and other protected areas are managed by the Administración de Parques Nacionales (APN). APN is modeled after the United States' National Park Service.



Figure 18. A map that details the three parks that are centered around the Southern Patagonian Ice Fields, Bernardo O’Higgins National Park (Chile), Torres del Paine National Park (Chile), and Los Glaciares National Park (Argentina) (Abraham, 2018).

There is an Indigenous presence in Patagonia, demonstrating a separate cultural landscape from the rest of Chile and Argentina (Sepúlveda and Guyot, 2016). Protected areas in Patagonia are also claimed by Mapuche and Kawesqar communities, so both countries have tried to integrate them into management (Sepúlveda and Guyot, 2016). The Mapuche are located in northern Patagonia, while the Kawesqar community is located in southern Patagonia around the national parks of interest to this study. There were three other traditional Indigenous

communities in the southern Patagonia area: the Selknam, Yaganes, and the Aonikenk. There is uncertainty around how many descendants remain to this day after the genocide of Indigenous groups led by settlers. However, the Kawesqar people have many different communities of descendants across towns in the area, while having a community based within the Bernardo O'Higgins National Park.

This study will focus on the Torres del Paine-Bernardo O'Higgins-Los Glaciares area in southern Patagonia. This transboundary complex was in the IUCN and World Conservation Monitoring Center (WCMC) inventory of transboundary protected areas in 2007. These three parks could provide an essential connectivity corridor for conservation with all three bordering the Southern Patagonian Ice Fields, a crucial resource for both countries. While there has not been much mention of these three parks as a transboundary conservation area, they have been mentioned in studies evaluating internationally adjoining protected areas (Solórzano, 2016). There have also been discussions on a transboundary biosphere reserve in the area (Sepúlveda and Guyot, 2016). Protected areas within the Americas are proximate to borders and provide opportunities to facilitate connectivity in landscapes (Thornton et al., 2020). Transboundary cooperation in Patagonia is a major step for resolving years of border conflict between Chile and Argentina, both of which were involved in talks about transboundary cooperation.

Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks are not mentioned as a transboundary complex outside of the IUCN 2007 Inventory of Transboundary Protected Areas. Despite existing in the inventory, there has been minimal transboundary work since 2009 due to local disputes. This case study provides an ideal context to investigate the key factors for transboundary conservation to further understand the nature of the conflict and the potential for future transboundary collaboration in the Patagonia region.

Literature Review

Transboundary Conservation Overview

Transboundary conservation is a distinct subdiscipline of large-landscape conservation that crosses international political boundaries and can focus on shared resources and landscapes. Transboundary conservation has been spearheaded by the IUCN's WCPA since the mid-1990s (Sandwith et al., 2001). The IUCN provides its own definition of transboundary conservation as the “process of cooperation to achieve conservation goals across one or more international boundaries” (Vasilijević et al., 2015, p. xi).

Transboundary conservation is becoming necessary for environmental management in the face of drastic environmental change (Zbicz, 2003; Vasilijevic et al. 2015). Transboundary conservation initiatives are considered the newest “fashion” in conservation (Büscher, 2010a) and have grown in popularity in the last two decades (King & Wilcox, 2008), with increasing global opportunities for transboundary conservation (Mason et al., 2020). However, the planning and implementation of transboundary conservation is a difficult process (Petursson et al., 2013), due the complex nature of shared management with varying institutions, jurisdictions, and local communities.

Political and Economic Challenges to Transboundary Conservation

Political histories are a dominant challenge in transboundary conservation. Specifically, border disputes and sovereignty conflicts are examples of historical tensions that shape modern binational relations about land and territory. Historical tensions can lead to conflict in transboundary governance (Ali, 2002; Barquet, 2015). Transboundary governance presents questions about territorial control (Barquet, 2015), which can be further complicated by third-party involvement (Watson, 2015). Transboundary conservation boundaries are hard to enforce,

and transboundary practices may limit border sovereignty (Petursson et al., 2013). Border law enforcement also becomes a challenge for nations involved in transboundary conservation (Duffy, 2005). In addition, there are other political challenges that can influence transboundary success. Countries are not uniform entities, but rather display various identities and groups, which can complicate representation and involvement in national decisions around transboundary governance (Watson, 2015). Political issues with government transitions and corruption may also complicate transboundary governance (Chiutsi & Saarinen, 2017).

Prioritizing national interests above conservation is a key to economic challenge for transboundary conservation success. Transboundary conservation initiatives may run against national interests (Wolmer, 2003a), which can jeopardize political stability in participating nations. National industry and development can threaten the commitment to transboundary conservation (Healy, 2007; Mackelworth et al., 2013). Private landowners can also influence transboundary governance and have complicated relationships with national governments (Keller, 2007). International interactions can provide challenges for transboundary governance such as competition (Martin et al. 2011). Competition is worsened when state actors are unequal partners in terms of power (Wolmer, 2003b; Zbicz, 1999). Visa laws can restrict the visitors and tourists that can access the transboundary conservation area (Kemkar, 2006) and benefit one country over the other. Mistrust and animosity can ensue between border-states (Jones, 2005), especially in regard to investment and revenue sharing. For transboundary conservation, funding is also split between multiple governments and third-party organizations, making operations more complicated and less efficient (Büscher, 2010b). There is also little long-term funding, since many transboundary initiatives are funded by one-time grants from international

organizations (Amerom & Büscher, 2005). These economic challenges focused on national interests impede the development and progression of transboundary conservation.

Local and Indigenous Communities and Transboundary Conservation

There is a need for the right balance of top-down and bottom-up components in both large-landscape and transboundary governance (Guerrero et al., 2015; Jacobs & Anderson, 2012). However, top-down transboundary conservation without local participation is bound to fail (Zbicz, 2003), resulting in little mutual understanding between communities and governments (Petursson et al., 2013), distrust at the local-level (Schoon, 2013), and issues of equity and justice (Metcalf, 2003). Top-down approaches may demonstrate that community considerations are secondary to those of national authority (Wittmayer & Büscher, 2010). For these reasons it is important that there is adequate inclusion of local communities in transboundary collaborative conservation.

There are several different strategies to involve local communities in transboundary initiatives that can provide benefits to both communities and conservation initiatives. Empowering local communities relies on giving them access to both land and natural resources (Wolmer, 2003b). Public participation in the planning and decisions can also include and prioritize local voices while emphasizing shared learning (Metcalf, 2003). Using a community-based natural resource management model in transboundary initiatives and corridors can help integrate communities into day-to-day management (Quinn et al., 2012). Immediate rights to access and formal inclusion can be obtained by local communities through community-based management of transboundary initiatives (Quinn et al., 2012). Actions to incorporate communities into transboundary work includes dialogue and early engagement, identifying shared values, identifying cultural values, anticipating disputes, and more (Sandwith et al.,

2001). Involving local communities can provide representation and make transboundary conservation more equitable by allowing for concerns and opportunities to be voiced (Chiutsi & Saarinen, 2017). Specifically, involvement with land ownership, employment, and selling goods can benefit local communities (Metcalf, 2003).

There are several challenges around integrating local communities into transboundary environmental governance, as relationships with communities can be a significant challenge for transboundary conservation (Schoon, 2013). Language barriers can impede transboundary cooperation (Bhatasara et al., 2013). Seasonal variation in local landscapes can also influence transboundary governance (Lambertucci et al., 2014). Transboundary conservation is further complicated by the varying set of rights and duties permitted by each country to its communities (Petursson et al., 2013). Transboundary governance can also cause interethnic/intercommunity blame and conflict due to the larger number of actors from varying backgrounds and neighboring countries (Martin et al. 2011; Gallardo et al. 2013), which can preserve local community conflict itself (Wittmayer & Büscher, 2010). Local communities can lack an understanding of rights in transboundary cooperation and agreements (Metcalf, 2003). The different scales of large-landscape work makes engagement and coordination with partners a challenge (Beever et al., 2014).

Conservation can be a threat to Indigenous communities specifically (Martin et al., 2016). Indigenous voices are extremely underrepresented in collaborative conservation in both research and practice (Thomas & Mendezona Allegretti, 2020). Indigenous needs and rights have been overlooked in past transboundary initiatives (Miller, 2016). However, community involvement is essential, especially with Indigenous communities who possess a cultural connection to the land (Sandwith et al., 2001). Inadequate inclusion and communication with Indigenous communities

can lead to natural resources conflict and impede collaborative through creating misunderstandings (Fisher et al., 2020). There are instances of Indigenous knowledge not being respected and integrated into transboundary conservation management (Miller, 2016). Indigenous communities are key stakeholders in transboundary conservation and their involvement can influence the success of initiatives.

Involving local communities in large-landscape, transboundary conservation can prove difficult in balancing the initiative while also ensuring local support and management for maintaining it. There is a limited number of guidelines and recommendations for how transboundary conservation can involve local communities (Vasiljević et al., 2015). However, there is importance in involving local communities for large-landscape, transboundary conservation, as well as complications.

Methods

The research study was conducted as a case study with the aim of being descriptive or explanatory (Babbie, 2004). The field work took place between August and November of 2019 and included semi-structured interviews with managers, conservation practitioners, and local communities that surround Torres del Paine and Bernardo O'Higgins National Parks in Chile and Los Glaciares National Park in Argentina. The Cequa Research Center in Chilean Patagonia provided support in connecting with park management and local community groups. A chain referral method (Noy, 2006) was applied to further connect with other participants. Forty interviews were conducted until meaning/thematic saturation in responses was reached (Hennink, Kaiser, & Marconi 2017). Table 5 provides background on the stakeholders interviewed with 24 interviews conducted in Chile and 16 interviews conducted in Argentina. The presence of two protected areas of interest in Chile influenced the higher amount of Chilean

interviewees. Interviews were mainly conducted in Spanish, with only four interviews conducted in English.

The emphasis of the interviews was on local communities and stakeholder groups. The questions focused on their perspectives and involvement in the potential transboundary cooperation. Questions were developed based on previous large-landscape and transboundary literature and guidelines (Chaigneau & Brown, 2016; Thomsen & Caplow, 2017; Vasiljević et al., 2015), but modified to explore the potential for transboundary cooperation in the region. Questions were centered around topics that included familiarity with transboundary work, levels of local involvement, perceived challenges, and success. The questions were translated into Spanish to use in interviews. Interview questions are listed in Appendix III.

Table 5

Interviews conducted in Chile and Argentina by stakeholder groups

Stakeholder Group	Chile Interviews	Argentina Interviews
Tourism worker or guide	5	5
Protected Area/National Parks employees	5	6
Government representatives	3	0*
Community and citizen leaders	3	1
Conservation organization employees	5	4
Indigenous community members	3	0**

*I was unable to contact any representatives in Buenos Aires due to the transition in the government that was taking place after a presidential election in October 2019 in Argentina.

**With limited time, I was not able to make adequate efforts to contact Indigenous community descendants in Argentina. This was further complicated by conflicting information about the presence of Indigenous communities in the south of Argentinian Patagonia.

Due to the complex and extended actors in transboundary conservation, interviews were conducted with the diverse stakeholders in numerous locations over the course of two months.

Those involved in tourism were of interest to this project, given the immense amount of international tourism in the region. Protected area staff were interviewed as they would be a large

part of the transboundary cooperation and management. Government officials and ministry representatives were contacted as they could provide information about how previous transboundary talks have gone as well as speak to the potential for more binational coordination. Employees from conservation groups were interviewed to give an idea on how local ecological conservation goals could be influenced by transboundary conservation. Community and citizen leaders were interviewed to provide local perspectives on what transboundary conservation could mean for the surrounding communities. Lastly, Indigenous community members were contacted to understand their perspective on the cultural importance of land and their representation in national and international affairs.

In Santiago, interviews with government representatives provided context to history of transboundary conservation and future transboundary cooperation between the two countries. In Chile, I split my time focusing on Torres del Paine National Park in Puerto Natales and Puntas Arenas. To connect with communities influenced by Bernardo O'Higgins Park, I traveled to Caleta Tortel, a hamlet located on the edge of the national park, for interviews. After finishing up in Chile, I spent three weeks in the El Chalten and two weeks in El Calafate nearby to Los Glaciares National Park. With limited time in the field, I was unable to interview government representatives in Buenos Aires, Argentina. This was further complicated due to the government transition that was occurring during my time in the field. The interviews focused on understanding how involved local communities perceive the potential for transboundary conservation and how they could be involved in the transboundary process.

All interviews were recoded, translated, and transcribed. Interview transcripts were coded using Nvivo qualitative data software. Coding reflected grounded theory through open and axial coding to categorize themes from the interviews (Böhm, 2004). The first round of coding

emphasized comprehensive collection of themes with broad nodes. Initial coding was conducted by several members of the research team to discuss broad themes and collectively develop a coding scheme for the remaining part of the data analysis. For the second round of coding, I organized existing nodes into sub-nodes that had more specificity in content. The last round of coding worked to organize overlaps in coding and finalize the structure of all nodes and sub-nodes.

Results

Environmental Factors for Transboundary Collaboration

Many themes from interviews related to the natural environment and the potential collaboration between Chile and Argentina centered on the Southern Patagonian Ice Fields, which is surrounded by three important protected areas (Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks).

The Shared Patagonia Landscape.

Shared resources are at the heart of many transboundary initiatives. Yet, there are geographic differences in the landscape for the two countries. One Chilean tourism worker noted this stark difference, "I think we have two geographic situations that are very distinct in both cases... Argentina has really good accessibility to the park and glaciers, and we [Chile] have super-limited access." Several interviewees mentioned challenges in terms of natural barriers and remote conditions that limit accessibility and challenge collaborative conservation or tourism activities. An APN employee described the barriers to access and contact, "Yes, the Southern Patagonian Ice Fields are a reality, a barrier in some way that separates us from Chile. It is a physical and geographic barrier and it is really not simple for contact." A Chilean interviewee commented, "In addition, the conditions are super variable because in Torres del Paine you have

mountain conditions, high Andean conditions, have high rain conditions in a sector of high rainfall and also have desert sectors.”

The Southern Patagonia Ice Fields, a freshwater reserve, are at the heart of the landscape. However, the Ice Fields are associated with a history of complicated water politics between the two countries that include controversial damming and extraction projects. A Chilean government representative highlighted this issue as, “...new problems have been added and one of those problems is global...particularly in the Chilean case, that of shared water resources, water that is worth as much as gold today.” A Chilean citizen leader discussed past examples of water controversies, “Yes, here in the Baker River many years ago they wanted to install dams, five mega-dams, and there were many years of local fighting. We were involved with almost all of the [Patagonia] regions of the fight so that they did not construct the mega-dams.” This experience is an example of Patagonia sin Represas (Patagonia without Dams), a transboundary community-led movement against the installation of dams to prevent environmental degradation and loss of water resources.

Even with these geographic and environmental factors, 60.0% of the stakeholders emphasize that the ecosystem that they inhabit is one shared landscape; yet, there are political boundaries that shape the management of the landscape. One Argentina conservation organization employee noted the dissonance between the political management of the region and the natural ecosystem,

Ecologically, it [the landscape] is the same...we have situation A,B and a line through the middle... You have the same flora, the same fauna, the same water, the same everything...the agenda that one sets, marks the fate of an area that is much more encompassing than the little dot you have to govern.

Stakeholders acknowledged this key component of transboundary dynamics. A Chilean Corporación Nacional Forestal (CONAF) employee noted: “Yes, ecosystems are the same, they know no borders. So, we should establish more work.”

Future visions for transboundary conservation highlighted comprehensive and sustainable practices as well as strengthening community environmental stewardship. One CONAF employee noted, “I actually believe personally that this [is] more [of a] global vision, independent of specific work, the view should be used in terms of preservation and conservation in the eco-regional level.” Uniting standards, criteria, and resources was also a key component of a future collaborative vision. Some stakeholders expressed dismay at the differing levels of conservation policy, infrastructure, and funding between the two countries. An Argentinian tour guide stated that,

Union always makes strength. The two national parks are trying to unite criteria. It is very important for conservation. When Calafate prohibited fire within the national parks, in Chile there was a fire of 5,000 hectares from a gas pump and fire. In Argentina it was already prohibited.

This difference in standards creates difficulty in managing the ecosystem. A Chilean conservation employee also discussed how important standards of conservation and management are for the region,

I think it is an opportunity to elevate the standard, for example generate certain levels of standardized management...in Argentina there is much more funding, capacity training, a career that would work in the Argentinian National Park Service, and that would certainly work a necessary improvement of the way we are learning from other parks if we were to work together because we are [currently] not trying.

The potential for a united front, one that prioritizes conservation over political divides, is an exciting component of any future transboundary collaboration. One Chilean tour guide stated that the connectivity that could be established through cooperation would combat issues of

fragmentation in management, “If it were a transboundary park. I think it would give more meaning to the ecosystem we have there in the sense that it would no longer be isolated islands, but that we would be a completely whole ecosystem.”

Collaborative Environmental Efforts.

Environmental threats can serve as a motivation for transboundary collaboration. Some of these threats include the spread of invasive species, fires, exploitation and extraction, as well as high levels of tourism. An Argentinian local community leader noted, “...tourism goes against conservation...the tourism exploitations are almost what we are working more on for conservation due to the environmental degradation [from tourism].” Mitigating threats and change, particularly climate change, was also an important point brought up by interviewees as a hope for future cooperation. An Argentinian APN employee stated, “but no matter what, working as Argentina or Chile alone won’t stop climate change.”

One major example is collaboration to combat fires and other emergencies. One APN employee responded that he worked with people from Chile “only in emergency situations. For example, the past season I think that it was in two opportunities.” These opportunities included rescuing trekkers from the harsh conditions of the ice fields. Another APN employee commented that,

...occasionally for the forest fires there has been collaboration when the fires are really big, the crew has traveled to combat fires from one side to the other, as many Chileans have come here as Argentinians have gone to Chile.

Another example of existing transboundary environmental work focuses on parks and conservation. One APN manager noted that Argentina is already doing transboundary collaboration for Iguazu Falls which is situated on the borders of Argentina, Brazil, and Paraguay “Yes in Iguazu what is happening is a really interesting relationship with Brazil...the World

Heritage Site is transboundary of course. Somehow it has international coverage through UNESCO, a recognition that makes them [Brazil, Paraguay, and Argentina] obliged to work together in some manner.” There is also collaboration across the border through a network of urban natural reserves and private and public protected areas.

The native and local fauna and flora were also at the center of discussion for any future collaboration. An APN employee envisioned a future with more knowledge of the species populations in the area,

To have a real knowledge of the animal populations that live on both sides of the border...maybe the huemul, the more emblematic species, to know the dynamic of the huemul populations and to know the quantity of populations and real needs of the species and to be able to get specific conservation tools for it.

Conservation of the huemul, the endemic Southern Andean deer that is increasingly threatened due to environmental change, is another example of transboundary collaboration. An APN employee summarizes this sentiment,

Our challenges are continuing work on the huemul...the observations they have in Chile, the huemules are six kilometers from the border with Argentina and it is very important for us to work together to get those animals back to Argentina or to start to circulate between Argentina and Chile.

Another Argentinian interview noted that there is limited collaboration around invasive species, that has involved face-to-face meetings, “...here [Los Glaciares National Park] we invited people from Torres del Paine...It was all our staff, people from the province of Santa Cruz and Torres del Paine, because we have some problems with the invasion of mink and in Chile too.”

Although current transboundary efforts are intermittent and infrequent, the existing relationships exist between the two countries is a crucial component of any transboundary collaboration moving forward.

Concerns were expressed about future transboundary collaboration and what that could bring to the landscape such as further exploitation and degradation of the environment. This concern can cause stakeholders to not support transboundary cooperation as a local Chilean citizen leader noted,

I would not support it [transboundary conservation], because I think that whatever can stimulate more flow, more visitors without planning, I do not support it...I believe first in the planning... it would make sense to me for protection of the water resource, which belongs to both countries and the world.

Similarly, there were concerns about other forms of exploitation, such as overgrazing by ranching cattle. An APN employee also noted that degradation from cattle would have to be addressed for any transboundary work, “There are livestock conflicts....that cows pass from one place to another and that would have to be worked on binationally.” One Argentinian citizen leader noted the control and limits that could come from transboundary collaboration, “There would be more control. If there was more transboundary cooperation, there would be more control over the things that do not have a legal framework...For example, if we have a transboundary relationship...we are going to work together.”

Private and Non-Local Conservation.

The growing role of private conservation is important to consider in the changing Patagonian landscape. CONAF, the forest organization in charge of Chilean national parks, is a half-private, half-public entity that takes on many roles in natural resource management. The current agency’s structure with a partial private component is controversial and several participants viewed it as an indication of prioritizing economics over conservation. One local Chilean citizen leader noted distrust in CONAF’s current model,

...the Ministry of Agriculture is the one that governs the parks, there is the Ministry of Agriculture that has nothing to do with caring for the environment and they are the ones who receive the money so that it [the money] can be allocated, in this case to CONAF, which is a private law corporation, [CONAF] is half government and half-private which means it doesn't work.

Similarly, there were mixed perspectives about the role of conservation efforts led by the Tompkins Conservation, established by the late Douglas Tompkins and currently operated by Kristine Tompkins. Tompkins Conservation has privately purchased vast areas of land and converted them into national parks, with examples including Patagonia National Park in Chile. A couple of interviewees acknowledged the benefits of more protected areas in Chile and Argentina, but others are uncertain about the origins of these initiatives. An Argentinian tour guide highlighted these concerns,

...it [conservation] is coming from a private person, a businessman, Douglas Tompkins, people who are sponsoring that kind of thing, but it is not coming from the same government, it is coming from the outside. It is the other one saying to you that you have to conserve the place. But the good thing is that they [Tompkins] are doing something and it depends on the government...one thing is creating the national park, but you also have to maintain it.

A Chilean interviewee offered a different perspective that working across public-private land boundaries is an example of transboundary conservation. Overall there is a complex relationship with private conservation in the southern Patagonian landscape and how local communities are engaged and impacted in the process.

Half of community members envision a future that has an increased connection for conservation and environmental sustainability. A Kawesqar community member described the importance of giving communities ownership of protected area landscapes, "When the community decides these things [conservation], that national park or that conservation place is yours and is for your children and is for generations. If no one asks you anything, what you will

feel the least is that this place belongs to you.” This sentiment echoed the call for more locally led actions for conservation. An Argentinian tour guide highlighted the paternalistic nature of conservation efforts that do not start locally, “It is impossible to preserve it [the ecosystem] in a perfect way... how we should do that...it has to be coming from the same community, we have to work together. If not, you are just like a father telling them what to do...it is like a teenager who won’t do it.”

Social Factors for Transboundary Conservation

Shared identity and perceived biases.

Participants reflected on the shared social identity between Chileans and Argentinians in Patagonia. Citizens in Patagonia feel more connected across borders due to shared histories and cultures, exemplified by the sheep herding and ranching traditions. One local Chilean community leader described this shared idea, “For identity ...we here are closer to Argentina than the next Chilean city...there is a close relationship because Patagonia is only one place.” Another Chilean community leader described the nature of shared backgrounds between Chileans and Argentinians in Patagonia,

We are more [like] siblings...In the north, in Santiago for example, there is a lot of rivalry between Chilean and Argentinians, here there is a lot of family connections, also because many people live 30 kilometers from Argentina...they have worked many years there and they came to live in Chile or the reverse. There is much more human connection.

This shared identity is an important aspect of the peoples of the Patagonian landscape. Nearly half of the participants noted that cross-cultural and social dynamics are different in Patagonia compared to the more nationalistic locations in the countries.

Chile and Argentina have a long history of social, territorial, and political conflict. These histories have resulted in social biases against each other, which are an important context and

challenge for any transboundary cooperation. During some of the interviews, participants conversationally expressed these biases, as exemplified by a Chilean tour guide,

You know Maradona in football [soccer]? He's very Italian, wonderful player, but with all the ups and downs he has had. And that [the ups and downs] is something that you see in Argentina. We [Chileans] don't have so many high points, but we are a bit more mellow? It is better, I think. It's my personal opinion of Chile of course so that I think that makes it not easy for [us] do things together.

Several Chileans expressed that Argentina was more inundated by tourism. A local citizen leader and tourism worker in Chile noted that, "I would prefer that we [Chileans] stay a little isolated, because on the Argentina side, there is more tourism. The same tourists [that come here] tell me 'We went to Perito Moreno, but once you are there it is full of people.'"

Similarly, Argentinian participants expressed that the Chilean side had too much tourism and was overwhelmed. Interviewees compared these perceptions of tourism with how each country prioritizes conservation. One Argentinian municipal tourism office employee stated,

Look the truth is that I am here in Chalten, it is a very environmentally conscious community. You have seen we live around nature so that in general the population here is very conscious of the environment... What happens is that Puerto Natales [Chile] is already a city, it something bigger and the environmental consciousness is lost a little.

Regardless of the where one collaborates in Argentina or Chile, working together requires breaking down these preconceptions. A tourism employee in Argentina noted the difficulty in overcoming these biases, but also how Patagonia is at an advantage:

I think that there are also many preconceptions with the Chilean and Argentinian people that is slowly getting closer and closer. But, it is an issue of rivalry from soccer to the conflicts that there were about borders and all... It seems to me that in all of this [Patagonia] zone, it is much closer between countries, for there it is not the same in Buenos Aires, the ideological distances are a lot, but I think that would be a challenge, to end the preconceptions of 'Chileans are this, Argentinians are that.'

Although conceptions of rivalry and bias are present throughout both countries' histories and politics, one Argentinian guide explained how they can move beyond these misconceptions,

Yes, I think once I was with an instructor of developing...urban natural reserves. This one, he was Chilean and I told him 'Oh, you are Chilean.' I was just kidding about the rivalry and he said 'Oh no, I am Chilean, but I am a son of the land, son of the Earth.' And that is the concept, we are equals. Border is something with history, but if we want to have a better world, we need to work all together. In that sense transboundary is not only Chile and Argentina, it is worldwide. It is the only way.

Although a shared identity exists, there have been challenges in facilitating communication and establishing relationships across borders. An APN employee explained the lack of connection between the two countries' protected area staff,

I think it [transboundary conservation] would be useful, but difficult in the moment because we do not have any connection. This was the first time I met some people that worked there and in fact I don't know the national parks on the other side. Nobody has gone, not for work or for personal travel.

This lack of connection has led to uncertainty about management and practices across the border.

A couple interviewees who worked in protected area and national parks inquired about the other country's protected areas because they had not experienced it themselves. A Chilean conservation organization employee explained why they believed there was this lack of connection,

[Chile] in the south...has a better relationship with the people of Argentina than the rest of the country, but I feel that they [the governments] are not creating instances of working more collaboratively and something more concrete between countries... the intention is there, the will is there, but they have not created the space for it.

Both locals and protected area staff did have a desire to discover more about the other country and communities; yet, locals were uncertain of any transboundary work or relations that existed in the area. One APN employee discussed how more communication could influence their work, "for example, it would help us to work together with CONAF to have better control of the people

that pass through the [Gorra Blanca] shelter or in some cases of rescue on the continental ice field.”

Indigenous and Local Conflict and Engagement.

The historical and continued oppression of Indigenous peoples is central to this landscape. This project focused on southern Patagonia, so the Mapuche community was not a part of the Indigenous engagement; however, it is important to acknowledge the cross-border Mapuche nation and how they have culturally influenced the Patagonia landscape. Before the conquest of southern Patagonia led by European immigrants, there were at least four traditional Indigenous communities in the area: the Selknam, Kawesqar, Yaganes, and the Aonikenk. While it is uncertain how many descendants of these communities remain, there is still an Indigenous presence within the landscape. This project focused on the Kawesqar community, whose community hub sits in Puerto Eden, a small hamlet within the protected area of Bernardo O’Higgins National Park. There are 14 total Kawesqar communities within the region, and interviews were conducted with one member from three different communities. This project had very limited access to Indigenous community members due to time and resource constraints; thus, the findings are not a comprehensive account of Indigenous perspectives, let alone Kawesqar perspectives.

On the Chilean side, the Kawesqar community, located in and around the Bernardo O’Higgins National Park, still remains fighting to preserve its culture and people while pursuing recognition by the Chilean government. The Kawesqar descendants also have multiple communities in other towns of Chilean Patagonia. Given the history of and current oppression, many in the community do not trust the Chilean government. One Kawesqar community member expressed how the thought of more involvement from national governments is nearly

unfathomable given that the community is still fighting for proper recognition of Indigenous territories,

I insist the first thing is to recognize and respect Indigenous territories; the first big step. Chile has never done it and if it intends to do something transboundary, it would be strange.... Because today for example, within Indigenous territory, there is sovereignty of other countries. For example, Norway, Japan, China; they do not come to conserve, they come to exploit....the sovereignty of those countries is allowed in the Indigenous territories. For me, that is also transboundary because these people or those entrepreneurs from other countries, have been granted perpetuity in the delivery of concessions and they are the owners of those spaces. That is very criminal, especially if these countries do not respect the legislation that is here today and do not respect Indigenous territories.

This distrust of governments can inhibit support for any transboundary collaboration by Indigenous communities. When asked if they would support transboundary collaboration between Chile and Argentina around the three protected areas, a Kawesqar community member stated, “I support conservation, not transboundary, but of Indigenous people.” Social conflict and oppression of Indigenous communities, like the Kawesqar, are critical for the Chilean government to consider moving forward if there is to be equitable community participation in any transboundary collaboration.

This oppression goes beyond Indigenous communities to include the social legacies of past historical conflict within both countries. One local community leader in Chile described how the Chilean dictatorship under General Augusto Pinochet has affected how Chileans participate and perceive their own power,

Chile has not had 50 years since the last dictatorship. It is just replacing the generation. Becoming an actively civic and empowered and informed community takes more than a generation. Now there is tremendous change, we are many, but those in power still do not have the conception of civic participation of the communities deciding. You decide to go vote, that is your participation, if you didn't go, that is too bad, but you weren't taught the importance of voting either...

These sociohistorical landscapes are critical to consider for any coordinated conservation planning that occurs in southern Patagonia.

Local connection and representation are another challenge that exists for community involvement in transboundary conservation. One Chilean guide and member of the Kawesqar community noted that the decisions made in the capitol city, especially in regard to authorizing private sector concessions in the park, do not always represent local interests or contexts,

When we created the national parks, we created conservation areas, we cannot ask somebody that lives in Santiago or Buenos Aires of what the park wants...An authority that lives in the center, in the capitol, will never come to see how that is and when they decide, usually the place does not resonate with them...However, when things are decided by local communities, everyone feels part of it...we in Puerto Natales have been suffering for a long time that the park is a concession to private people coming from other places in Chile.

Others in Chile felt similarly, especially with the number of international visitors to Torres del Paine National Park. A local community leader noted, “for the local, the person that lives here in Puerto Natales, today it is impossible to go to Torres del Paine.” There are also concerns for communities’ connections to environmentalism. These social factors are embedded in tradition, economic conditions, and other complex factors. One Argentinian conservation organization employee gave a description of what transboundary communication can bring for the protection of the puma in Argentina.

For this side [Argentina]...we say, on that side [Chile] they have made fortunate watching the animal [puma] live and on this side poverty paid for killing it so that it doesn’t eat the sheep that is worth nothing and that is super negative for nature. We are talking about the difference being a border. If that border were eliminated... because it is precisely two parks, this [Chilean] positive experience could be capitalized so that these people [Argentiniens] have more money and when they have money they realize ‘The puma serves me alive, not dead.’”

The vision for many stakeholders (62.5% of interview participants) of transboundary collaboration involved ample community participation and representation. A Kawesqar community member emphasized the role of consultation and equal treatment of communities with those at the national level,

I think that the first to be consulted are members of the peoples that are on their own territory. More than a consultation because the ones who decide alone are the governments and the governments must decide together with the peoples to choose the best form of conservation.... Therefore, I think that every community has its representative and that must be respected in a unique way, as each president of their country and what I know.

Similarly, a Chilean tourism operator emphasized that the communities need to have decision-making power and influence,

I think that the whole community that develops tourism services [needs to be] involved if there is transboundary planning. To see what they [locals] need and if everyone really wants a transboundary park. If they [the government] do believe that it will actually bring a benefit to the community. Because here when talking about the community, people are talking about local people and native communities that still exist and are a little forgotten.

There were also numerous conservation initiatives and activities led by locals. One Argentinian tour guide described the efforts of the local tour guides' association in connecting the community with the natural environment,

The community has to be involved more in the nature.... we have to work together. we have a house, the green house that is way out of the town, and we have an area that has been given to us, like a lease...and we have a great portion of the bay or a big area of this bay and the idea is to do something [with the community] there.

The role of local communities is at the heart of the social side of conservation in Patagonia.

Overall, 85.0% of interview participants described some sort of local involvement in their future hopes for transboundary collaboration. One local Chilean community leader briefly stated how communities in Patagonia have been reclaiming their power, "But you know that the citizens have the power, the municipality doesn't, and that is the difference."

Political Factors for Transboundary Conservation

The Southern Patagonian Ice Fields Border.

The border around the Southern Patagonian Ice Fields has always been a complicated issue between Chile and Argentina (see Figure 19). At the heart of this landscape is the second largest ice field outside of the polar regions and a massive freshwater reserve. This area's full demarcation is still not formalized, as both countries claim a specific section of the border.

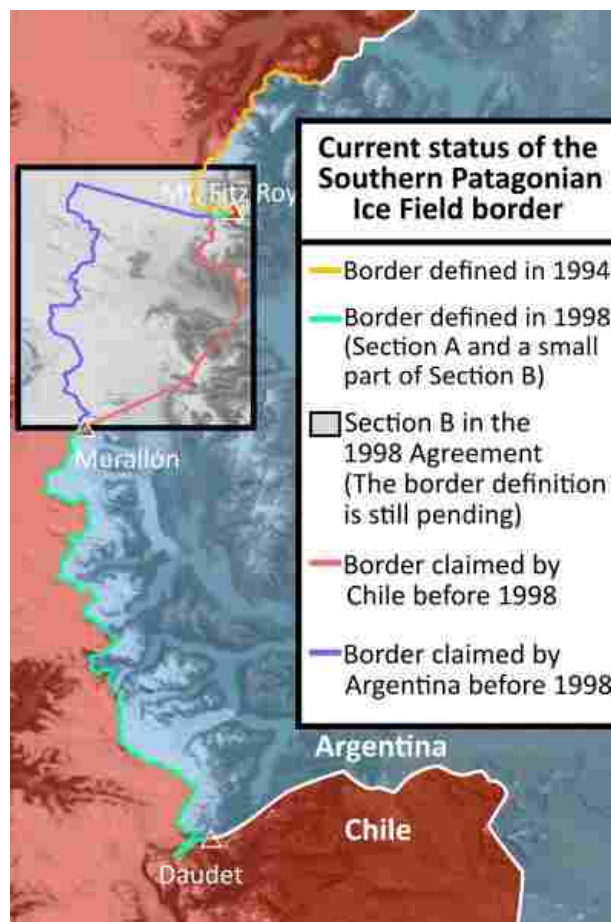


Figure 19. A map displaying the Southern Patagonian Ice Field border by Janitoalevic under the [Creative Commons Attribution-Share Alike 4.0 International license](https://creativecommons.org/licenses/by-sa/4.0/)

A Chilean government representative noted how this ongoing controversy impedes binational relations and collaboration,

They [the Chilean government] avoid using or mentioning the word “binational” because with Argentina we have some places throughout the frontier that are still unresolved. One piece of the frontier is unresolved, especially near to the ice caps, the big ice caps. So, it [binational work] is a very controversial point.

This formalization and demarcation have been at a standstill since the border claims made by each country in 1998. For example, there are differences in the border of the ice fields on the tourist maps being sold on the Chilean and Argentinian sides of the border. The challenge over demarcation can directly influence perceptions of transboundary conservation. Another Chilean government representative discussed some skepticism about the motivation for transboundary work,

In what exists in the case of Chile and Argentina with the southern ice fields, I understand it is a controversy over demarcation, not over the limit and of course, one could think...it would be very convenient for Chile and Argentina to declare all of this a protected area, because it is a reserve of water, etcetera, but that is a political problem. I think that, thinking in transboundary protected areas, it makes a lot of sense for environmental protection, there is no doubt.

Some stakeholders noted the controversy around any topic that involved Chilean and Argentinian cooperation. There are complex political histories for both Chile and Argentina, and these legacies are constantly at play. One local community leader in Chile discussed this,

They are strategic places and the state has to worry, not the citizens. It is the state of Chile, that has to worry about the border situation... they are strategic places in the water issue, it has a lot of water, the situation of freshwater is going to be one of the biggest problems that we are going to have in the future.

A Kawesqar community member also described the history of the ice fields,

I think that there are more things that unite us than divide us. Including between Bernardo O’Higgins and Los Glaciares Park, just in the middle of the Southern Ice Fields, there is a political sector without a border. In this little square the countries agreed that there was not a delineated border, although the Chilean maps say that there is one, the Argentinian maps don’t. That already starts to say that the border does not divide us, but binds us.

This geopolitical issue provides a controversial and unique background for any future collaboration and may discourage political commitment and government support.

There are other challenges that center around the border in the region. One major challenge is the lack of infrastructure in connecting the two sides, as explained by an Argentinian municipal tourism secretary,

The challenges are the integration, the work of maintaining one side as much as the other in the roads so that they [the two sides] do not lose connection. Yes, the connection would be the key word, connection, political integration, because as much as there is a dividing line, the forest and lakes are almost the same, it is only a question of lines.

The lack of infrastructure and physical connection between the two sides is reminiscent of current levels of interaction and binational relations.

Similarly, the customs process at the border was mentioned by several stakeholders as a barrier to overcome for both tourists and locals. The small number of Kawesqar community members expressed dismay at the nomadic nature of their people, but the rigid processes to cross from one part of their land to the other. One Argentinian tour guide used an exaggerated comparison to explain their frustration with the inefficiency,

To cross the border to go from Torres del Paine is to lose an hour or two for bureaucratic paperwork, suitcases, the scanner. As if you were in Gaza...it is a tourism border and the control is exaggerated, because that person enters the country with a passport, the control of the passport is sufficient.

This frustration was shared by others in tourism who viewed the inaccessibility and lack of integration of the border-crossing process as an obstacle to transboundary connection and exchange. One tourism business owner from Argentina mentioned the inconsistency in border processes,

I think that it [transboundary cooperation] would making all of the flow easier. In some plans...they have unified borders. In other places, the borders as separated, one must do paperwork here, manage other paperwork here, and the same, paperwork here, paperwork here. Here one loses a lot of time sometimes, if there are too many cars, you lose one, two hours.

These ideas of improving the process of crossing the border were paralleled in some stakeholders' visions of future collaboration. Another Argentinian guide discussed Europe's model of borders as an example,

The governments are not doing the best to have a perfect border between Argentina and Chile, it could be much better. Just the boundary there, the border, the customs, are better than they were before but it is something that is quite annoying and could be much better most of all both part of Chile and Patagonia have the same restriction about food and anything, they check it once there, but they could be as Europe.

Overall, hopes for improvement of the border came from many locals, especially those with family on the other side of the border. The border context and challenges are an important background for any future transboundary collaboration.

Political histories, turnover, and distrust.

The political context is a complicated between Chile and Argentina. When this project was carried out, there were unique and controversial socio-political situations within both countries. In Argentina, there was a significant economic downturn and a major election that replaced the government. In Chile, a citizen-led movement against corrupt and unjust government practices occurred. Interviews in Chile were completed before this movement began, so interviews reflect the context prior to the protests. A Chilean CONAF employee described their perspective on the socio-political situation in Argentina and how that affects both conservation and binational collaboration,

Today the unemployment in Argentina, the inflation in Argentina are social problems that are concerns there...First the Argentines need to resolve their basic needs and employment issues...Today, it is complex to establish... work together with the Argentinians because like I said, they have many other problems that in the long run make them not concerned about conservation actions...That also hinders the work that you can do between countries.

Political turnover is another challenge to transboundary collaboration efforts. A local community leader in Argentina described how turnover affected government plans and management,

I think what is most important is that the people are involved because we are a country that lives by four years, because the government's plans are four years [long]. So... we have just started another 4-year process in which to talk about the bad stuff the previous one [government] did, then there are no plans of sociocultural models and socioeconomic models that go beyond more than four years.

This turnover and change in governments significantly affects binational relations and the potential for transboundary cooperation and collaboration. One APN employee described this effect,

Many years ago, there was more rivalry between Argentina and Chile. Today, for many, that has disappeared and there is more [collaborative] work. There is closeness between the two countries. It depends a lot on each country's political alignment. Sometimes Argentina has a socialist government, [sometimes] Chile has a socialist government, and Argentina is more on the right or other way around, that complicates the relations. Now with the change of government here, with Piñera on that side [Chile], I don't think it is a good time. The current [Argentinian] government and Piñera were quite similar and you could have worked together and I don't know if there was much progress, but now with the [new Argentinian] government that won yesterday, surely it will be quite conflicting with Piñera.

There is also significant distrust of national governments, given the political histories of the countries. More recently, this has been an issue in Chile that led to the citizen movement demanding a more fair and just government system. One Kawesqar community representative explained some of their distrust towards the government,

Until today, we have applied Chilean politics to be able to reclaim [territory]. The Chilean politics are so bad, but there are others that allow you to do other things...I could not say if it [transboundary conservation] would be good or bad, but from my perspective, already having a government involved, it is bad, so having two [governments] will be much worse.

A local community leader from Chile described their own perspective on the government and its actions, “The state of Chile was weak, now with the government it is worse, because for this government the private side develops, takes over, puts up the money, and the state does not take responsibility.”

In terms of binational political relations, there are concerns around how the two countries would negotiate based on concerns about sovereignty. One Kawesqar community representative stated, “Now thinking in...these three units, Torres del Paine, Bernardo O’Higgins, and Los Glaciares, as to the extent of the territory, it is a lot of land for two countries to agree to share, so the question is difficult.” This background of sovereignty issues reflected the long and shared political histories of Chile and Argentina. There were also concerns about future transboundary cooperation and what that could mean politically for Chile and Argentina. One municipal government tourism employee from Chile described the concern around political backlash from the countries coming together,

I don’t think it is easy, it isn’t easy. Suddenly as the world is today, you can see it today in Europe, you can see it with Brexit, they united around a great proposal but they are already having serious difficulties and that has nothing to do with countries, it has to do with how we organize ourselves as communities.

Different Political Structures.

Major differences in political structures between the two countries influenced the political landscape. An APN employee described the different governance structures as, “there are certain differences in terms of administrations, starting from constitutional. Where Chile is a unitary country and we are a federal country, then that generates different points in management.” This structure was at the center of several interviews about binational collaboration. A CONAF employee described how this affects decision-making,

There is one big difference. We are a centralized country. The decisions are made in management at the central level and they spread the national-level policies. They [Argentina] are a federal country, therefore, they make local decisions and that facilitates many things, but also it is disconnected on other decisions.

Similarly, there are differences in protected area management between the two countries.

This is demonstrated in the two systems of CONAF and APN. While CONAF is a half-public, half-private forest corporation, the APN is a government entity that has been modeled after the United States' National Park Service. An APN employee described this difference, "The norms of National Parks [Administration] are very different, including the functions and responsibilities of the park rangers of CONAF and the park rangers of Argentina, they are very different." This difference refers to the focus on conservation in Argentina's APN, while the Chilean CONAF has more responsibilities and priorities. There are currently efforts to change Chile's management structure and create a government agency to manage protected areas as its sole focus.

There are differences in policies that work to protect the environment and species across Patagonia. This is best exemplified by the differences in policies around the puma, which is declining in population (Nielsen et al. 2015). A government representative in Chile noted how the different policies may reflect different priorities,

The Puma is very well-protected in Chile, especially in Patagonia. We don't have a lot of cattle range activity. On the other hand, in Argentina they have a lot of cattle range activity, so puma is the main enemy for landowners. So they have some policies that support the hunting of puma. In Chile, in the contrary sense, we don't have any of those policies. So that is very challenging.

Within each country, there are challenges with bureaucratic organization and in-country tensions. One Chilean government representative described this phenomenon of central management in Chile,

Evidently, the exact problem in Chile is that... the decision is made in Santiago and you have to try and invent some form of how to implement that here [Chilean Patagonia]. From Santiago, they tell you something and how will you do it if the local reality is absolutely different, if the local communities were not consulted? That, as I say will depend heavily on the current government and what you see is that conservative governments are generally much more authoritarian from the central level than progressive governments.

Another major challenge highlighted by interviewees is the need for and lack of political support for any major transboundary work. A conservation organization employee in Chile described the importance of political will in relation to both financing and other national priorities,

There must be, I believe, a willingness and the political will to do so, because both countries still have a strong military formation. We are two countries that have a history, that have had a dictatorship and that the armed forces are still strong within our countries and much of the economy goes to financing the armed forces. Political will should exist and look a little further.

There are major legal limitations that impede transboundary cooperation as well. Differences in policies, such as labor laws for non-citizens, are a present challenge in working collaboratively and across national borders. An APN employee described these limitations,

Here [Los Glaciares National Park] for example, a case to work together a little more would be...the treks they [tourists] make through the Patagonian continental ice...it would help us to work together with CONAF to have better control of the people that pass through the shelter or in some cases of rescue on the continental ice. For example, if I had to bring a helicopter from the Argentinian side to rescue someone in the Chilean sector of the ice, there are many legal hurdles.

These political challenges are extremely complex and have a significant effect on future visions for transboundary collaboration.

Future Political Involvement in Transboundary Conservation.

Interviewees shared ideas and successes for future transboundary conservation. A CONAF employee described their thoughts on the political role in any transboundary cooperation,

I see it [transboundary conservation] only as a political act, in operational terms it is not reflected in joint actions. There are no technical meetings on the subject on a permanent basis, the administrative conditions are different for Argentinian and Chilean parks, there is no money allocated to the state for that particular function, they have no trained and specific staff on the issues of conservation of huemul to work on conservation issues.

Formalized agreements is often a key component in transboundary conservation as another CONAF employee stated,

The national governments are also important now when it comes to having an agreement that allows each one to push and force a certain country in order to comply with the commitments in an agreement that is signed... therefore I think it is important but obviously government in particular puts its stamp on it... I believe that this formality is stronger than the imprint of interest that each government can have in implementing these actions. Why? Because I believe that formality is given in the highest instance of each country.... So independent of government changes or the views that you have here of government, the technical teams with this formality as the basis, they can develop and take joint actions.

There were some future visions of transboundary conservation that centered around the process for political cooperation. One government representative from Chile highlighted this importance,

Ecosystems are changing all the time, so drivers are changing, threats are changing, tourists are moving from one part to another part. So it will be challenging and hard to work with those issues in a constant movement, [but] in the long-run I think it will be more efficient working with this transboundary approach, in a collaborating way with Argentinians authorities, and from Chilean authorities as well.

Many stakeholders emphasized the need for an established political process. A local citizen leader in Chile stated, “So for it [transboundary conservation] to happen, it is political decision, nothing but political will must exist to make an agreement.”

Interviewees emphasized how information exchange and dialogue were integral to transboundary conservation. One APN employee shared what would be useful for improving their own work, “Collaboration and the exchange of experiences, of knowledge, personal exchanges.” In addition, a conservation organization employee from Chile described this importance in terms of evaluating transboundary success,

I am convinced that dialogue is what is important and in this sense I think a success for me would be to have a transboundary dialogue table, already with that I would feel that there is a success, since we will already have the results of the table itself, and coming together to dialogue at a common table would be a success for me.

Economic Factors for Transboundary Conservation

There are many economic factors and challenges to consider due to the multinational nature of transboundary conservation work.

Extractive Industries.

Conflict in Patagonia is also shaped the role that extractive industries and foreign actors play in the economic development of the region. A Chilean government representative discussed the role of salmon harvesting and how that affects the Patagonian landscape,

The salmon business in Chile, it is the worst of examples. It settled in Patagonia, in the south of Chile... and has a way of raising and cultivating, harvesting salmon [that is] very harmful for the environment...it is the biggest business in Chile, Marine Harvest. The company has a very important social responsibility and there are international agreements, to the UN in the Global Compact.

This extraction industry is extremely controversial with local businesses displaying signs stating that the salmon industry is not welcome in Patagonia. Another Chilean government representative discussed their challenges in working with extractive industries,

I generally have to sit in a table to convince people... I have to convince the mining minister about the protected area that was created next to the mining...I have to sit down

and talk to him and convince the mining industry that it cannot get and exploit everything it can think of, or that the forest industry cannot come and load three hectares of forest and then leave. You realize, with the economic logic that exists in Chile, it is difficult.

This quote illustrates the tension that is felt by conservation and protected area employees in Patagonia.

Limited Resources and Management Capacity.

Limited resources for protected area management is a major economic factor that can influence any future transboundary collaboration. One conservation organization employee discussed their role supporting CONAF in Chile, given its inadequate resources from the national government,

I think a lot of people think of CONAF the wrong way and think they don't do a lot to protect the park and they [CONAF] really do and there are a lot of initiatives happening and for the very little funding they have and the misallocation but they really do care and try...there are all these different things that in a perfect world we [as an organization] wouldn't exist...we are filling gaps because there is nobody there right now filling those gaps.

Overall there was an understanding that CONAF does not have adequate resources to manage Torres del Paine, an extremely popular protected area. Even for the less-visited Bernardo O'Higgins National Park, there are very few CONAF staff working to manage the largest protected area in Chile. A local Chilean community leader noted the need for more resources and funding of conservation, "To recognize and invest economically in [conservation]...Chile, the environment is totally free, there is no investment...but one must invest in improvements so that conservation is real and happens"

Beyond financial resources, there is a need for more capacity and training of protected area employees. A Chilean tourism business owner noted their difficulty in working with CONAF due to its limited capacity for oversight and authority of activities in the park, "As our

[tourism] activity is young in Chile, it is not like in other countries, there are not many regulations, there is no effective authority....When something happens, they look for a quick solution for the world to be quiet, getting out of the way, but then there is no definite solution.”

In addition to the need for more sufficient funding and capacity resources for conservation management, there is also a stark need for better allocation of resources. One Chilean conservation organization employee highlighted this need, “I think the optimization of resources is something that the protected areas lack, both in Chile and Argentina.” Some participants noted that Torres del Paine is by far the most popular national park; yet, the majority of the money from entrance fees go to supporting other protected areas.

Some participants believed transboundary cooperation could provide a solution to the lack of resources that is faced by protected area staff on both sides of the border. A Chilean conservation organization employee described this vision for future cooperation,

The resources that are there to manage the parks, as much as in Argentina as in Chile, are extremely scarce. [With transboundary collaboration], you can share park rangers, you can share funds to use for research, as long as the duties and rights of each one are fair and the duties and rights are clear.

Transboundary cooperation does provide an opportunity for each side to evaluate its own resources and determine how collaboration and joint management can be a solution to more effective management of protected areas.

Tourism Factors in Transboundary Conservation

One Chilean tourism business owner noted the potential differences in economic benefits from tourism,

Argentina is about the same as Chile, it wants to maintain its customers [tourists], they do not generate alliances to say “Hey, let’s do a trip together.” Probably it [transboundary conservation] would help Chile more than Argentina. Because Argentina receives many

more clients and passengers than what Torres del Paine National Park receives. It would be beneficial for Chile that for Argentina in this moment, to have a border with transboundary parks.

Development, over-tourism, and conservation.

Development can also be seen as increased levels of tourism in the region. A Chilean CONAF employee noted that this development comes in multiple forms, “First, this unbalanced development comes, such as at least tourism and resource extraction.” This focus on the economic prosperity from tourism has made conservation more difficult as parks have shown signs of overcrowding and degradation due to visitors. A local Chilean guide explains the conflict that comes from this intersection,

It is complicated for conservation and tourism, because the people of Natales want more and more tourists, but sometime the national parks should put certain restrictions in the trails. That obviously brings a conflict of how to optimally make a regulation for the national parks’ visitation, such as Torres del Paine and Los Glaciares, which are very well visited in the high season with a lot of passenger influence.

This conflict of tourism is a center point of conservation and development in the region. A conservation organization employee from Argentina describes the concern with the situation,

Because every time more people come, there is no way to stop.... if not the development is going to overcome us so much, massive growth. It is not going to be a development, but rather a growth and when you grow with the skinniest leg [to support], you begin to have problems and you can lose everything.... The biggest challenge that is protecting this [the landscape] by limiting the number of people.

Perceived over-tourism in the Patagonia region was a common sentiment among interviewees. One Chilean tourism employee in the town of Tortel on the edge of Bernardo O’Higgins National Park described this aversion to more tourism,

...we do not want massive tourism. All of this is my opinion, we want a tourism that grows as the town grows, but we don’t yet have the basic services to provide good service to people. With the arrival of the ferry, that arrives once a week with 140 passengers, Tortel already collapses in January and February, we do not have sufficient capacity to

receive all of the passengers, we still aim to keep the environment as it is for many years to come.

Similarly, another Chilean tourism employee described the concern about increased tourism with transboundary conservation,

I imagine that if they made an agreement of this big park of Patagonia, the big park of glaciers in Patagonia, that is going to be widely announced, all of the world is going to want to come and what happens to conservation? In the end, I think that what is the most important is to conserve and to not transform [the parks] into a Disneyland.

There are different perceptions of both the visitation levels and marketing to tourists in southern Patagonia, as stakeholders from both countries perceived tourism to be worse on the other side of the border. One Chilean tourism worker stated,

Patagonia is a concept from Argentina...luckily Chilean Patagonia is a lot more low profile and a lot less people come, because I believe that is the luck we have, as a place that still is pristine, a place where nobody comes, where you feel like you are the first who comes.

However, an Argentinian guide claimed that marketing in Chile is better managed,

But [the tourism] could be better if we have both national parks or the same promotion that Chile is doing for their own national parks would include the Argentinians and work together. We have been really bad at advertising our national parks and touristic activities in Patagonia. They [Chileans] have been much better, most of all with the American tourists...that is why I think it could be much better if we work together with Chile to promote much better all year, Patagonia, or other areas.

Another difficulty that comes with the high levels of tourism in the parks is the education and awareness of tourists of the impacts of their behaviors. An Argentinian tour guide discussed the difficulty in maintaining the park's fauna while balancing visitors' interest,

In the national park with tourism...[there are] campaigns... of no feeding the native fauna, campaigns not to disturb animals in their natural habitat, which are things that from direct communication and protection...Because today for example, they are promoting that people go see the puma in its habitat, both in Chile and now they want to in Argentina too, and for that you have to give it or feed it to have it close.

A local community leader in Chile simultaneously described the benefit and concern about tourism if there was transboundary cooperation,

I think that for tourism it [transboundary cooperation] could be an extremely positive benefit if it is planned. It could be a super powerful marketing campaign, you could sell binational packets...But the problem is that it increases the load, the number of people that are coming, if it is not going to be planned [properly] it would be difficult.

Overall, high levels of tourism are a controversial point at the center of any discussions around binational collaboration for Torres del Paine and Los Glaciares National Parks.

Changes and shared tourism.

Patagonia is a major international destination for visitors from around the world. Many small towns have developed solely around the tourism market. One Chilean tour guide discussed the changes from tourism over time,

When I began to work about 20 years ago and I used to go to the Torres del Paine National Park. I used to stop wherever I wanted, I used to walk wherever I wanted...Now, you are allowed to stop just in some places... 20 years ago, the park was receiving 90,000 [tourists per year], now its receiving 300,000. You can't do the same with so many people.

This increase in tourism had led to the development of towns like Puerto Natales in Chile and El Calafate in Argentina. Both towns grew exponentially with the high growth of international visitors, and mainly consist of lodging, tourism, and dining options.

Currently, there is shared Patagonia tourism between the two countries. Several interviewees noted that it is common for visitors to cross borders during their tourist visit. There has been some engagement for coordinated tourism as one Chilean tour guide explained, "We organized a course for the tour guides...and it was for the first time here in Puerto Natales....We have organized tour guides meetings both with Argentinian colleagues and in Chile." CONAF also acknowledged the shared connection through tourism, as one employee described,

In the region of Aysen, I know that it has tourists entering from the ice fields from Argentina to Chile through Bernardo O'Higgins. And there with the administration that they have, I know that they have contact with tourism businesses in Argentina to establish communication when people come from Argentina to Chile.

Similarly, an Argentinian tour guide described the shared relationship that affects tourism in each country,

Tomorrow [there] are groups with less people, because some of them cancelled because of this situation with Chile, just worrying about what could happen... That is why you have to be careful about what you are changing, because a small change could completely affect one or the other country and the people that are working and depending on that.

As rapid tourism development is continuing, there are an array of new tourism initiatives.

For example, the Ruta de los Parques (i.e. Route of the Parks) is a route connecting 17 national parks in Chilean Patagonia via road, bus, or boat. Another example described by a member of the Kawesqar community discussed a project that involved the Indigenous community engaging with the tourism market, "We are doing this through Kawesqar Project, what we are doing is creating new tourist products to be incorporated in the industry. We are starting with five or six products." In addition, new initiatives emerged constantly to tap into the tourism market. There are also difficulties in the development of new forms of tourism due to the high levels of visitation in the national parks and the resulting environmental degradation. One local tourism business owner in Chile struggled with developing kayak tourism,

I had a meeting with CONAF people and they don't let us expand the zones so we could sail. One of the main reasons is conservation. That's what we discussed because kayaking impacts are a lot less than hiking activities. Because we move in water we are not going to leave a trace.

Some see binational cooperation as a way to further develop and improve shared tourism between the two countries. One Chilean tourism business owner stated,

It [transboundary conservation] would give tourism the opportunity to expand commercial routes. You can expand the area and the connectivity so a customer can make an excursion to cross the border instead of being able to cross five hours in transit.

Differences in tourism.

There are significant differences in tourism operations between the two countries. For example, Chile does not have requirements for tour guide training, while Argentina requires guides to be university-educated. One Argentinian tour guide described this difference, “Because here in Argentina the big difference with Chile is that we have to study to be a guide. We study three years.” In addition to studying in universities, guides in Argentina must also get specific certifications to work within national parks. While several Argentinian stakeholders described this difference as a detriment to collaborative work, some Chileans did not find it problematic. An official from the Chilean Municipal Tourism Office claimed this lack of training can allow people with more specialized expertise to become guides,

In Argentina, tour guides are guides who study at the university with their specialized tourism guiding. In Chile, there is no career tourism, there are children who study tourism, but they have a reference that enables them to be a guide, but we also have a big difference...For example, it is much easier to take a glaciologist, adapt it to tourism, so you can guide a group that wants to understand glaciology, geomorphology, geology, or a geologist to take them and put them at the head of the group, guide a group that has that level of interest, then a lot of them can be professional people.

Within specialized guiding, there still is a major difference in the qualification and certification of guides. An Argentinian tourism business owner described this,

Yes I think it [transboundary collaboration] would help. I think it would help both countries. Chile for example, some things are very advanced and others are very behind...for example, Chile still is not within the International Union of High Mountain Guides Association. It is not within the Union of Trekking Guides either...

This difference in guiding qualifications and trainings influenced the disjointedness in the tourism between countries and served as a major challenge for transboundary collaboration.

Tourism also created competition for economic benefits. One APN employee described this, “Here it [transboundary conservation] would be more complex, but it was but more complex for the hotel owners and business people who would never be in agreement.” One Chilean municipality tourism office employee described the difficulty in working across borders because of work policies in each country,

The Chilean operator has to have an Argentinian counterpart that passes and takes your tourists, changes them to an Argentinian bus, and an Argentinian guide goes out and the whole circuit goes through it with an Argentinian guide. In terms of reciprocity, we are complicated, because it has to happen like this.

Similarly, an Argentinian guide explained the competition for any future transboundary cooperation,

We have to study to be a tour guide here, three years. Chileans don’t. So if a Chilean could be a tour guide here, finally there will be more trying to go there and the people here is a huge group of people working to be a guide, that is why it could be risky for all those people. That is why I won’t forbid them to work here but you have to be really careful about testing them here.

There are also challenges in transportation of visitors due to conflicting policies as a Chilean community leader described,

The relationship...in terms of tourism is transport and poorly controlled...for the Chilean transport driver, for example, it is not a pleasant one...it is very bad tourist product too and Argentinian cars come in because the national legislature in Chile allows it, but when a Chilean tourist car goes to Glaciares, it cannot get in that easy.

Discussion

Factors contributing to a landscape of conflict

Transboundary conservation centers around two or more nations working collaboratively to protect a shared resource or landscape (Vasiljević et al., 2015). The case of Chile and Argentina potentially utilizing transboundary cooperation has several challenges that contribute to conflict within the region. Even transboundary parks defined by positive relations can carry

tensions within them (Miller, 2016). For southern Patagonia, the factors most negatively influencing transboundary conservation center around social, political, and economic conflict. There are many prevalent conflicts at play that complicate the future of transboundary cooperation in the region. As transboundary collaboration in Latin America are not necessarily related to more peaceful relations (Ketil & Barquet, 2014), these conflicts must be thoroughly considered for those with visions of transboundary cooperation.

According to participants, the geopolitical border and sovereignty dispute is shaped around freshwater resources, mirroring previous classification of historical Chilean and Argentinian border conflicts (Child, 1983). And while transboundary environmental cooperation can allow for reconciliation between historical rivalries (Ide, 2018), southern Patagonia has many other conflicts to consider. Local participants openly expressed distrust of their own governments and frustration with the current status quo of protected area management, demonstrated by local frustrations with private protected area creation in Patagonia (Louder & Bosak, 2019). This conflict within Chile specifically was reflective of the lack of funding and resources for adequate management and control of protected areas, specifically Torres del Paine National Park. Countries tend to focus on biodiversity conservation mainly when it is within their own sovereignty and meets their development bottom line (Perrings & Halkos, 2012). This tension and frustration with the government over conservation has been seen in other cases in the region (Blair et al., 2019; Reboratti, 2012). In addition, locals are more willing to be supportive of conservation areas when involved in planning processes (Andrade & Rhodes, 2012). Yet, there is a lack of community inclusion in the establishment of conservation and tourism in Patagonia (Blair et al., 2019), which was noted by participants in this study.

Tension is further exacerbated within southern Patagonia with the role of locals and Indigenous communities. Conflict resonates around recognition, respect, and rights of the Indigenous communities in the region, specifically the Kawesqar who reside within Bernardo O'Higgins National Park. Unambiguous recognition of marginalized is a necessary component of landscape stewardship work, in addition to empathy from the scientists and conservations who work in that space (Cockburn et al., 2020). Inequitable relationships between authorities in power and Indigenous communities are harmful, particularly when they lack adequate social recognition (Martin et al., 2016). Complicated dynamics within conservation spaces is not unique to the Kawesqar community in southern Patagonia, but extends to other Indigenous groups and peoples within Chile and Argentina (Sepúlveda & Guyot, 2016). In addition, local communities find themselves not represented within their own communities and lands they grew up in. This is exemplified by the role of private conservation within Patagonia and how that can be shaped by outsiders. A similar study in the Cerro Castillo area of Patagonia found that locals worried that new initiatives were set to benefit companies run by outsiders and further economic inequities (Blair et al., 2019). The threat of exploitation and extractive industries further adds pressure and room for conflict in southern Patagonia. In Argentina, there has been significant conflicts between rural populations and mining industries over water resources (Collado, 2015). This is also reflected in the cultural conflict between conservation and ranching that is at the heart of Patagonia's history and its recent transition into an adventure-tourism destination (Blair et al., 2019). And while these community-based issues emerged from this specific study in southern Patagonia, they are also present in other parts of South America (e.g. Miller, 2016) and around the world and strongly influence the conservation landscape.

The aforementioned factors contributing to this landscape of conflict demonstrate that transboundary conservation, adjoining protected areas, border communities, and binational relations cannot be discussed in terms of a binary one state versus the other, nor is it just a collaboration between two governments. Transboundary conservation operates in much more complex geopolitical atmospheres (Barquet, 2015b). Although transboundary conservation can utilize the concept of “foreignness” to operate in simplistic binational terms (Kachena & Spiegel, 2019), the people within the landscapes illustrate complex and changing ties and relationships. Focusing on the state actors in transboundary collaboration and negotiation can inflame conflict within the landscape (Barquet, 2015b) and drown out the voices of those most affected by the initiative. Collaborative governance is important for mitigating conflict (Fisher et al., 2020). Some locally-driven collaboration is needed to improve socio-ecological governance systems (Guerrero et al., 2015). The lessons from this study demonstrate the need to further conceptualize and operationalize transboundary relations and conservation as a collaborative, multi-stakeholder endeavor, while reducing the power that the state governments have in the process.

Strong potential for transboundary conservation

Despite the challenges discussed in previous sections, this study also found strong potential for new transboundary conservation between Chile and Argentina around Torres del Paine, Bernardo O’Higgins, and Los Glaciares National Parks. There is a unity around conserving landscapes and combatting climate change, reflecting South America’s high potential for transboundary conservation along the Andean range (Mason et al., 2020). Among local stakeholders, there was a strong willingness to collaborate, but a lack of opportunities and spaces without national government support.

Many local stakeholders were able to emphasize their belief in the importance of working together regardless past histories and inclusive of current challenges and conflicts. While a transboundary protected area complex was first mentioned in the 2007 IUCN inventory, a transboundary park may not be the most optimal form of collaboration given the current challenges. It seems that basic and regular communication is one of the most needed steps for cooperation. Uncertainty that was expressed in interviews was often from a lack of knowledge about others' practices and management. Lack of information is at the center of other conservation conflicts within the region (Louder & Bosak, 2019). This uncertainty provides an opportunity to increase engagement and learn from experience and management across the border. Although there is a binational committee that meets every two years, that is clearly not enough for this landscape and the threats it is facing as participants made clear.

Local communities in Patagonia have been left out of conservation planning in the past (Blair et al., 2019). In addition, any binational conservation may take place must work to equitably include locals and particularly Indigenous communities in planning that goes beyond just Western ecological goals (Martin et al., 2016). While it is evident that the two national governments are lacking in transboundary collaboration, some local community stakeholders have already worked on establishing communication and places for information exchange. This was most exemplified by an urban natural reserves network that shared colleagues throughout Patagonia on both sides of the border. Local tour guides also put efforts into increasing collaboration between Argentinians and Chileans. This mirrors the desire for locally-driven development initiatives in Patagonia (Blair et al., 2019). Additionally, governmental support and funding for these initiatives is critical, as well as a improved dialogue for CONAF and APN staff to meet more regularly and share their experiences and strategies for combatting landscape

threats. For example, shared invasive species in the region (Jaksic et al., 2002) has fostered limited collaboration and connection between protected area staff. Increased contact, dialogue, and collaboration helps to address many of the challenges identified by stakeholders, including perceived priorities, social biases, and uncertainty. And importantly, for any future international collaboration, it is important to meet regional and local needs (Perz et al., 2010).

There was a principle of shared identity and respect between Chilean and Argentinian participants. While it was cited that nationalism and rivalries between the two countries were strong in other regions, those within Patagonia described a closeness and respect for those across the border. This is reflective of the shared histories, cultural aspects, and families of Patagonia. Community participation in conservation planning in Patagonia is crucial to ensure benefits for locals (Blair et al., 2019), so this cultural connection between Chilean and Argentinian communities provides an important prospect. A similar closeness between border communities divided by political boundaries has been found in another transboundary conservation case study along the Zimbabwe-Mozambique border (Kachena & Spiegel, 2019). This closeness, shared history, and shared culture provides an opportunity to work beyond international borders and use these human connections as an opportunity to unite people around protecting Patagonia and its landscapes. This finding is crucial for shaping transboundary conservation dialogues in the future, as political borders may serve as a false image of division, not just ecologically, but also communally.

Conclusion

This study found that there is potential for local-scale transboundary collaboration around Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks in southern Patagonia. For larger binational cooperation, there are significant challenges, particularly conflicts, that

must be resolved within the landscape to ensure equitability and efficacy of any conservation cooperation. Lastly, it provided a more complex picture of border communities and how dialogue about transnational conservation can be reshaped. After conducting this study, there are several recommendations for the future of transboundary cooperation around the three protected areas in southern Patagonia:

1. There is the need for conflict resolution in the relationships with the Chilean government, CONAF, and the Kawesqar community. This must be attained by equitable inclusion and recognition of Kawesqar perspectives, representation, and needs. It is recommended that the communities be able to lead these conversations and are given equitable power and decision-making influence around their sovereignty and territory. This situation is not unique to the Kawesqar community but reflects larger injustices in the treatment of Indigenous communities within Chile and Argentina.
2. There is the need for increased support for locally driven initiatives that encourage local collaboration and working together to combat environmental threats as a point of unity.
3. Chilean and Argentinian National Park staff have at least bi-annual meetings with governmental support for information exchange, relationship building, and collaborative planning.

Chapter Six: Synthesis and Conclusion

Emerging and Growing Large-Landscape Conservation

The emergent nature of transboundary conservation is reflected in both phases of this thesis. The survey of Specialist Group members found that many large-landscape and transboundary initiatives around the world are younger than 15 years old, reflecting claims that it is an emerging paradigm (Curtin & Tabor, 2016). This finding demonstrated that the field is still developing and has potential to evolve its practices and outcomes. While fortress conservation practices that exclude people have long thrived in conserving the environment (Hutton et al., 2005), movement towards including whole landscapes, with various strong human-environment interactions, are taking hold (Vasiljević et al., 2015). The relatively young nature of the large-landscape and transboundary efforts within the field of conservation provide ample opportunity for research that can offer support to specific initiatives around the world. The Specialist Group survey had few participants from South America and no respondents from Chile or Argentina indicating a need for more network engagement from the Specialist Groups within the region. This can enable the availability of resources and networks for guiding any potential transboundary collaboration that is to take place.

While executing the Patagonia case study, it became evident that there were few transboundary conservation efforts in the area and that there was such little communication between the two countries that there was uncertainty and also a yearning for more information about conservation in the neighboring country. The case study in southern Patagonia revealed opportunities to expand transboundary conservation between Chile and Argentina that can coincide with the development of global large-landscape and transboundary practices.

The young nature of transboundary efforts in southern Patagonia provides plenty of opportunities for supporting these initiatives, which can be aided by connection into networks of large-landscape members and strategic tools within the field. Locally-motivated and small scale conservation is an important aspect of transboundary collaboration. Networks and international organizations can play an important role in efforts when there is a lack of government support for formalization. These networks need to generate local-scale support for these initiatives to be equitable, inclusive, and effective.

Indigenous Inclusion and Local Rights

The theme of inadequate local and Indigenous community involvement and engagement was shared in both the IUCN Specialist Groups and the Patagonia case study. Survey participants described levels of community engagement and local ownership as lower than guidelines suggest (Andrade & Rhodes, 2012; Vasiljević et al., 2015). There were overall positive perceptions and benefits of working with Indigenous communities. However, the involvement and inclusion were still not adequate or comprehensive overall for the surveyed initiatives. Local and Indigenous involvement must be prioritized from the beginning stages of large-landscape conservation. In some cases where communities play a role in management, they may not have been a part of a collaborative planning process to begin with, souring the rest of the process for them (Metcalf, 2003). There is significant room for improvement in terms of Indigenous engagement and co-management in large-landscape conservation across the world. However, the lack of adequate and equitable local inclusion is found in the history of conservation (Hutton et al., 2005) and must be considered in any dialogue between Specialist Group members to ensure that large-landscape conservation is not used as a tool for infringing upon Indigenous communities' rights.

During the case study in southern Patagonia, it became evident that local and Indigenous community members have not been adequately represented in conservation, tourism, and similar initiatives. Collaborative conservation often lacks Indigenous voices (Thomas & Mendezona Allegretti, 2020). This mirrors other trends in conservation where Indigenous engagement is superficial, but lacks adequate inclusion and recognition (Paulson et al., 2012). Recognition and respect of both local and Indigenous communities were foundation to transboundary potential in this case study, implying they can be critical factors influencing the success of transboundary initiatives in various geographies. Respect of local peoples and cultures is essential to successful community-based conservation and collaborative processes (Cockburn et al., 2020; Kothari et al., 2013) and Kawesqar community members felt that neither the governments nor conservationists were adequately respecting their culture, territory, or rights. Contributing to ideas of respect are the humility and empathy used by conservationists and scientists when engaging local communities (Cockburn et al., 2020). Without empathy, attempting to take on the perspective of another stakeholder, the collaboration around past, present, and future transboundary conservation may be superficial and further contribute to marginalization.

In the case study, there was even a lack of support among some Indigenous community members for future transboundary collaboration until Indigenous rights and issues were taken seriously by the national governments of Chile and Argentina, mirroring conflicting positions in local communities about participating and supporting transboundary conservation (Wittmayer & Büscher, 2010). However, community involvement is essential, especially with Indigenous communities who possess a cultural connection to the land (Sandwith et al., 2001). It is increasingly complicated to adequately include locals and Indigenous communities in transboundary work, because there is no one model of involving local communities (Vasilijević

et al., 2015). Emphasizing Indigenous community involvement and promoting the principle of co-management can contribute to transboundary success in the Patagonia region (Sepúlveda and Guyot, 2016).

Transboundary conservation in southern Patagonia around Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks is a precarious opportunity that may result in furthering inequities and marginalization if not carried out in an inclusive manner. Respondents must question the current levels of inclusivity with Indigenous communities and what that means for justice, human rights, and economic stability of those who have been oppressed throughout recent history. Involving local communities can provide representation and make transboundary conservation more equitable by allowing for concerns and opportunities to be voiced (Chiutsi & Saarinen, 2017). There are several actions that can be taken for any transboundary planning in the region to ensure community involvement, such as dialogue and early engagement, identifying shared values, identifying cultural values, and anticipating disputes (Sandwith et al., 2001). Using a community-based natural resource management model in transboundary initiatives and corridors can help integrate communities into day-to-day management (Quinn et al., 2012). It is important to acknowledge that local community involvement does not guarantee success but is fundamental for maintaining transboundary agreements and management (Zbicz, 2003). In addition, transboundary can marginalize community interests by focusing on state governments (Watson, 2015), adding to the existing conflict between Indigenous peoples and national governments in southern Patagonia. Around the world and in Patagonia, there is the need for moving beyond leading with ecological priorities and equally focusing on the socio-economic needs of an area, particularly Indigenous community rights and equity.

Role of Government Support

One major contrast between the survey and case study findings was the perception of having government support for large-landscape and transboundary initiatives. Over half of participants of the survey project felt that they had local, regional, and national political support. This an advantage as governments can encourage or pressure participation from other sectors to ensure more support for large-landscape, transboundary conservation (Sandwith et al., 2001). Yet, less than a third of participants felt they had international political support. This was a surprisingly result as the study sample were members of the IUCN WCPA Specialist Groups, which implies that they have some international connections and networks. However, large-landscape and transboundary conservation can be further complicated by third-party involvement (Watson, 2015), yet over half of participants believed that government support was important for evaluating large-landscape initiatives. Many of the respondents felt that they had government support within their countries on several scales. This is reflective of members' perspectives from those who may be working in conjunction with governments of different levels within their regions.

However, the case study findings revealed a lack of political support for transboundary cooperation, most notably nationally. While there were some local and regional efforts, the lack of support from national governments differed from those who participated in the survey. This lack of national government support may be due to the case study focus on local stakeholders, many of whom did not work directly with governments. However, political will is a strong influence on transboundary collaboration between nations (Kim, 1997) and barriers to political support must be examined in this context. Transboundary governance presents questions about sovereignty and territorial control (Barquet, 2015a), which is a challenge for national

government participation and support given Chile and Argentina's history of border conflicts. Political issues feed into this with government transitions and corruption may also complicate transboundary governance (Chiutsi & Saarinen, 2017). It was evident that government transitions have strongly affected binational relations between Chile and Argentina. Depending on the administrations, relations between the two countries can be friendly, full of animosity, or more neutral.

Similarly, national government priorities can run against conservation, as exemplified by the pressure for development in both Argentina and Chile. Similar development can threaten the commitment to transboundary conservation (Healy, 2007; Mackelworth et al., 2013). Funding in transboundary conservation is also split between multiple governments and third-party organizations, making operations more complicated and less efficient (Büscher, 2010b). This can discourage national government support as both countries are facing socio-economic crises and many interviewees referenced the limited conservation funding that exists in the region as a challenge that must be overcome. Although there were local efforts that were working to unite Argentinians and Chileans around conservation action, communities are often still reliant on the formalization of transboundary areas from national governments (Metcalf, 2003). The existing local efforts provide opportunities for the national governments of Chile and Argentina to provide support in terms of resources, funding, and structured agreements. However, as many interviewees noted, the political will has to be there for any national support of transboundary conservation.

Differences in Perspectives on Success

Perspectives on success were a key aspect of both projects in this thesis. Most literature on large-landscape conservation only highlights the perspective of academic researchers as case

studies are discussed and evaluated by literature reviews and theoretical frameworks. The survey project evaluated Specialist Group members' definitions of success for large-landscape conservation. Half of written definitions by respondents focused on ecological conservation priorities, while over one third of definitions included a multifaceted socio-ecological focus. This finding suggests that ecological foci are still prioritized over other benefits, even though large-landscape conservation initiatives are rooted in both conservation and development (Sayer, 2009). Funding and community involvement were selected as the most important factors influencing success for initiatives. Over half of respondents also found government support, leadership, and government participation to be important factors for initiative success. Yet these aspects of coordination and collaboration were not included in majority of participants' own definitions of success for large-landscape conservation. This disparity between defining success and factors that influence success implies that while members acknowledge various aspects can influence the success of their initiatives, half of them still measure that success solely in ecological terms. This mirrors the idea that ecological outcomes can be reliant on other social aspects such as community involvement (Brooks et al., 2006). Similarly, conservation interventions are more successful overall with supportive community outreach and engagement (Waylen et al., 2010). However, large-landscape work still emphasizes biological success over socio-economic success (Sayer, 2009) and the results from this survey demonstrate that there is the need to expand the definitions of success to equitably include socio-economic priorities that benefit local communities.

For the case study in Southern Patagonia, there was more variation in ideas of success. While those who worked in conservation emphasized ecological conservation priorities such as conserving specific species and managing threats, there were also perspectives on success that

emphasized tourism, Indigenous recognition and rights, economic development, and local community leadership. This difference in findings on ideas of success between the survey and case study is mainly attributed to the fact that the survey was solely focused on Specialist Group members perspectives, while the interviews encompassed local stakeholders from a variety of backgrounds, including tourism workers, conservation practitioners, and citizen leaders. In addition, the case study was focused on a particular geography, as it has been found that conservation outcomes and success are associated with cultural context (Waylen et al., 2010). There were several ideas of success that focused on economic and tourism opportunities. Schoon (2013) recognizes that economic goals play a part in transboundary work and successes can come in generating tourism revenue. Since southern Patagonia is a top international tourism destination, the ideas of success that emphasized tourism development were reflective of the current context in Patagonia.

Social-science frameworks that go beyond traditional ecological measures are important to the evaluation of conservation success (Brooks et al., 2006). The perspectives on success from the case study more strongly reflect conservation and development goals compared to those of the members who participated in the survey, who emphasized ecological conservation. The case study mirrors similar trends in Patagonia, as private protected area efforts that are supported by conservation practitioners are not necessarily successes in the eyes of local communities (Louder & Bosak, 2019). The difference in perspectives on success emphasizes the need to push further push large-landscape conservation to not only include local communities, but also treat their priorities as equally important to ecological priorities. If Specialist Group members are not giving equal emphasis to the socio-ecological outcomes of large-landscape conservation, then local communities are not being treated equitably in their involvement and engagement in large-

landscape and transboundary initiatives. Large-landscape conservation network members must transform their perspectives on success in order to ensure that large-landscape conservation and transboundary conservation do not become new means of exploitation and injustice.

Conclusion

Overall, the IUCN Specialist Group survey and the Patagonia case study complement each other in assessing trends in large-landscape conservation, key challenges and opportunities, and perspectives of success. Both projects highlight the emergent nature of transboundary and large-landscape conservation and the significant lack of Indigenous involvement and recognition in efforts. There were differences in levels of perceived government support, demonstrating that Specialist Group members may be better positioned for political support than local border communities. Lastly the differences in local and Specialist Group perspectives on success in conservation demonstrate that the joint conservation and development goals of large-landscape work are not necessarily being adequately included by those leading initiatives, perhaps to the detriment of local communities. There is room to push the boundaries of success in large-landscape and transboundary conservation and move conservationists to equally include social and economic priorities into their aspirations for initiatives.

These two projects contribute to our conceptual understanding of transboundary and large-landscape conservation and how it is being practiced on-the-ground to inform current and future initiatives. Although these two projects were very different in both nature and scales, they aimed to provide two underrepresented perspectives in the field of large-landscape conservation: those of local communities and those of Specialist Group members. This study serves as the catalyst for further dialogue around the role of local communities in large-landscape and transboundary conservation, including questions of equity and inclusion. The findings can

provide insights on how to improve and reshape large-landscape practices, while also informing future initiatives based on local perspectives and challenges. In turn, the field of large-landscape conservation can progress and help propel conservation practices while integrating various scales within the social, political, and ecological landscape.

Research Limitations and Future Directions

Similar to other conservation social science research, there were limitations on this project. First, the inherent bias of the researcher has unintentionally influenced this thesis and its results. Positionality is at the core of the researcher's experiences and a different researcher may emphasize other findings. Although there was a perceived benefit to being an outside researcher, this dynamic most likely affected responses. Being a foreigner limited my capacity to understand certain references and histories that were mentioned in interviews. Second, the survey was extremely long due to partnerships with various collaborators who wanted to include questions they would be able to utilize for their own work. This limited the responses in the survey, as there were less responses to questions as the survey progressed. In addition, responses were limited to members of the Specialist Groups, which may not represent all large-landscape initiatives. Lastly, this survey was in English which provided a language barrier in receiving responses from members around the world.

In addition, the two-year timeline of this project limited the data collection process. Doing two projects for a master's thesis is a huge undertaking. This potentially limited the level of engagement and analysis with each project. The researcher spent a total of three months conducting interviews between the two countries and six different municipalities. More time would have allowed for more ample collection of perspectives, especially of members within Indigenous communities. During the time period the researcher was down in the field, a people's

movement against the government began in Chile. Interviews in Chile were conducted before this movement started, leading to a limitation in applying these results to the changing governmental system in Chile. Similarly, a major election and administration change occurred during the data collection period in Argentina, influencing those interviews.

In terms of future direction, there are several potential ways to expand this research. The first would be to carry out a similar, but shortened survey on a cyclical basis for the IUCN Specialist Groups. This would allow for a way to see how the fields of large-landscape and transboundary conservation evolve and develop over time, particularly regarding topics like local community involvement and engagement. In terms of the Southern Patagonia project, there is potential to do a policy analysis to further understand the history of binational relations between Chile and Argentina and understand what structures are currently in place for supporting transboundary conservation. Lastly, there is the opportunity to do comparative studies with similar border situations (e.g. Pakistan and India) to evaluate how these themes translate to other geographies around the world.

Appendix I. Survey Questions

1. What is your role in the initiative you work on?
 - Fundraiser/Donor
 - Conservation or protected area manager
 - Researcher
 - Government representative
 - Other _____
2. Which IUCN World Commission on Protected Areas Specialist Group are you a part of?
 - Connectivity Conservation Specialist Group
 - Transboundary Conservation Specialist Group
 - Both
3. What type of Transboundary Conservation Area (TBCA) is the initiative you work on? (Check all that apply)
 - Transboundary Protected Area: a clearly defined geographical space that includes protected areas that are ecologically connected across one or more international boundaries and involves some form of cooperation
 - Transboundary Conservation Landscape and/or Seascape: an ecologically connected area that includes both protected areas and multiple resource use areas

across one or more international boundaries and involves some form of cooperation

- Transboundary Migration Conservation Area: wildlife habitat in two or more countries that are necessary to sustain populations of migratory species and involve some form of cooperation
 - Park for Peace: special designation that may be applied to any of the three types of Transboundary Conservation Areas, and is dedicated to the promotion, celebration and/or commemoration of peace and cooperation
4. How long has this conservation initiative existed?
 - 0-5 years
 - 5-15 years
 - 15-30 years
 - 30-50 years
 - 50+ years
 5. How large is the area that your initiative focuses its efforts?
 - Less than 202,000 hectares (~500,000 acres)
 - 202,001- 404,000 hectares (500,000-999,999 acres)
 - 404,001 – 2,000,000 hectares (1-5 million acres)
 - 2,000,001 – 4,000,000 hectares (6-10 million acres)
 - 4,000,001 – 20,000,000 hectares (11-50 million acres)
 - 20,000,001 – 40,000,000 hectares (51-100 million acres)
 - More than 40 million hectares (100 million acres)
 - Not Sure
 6. In what IUCN region does your initiative take place? Note: These geographic regions are defined by the statutes of the IUCN
 - Africa
 - Meso and South America
 - North America and the Caribbean
 - South and East Asia
 - West Asia
 - Oceania
 - East Europe, North and Central Europe
 - West Europe
 - Arctic
 - Transcontinental
 7. Which African countries participate in your initiative? (Check all that apply)
 - List of African countries
 8. Which Meso and South American countries participate in your initiative? (Check all that apply)
 - List of Meso and South American countries

9. Which North American and Caribbean countries participate in your initiative? (Check all that apply)
 - List of North American and Caribbean countries
10. Which South and East Asian countries participate in your initiative? (Check all that apply)
 - List of South and East Asian countries
11. Which West Asian countries participate in your initiative? (Check all that apply)
 - List of West Asian countries
12. Which Oceania countries participate in your initiative? (Check all that apply)
 - List of Oceania countries
13. Which East Europe, North and Central Europe countries participate in your initiative? (Check all that apply)
 - List of East Europe, North, and Central Europe countries
14. Which West Europe countries participate in your initiative? (Check all that apply)
 - List of West Europe countries
15. Which continents are involved in your initiative? (Check all that apply)
 - List of continents
16. In the area in which your initiative is based, is the conservation of ecological connectivity explicitly mentioned in national or subnational legislation or policy?
 - Yes
 - No
 - Not Sure
17. Has your initiative identified spatially explicit areas that are important for ecological connectivity (i.e. facilitating species movement, genetic exchange, and dispersal)?
 - Yes
 - No
 - Not Sure
18. What kind of plans are associated with your initiative? (Check all that apply)
 - Protected area site management plans
 - Protect area system plans (land and marine)
 - Other government land use plans (i.e. municipal and subnational land use plans)
 - Non-binding or advisory land use and conservation plans
 - Government wildlife management plans
 - National Biodiversity Strategy and Action plans
 - Strategic Environmental Assessments
 - National Environmental Action Plans
 - Marine spatial plans
 - Climate change adaptation and mitigation plans
 - Integrated coastal zone management plans
 - Integrated spatial plans

- Other sectoral development plans (e.g. transportation, agriculture, forestry, fisheries)
 - Not Sure
19. Which ecological realm is your initiative focused on? (Check all that apply)
- Terrestrial
 - Freshwater
 - Marine
20. Is the conservation of ecological connectivity or ecological corridors a primary goal of your initiative?
- Yes
 - No
21. Which of the following types of species are a focus of your initiative? (Check all that apply)
- Mammalian Carnivores
 - Non-Carnivore Mammals
 - Bats
 - Birds
 - Reptiles
 - Amphibians
 - Plants
 - Fish
 - Invertebrates
 - No specific species identified
22. Is the conservation of riparian corridors a goal of your initiative?
- Yes
 - No
 - Not Sure
23. Is your initiative nested within another large-landscape conservation initiative? Example: Local conservation initiative based within regional effort or

specific corridor for migration within larger network (e.g. Roundtable on the Crown of the Continent within the Yellowstone to Yukon Initiative)

- Yes
- No
- Not sure

24. Have you used any of the best practice guidelines (public resources, packets, documents) on large landscape or transboundary conservation initiatives from the IUCN World Commission on Protected Areas (WCPA)? (Check all that apply)

- National System Planning for Protected Areas
- Indigenous and Traditional Peoples and Protected Areas
- Financing Protected Areas
- Tools for measuring, modelling, and valuing ecosystem services
- Transboundary Conservation: A systematic and integrated approach
- Tourism and Visitor Management in Protected Areas
- Guidelines for privately protected areas
- None
- Other _____

25. Why have you not used any of the IUCN resources? (Check all that apply)

- Was not aware of them
- Too difficult to access
- Do not need resources
- Other _____

26. How frequently (if at all) do Indigenous communities participate in collaboration and management of your initiative?

- Extremely involved (Every day)
- Involved (Several Times a Week)
- Occasionally involved (Several Times a Month)
- Infrequently Involved (Several Times a Year)
- Never
- Not Sure
- Not applicable

27. How frequently (if at all) do local communities participate in collaboration and management of your initiative?

- Extremely involved (Every day)
- Involved (Several Times a Week)
- Occasionally involved (Several Times a Month)
- Infrequently Involved (Several Times a Year)
- Never
- Not Sure
- Not applicable

28. If not, why have you not worked with local communities?
29. What types of local community groups do you work with for management of the initiative? (Check all that apply)
- Indigenous Peoples
 - Local political leaders
 - Conservation groups
 - Local tourism and hospitality operators
 - Other _____
30. What role do local communities have in the initiative? (Check all that apply)
- Daily autonomous management of initiative
 - Co-management with other parties
 - Consultation
 - Decision-making influence
 - None
31. What motivates you to work with local communities for the initiative? (Check all that apply)
- Better overall management
 - Formal law that requires public participation
 - Equality and inclusion
 - Focus on local cultures
 - Promoting cooperation
 - Economic Development
 - Other _____
32. How do you define “success” for large-landscape conservation? (open-ended)
33. What are the main outcomes that have been achieved by your initiative? (Check all that apply)
- Partnership and collaboration among actors
 - Peace and stability
 - Increased tourism
 - Climate change mitigation or adaptation
 - Protected biodiversity
 - Economic development for local communities
 - Increased trust in government
 - Other _____
34. Which of the achieved outcomes that you selected do you believe are long-term successes (5+ years)? (Check all that apply)
- Partnership and collaboration among actors
 - Peace and stability
 - Increased tourism
 - Climate change mitigation or adaptation

- Protected biodiversity
 - Economic development for local communities
 - Increased trust in government
 - Other _____
35. Which of the following aspects are important for evaluating your initiative? (Check all that apply)
- Partnership and collaboration among actors
 - Peace and stability
 - Increased tourism
 - Climate change mitigation
 - Protected biodiversity
 - Economic development for local communities
 - Increased trust in government
 - Other _____
36. How has the progress or success of your initiative been evaluated or monitored? (Check all that apply)
- Through a formal Monitoring & Evaluation framework that is a part of a Joint Management Plan
 - On-the-ground monitoring and data gathering
 - Second-hand observations reported back to the initiative
 - Government oversight or monitoring
 - Informal reporting from stakeholders
 - No evaluation or monitoring has been done at this point
 - Other _____
37. What are the most important factors that have contributed to the initiatives success?
- Formalization of initiative (e.g. official treaty or pact)
 - Government support
 - Government participation
 - Community involvement and management
 - Third-party actor involvement
 - Funding/financial support
 - Leadership
 - Other _____
38. What are the biggest challenges to the success of your initiative? (Check all that apply)
- Lack of formalization
 - Lack of government support
 - Lack of government participation
 - Lack of community involvement and management
 - Lack of coordination among actors

- Lack of facilitator involvement
- Lack of funding/financial support
- Lack of leadership
- Lack of trust
- Other _____

What are the major conservation threats to the area and landscapes in which your initiative is located? Rank the following threats with your level of concern for the area you work in. 1 is the least concerned and 5 is most concerned.

39. Threat 1. Mining and Energy Development

40. Threat 2. Linear Infrastructure (roads, railroads, pipelines) Development

41. Threat 3. Urban Development

42. Threat 4. Agricultural Development

43. Threat 5. Climate Change

44. Threat 6. Invasive Species

45. Threat 7. Lack of Water Resources

46. Threat 8. Loss of cultural and historic characteristics

47. Threat 9. Loss of economic opportunities/local livelihoods

48. Threat 10. Deforestation

49. Threat 11. Lack of awareness or education about conservation

50. Threat 12. Illegal and/or unsustainable harvesting of wildlife and fisheries

51. Threat 13. Overgrazing

52. Threat 14. Timber harvesting and fuelwood/charcoal production.

53. What are the major focus areas of your initiative? (Check all that apply)

- Undeveloped and open space
- Biodiversity conservation
- Connectivity and wildlife corridors
- Water quality and watershed protection
- Cultural and Historic resources
- Tourism and aesthetic landscapes
- Agricultural, timber, grazing
- Land-use planning and management
- Education
- Other ecosystem services

54. What is the approximate number of organizations and entities (actively- involved groups) participating in your initiative?

55. During the planning of your conservation initiative, which groups were involved in the process? (Check all that apply)

- Local communities
- National government officials
- Regional or local government officials

- Conservation Groups
 - Private Sector
 - Tourist operators
 - Non-governmental organizations (NGOs)
 - Don't know
 - Other
56. Is there political commitment from government officials for your initiative at the following levels? (Check all that apply)
- Local
 - Subnational (i.e. State/Province, County, Township, etc.)
 - National
 - International
57. How would you best categorize the partnerships in your initiative?
- Full Cooperation: Planning is fully integrated and if appropriate, ecosystem-based, with implied joint decision-making and common goals.
 - Coordination of Planning: Usually coordinate their planning, often even planning for the two as a single ecological unit. They communicate often, schedule regular meetings, and work together on at least five different activities.
 - Collaboration: At this level, communication is at least bimonthly and meetings occur at least three times per year. They actively cooperate on at least four different activities, some- times coordinating their planning and consulting the other actor before acting.
 - Consultation: This level corresponds to the international legal definition of notification, where notification of actions affecting the adjoining actors and notification of emergencies usually occurs. Communication is more frequent (at least three times per year) and there is cooperation on at least two different activities.
 - Communication: Some two-way communication occurs between the protected areas as staff meet and communicate at least once a year. Officials sometimes share information and notify each other of actions that may affect the others
 - No cooperation: Staff never communicate, meet, share information, or cooperate on any specific issues
58. How was joint planning (vision, objectives, goals, etc.) developed for the transboundary initiative between the partners and organizations in the initiative?
- Parties developed joint vision
 - Parties developed joint objectives
 - Parties jointly developed a management plan for the initiative
 - Other _____
 - No joint planning was developed

59. Which of the following mechanisms were used during the establishment of your transboundary, large-landscape, or connectivity conservation initiative? (Check all that apply)
- A formal binding agreement: e.g. multilateral environmental agreements, bilateral treaties and "international customary law" (accepted practices recognized by international tribunals)
 - Non-binding agreement: e.g. a Memorandum of Understanding between key agencies
 - A regional cooperative framework: e.g. a declaration or regional action plan signed by government officials
 - A protocol or contingency plan: a more limited agreement to address specific issues such as dealing with emergencies or search and rescue operations
 - A declaration or statement by relevant actors of their intention to cooperate in a connectivity conservation or transboundary context (e.g. as adopted at the conclusion of a transboundary workshop)
 - A letter of intent (applicable at any level)
 - A traditional arrangement e.g. recognition of the rights of adjacent community to undertake harvesting across the boundary
 - An informal agreement between protected area managers and local landowners.
 - Other _____
 - None
60. Thinking about your initiative, which of the following conservation tools and approaches have been identified in formal policies and plans? (Check all that apply)
- Regulatory tools that restrict human uses in spatially explicit areas (i.e. zoning delineations, permits and licenses for resource use and extraction)
 - Financial incentive tools (i.e. tax subsidies, payments for ecosystem services)
 - Property tools (e.g. land purchases, acquisitions, exchanges, and conservation easements)
 - Outreach and education
 - Conservation management activities (e.g. construction of wildlife crossings, habitat and ecological restoration)
 - Training and technical assistance
 - Access to and use of geospatial technology and remote sensing tools to aid in planning, monitoring, and enforcement
 - Other _____
61. Which of the strategies you selected have been implemented in practice? (Check all that apply)
- Regulatory tools that restrict human uses in spatially explicit areas (i.e. zoning delineations, permits and licenses for resource use and extraction)

- Financial incentive tools (i.e. tax subsidies, payments for ecosystem services)
 - Property tools (e.g. land purchases, acquisitions, exchanges, and conservation easements)
 - Outreach and education
 - Conservation management activities (e.g. construction of wildlife crossings, habitat and ecological restoration)
 - Training and technical assistance
 - Access to and use of geospatial technology and remote sensing tools to aid in planning, monitoring, and enforcement
 - Other _____
62. What types of land ownerships are associated with your initiative? (Check all that apply)
- Government Protected Area
 - Government multiple use area (some activities allowed, e.g. hunting, timber harvesting)
 - Lands owned by private citizens
 - Lands owned by local communities
 - Lands owned by Indigenous peoples
 - Lands owned by businesses and corporations
 - Lands with lack of formal, unclear or contested ownership status
63. Thinking about your initiative and goals for connectivity, which of the following is the primary objective?
- Facilitate movement or gene flow of particular species
 - Conserve structural connectivity (e.g. riparian corridors or contiguous patches of forest)
 - Maintain ecosystem processes (e.g. natural disturbance regimes and hydrologic function)
 - Facilitate adaptation responses to climate change (e.g. range shifts)”
 - Other _____
64. What types of data and information were used to support connectivity planning in your initiative? (Check all that apply)
- Expert opinion
 - Traditional Ecological Knowledge (i.e. knowledge acquired through experience by Indigenous peoples)
 - Information from local communities
 - Quantitative data on species movements
 - Quantitative data on species habitat and ecological conditions
 - Outputs from connectivity models (i.e. CircuitScape).
65. What is the total annual budget for your initiative (US Dollars)?
- \$0-\$100,000

- \$100,001-\$250,000
- \$250,001-\$500,000
- \$500,001 – \$1,000,000
- \$1,000,001-\$3,000,000
- \$3,000,001-\$5,000,000
- \$5,000,001 – \$7,000,000
- \$7,000,001-\$10,000,000
- More than \$10,000,000
- Don't Know

In the next questions, please indicate the percentage of your total funding that has been received from the following sources.

- Options: 0-25%, 26-50%, 51-75%, 76-100%, Not Sure

66. Source 1. Local Communities

67. Source 2. Local NGOs

68. Source 3. Government Funding

69. Source 4. Indirect Government Funding (government sources other than the direct budgeting and fund allocation process by treasury)

70. Source 5. National NGOs

71. Source 6. International NGOs

72. Source 7. International Financial Institutions and Development Agencies (e.g. World Bank, Global Environment Fund, USAID, GIZ, etc.)

73. Source 8. International Governmental Organizations (e.g. United Nations Agencies and Programmes, the European Union, Organization of America States, etc.)

74. Source 9. Private Sector and Philanthropy

75. What percentage of the required budget for the initiative's success is already secured?

- 0-25%
- 26-50%
- 51-75%
- 76-100%
- Not Sure

76. What strategies do you use for your initiative to sustain long-term funding? (Check all that apply)

- Diversity of funders
- Private sector and corporation sponsorships
- Applying for grants
- International Development agencies (German Development Agency, USAID, etc.)
- Advocacy and Lobbying
- NGO funding
- None

- Other _____

77. What do you gain from being a member of the IUCN Specialist Group?

- Network of peers
- Professional development
- Access to resources
- International support
- Other _____

78. Which of the benefits you selected also help support the initiative you work on? (Check all that apply)

- Network of peers
- Professional development
- Access to resources
- International support
- Other _____

Appendix II. Survey Results Not Included in Main Thesis

Q1. What is the name of the conservation initiative that you most commonly work on or are most familiar with? Please pick one initiative that you will focus on for the questions in this survey.

There were 101 distinct responses for the initiative name. Some respondents provided general terms or phrases as answers, such as “transboundary conservation.” Others mention specific initiatives that they are working on. The most popular general responses are related to large-landscape and connectivity conservation, as well as protected areas. For specific initiatives, there are four responses from the Kavango-Zambezi Transfrontier Conservation Area and the Yellowstone-to-Yukon Conservation Initiative.

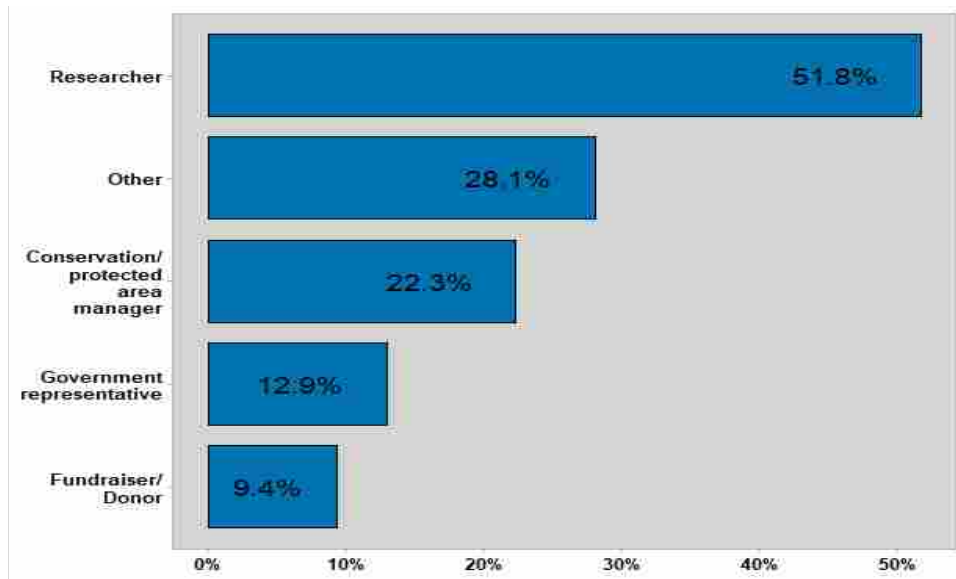
Initiative Name/Response	Count	Initiative Name/Response	Count
Large-Landscape and Connectivity Conservation	7	HEART OF BORNEO	1
Protected areas and complexes	5	Hindu Kush Karakoram Pamir Landscape	1
Kavango-Zambezi Transfrontier Conservation Area	4	IENE	1
Yellowstone to Yukon Conservative Initiative	4	Impacts of linear infrastructure on biodiversity	1
Transboundary Conservation	3	Indigenous Peoples Own Conservation	1
Biodiversity Conservation	2	International Wildlife Refuge	1
European Green Belt	2	Investigation of transboundary migration of large carnivores	1
Great Eastern Ranges Initiative	2	IUCN	1
Marine Protected Areas	2	IUCN NbS Standard	1
Surrey’s Biodiversity Conservation Strategy	2	IUCN ROWA	1
Wildlands Network	2	Justice Sustainable Land Management Plan	1
Wildlife Connectivity	2	K2W Link	1
Action for Cheetahs	1	Large carnivore conservation	1
Algonquin to Adirondacks	1	Large Carnivore Initiative for Europe	1
Alpine Network of Protected Areas	1	Las Baulas National Marine Park, Costa Rica	1
Animal movement	1	Mayacamas to Berryessa (M2B) Connectivity Network	1
Bay to Baker Conservation Corridor	1	National park Neusiedler See - Seewinkel, Austria / Fertoe - Hansag National Park, Hungary	1
Bialowieza Forest Transboundary World Heritage	1	Nature4Climate	1

Biological Corridor in the Caribbean Initiative	1	Network for Landscape Conservation	1
Blue whales of the Banda Sea, Indonesia	1	Not sure	1
Cape Leopard Trust	1	PACIFICO Foundation	1
Climate change	1	Parco Europeo Maritime Mercantour	1
Cocos Galapagos Swimway	1	Parque Nacional Cerros de Amotape	1
Comision Nacional de areas naturales protegidas de Mexico	1	Peace Parks Foundation	1
Connecting the Australian Wet Tropics	1	Prairie Corridor	1
Connected Conservation - NPS Large Landscape Conservation	1	Prespa Ohrid Nature Trust	1
Connectivity of the Gobi-Steppe Ecosystem for Khulan and Mongolian gazelle	1	Projects TRANSGREEN and ConnectGREEN	1
conservation corridors for deer / reindeer in Scandinavia	1	Protect the last free flowing rivers in Romanian Carpathians	1
Conservation of Ecosystems Habitats and Plant Biodiversity in Morocco	1	Protecting Mountains	1
Convention on Migratory Species	1	reindeer	1
Coral Triangle Initiative	1	Rewilding	1
Corredor Biologico Mesoamericano	1	Rewilding Europe	1
Dsf	1	Sacramento-San Joaquin Delta	1
East Asian - Australasian Flyway P	1	SADC Transfrontier Conservation Area Programme	1
Eastern Wildway	1	San Juan - La Selva Biological Corridor	1
Ecological integrity and PA	1	Saudi Royal Reserve System	1
ecological restoration in the Upper Clark Fork River Basis--not conservation per se	1	Snow Leopard Transboundary Initiative	1
El Colloy protected forest	1	Soluciones TurÁsticas Sostenibles	1
Elephant conservation, connectivity conservation	1	Sonoran Desert Conservation Plan	1
EUROPARC Transboundary Programme Network	1	Southern African Wildlife College	1
Frontenac Arch	1	Species and Habitat Restoration	1
Gatineau Park	1	Staying Connected Initiative	1
genetic connectivity between conspecific populations	1	Terai Arc Landscape Conservation	1
Germplasm Bank of tropical Mexico and Mayan culture	1	Tiger Habitat Connectivity in Eastern Vidarbha, Maharashtra, India	1

Gouritz Cluster Biosphere Reserve corridor	1	Transfrontier Africa	1
Great apes conservation	1	Transborder Grizzly Bear Project	1
Great Limpopo TFCA	1	Tripartite Initiative (under NAFTA)	1
Greater Gola Landscape	1	Universidad Simon Bolivar	1
Guna Mountains Community Based Conservation Area	1	Western U.S. ungulate migration conservation	1
Habitat connectivity	1	Wyoming Migration Initiative	1

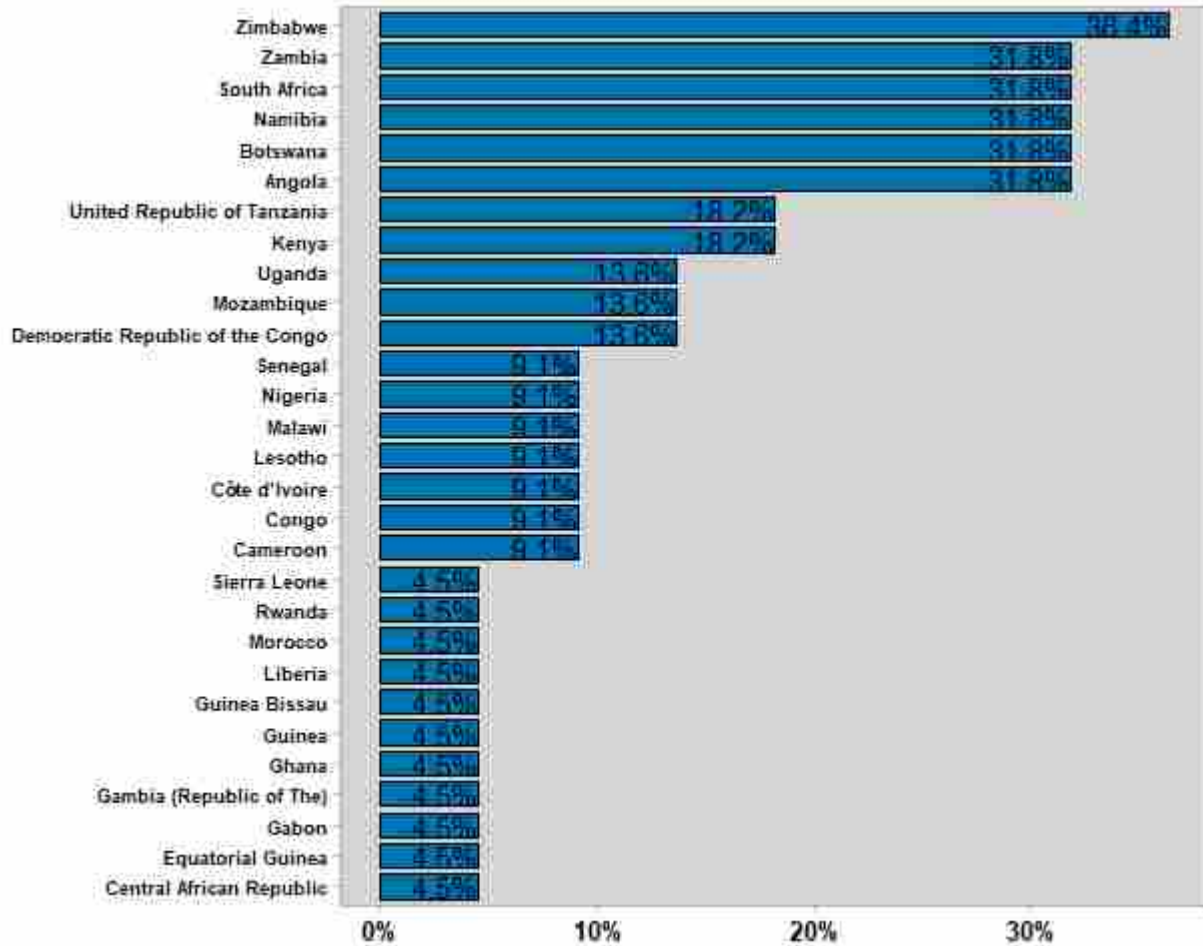
Q2. What is your role in the initiative you work on?

Over 40% of respondents are researchers who worked on large-landscape initiatives. “Other” was the second most popular answer, with 28% of respondents playing various roles in their initiatives.



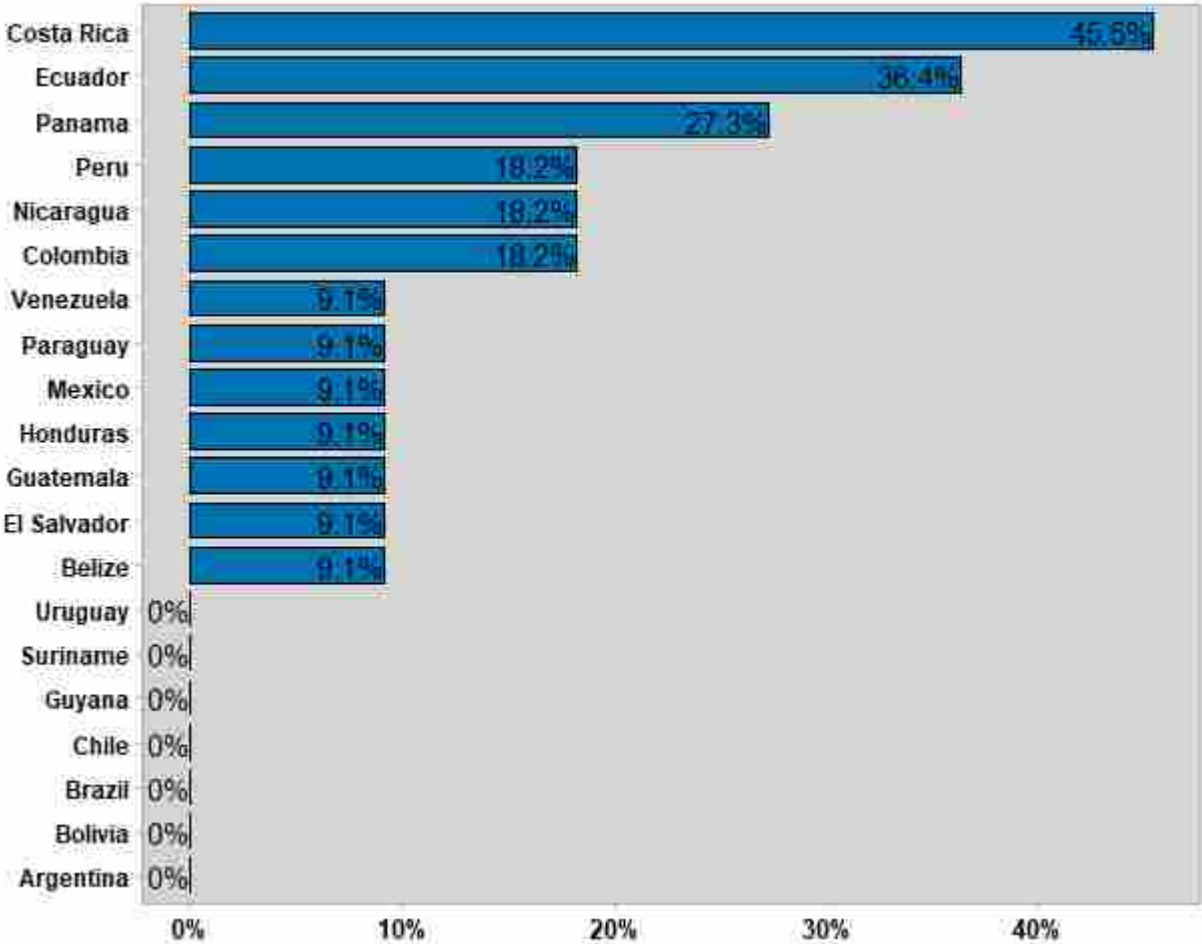
Q8 - Which African countries participate in your initiative? (Check all that apply)

Of respondents who do work in Africa, Southern Africa and West Africa are the most represented in terms of large-landscape conservation.



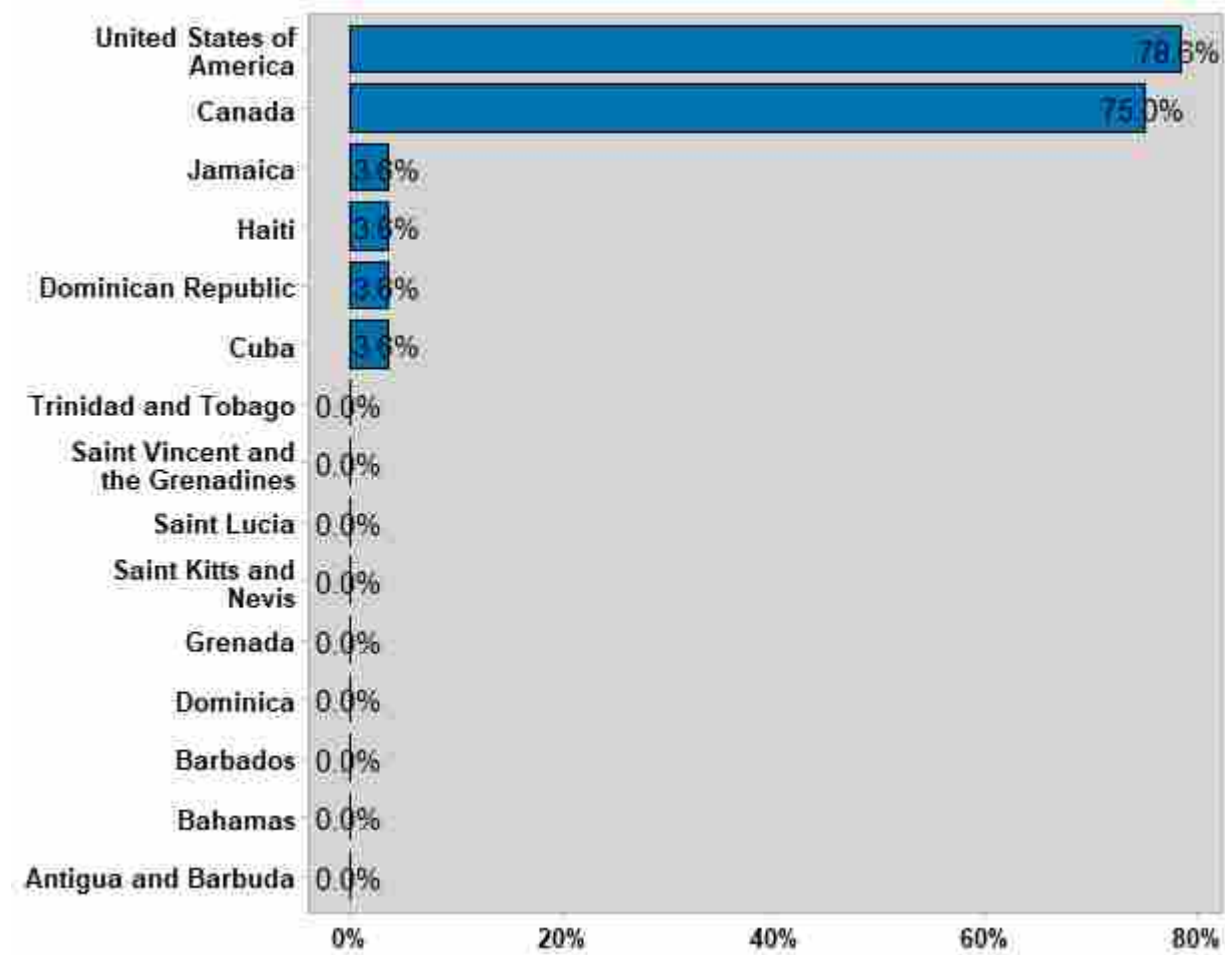
Q9. Which Meso and South American countries participate in your initiative? (Check all that apply)

Costa Rica and Ecuador are the most represented countries from the Meso and South American region.



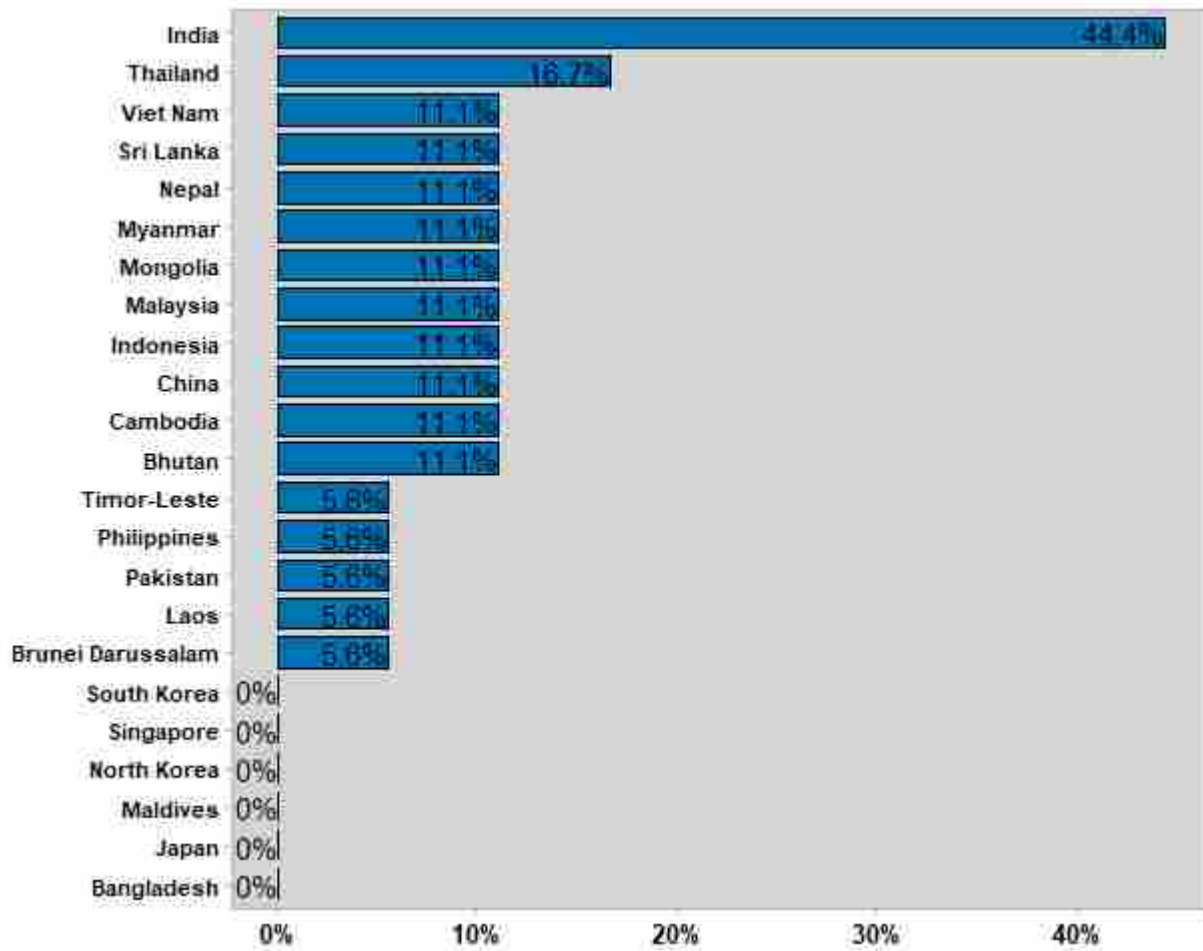
**Q10. Which North American and Caribbean countries participate in your initiative?
(Check all that apply)**

Although North America and the Caribbean is the most strongly represented region, 79% of respondents from this region work in the United States while 75% work in Canada.



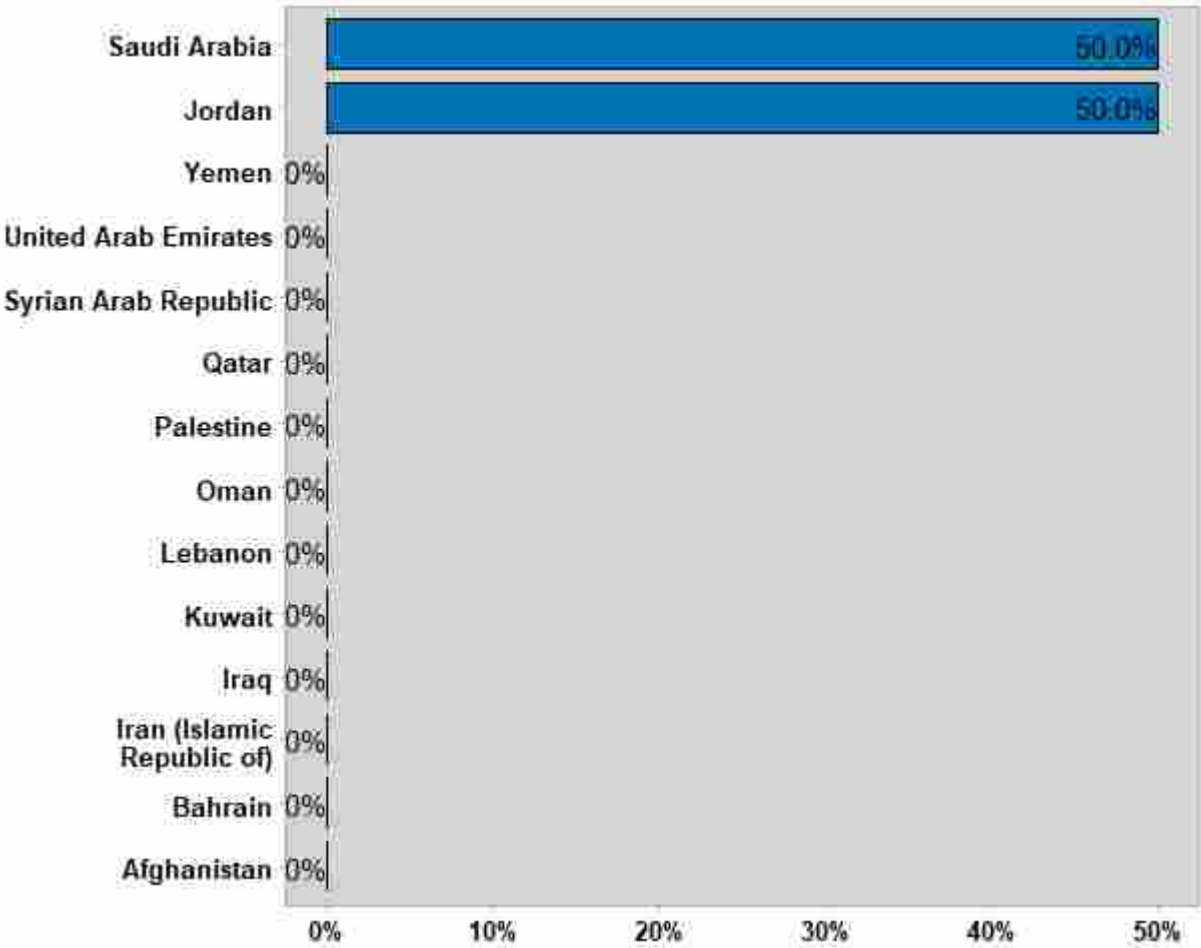
Q11. Which South and East Asian countries participate in your initiative? (Check all that apply)

India is the most represented country from the South and East Asia region, with 44% of respondents working there.



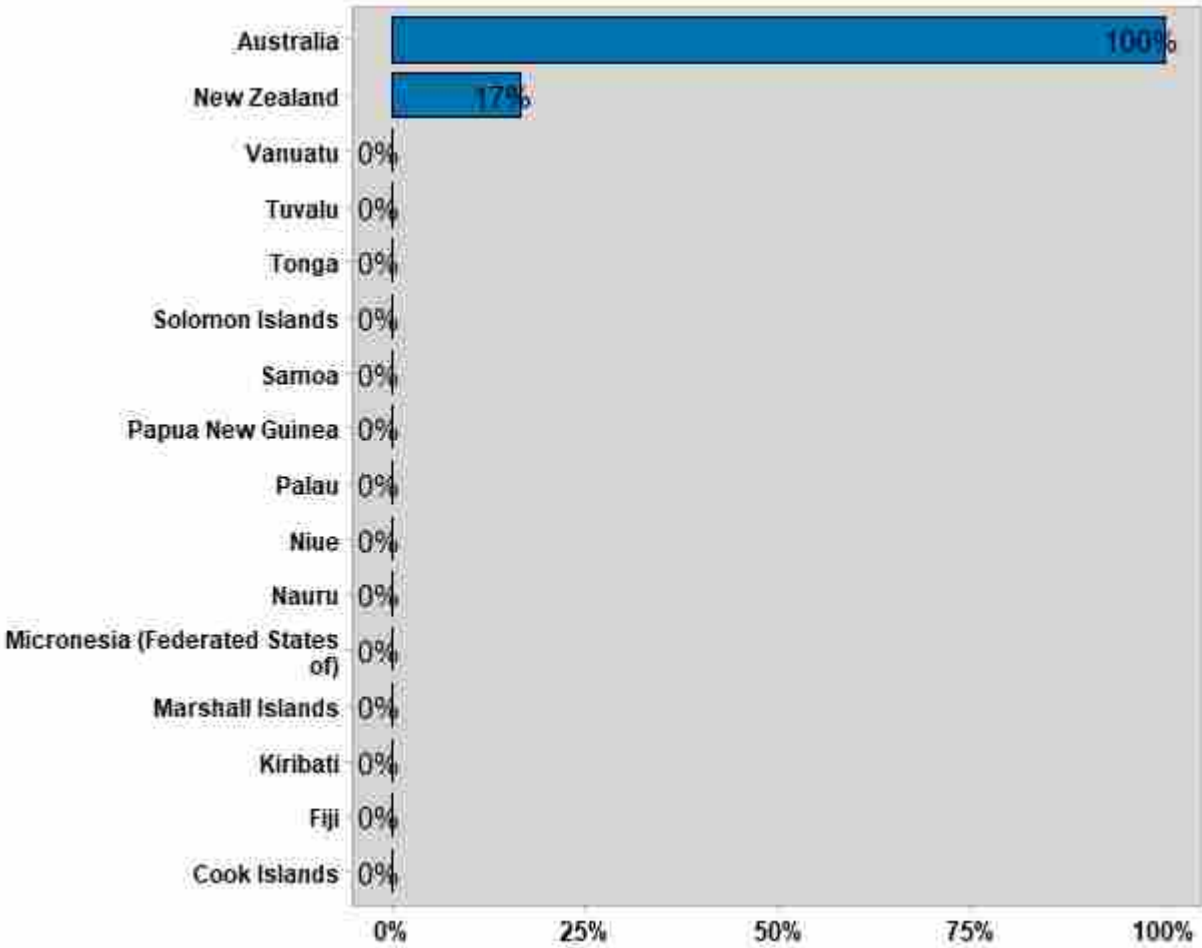
Q12. Which West Asian countries participate in your initiative? (Check all that apply)

There is only 1 initiative each in Jordan and Saudi Arabia from the West Asia region.



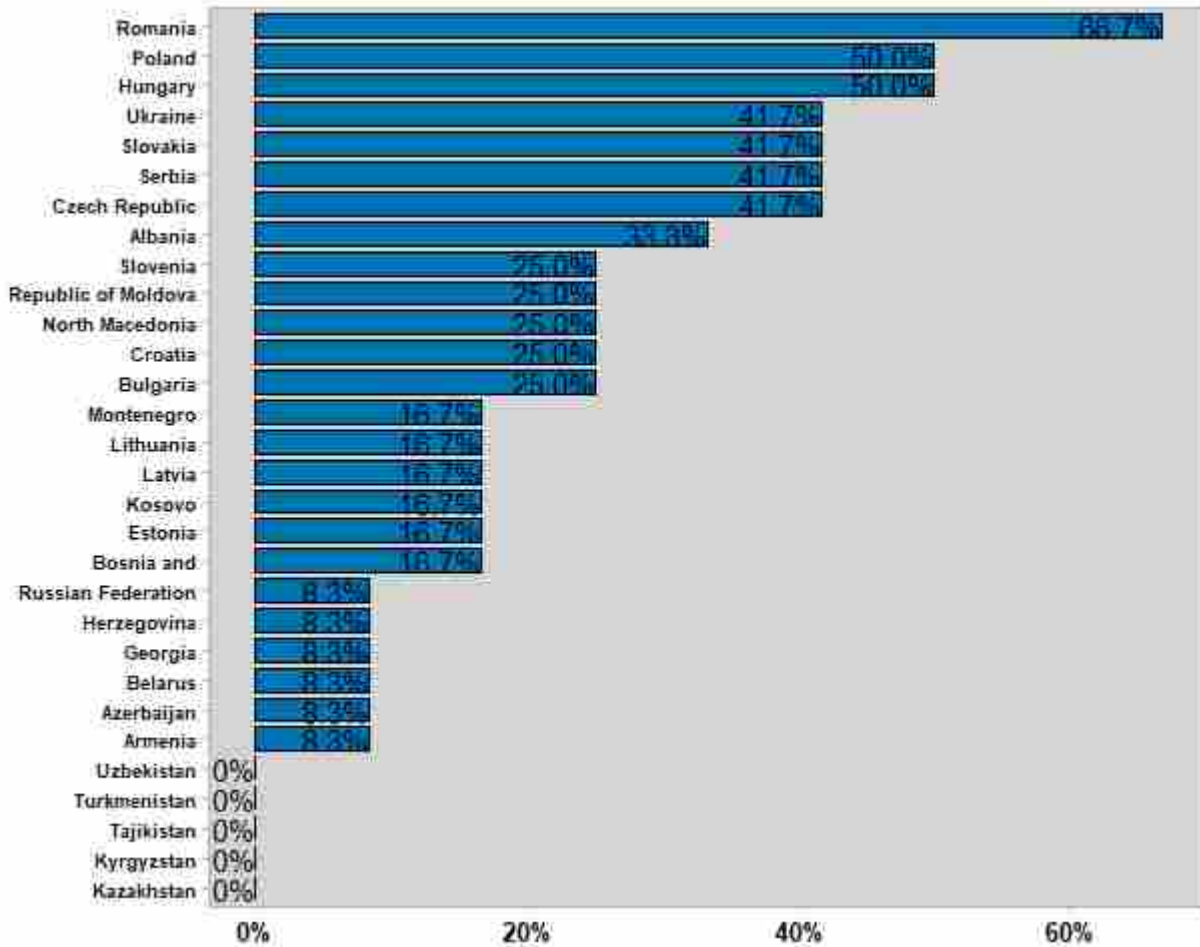
Q13. Which Oceania countries participate in your initiative? (Check all that apply)

100% of Oceania respondents work in Australia and 17% work in New Zealand.



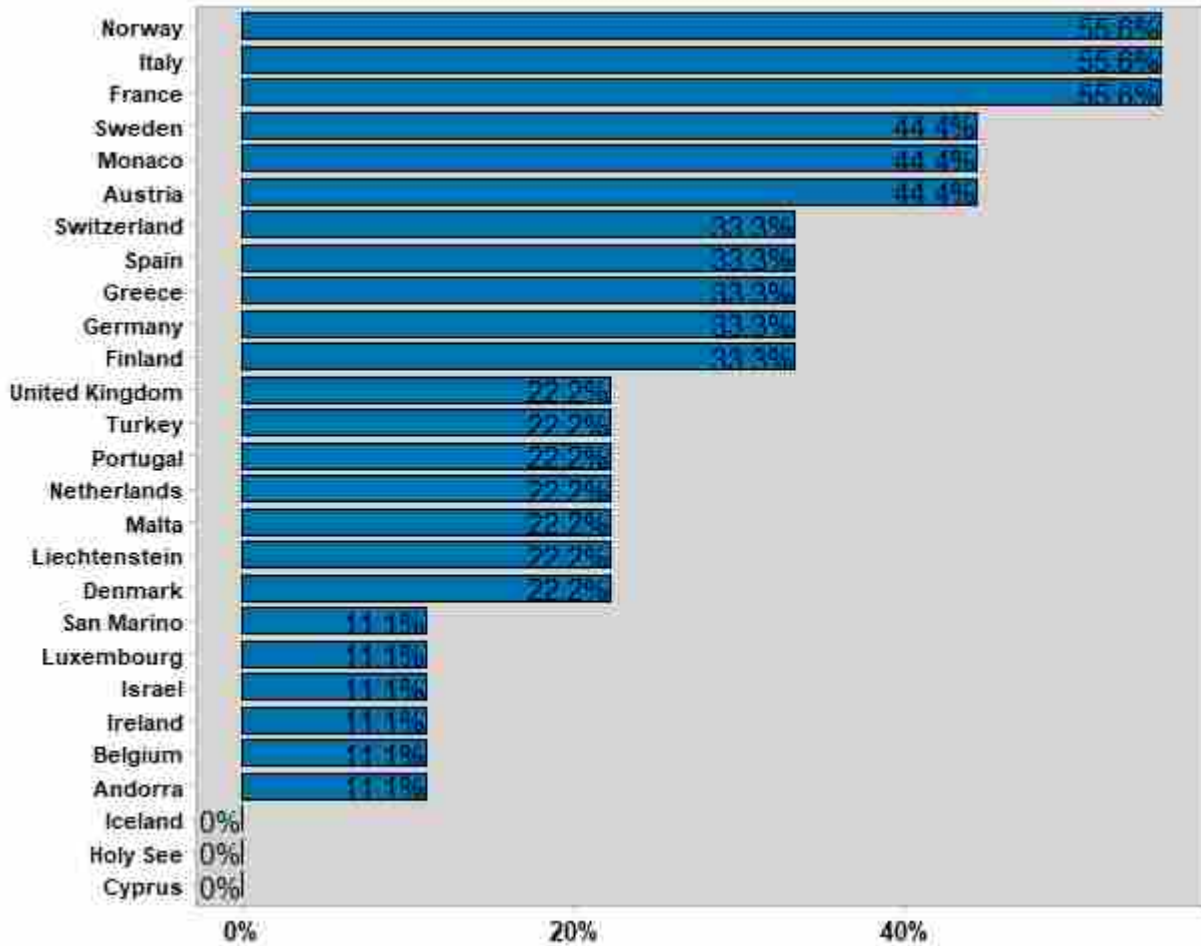
Q14. Which East Europe, North and Central Europe countries participate in your initiative? (Check all that apply)

Romania has 8 initiatives (67% of region), so it is the most represented country in the East, North, and Central Europe region. Central Asia did not have any representation, specifically in the countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.



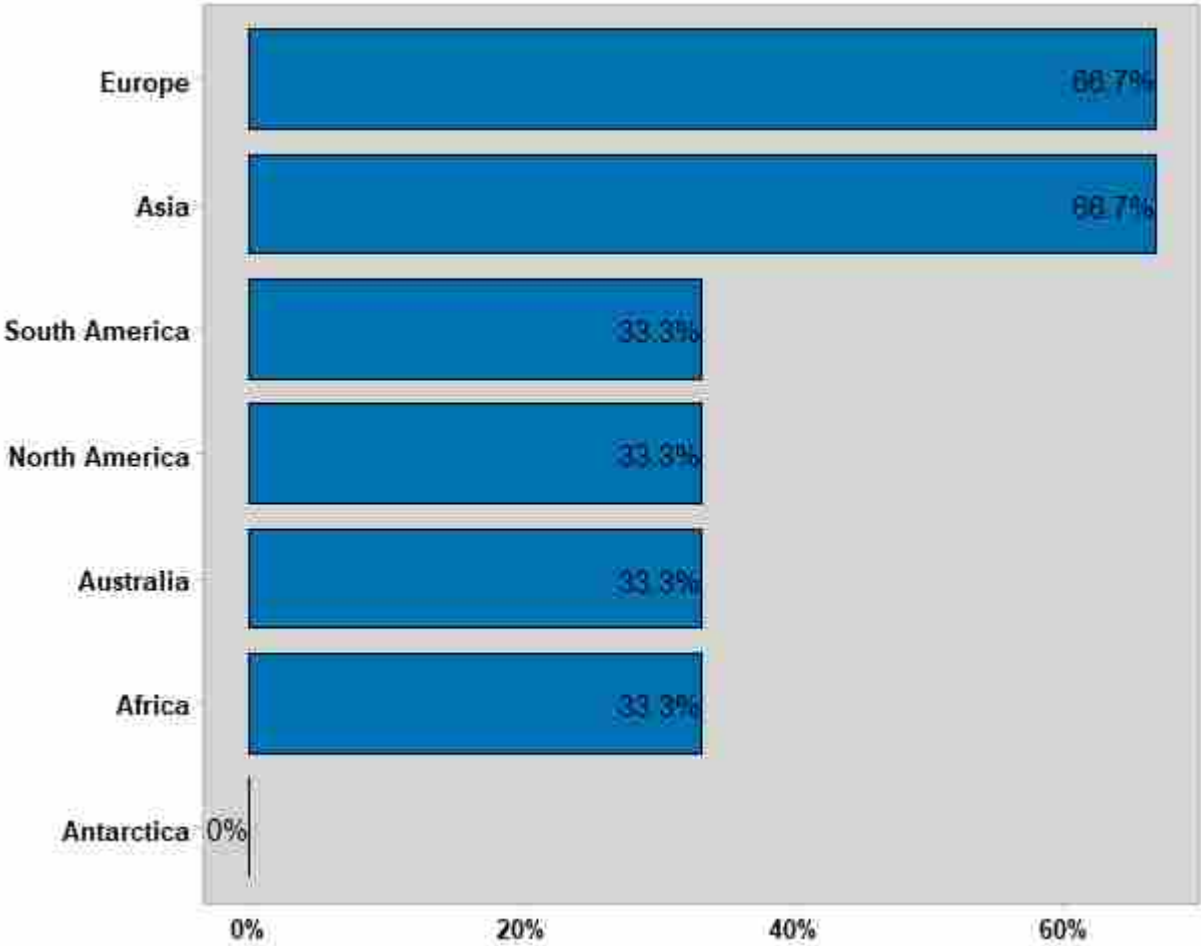
Q15. Which West Europe countries participate in your initiative? (Check all that apply)

France, Italy, and Norway are the most represented countries from Western Europe, with 5 initiatives (56% of the respondents from the region) in each.



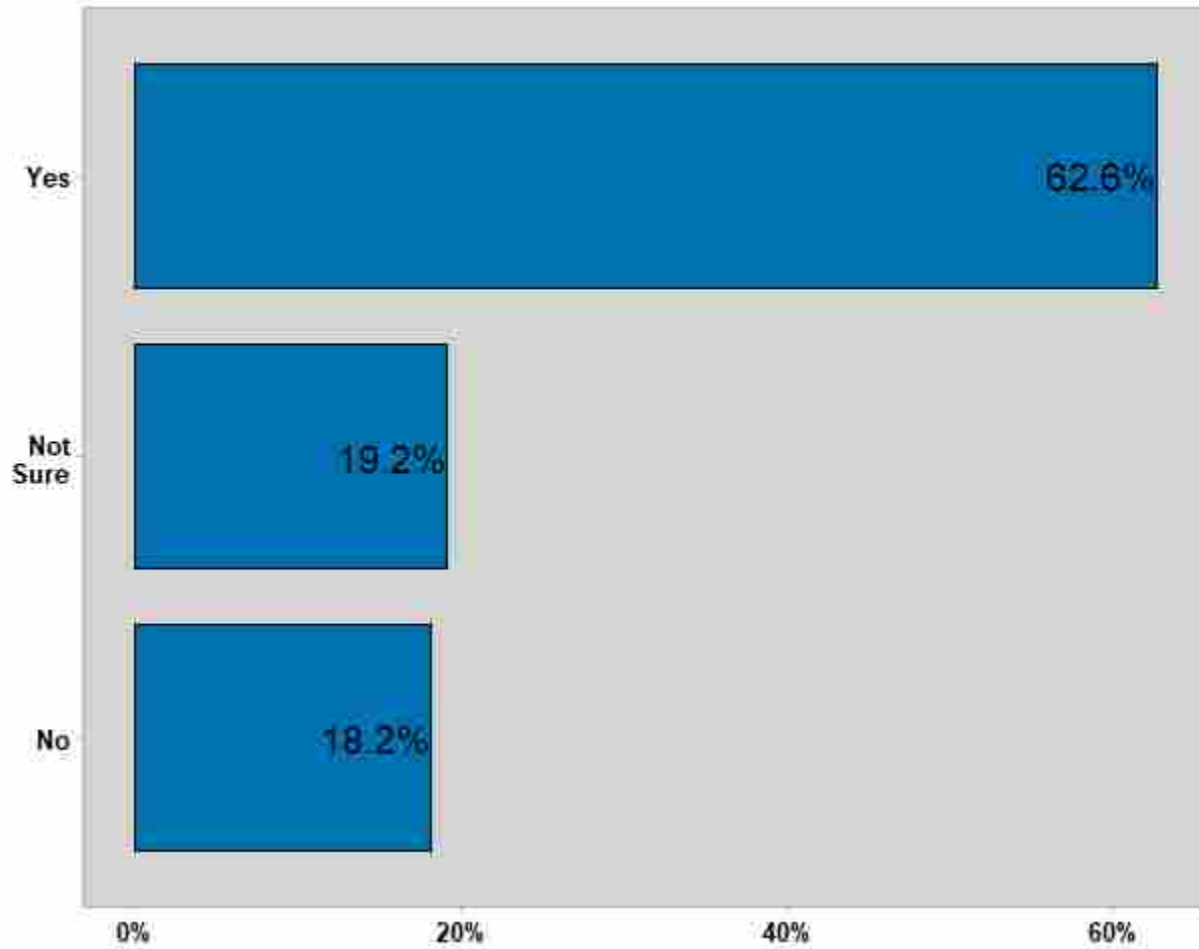
Q16. Which continents are involved in your initiative? (Check all that apply)

Transcontinental work mainly includes initiatives in Europe (67%) and Asia (67%).



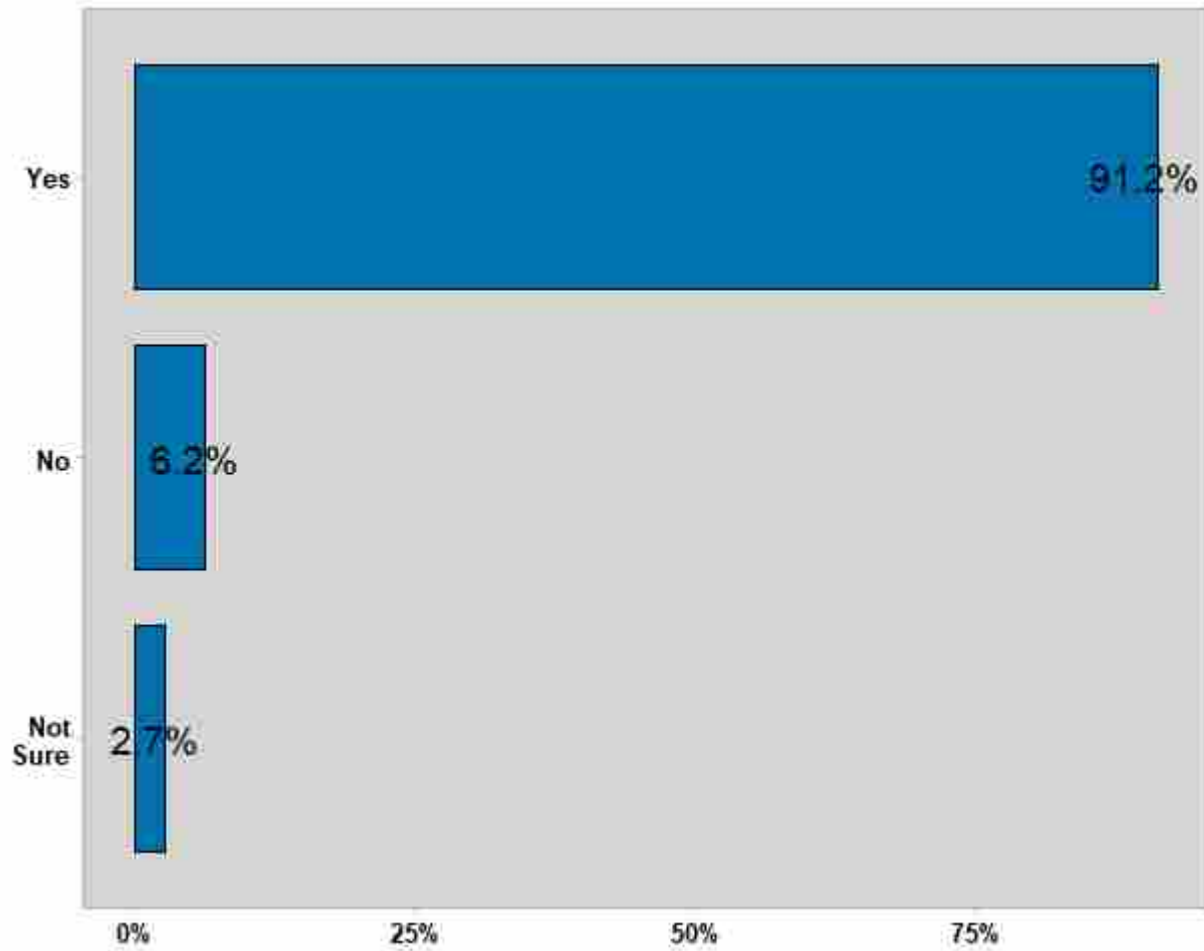
Q17. Connectivity Group Only: In the area in which your initiative is based, is the conservation of ecological connectivity explicitly mentioned in national or subnational legislation or policy?

Of the respondents from the Connectivity Conservation Specialist Group, 62% have connectivity explicitly mentioned in policy, while 19% are unsure.



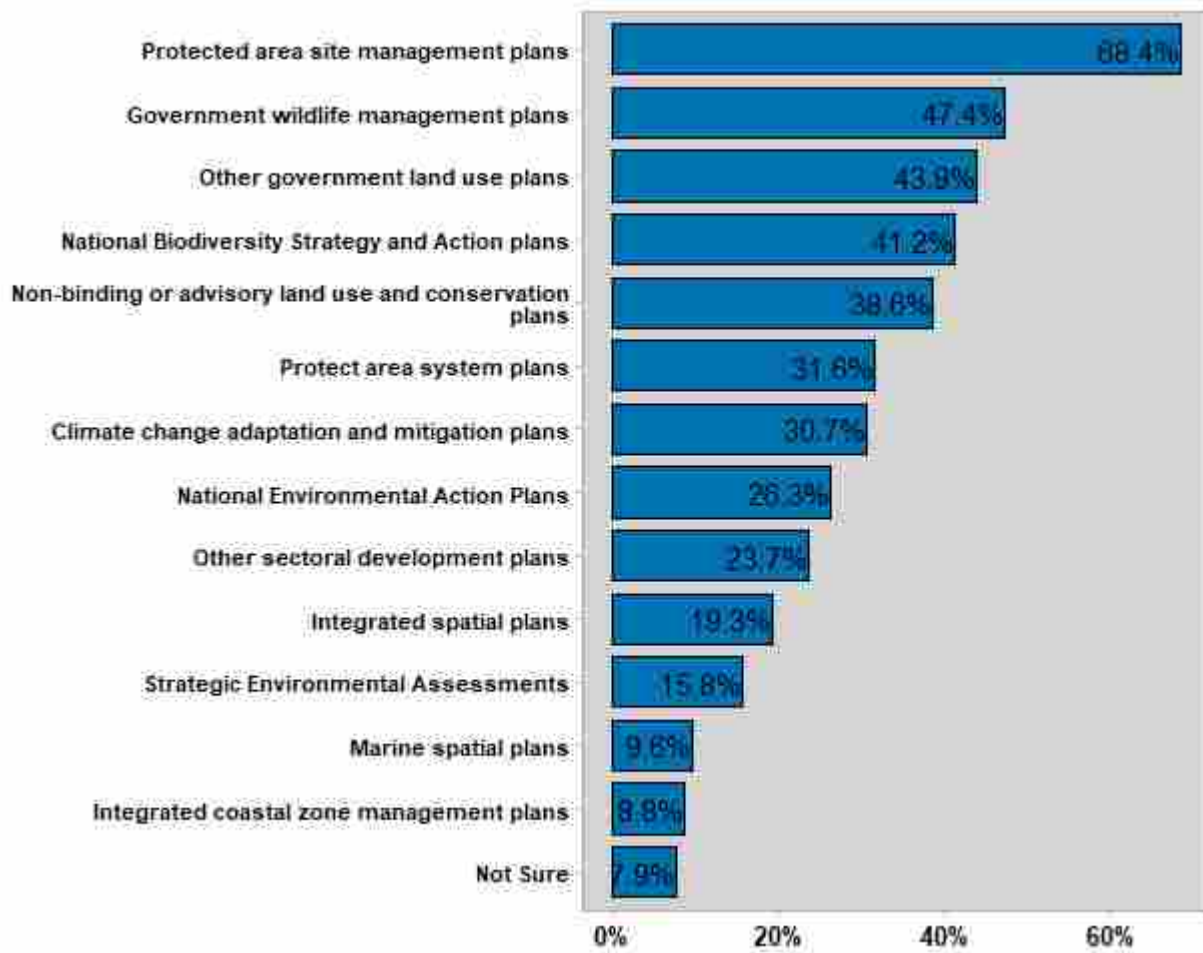
Q18. Has your initiative identified spatially explicit areas that are important for ecological connectivity (i.e. facilitating species movement, genetic exchange, and dispersal)?

91% of initiatives have spatially identified areas for their initiatives.



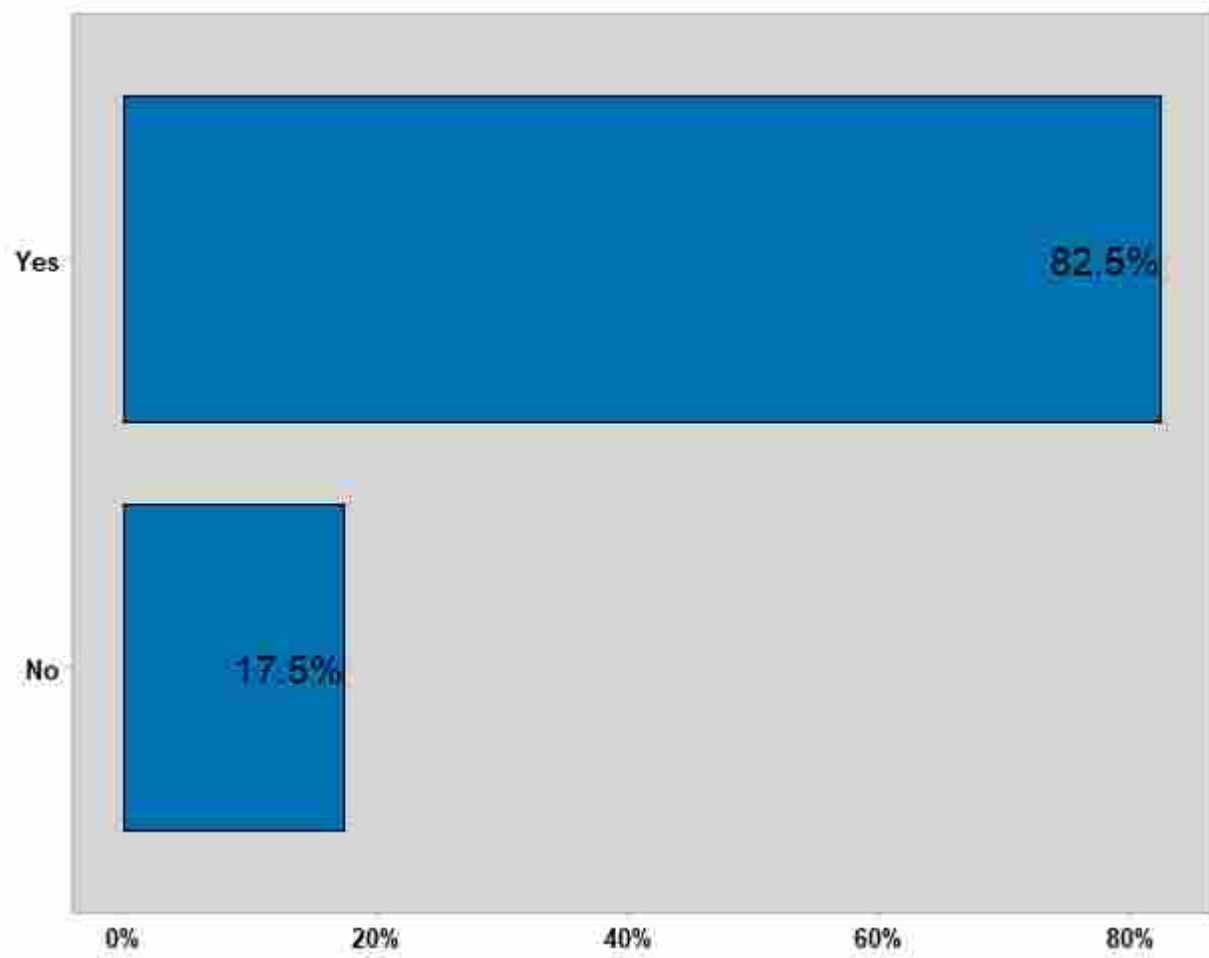
Q19. What kind of plans are associated with your initiative? (Check all that apply)

Protected area site management plans are the most common sort of plans associated with initiatives with 68% of responses. Government wildlife management plans are also associated with 47% of respondents' initiatives.



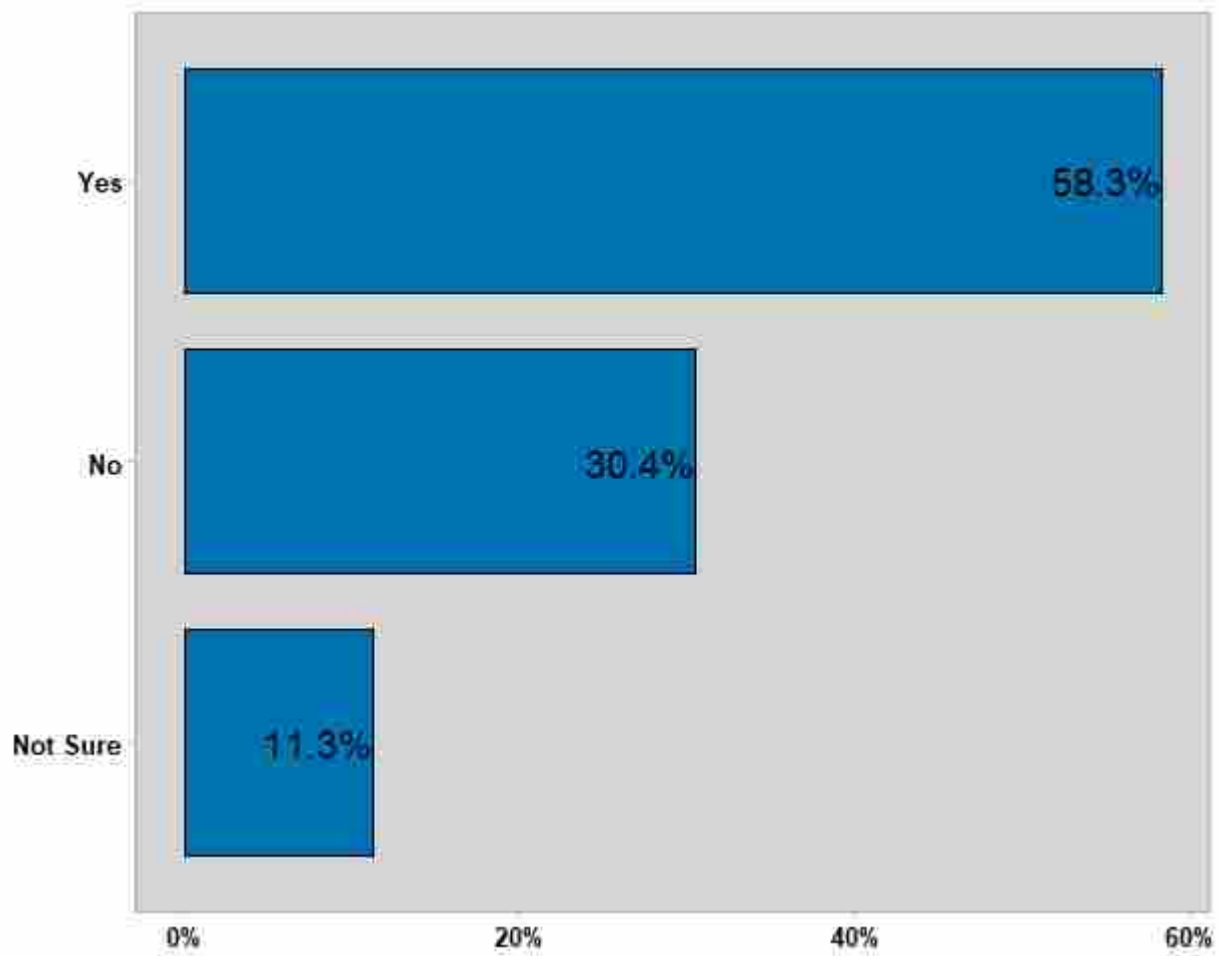
Q21. Is the conservation of ecological connectivity or ecological corridors a primary goal of your initiative?

82% of respondents stated that conservation of connectivity and corridors is a goal of their initiative.



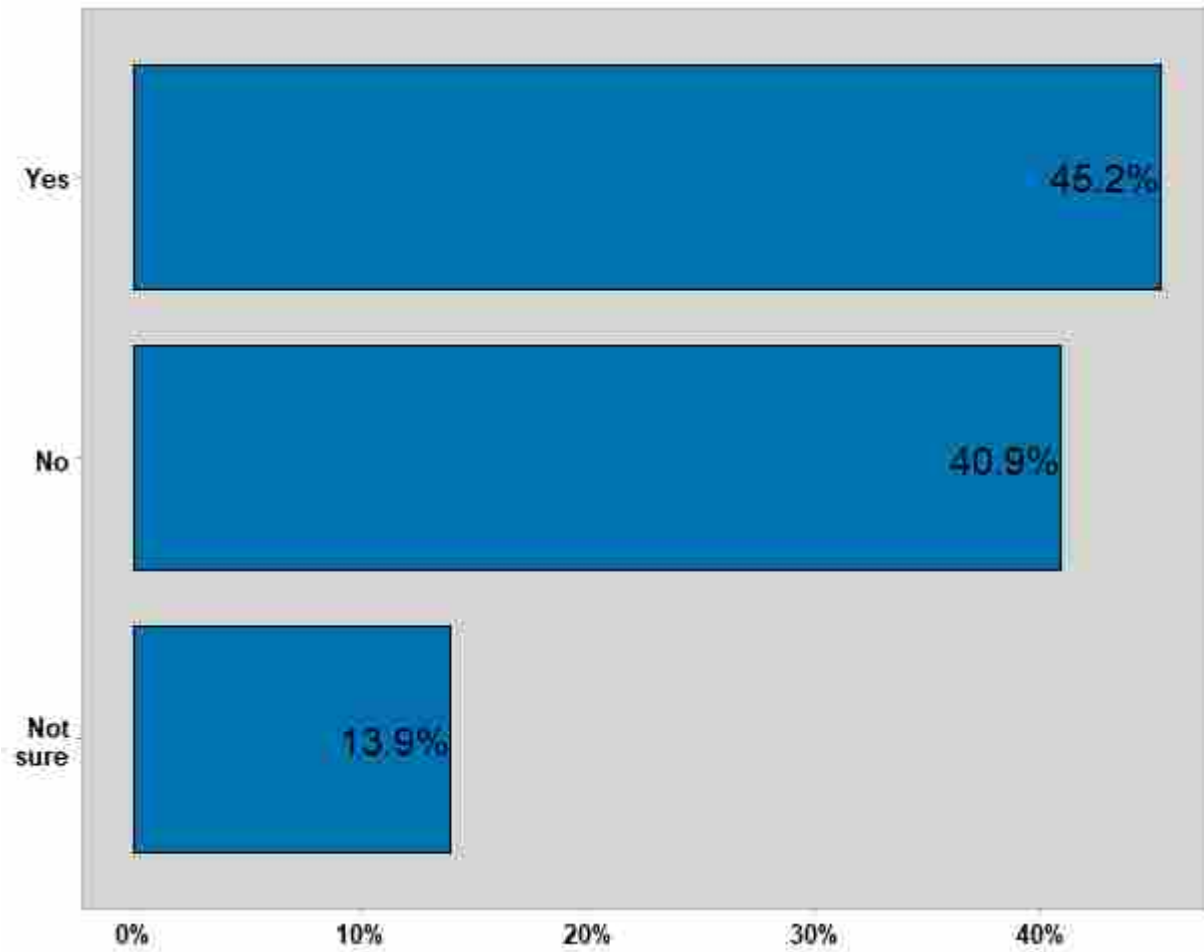
Q23. Is the conservation of riparian corridors a goal of your initiative?

Nearly 60% of connectivity initiatives have a goal of conserving riparian corridors.



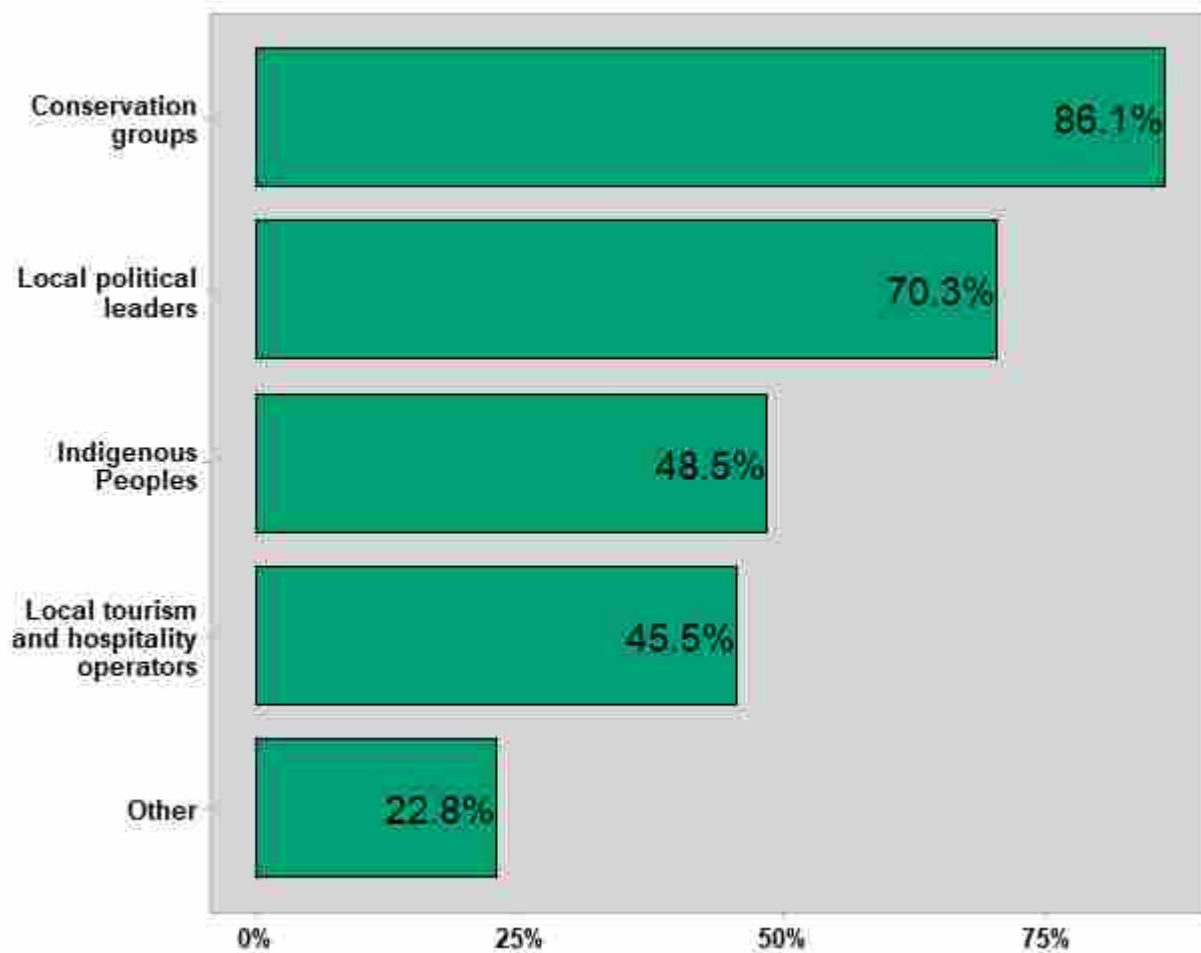
Q24. Is your initiative nested within another large-landscape conservation initiative?
Example: Local conservation initiative based within regional effort or specific corridor for migration within larger network (e.g. Roundtable on the Crown of the Continent within the Yellowstone to Yukon Initiative)

45% of initiatives are nested within other large-landscape initiatives, while 41% reported to being nested.



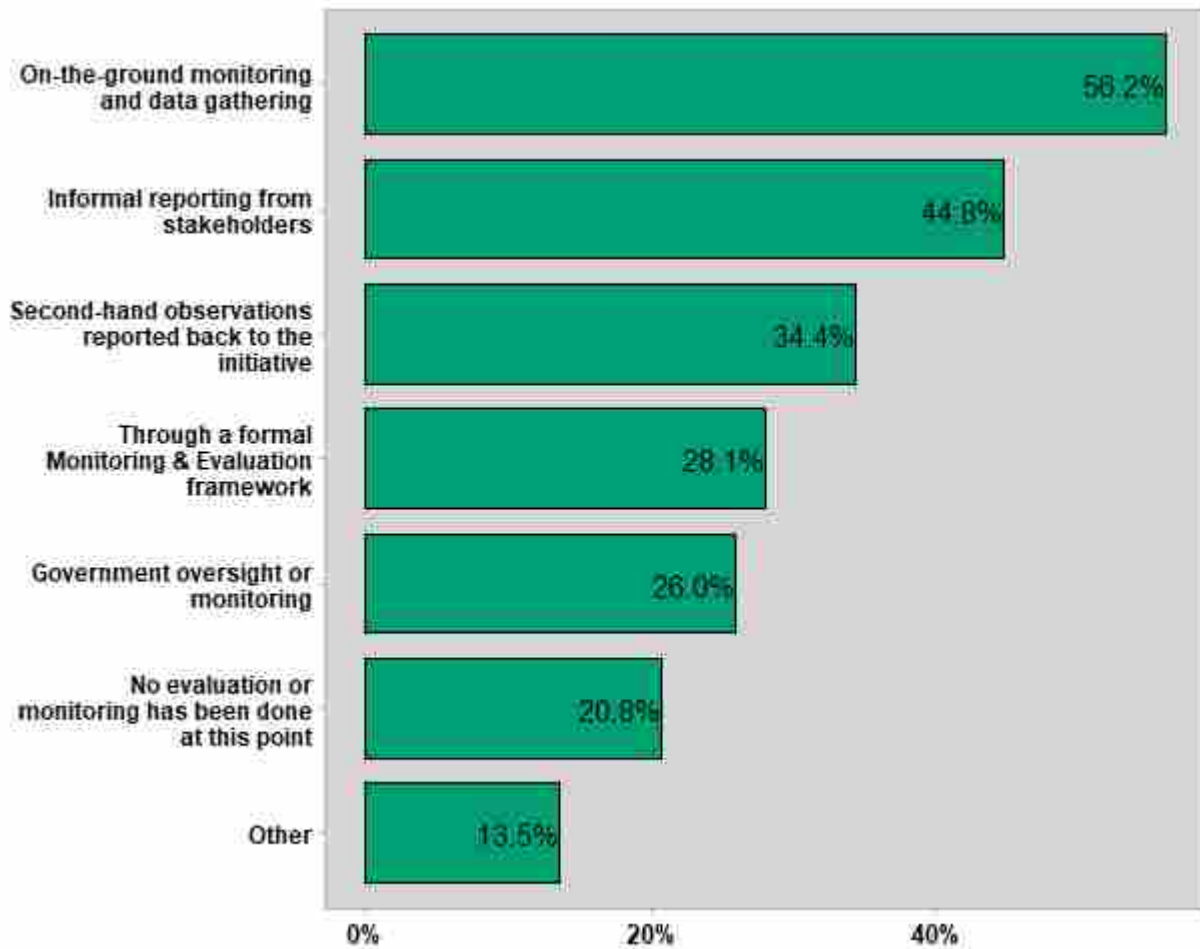
Q30. What types of local community groups do you work with for management of the initiative? (Check all that apply)

Of respondents who have worked with local communities, 86% have worked with local conservation organizations. 70% of respondents also work with local political leaders.



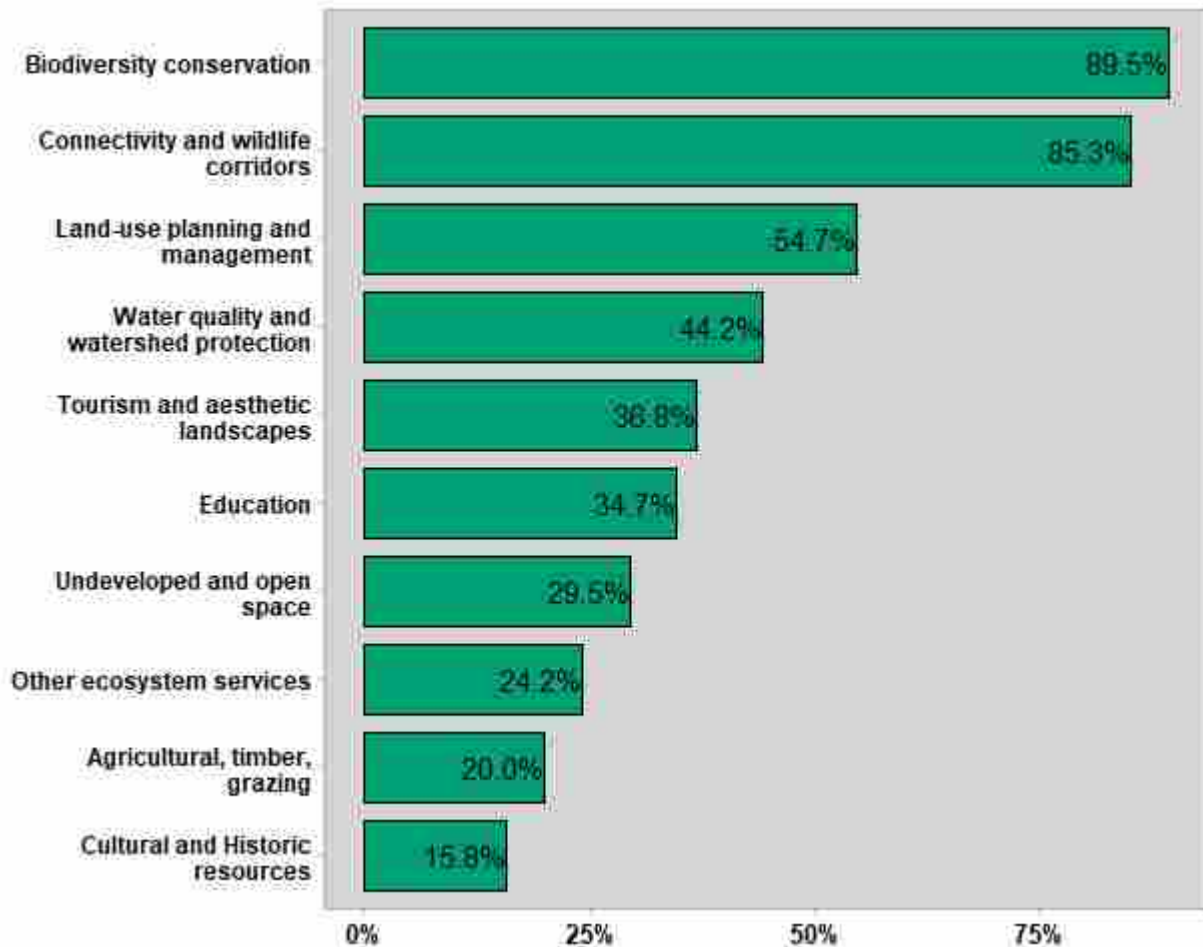
**Q37. How has the progress or success of your initiative been evaluated or monitored?
(Check all that apply)**

56% of initiatives have been evaluated by on-the-ground monitoring and informal stakeholder reporting. Only 28% of initiatives have formal monitoring and evaluation frameworks.



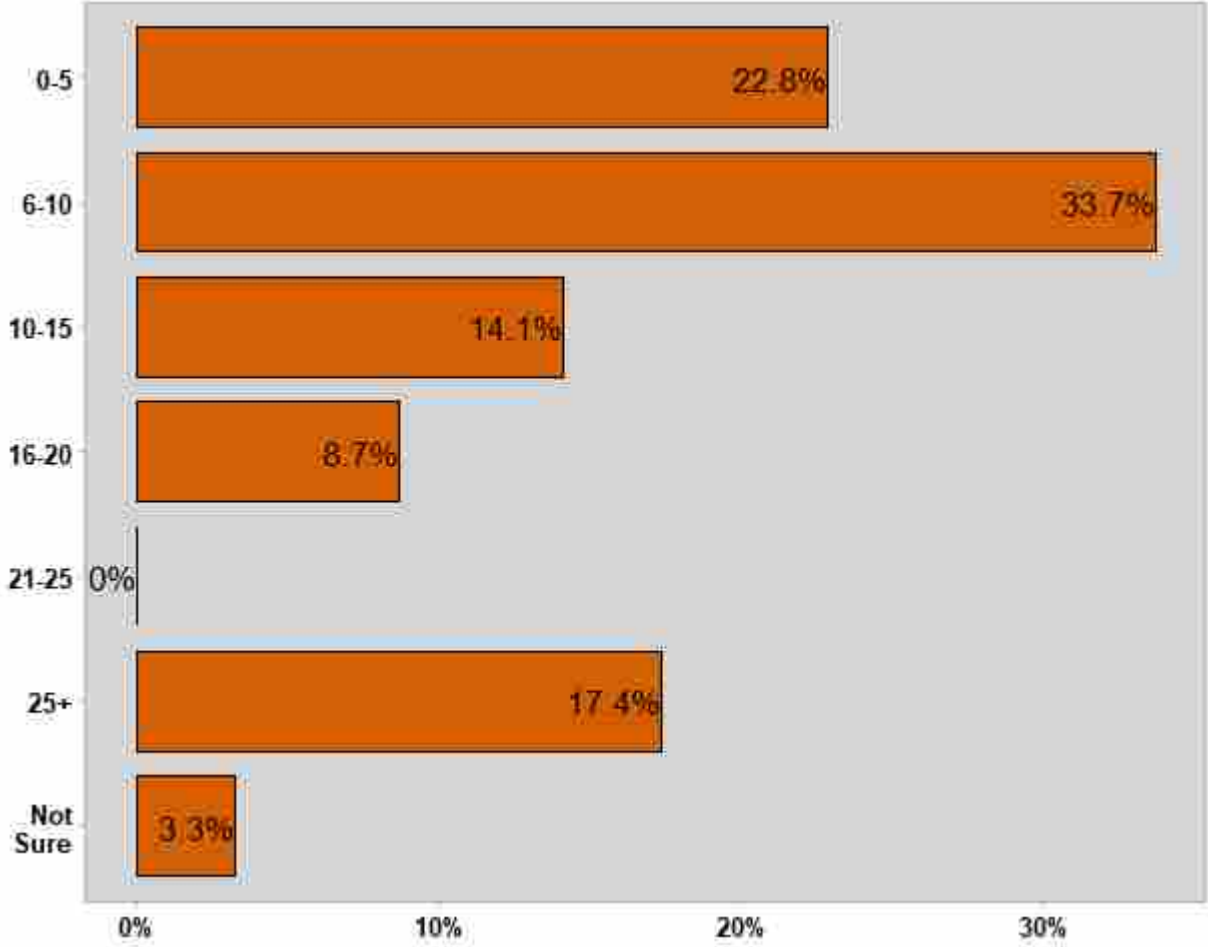
Q54. What are the major focus areas of your initiative? (Check all that apply)

Approximately 89% of initiatives are focused on biodiversity and connectivity/corridors. The least frequent focus is cultural and historic resources.



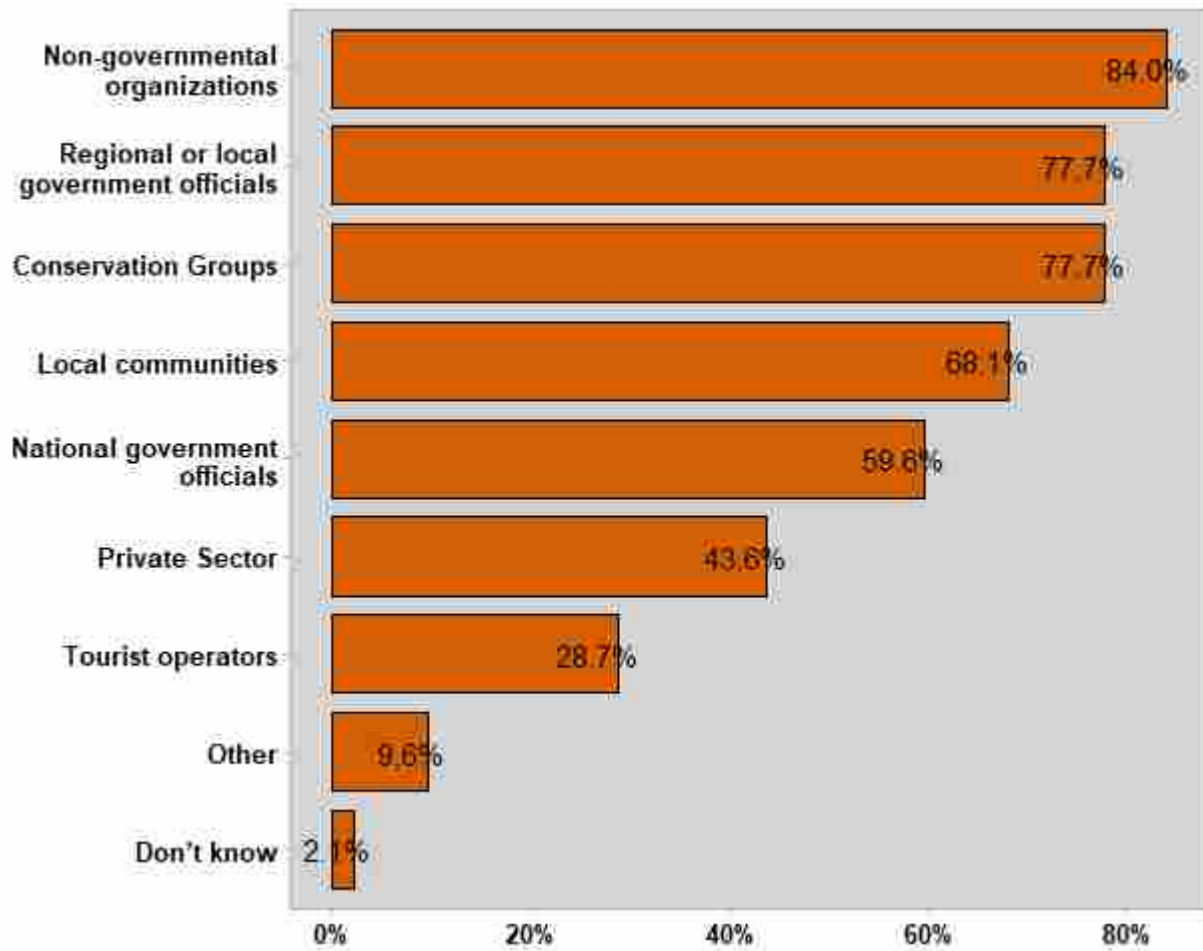
Q55. What is the approximate number of organizations and entities (actively- involved groups) participating in your initiative?

Over 56% of initiatives have 10 or less organizations participating. 17% of respondents work on initiatives that had 25+ actors involved.



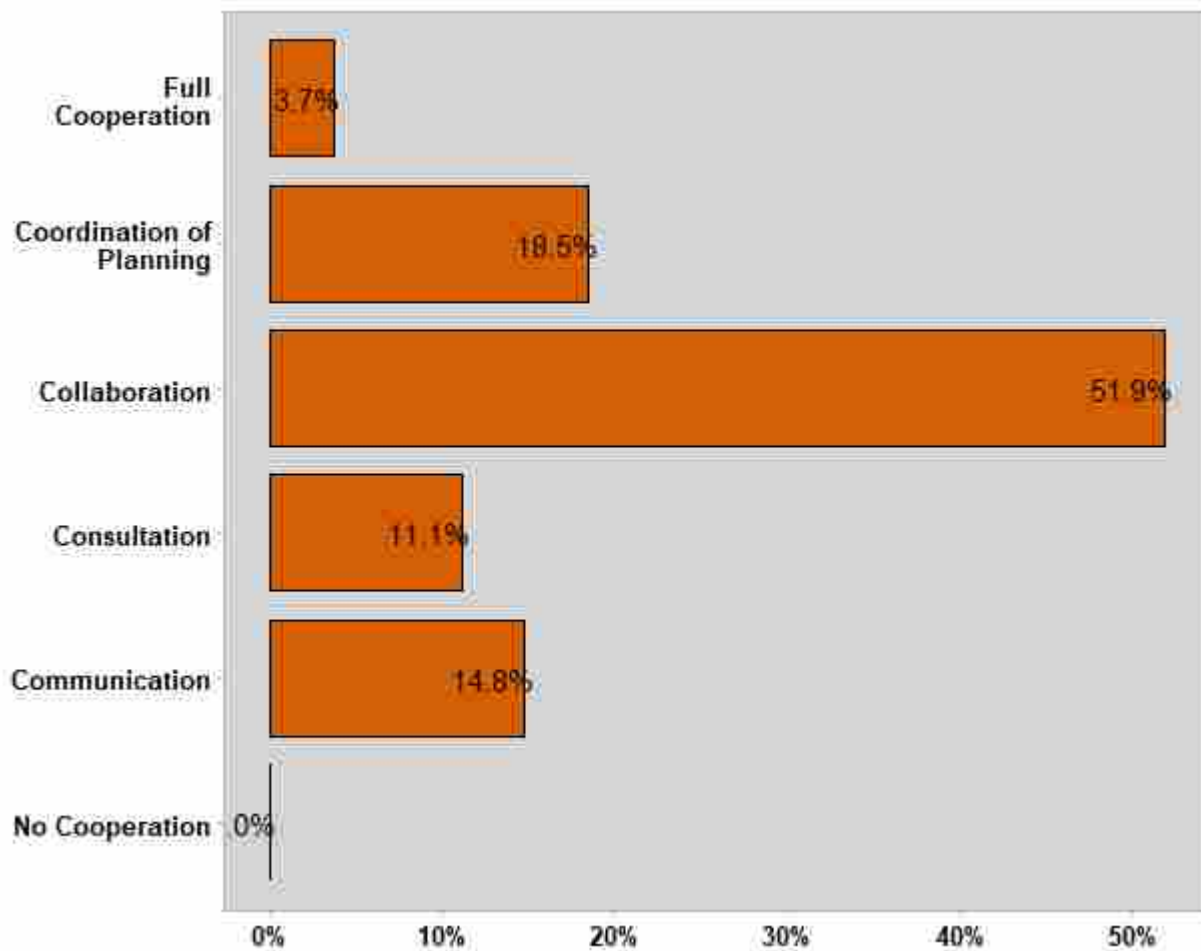
Q56. During the planning of your conservation initiative, which groups were involved in the process? (Check all that apply)

Non-governmental organizations (84%), regional and local governments (78%), and conservation organizations (78%) are the most involved groups in the planning of initiatives.



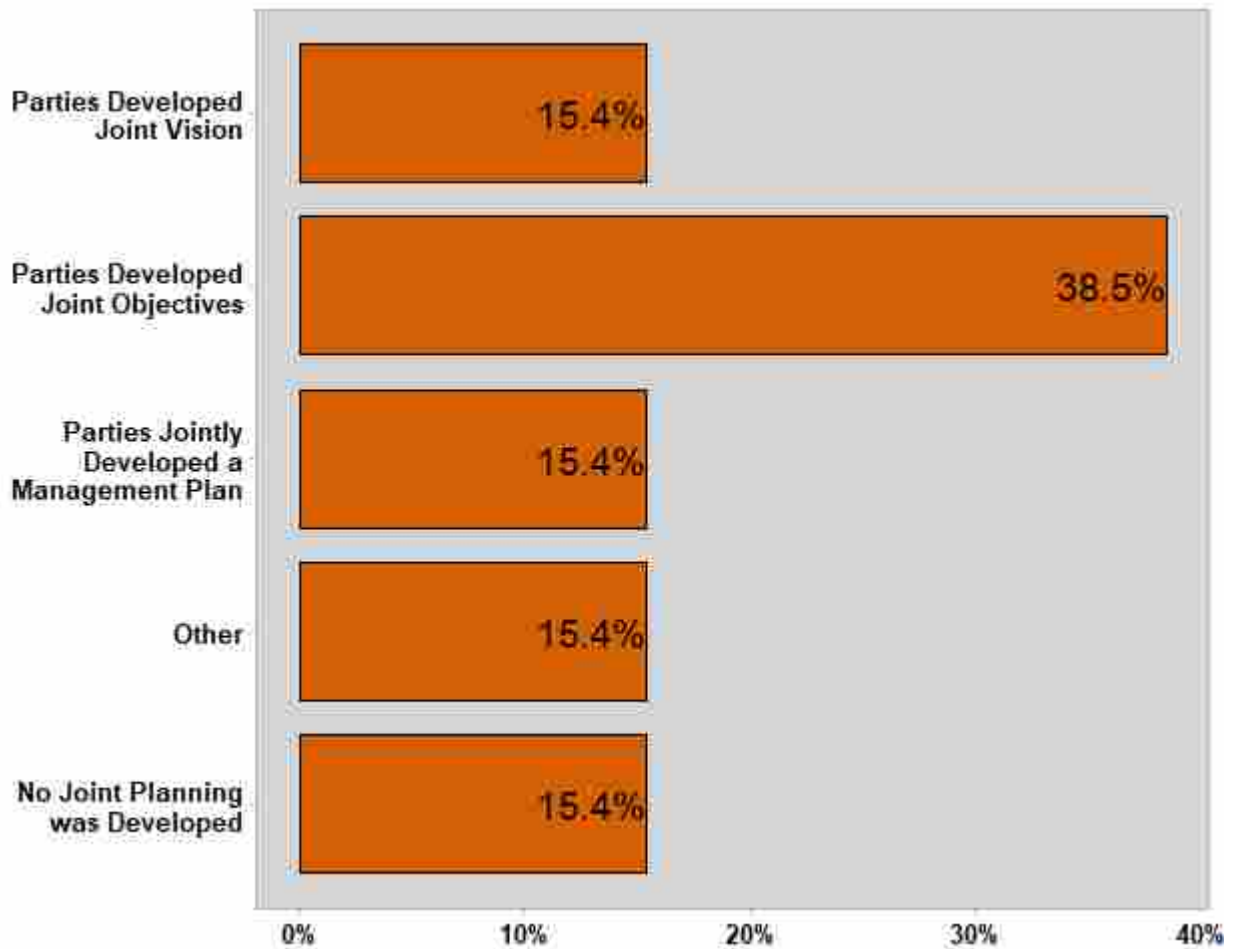
Q58. Transboundary Group Only: How would you best categorize the partnerships in your initiative?

52% of transboundary initiatives categorize their partnerships as collaboration.



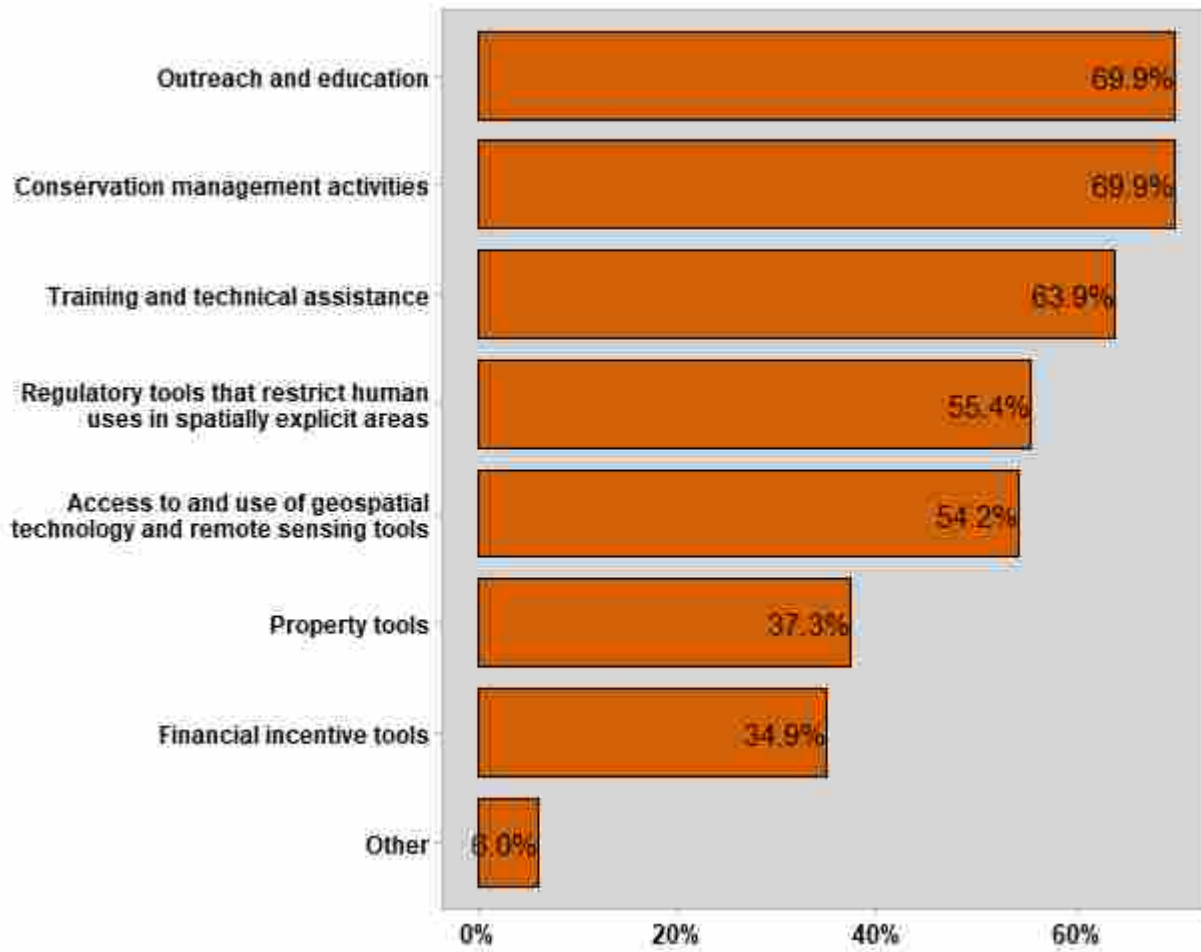
Q59. Transboundary Group Only: How was joint planning (vision, objectives, goals, etc.) developed for the transboundary initiative between the partners and organizations in the initiative?

For transboundary initiatives, 38% of initiatives have partners jointly develop objectives while a smaller percentage (15%) of initiatives jointly develop a vision or management plan.



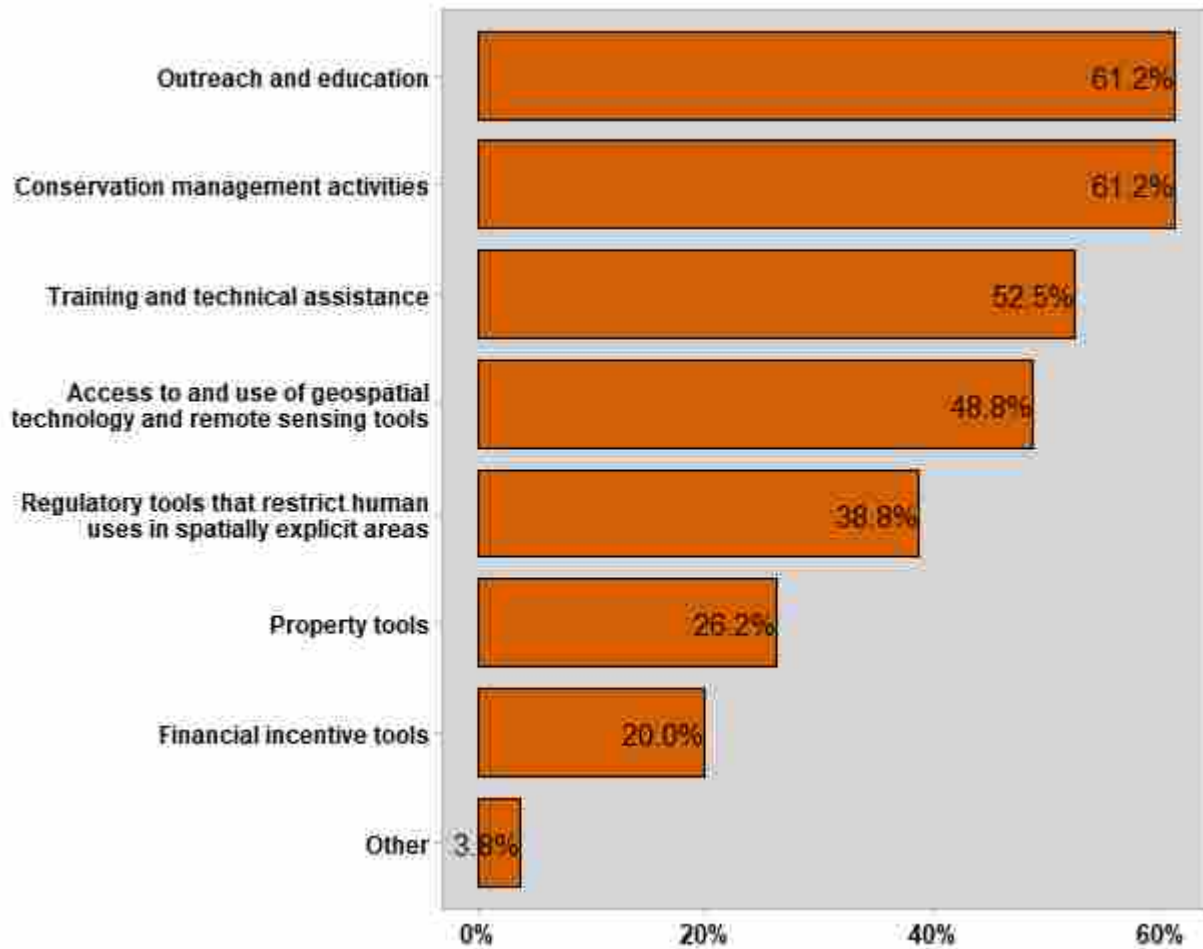
Q61. Connectivity Group Only: Thinking about your initiative, which of the following conservation tools and approaches have been identified in formal policies and plans? (Check all that apply)

The main conservation tools that are identified for initiatives are outreach and education (70%), conservation management activities (70%), and training and technical assistance (64%).



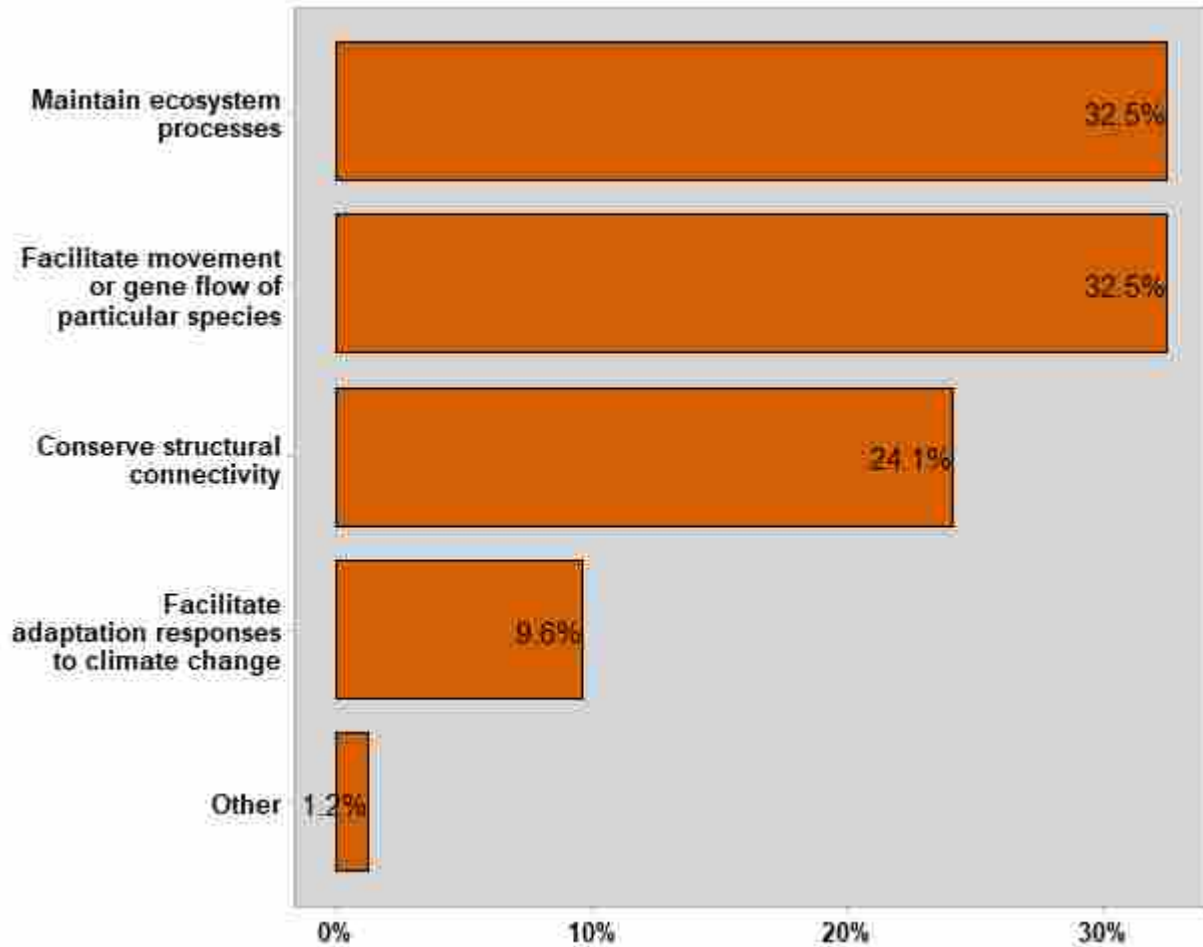
Q62. Connectivity Group Only: Which of the strategies you selected have been implemented in practice? (Check all that apply)

Similarly, the main conservation tools that have been already implemented in practice are outreach and education (61%), conservation management activities (61%), and training and technical assistance (53%).



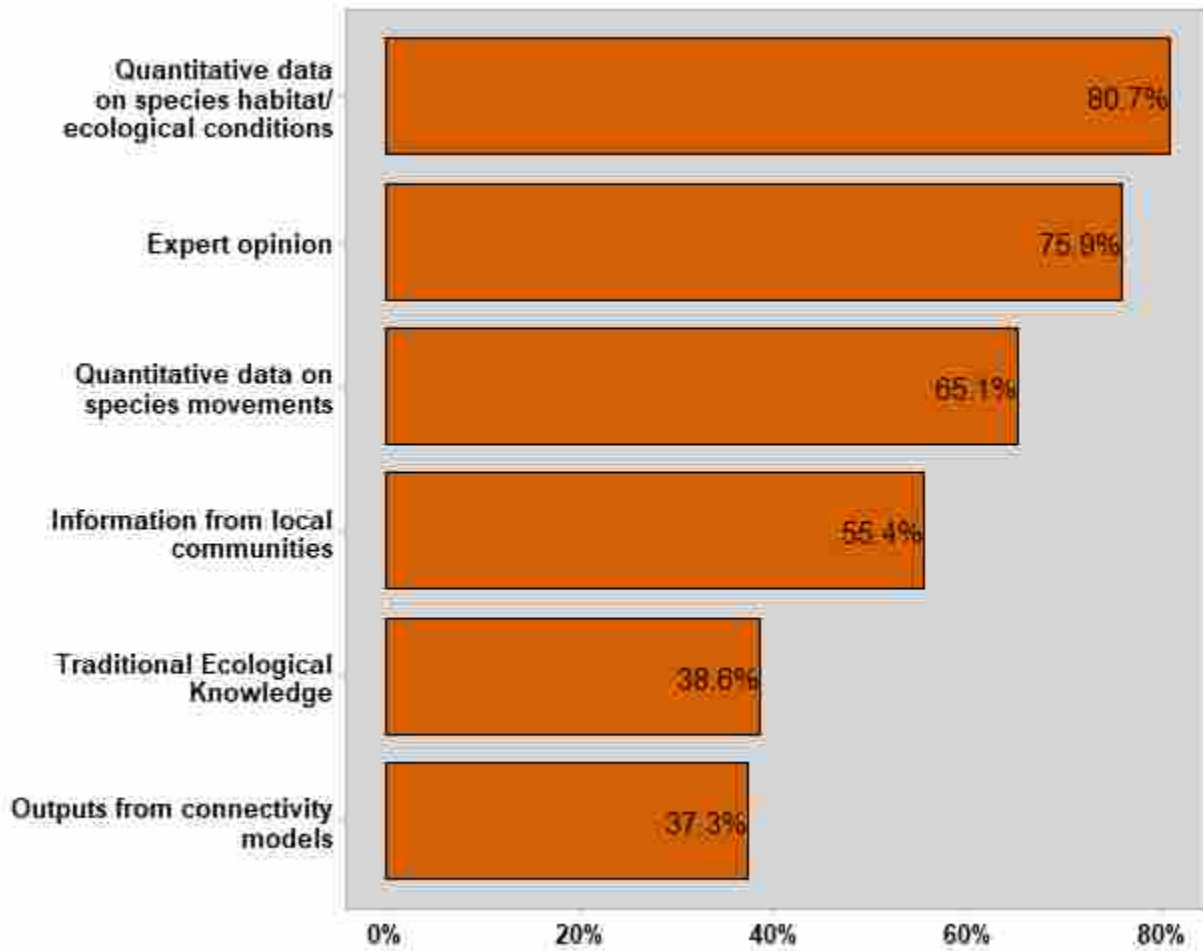
Q64. Connectivity Group Only: Thinking about your initiative and goals for connectivity, which of the following is the *primary* objective?

For connectivity group members, facilitating the movement of gene flow and species as well as maintaining ecosystem processes are the most important goals for initiatives, with 32% of responses for each.



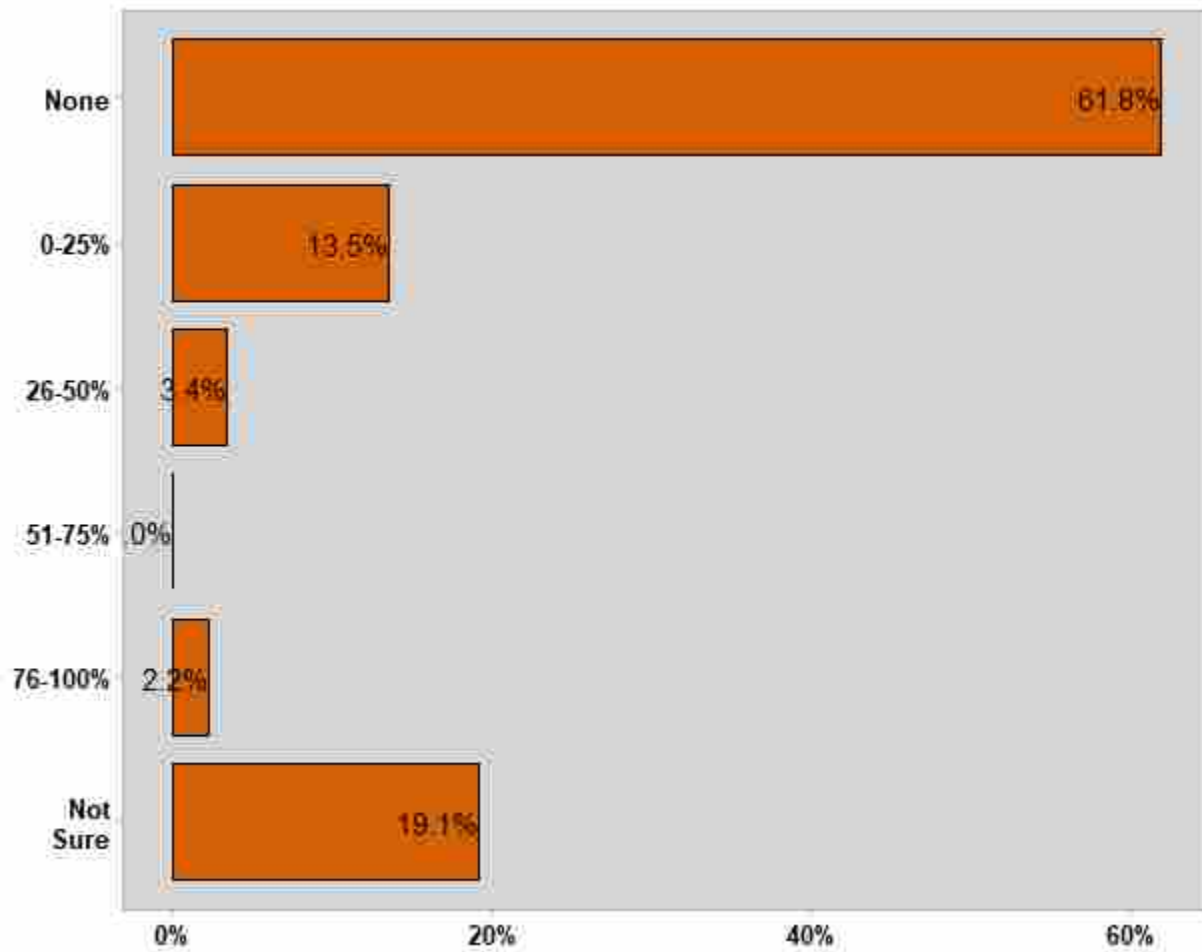
Q65. Connectivity Group Only: What types of data and information were used to support connectivity planning in your initiative? (Check all that apply)

Quantitative data on species (81% of responses) and expert opinion (76%) are the most common types of data used in planning connectivity initiatives.



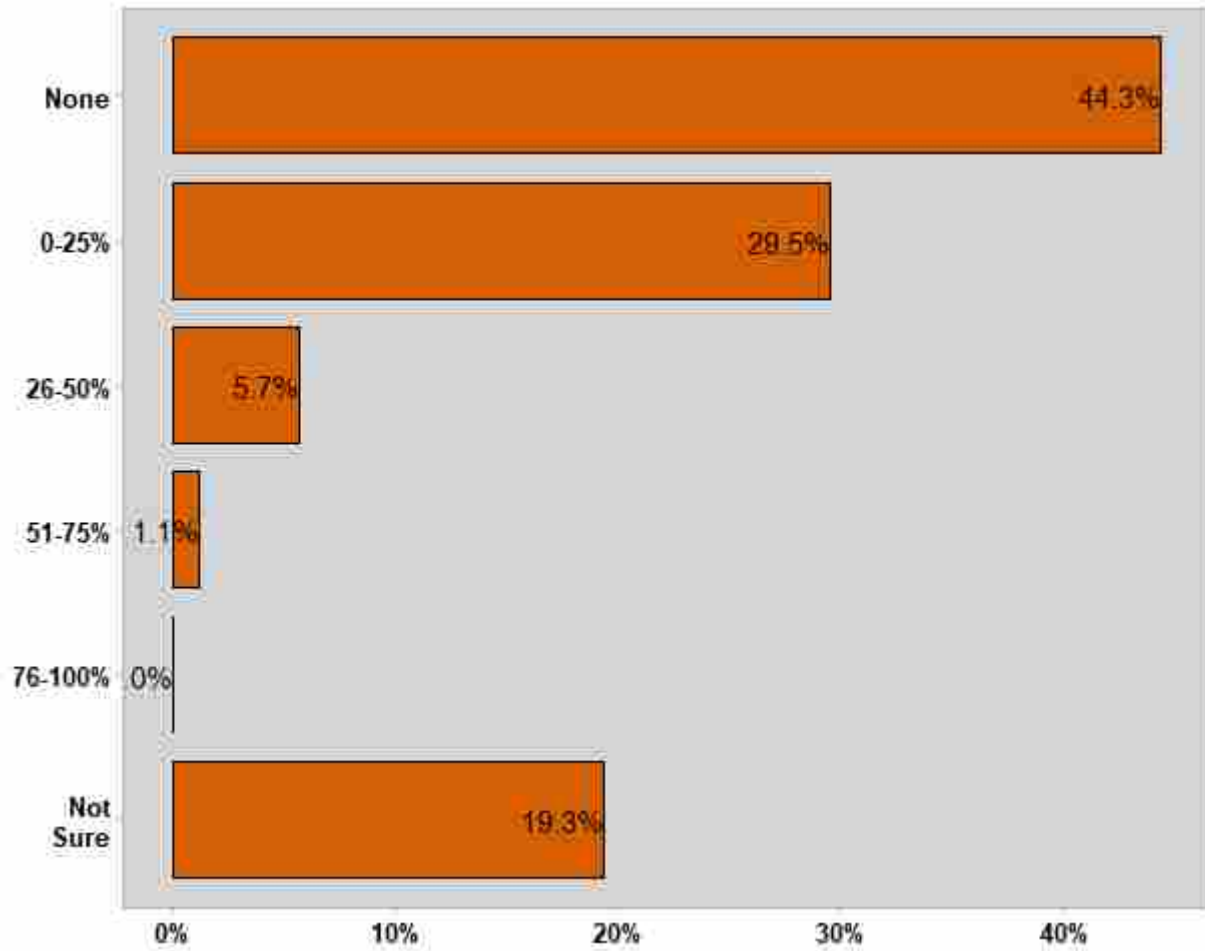
Source 1. Local Communities

Majority of initiatives (61%) have not received any funding from local communities.



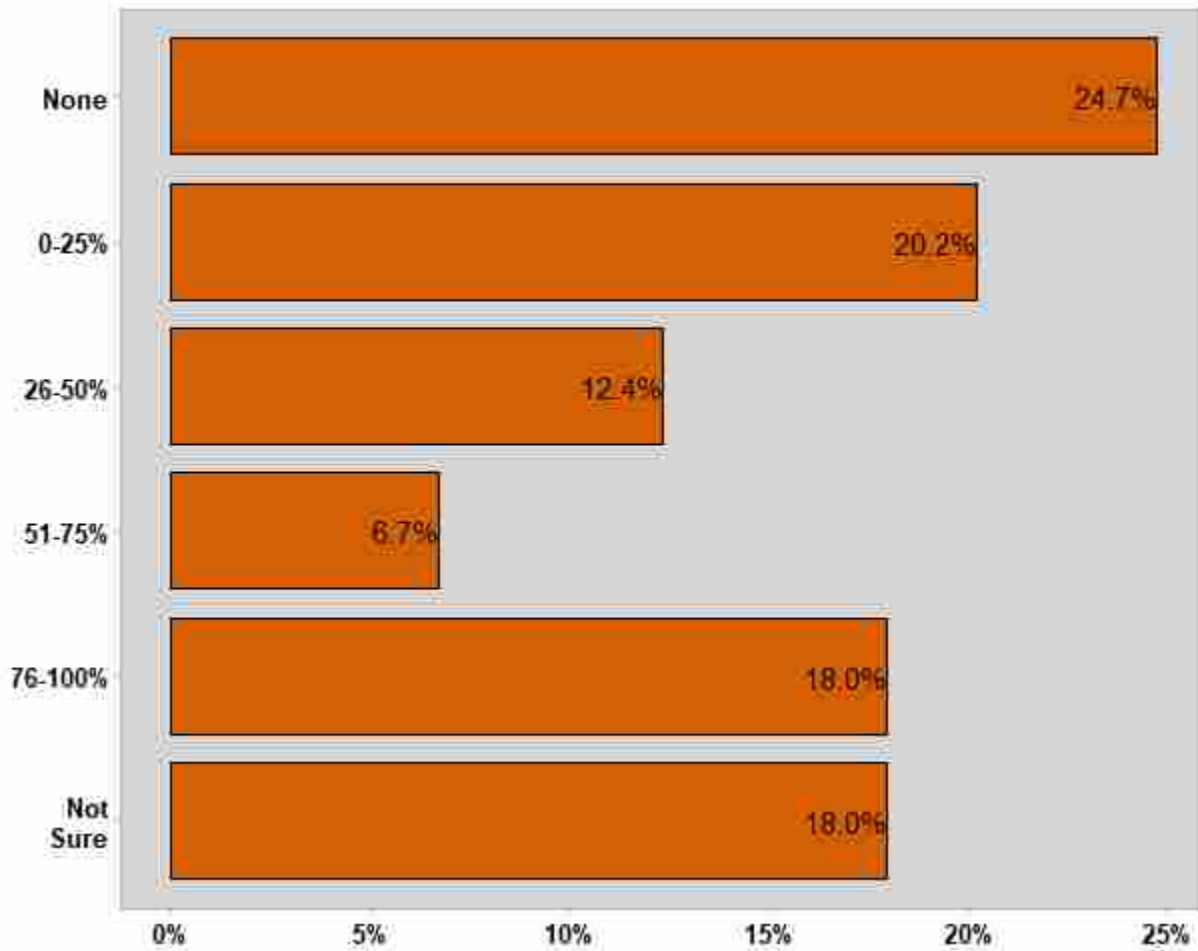
Source 2. Local NGOs

44% of initiatives have no funding from local NGOs, while 30% had 0-25% from local NGO sources.



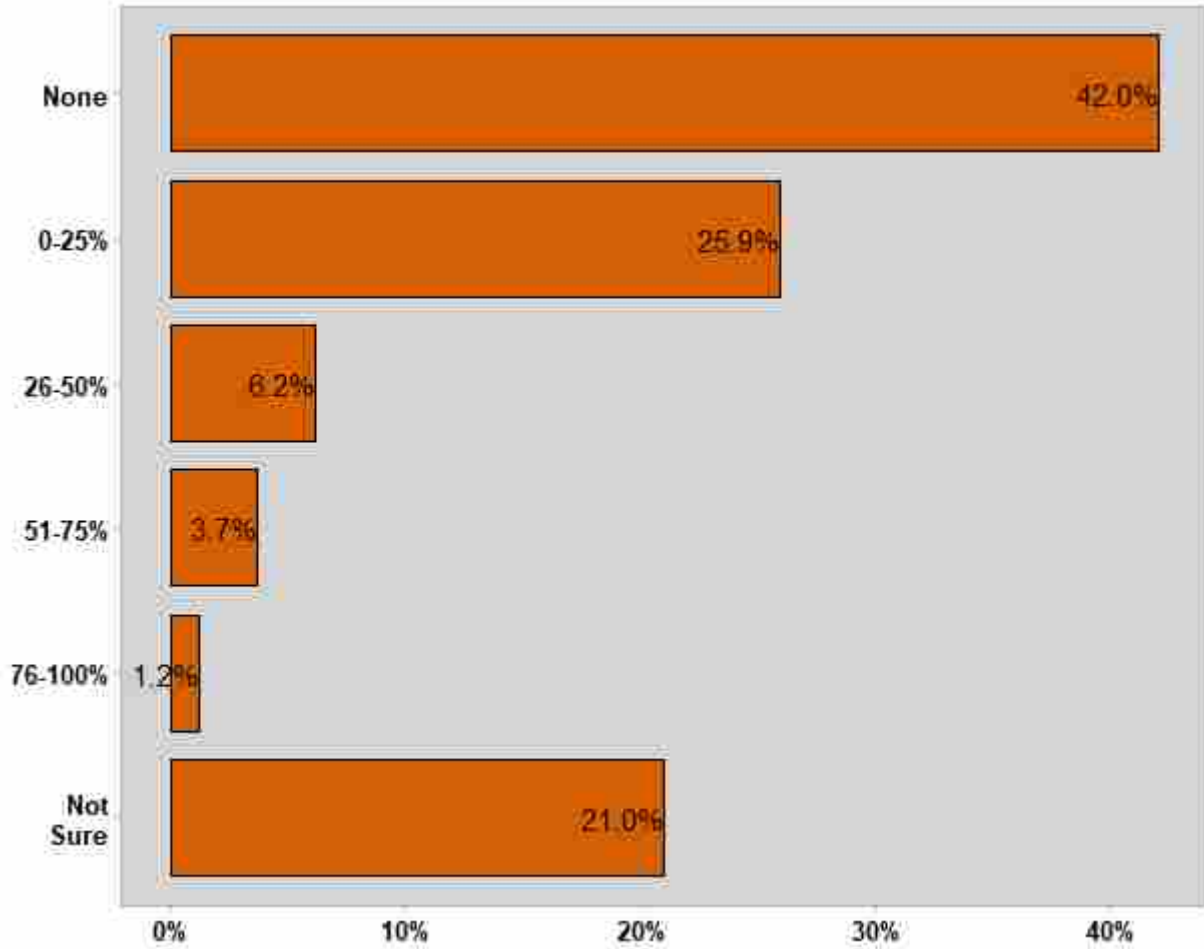
Source 3. Government Funding

There is wide variation in government funding, with 25% of initiatives having no funding from the government, 20% of initiatives having 0-25% of their budget from the government, and 18% having 76-100% from the government.



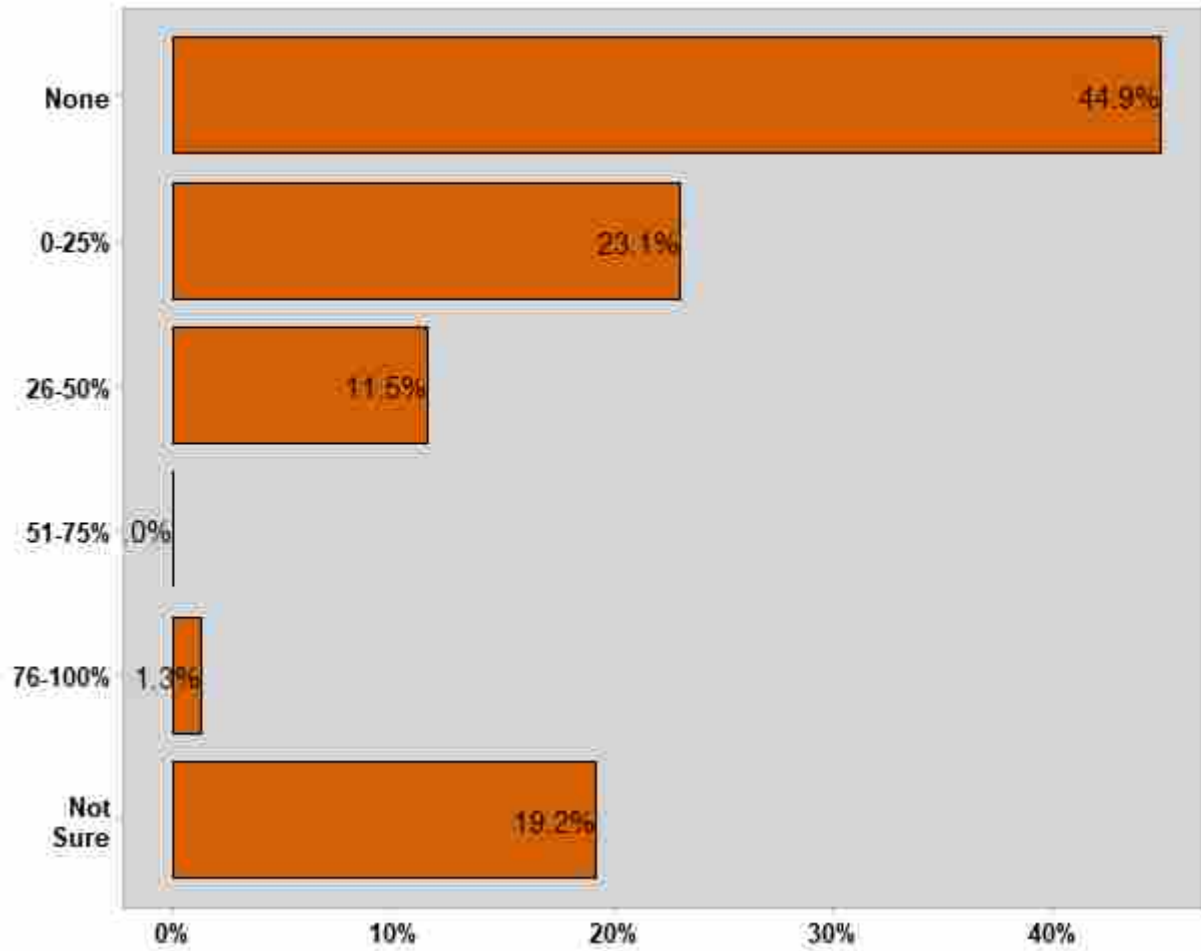
Source 4. Indirect Government Funding (government sources other than the direct budgeting and fund allocation process by treasury)

41% of initiatives have no indirect government funding, while 21% of respondents are unsure.



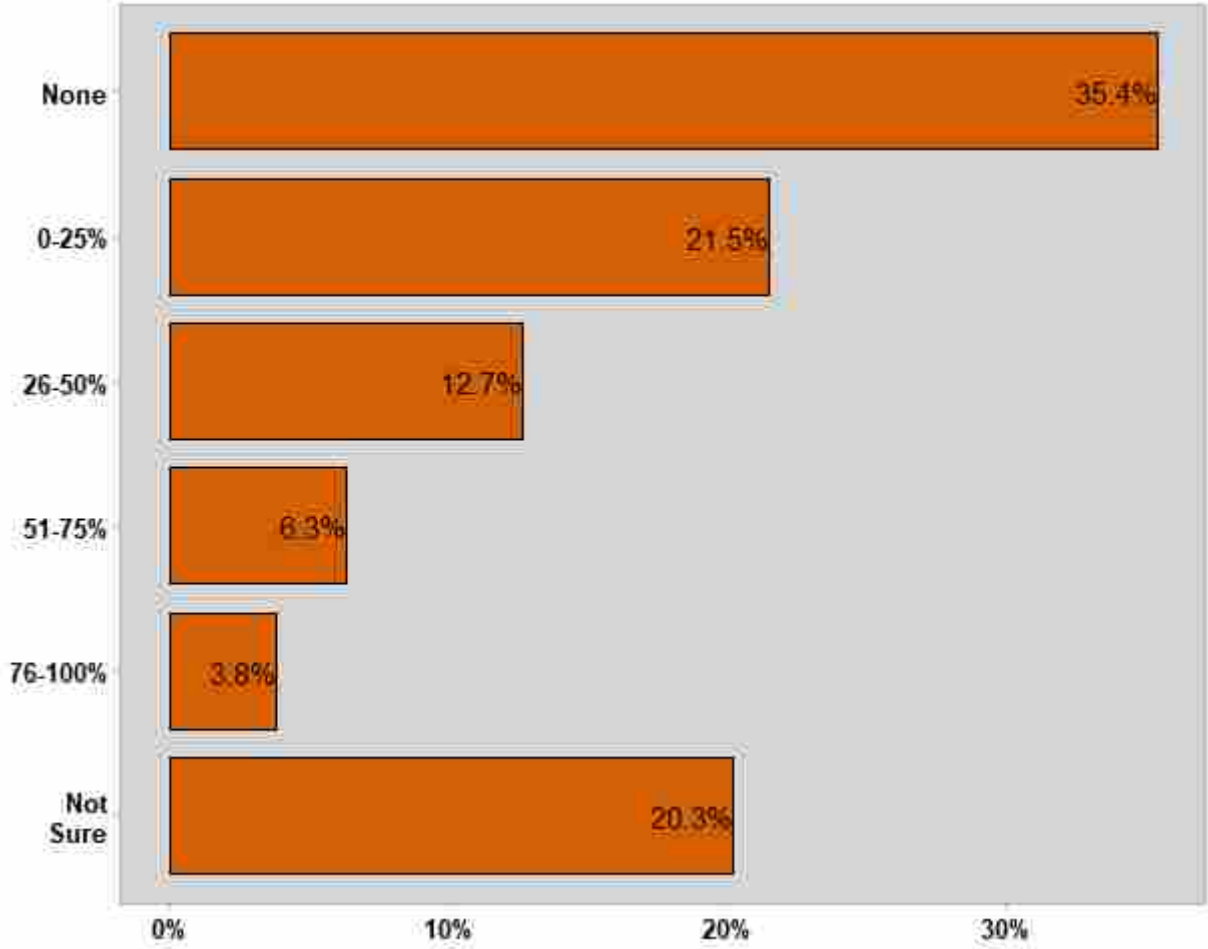
Source 5. National NGOs

45% of initiatives have not received any funding from national NGOs. Only 1% of initiatives have received their entire budget from national NGOs.



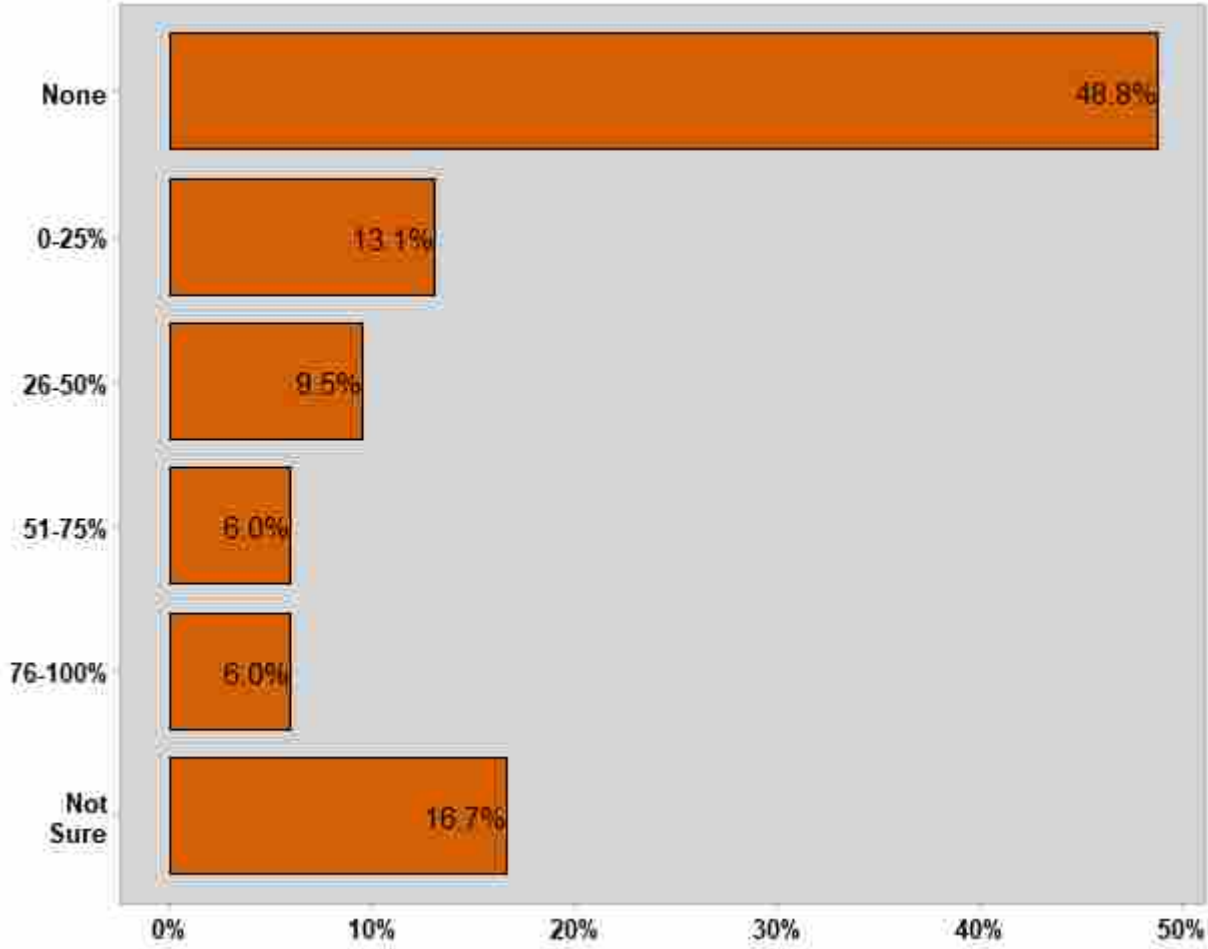
Source 6. International NGOs

At least 35% of initiatives have no funding from international NGOs, while approximately 45% have some sort of level of funding from international organizations.



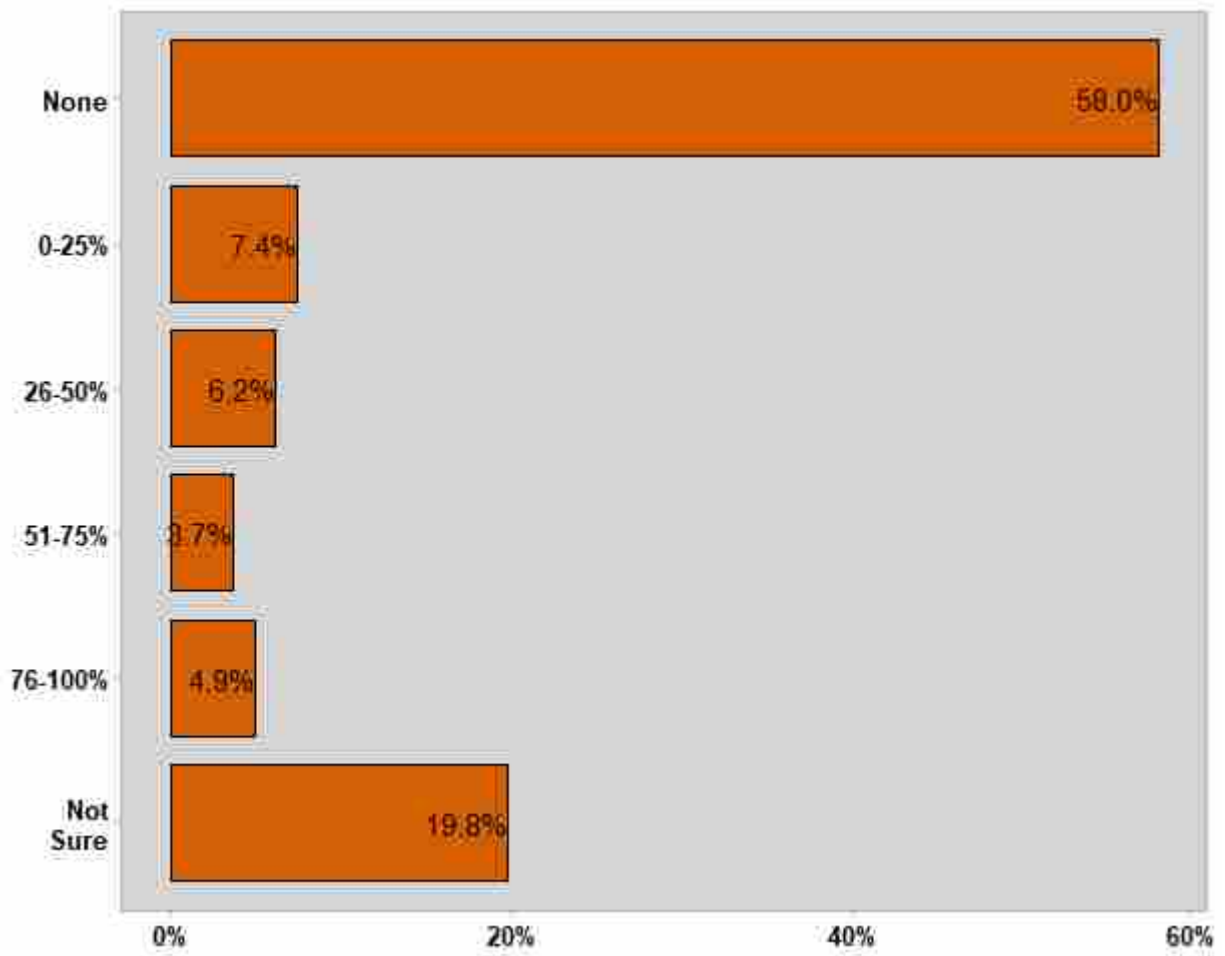
Source 7. International Financial Institutions and Development Agencies (e.g. World Bank, Global Environment Fund, USAID, GIZ, etc.)

Only 35% of initiatives have international financial institutions and development agencies funding.



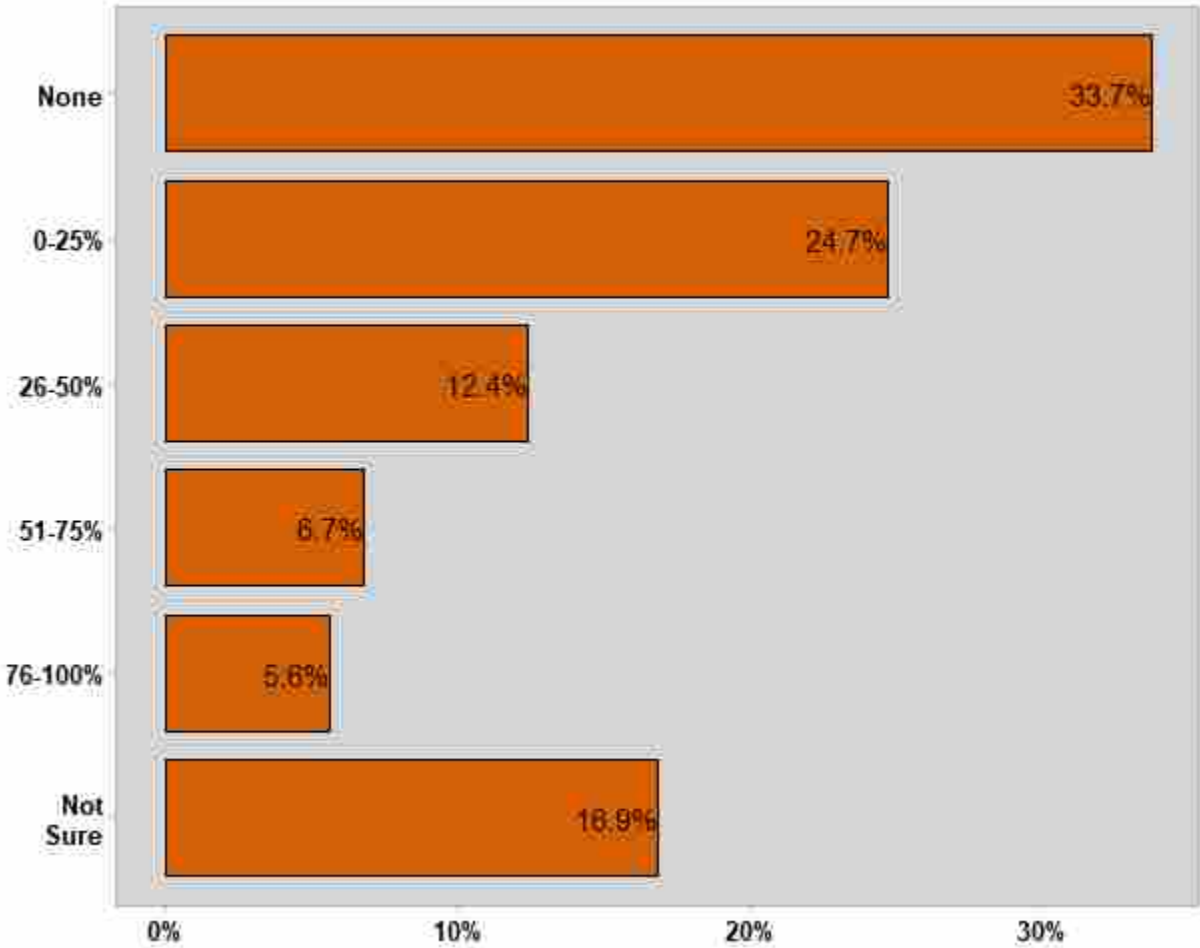
Source 8. International Governmental Organizations (e.g. United Nations Agencies and Programmes, the European Union, Organization of America States, etc.)

Nearly 60% of initiatives have no funding from international government organizations like the European Union.



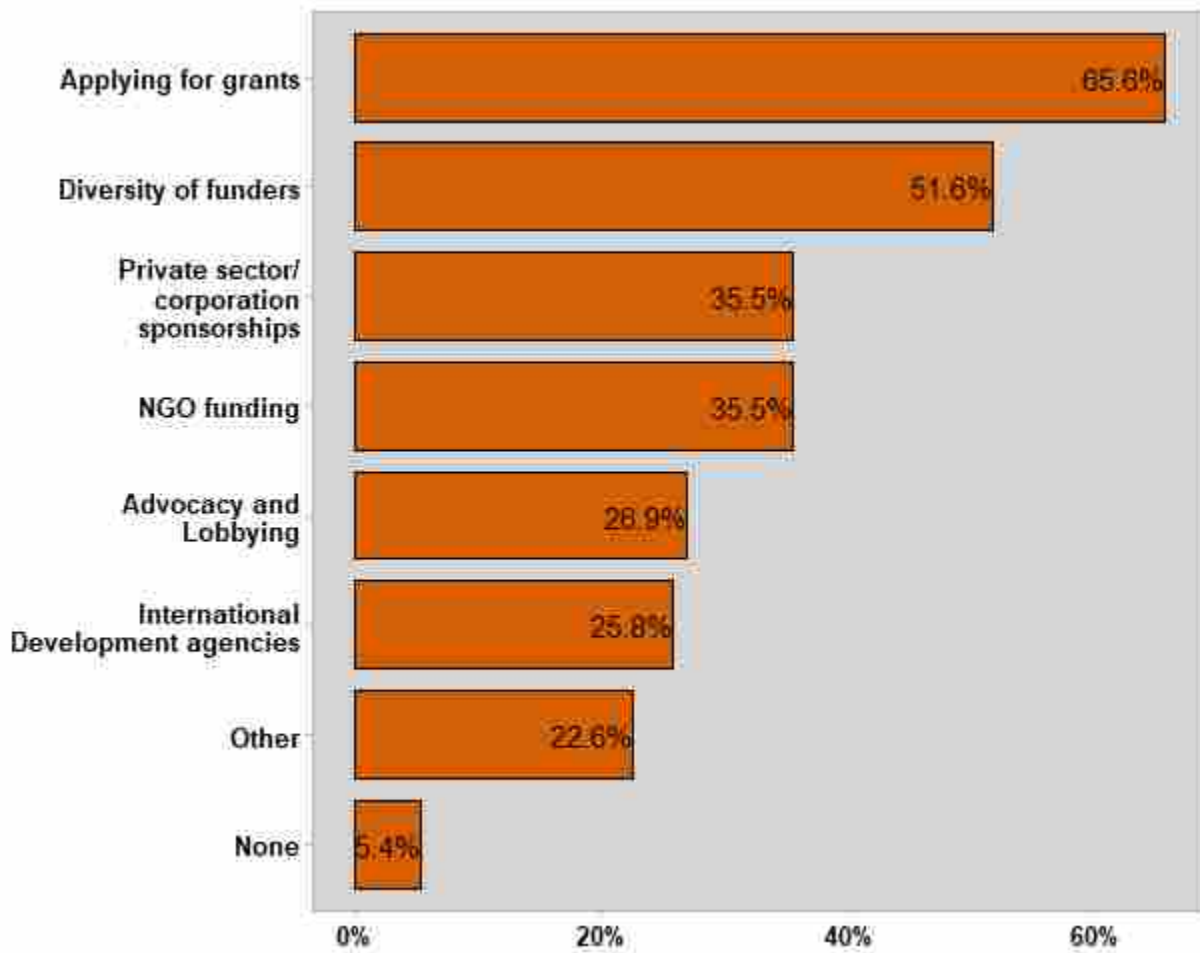
Source 9. Private Sector and Philanthropy

Nearly 50% of initiatives have some sort of private sector funding.



Q77. What strategies do you use for your initiative to sustain long-term funding? (Check all that apply)

The main strategies to secure long-term funding for initiatives are applying for grants (24%) and having a diversity of funders (20%).



Appendix III. Interview Questions

Local Community Questions

English	Spanish
Could you tell me a little more about yourself and what you do?	¿Me podría decir sobre usted y lo que hace?
Can you describe your familiarity with transboundary work between Torres del Paine-Bernardo O'Higgins-Los Glaciares?	¿Podría describir su familiaridad con trabajo transfronterizo entre Torres del Paine-Bernardo O'Higgins-Los Glaciares?
What do you think are the main challenges of transboundary cooperation between Argentina and Chile?	¿Cuáles son los principales retos de la cooperación transfronteriza entre Argentina y Chile?
How have you or the group you are affiliated with been consulted or involved in conservation planning?	¿De qué manera usted o el grupo al que está afiliado ha sido involucrado en la planificación de conservación?
How would transboundary conservation impact you or the group you are affiliated with?	¿Cómo influiría la conservación transfronteriza en usted o en el grupo con el que está afiliado?
Do you think that a transboundary park could influence the everyday life of locals? If yes, how so?	¿Usted cree que un parque transfronterizo podría influir la vida cotidiana de la gente local? ¿Cómo?
Do you support renewed transboundary cooperation around Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks?	¿Apoya usted la cooperación transfronteriza sobre los parques Torres del Paine, Bernardo O'Higgins, y Los Glaciares?
In your opinion, what may be necessary for successful transboundary cooperation to happen?	En su opinión, ¿Qué puede ser necesario para que ocurra una cooperación transfronteriza exitosa?
What do you think would be the biggest success of transboundary conservation?	¿Cuál cree que sería el mayor éxito de la conservación transfronteriza?
To what extent do you think you and other local community members need to be involved in transboundary conservation for it to be successful?	¿Hasta qué punto cree usted que usted y otros miembros de la comunidad local deben ser involucrados en la conservación transfronteriza, para que tenga éxito?
Would you like to be involved in planning and management of transboundary conservation? If yes, to what extent?	¿Le gustaría participar en la planificación y gestión de la conservación transfronteriza? ¿hasta qué punto?
Would you like to receive a report of the findings of this study?	¿Quisiera usted recibir un informe de los resultados de este estudio?

National Park Employees Interview Guide

English	Spanish
Could you tell me a little more about yourself and what you do?	¿Me podría decir sobre usted y lo que hace?
Have you heard of any transboundary work involving Torres del Paine-Bernardo O'Higgins-Los Glaciares?	¿Podría describir su familiaridad con trabajo transfronterizo entre Torres del Paine-Bernardo O'Higgins-Los Glaciares?
Were you or the organization you work for involved in the planning of management of any transboundary conservation? If yes, to what extent?	¿Usted o la organización que trabaja para ha participado en la planificación de la gestión de cualquier conservación transfronteriza? ¿hasta qué punto?
How often do you have contact or work with people from CONAF/APN?	Con que frecuencia usted tiene contacto o trabaja con empleos de CONAF/APN?
Has there been any joint planning or management with Argentinian/Chilean national park management and staff?	¿Ha habido alguna planificación o gestión conjunta con la gerencia y el personal del parque nacional argentino/chileno? Entre CONAF y APN?
What do you think are the main challenges of transboundary cooperation between Argentina and Chile?	¿Cuáles son los principales retos de la cooperación transfronteriza entre Argentina y Chile?
Do you think that transboundary collaboration, such as a transboundary complex of Torres del Paine, O'Higgins, and Los Glaciares, could improve the work you do in the parks? If yes, how so?	¿Cree que la colaboración transfronteriza, como un parque transfronterizo de Torres del Paine, O'Higgins, y Los Glaciares, podría mejorar el trabajo que hace en los parques? ¿Cómo?
Do you support renewed transboundary cooperation around Torres del Paine, Bernardo O'Higgins, and Los Glaciares National Parks?	¿Apoya usted la cooperación transfronteriza sobre los parques Torres del Paine, Bernardo O'Higgins, y Los Glaciares?
In your opinion, is there potential for transboundary conservation here?	¿En su opinión, hay potencial para conservación transfronteriza aquí?
In your opinion, what may be necessary for successful transboundary cooperation to happen?	En su opinión, ¿Qué puede ser necesario para que ocurra una cooperación transfronteriza?
What do you think would be the biggest success of transboundary conservation?	¿Cuál cree que sería el mayor éxito de la conservación transfronteriza?
Would you like to be involved in renewed planning and management of transboundary conservation? If yes, how so?	¿Le gustaría participar en la planificación y gestión de la conservación transfronteriza? ¿hasta qué punto?
What groups would you like to work with for future transboundary collaboration?	¿Qué grupos afuera de CONAF/APN le gustaría trabajar con para colaboración transfronteriza en el futuro?
Would you like to receive a report of the findings of this study?	¿Quisiera usted recibir un informe de los resultados de este estudio?

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