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How are Argentina and Chile facing shared biodiversity loss?

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Abstract

Biodiversity loss remains one of the most pressing issues for global governance. This situation can be seen in Argentina and Chile through the effects of biodiversity loss caused by the introduction and expansion of beavers in Southern Patagonia. This case is interesting because, despite the Beagle conflict (i.e., the border dispute) between these countries some decades ago, nowadays Argentina and Chile are facing shared environmental problems and both are actively seeking solutions. The main question in this paper is, how did Argentina and Chile search for a solution to shared environmental problems caused by the expansion of beavers in Southern Patagonia? This paper tackles this question and presents the results of the conducted qualitative research. The results indicate that, in order to understand what Argentina and Chile are doing to achieve a solution to their shared environmental problems, research cannot be exclusively focus on domestic affairs. Instead, this issue requires taking into account how international dimensions influenced domestic policies. As this paper argues, in Argentina and Chile, international cooperation is a method of influencing biodiversity governance through funds granted by international organizations and international expert recommendations.

Keywords Environmental governance · Biodiversity conservation · International cooperation · Foreign policy

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1 Introduction

Planet boundaries (Rockström et al. 2009) have been discussed across a range of policy arenas (Galaz et al. 2012) and have received growing attention by scholars (Barnosky et al. 2012; Brook et al. 2013; Mace et al. 2014). Rockström et al. (2009) warned about the critical situations of three tipping points: the nitrogen cycle, climate change, and biodiversity loss. This is a concept that reflects the critical situation of the global environmental problems. Because of the urgency for achieving political solutions, it is worth noting that the concept of environmental governance has the following characteristics: is fragmented (Biermann et al. 2009), have different meanings (de Castro et al. 2015), and requires further research on biodiversity loss issues (Dauvergne and Clapp 2016).

In 1946, the species *Castor canadensis* (Kuhl 1820), commonly called the beaver, was introduced in Argentina, whereby 25 beaver couples from Canada were released in Isla Grande of Tierra del Fuego in order to improve the region's fur market (Lizarralde 1993). The lack of predators in this area facilitated the beavers' uncontrolled expansion (Anderson et al. 2009), which, even now, continues to alter ecosystems (Pietrek and González-Roglich 2015; Henn et al. 2016) not only in Argentina but also in its neighboring country, Chile. From a broader perspective, this beaver expansion in Argentina's Southern Patagonia and Chile is a problem that presents an environmental dimension, whereby damage caused by beavers promotes *Nothofagus* forest degradation, particularly in riparian areas (Martínez Pastur et al. 2006; Anderson et al. 2009; Graells et al. 2015), as well as impacts on hydrological systems, which change waterways and sediment flows (Parkes et al. 2008). This beaver expansion is also compounded by an economic dimension, whereby these impacts generate synergies and trade-offs within the tourism, ranching, and forestry industries (Pietrek and González-Roglich 2015; Santo et al. 2015; Henn et al. 2016) and also impact rural infrastructure by, e.g., affecting accessibility via damaging routes and creating rouge paths (Parkes et al. 2008; Martin et al. 2015). One of the proposed solutions for these problems was the binational eradication of beavers, which constitutes an ambitious and expensive challenge that remains without success even today.

This study will analyze relations between Argentina and Chile from 2008 to 2016 and, in particular, the beaver eradication agenda in Southern Patagonia. This case demonstrates how two border countries, which were almost at war 40 years ago, decided, in the subsequent years, to cooperate on many policies, including those addressing environmental issues. This study also examines how these two South American countries are challenged by their biodiversity loss, which is considered one of the current critical planet boundary tipping points. This study specifically takes into account that current research findings on the expansion of beavers in their non-native ecosystem (Choi 2008; Anderson et al. 2011) suggest a high cost of inaction for development (Oliver 2016; Costanza et al. 2014) and that this environmental problem might also be seen in different parts of the world (Kassal 2016; Romashova 2016; Safonov 2016; Stringer and Gaywood 2016).

The following question guided this research: How did Argentina and Chile search for a solution to a shared environmental problem caused by the expansion of beavers in Southern Patagonia? The results will mainly contribute to: (1) expanding empirical research on environmental governance and development in South America, (2) examining the extent to which the foreign policies of Argentina and Chile contribute to resolving environmental common problems, and (3) identifying tendencies of Argentina and

Chile to cooperate on development and environmental issues. This paper argues that international cooperation is a way of influencing biodiversity governance in Argentina and Chile through funds granted by international organizations and recommendations by international experts.

This paper is structured as follows. The next section examines the analytical scope of this paper and defines environmental governance. Next, the bilateral relations of Argentina and Chile will be evaluated regarding a political and environmental intertwined level of analysis. Finally, special consideration will be given to how the international dimension is linked to these bilateral relations.

1.1 Environmental governance

As a first way to examine the meaning of environmental governance, Dauvergne (2005) provides elements for defining its scope. He includes a wide range of topics, such as climate change, biodiversity loss, desertification, deforestation, and water. According to Dauvergne and Clapp (2016), multilevel analyses are prominent in studies on environmental governance, the majority of studies focus on market governance, addressing economic actors in global environmental politics, and there is an emphasis on climate change case studies.

It is also important to highlight that there is not only a way of defining the meaning of the “environmental governance.” De Castro et al. (2015) posed the concept of *hybrid environmental governance* as an analytical tool to understand the different modes of management that impact the access, control, and use of natural resources in Latin America, with Bolivia and Ecuador as the main references of the tool’s design and implementation. In both cases, the state played a central role in decision-making processes on environmental issues. In contrast, it is also possible to recognize the neoliberalism as a global phenomenon (Harvey 2005), in which the World Bank considered market-oriented policies more efficient than state-driven policies (Demmers et al. 2004). This “good governance” was promoted by the World Bank during the 1990s as a concept to be fostered by different countries in South America. There is still an additional point of view to consider in this paper: Parker et al. (2015) affirmed the importance of recognizing the different social representations of environmental governance, including perceptions and actions of a wide range of actors, from governments to civil society and the private sector, and also the necessity of negotiating between those different approaches. Hence, concerning the various ways of interpreting what environmental governance entails, we prefer here to say environmental *governances* instead of environmental *governance*.

Understanding environmental *governances* from an international perspective requires also mentioning several environmental challenges (Rosenau and Czempiel 1992; Nye and Donahue 2000; Keohane 2002; Dauvergne 2005; Paterson 2000; Hofferberth 2015). For instance, Rockström et al. (2009) discussed the critical situation on Earth and the concept of planet boundaries, which refers to the “safe operating space for humanity with respect to the Earth” (Rockström et al. 2009). Planet boundaries include: (1) the rate of biodiversity loss, (2) climate change, (3) change in land use, (4) nitrogen and phosphorus cycles, (5) ozone depletion, (6) chemical pollution, (7) global freshwater use, (8), ocean acidification, and (9) atmospheric aerosol loading. Today, Rockström et al. (2009) contend that humankind has met a critical situation that could be dangerous for survival. The most pressing environmental issues that they identified were the nitrogen cycle, climate change, and biodiversity loss. It is also important to consider that environmental changes, as a consequence

of the impacts of human activities, will have multiple, unknown, long-term effects on the planet (Crutzen and Stoermer 2000; Crutzen 2010; Kerr and Dobrowski 2013).

To better understand what environmental challenges mean for governances in the international arena, Biermann et al. (2009) coined the concept of *global governance architecture*, which is defined as “the overarching system of public and private institutions that are valid or active in a given issue of world politics” (Biermann et al. 2009, p. 15). In this definition, *system* refers to the existence of “organizations, regimes, and other forms of principles, norms, regulations and decision-making procedures” (Biermann et al. 2009, p. 15). The main features of their idea of global governance recognize that there may be different parts that are fully interlinked and that fragmentation may be synergistic, cooperative, or conflictive.

2 Beaver eradication: A bilateral agreement between Argentina and Chile

The governments of Argentina and Chile decided to cooperate in 2008 in order to achieve a solution to their shared environmental (i.e., exotic species) problem (Acuerdo entre la República Argentina y la República de Chile sobre la restauración de los ecosistemas australes afectados por el castor Americano *Castor canadensis* 2008). Both governments signed a protocol for the restoration of austral ecosystems damaged by beavers. These governments were concerned about the possibility of the beavers expanding in the Southern Patagonia of Argentina and Chile. This concern suggests a more general problem that challenges governance: the global relevance of issues stemming from the introduction of exotic species into non-native ecosystems. Researchers have reported how, due to growing commercial exchanges stemming from globalization, new strategies are required for controlling unexpected consequences, such as negative effects of the introduction of exotic, invasive species (Perrings et al. 2002, 2005; Westphal et al. 2008; Riley 2009). Others analyzed the role of exotic invasive species in the World Trade Organization (OMC). Keller and Perrings (2011) argued that international cooperation to stop and control this problem is more effective when economic consequences arise rather than when there are environmental costs, though authors such as Perrings et al. (2010) conceived the control of invasive species as a public matter, in which the state plays a central role instead of the market.

The aim of the aforementioned protocol was to restore the ecosystems that were damaged by beavers. To do so, Argentina and Chile developed three actions. First, they undertook an analysis and evaluation of the feasibility of eradicating beavers from Southern Patagonia, taking into account ecological, economic, social, institutional, and technical aspects. For this assessment, there was also a condition that it must be done by international experts on exotic species. Argentina and Chile expected that this report would be the framework to develop a project focused on beaver eradication. Meanwhile, short-term actions were agreed upon in order to avoid the expansion of beavers in Tierra del Fuego. Article 9 of the bilateral protocol is critical because it considers multilateral organizations as potential donors and participants in the implementation phase of beaver eradication (Acuerdo entre la República Argentina y la República de Chile sobre la restauración de los ecosistemas australes afectados por el castor Americano *Castor canadensis* 2008). A few conclusions may be drawn from this protocol. First, in 2008, problems caused by the introduction of beavers in 1946 became an issue for the bilateral agenda of Argentina and Chile. Second, Argentina and Chile did not provide funding to resolve their common

environmental problems. Third, Argentina and Chile did not prefer to have an international assessment: (1) between both countries, (2) between South American countries, or (3) between countries in South–South cooperation. Fourth, international actors were recognized as part of the process for achieving a solution because of the two types of resources they possess: experts and financing.

It is necessary to have an overview of the historical political context of Argentina and Chile to fully understand how it was possible that these countries agreed to manage their shared beaver-related problems in Southern Patagonia. In the late of 1970s, there was a sovereign dispute in the Beagle Channel that caused a crisis for Argentinean and Chilean diplomatic relations. The intervention of the Vatican in the negotiations ensured war was avoided between these two border countries. However, these negotiations did not mark the end of the conflicts in the region. In 1982, Argentina's dictatorship government was fighting in the Falklands War (Malvinas) against the UK. After negotiations in Europe, Argentina and Chile signed the Treaty of Peace and Friendship in 1984 (*Tratado de Paz y Amistad entre Argentina y Chile 1984*), in which both governments pledged to peacefully resolve any conflict between them and avoid the use of force. As it will be shown, the implication of this treaty is that it will be a milestone in the development of bilateral relations between these countries.

Argentina and Chile signed the Treaty on Environment in 1991 (*Tratado entre la República Argentina y la República de Chile sobre Medio Ambiente 1991*), in which both countries agreed to implement joint actions to tackle environmental issues. In particular, these countries were concerned about the protection of the atmosphere, soil, water, and marine ecosystems and also urban pollution. In addition, these countries also signed a special agreement on the use and management of shared water resources. Based on this treaty, two additional protocols were signed in the following years. One of these protocols was related to the management of water resources, and the other protocol concerned environmental protection in Antarctica. Moreover, in 2002, Argentina and Chile continued their cooperation in addressing environmental issues by signing a protocol for the protection of common flora and fauna, inviting public and private stakeholders to participate in the development of programs, projects, and specific actions (*Protocolo específico adicional sobre conservación de la flora y fauna silvestre compartida entre la República Argentina y la República de Chile 2002*). Given this context, the protocol for the restoration of austral ecosystems in 2008 reveals how these two countries, which were almost at war at the end of the 1970s, decided to establish a political framework of cooperation that included environmental issues.

On the next year, the Argentinean and Chilean government signed the Maipú Treaty (*Tratado de Maipú de Integración y Cooperación entre la República de Chile y la República de Argentina 2009*), which become the next milestone in their bilateral relations. This treaty has 13 core objectives and provides an overall framework for these strategic bilateral relations. Briefly, to provide an overview of the scope of this agreement, it is important to mention a couple of the agreement's specific themes. First, infrastructure to improve connections between these two countries was especially considered, such as in the energy, transport, and communication sectors. Second, the area of defense was considered in order to foster cooperative bilateral actions. Argentina and Chile recognized and reinforced the existence of multilevel mechanisms for its bilateral relations, such as: (1) presidential meetings, (2) binational meetings for ministers, (3) a system of permanent consultation with each Ministry of Foreign Affairs, (4) a Binational Commission on Trade, Investment and Economic Relations, (5) a Joint Parliamentary Commission, and (6) the Committees for Integration. The Maipú Treaty has essential political importance because

it will shape the future of bilateral relations between Argentina and Chile. In this line of reasoning, the agreement achieved to restore austral ecosystems damaged by beavers in Southern Patagonia (2008) reveals a consensus between both countries on how to face this environmental problem. New questions arise here, specifically with regard to one of the elements included in the protocol that is being analyzed here: What are the implications of conducting an international assessment for beaver eradication?

3 Toward the possibility of beaver eradication

The efforts oriented to eradicate beavers in Southern Patagonia involve different stakeholders, such as the Austral Center for Scientific Research of the National Council of Scientific and Technical Research (CONICET), the National Park Administration (APN), and the Wildlife Conservation Society (WCS). Within this framework, it is interesting to highlight how international interests were connected with the biodiversity conservation in Southern Patagonia. Since 2004, the WCS-Chile—one of the stakeholders recently mentioned—has owned and managed biodiversity conservation in the Karukinka Reserve in Tierra del Fuego, Chile (Wildlife Conservation Society 2012). In 2008, when Argentina and Chile signed the aforementioned protocol, the WCS reported that its donations come from big companies such as British Petroleum, Shell, and Cargill, some of which are involved in sectors with the highest levels of greenhouse gas emissions (Wildlife Conservation Society 2008). The WCS-Chile reported that their budget in 2015 was 875,021 USD. Their funding sources were the following: (1) 53% from the WCS-New York headquarters (463,761 USD), (2) 36% from consulting with state agencies, (3) 7% from local incomes, and (4) 2% from Karukinka entrance tickets. From these incomes, the most important expenses included paying salaries in Punta Arenas and Santiago, Chile, where the WCS has offices (Wildlife Conservation Society-Chile 2015).

Regarding the existence of different stakeholders aforementioned, the possibility of beaver eradication was linked to the role of international experts. In 2008, Argentina and Chile requested that international experts prepare a feasibility study to eradicate beavers in Southern Patagonia. Parkes et al. (2008) argued that eradicating beavers was possible and that the set of initiatives involved would cost around 33 million USD. Two requirements were clearly mentioned in this assessment. First, external funds would be required for the implementation of this project, and second, the establishment of new institutions at the bilateral level for the implementation of these initiatives was needed. This report also reveals that its elaboration was not a direct output of bilateral cooperation between scientists from Chile and Argentina; instead, it was the result of the recommendations of international consultants (from New Zealand and the USA), which was a method of influencing biodiversity governance in Southern Patagonia.

The possibility of beaver eradication was also connected with funds granted by the GEF, which meant other mechanism for influencing biodiversity policies in Argentina and Chile. In August 2015, a new project was launched in Argentina, called “Strengthening governance for the protection of biodiversity through the formulation and implementation of National Strategies of Invasive Species” (Organización de las Naciones Unidas para la Alimentación y la Agricultura 2015). The Global Environmental Facility (GEF) provides the funds; the kick-off project cost 3.9 million USD over 4 years and included the co-financing amount of 18.2 million USD (Food and Agriculture Organization of the United Nations 2018). The Food and Agriculture Organization of the United Nations (FAO) was in charge

of implementing this project, and its goal entails establishing a governance framework to protect biodiversity against the impacts of invasive exotic species. To do so, this project has two components. The first component is oriented to improving public policies on exotic species, and the second concerns developing pilot cases for eradicating beavers in Tierra del Fuego, Argentina.

In the case of Chile, the GEF funded a specific project related to invasive species entitled “Strengthening National Governance Frameworks for Invasive Alien Species: Piloting in the Juan Fernández Archipelago.” Stakeholders include the Ministry of Environment, which leads and coordinates actions with the National Forestry Corporation, the Agricultural and Livestock Service, and the Municipality of Juan Fernández. For this project, the United Nations Development Programme was the implementing agency. This project had two intertwined objectives concerning exotic species. The first objective was to strengthen the legal framework and institutional capabilities in Chile, and the second was to establish a control and surveillance system in the Juan Fernández archipelago to monitor the expansion of exotic species. Of the 10.9 million USD funding for this project, the GEF provided 4 million USD (Global Environmental Facility 2010).

There is another point to consider in this analysis: the GEF at the international level. The GEF is a leading international financial institution dedicated to addressing environmental issues. The GEF was formed in 1991 under the World Bank, initially partnering with the United Nations Development Programme and the United Nations Environment Programme. The genesis of this organization occurred during the Rio Summit (1992) when there was a restructuring of the GEF programme. In 2000, more institutions and agencies joined the GEF. In 2012, new agencies started to create and manage projects, including the International Union for Conservation of Nature, the World Wildlife Fund, Conservation International, Andean Development, the West African Development Bank, the Development Bank of South Africa, Fundo Brasileiro para a Biodiversidade, and the Foreign Economic Cooperation Office of China (Global Environmental Facility 2015). Briefly, the GEF-6 covered the period from July 1, 2014, to June 30, 2018. The GEF’s funding priorities were oriented toward biodiversity (1296 billion USD) and climate change (1260 billion USD), representing a total of 50% of the budget (4.433 billion USD) (Global Environmental Facility 2016).

As mentioned previously, biodiversity conservation is one of the GEF’s funding interests. The United Nations Environment Programme observed the existence of multiple drivers that are shaping the situation of natural resources and the environment in Latin America, revealing negative consequences of its international insertion. First, species are declining in abundance and some are facing extinction. Second, the rate of habitat loss in Latin America and the Caribbean remains high, though it has slowed. Third, there has been an intensification of agricultural expansion and, in this framework, commodities production. Fourth, there are devastating impacts on biodiversity as a consequence of resource extraction, including minerals and hydrocarbons (The United Nations Environment Programme 2016). Scholars coined a few concepts to capture the complex dynamics of Latin America’s insertion in the international arena. For instance, Svampa (2015) coined the concept of commodity consensus, which concerns how Latin American countries interact with other countries at the international level by supplying natural resources to meet international demands. Extractivism is a concept that was proposed by Gudynas (2012), who also noted the intense pressure (due to mining, oil, and intensive agriculture) that transnational corporations exert on Latin American ecosystems and the related social consequences. Regarding this assessment and conceptualizations, it is possible to state that there is a convergence between the GEF’s priorities and the loss of biodiversity in Latin America.

4 Conclusions

The objective of this article was to empirically examine Argentinean and Chilean relations from 2008 to 2016, in particular, their relations concerning the eradication of beavers. This study confirms that biodiversity loss continues to challenge the ever-fragmented concept of global environmental governance (Biermann et al. 2009; Parker et al. 2015) as well as the existence of different perceptions of what this governance entails (de Castro et al. 2015). This study also uncovers new ways of understanding environmental governance, including the importance of domestic–international interactions. In particular, the results elicited new insights concerning relations between Argentina and Chile regarding beaver eradication. This issue cannot be exclusively addressed by domestic affairs; instead, it requires understanding how international dimensions influence domestic policies. On the one hand, it allows having funds for undertaking different kinds of conservation actions and experts available for cooperating in Southern Patagonia. However, on the other hand, it entails a situation of long-term structural dependence at the domestic level. These examples illustrate how domestic–international interactions are dependent on environmental governance. It is also important to note that the singularity of this situation cannot be extrapolated to other issues in the bilateral agenda between Argentina and Chile.

A point for further discussion emerges from this research. In particular, it is necessary to improve bilateral relations between Argentina and Chile with concrete actions. Regarding the negative consequences of the biodiversity loss in Southern Patagonia, substantive progress in beaver eradication is still needed. This solution will contribute to the reduction in global biodiversity loss, one of the current critical planet boundaries. Moving from a situation of dependence on international actors to autonomy will be the big challenge for Argentinean–Chilean bilateral relations concerning environmental issues. This shift will allow both countries the ability to make their own decisions on biodiversity conservation, one of the most pressing global environmental issues.

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