

Factors influencing the declaration of civil society Natural Reserves in Quindío

Factores que influyen en la declaración de reservas naturales de la sociedad civil en el Quindío

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RESUMEN

En respuesta a la crisis ambiental que la humanidad está atravesando en el así llamado Antropoceno, que involucra la rápida pérdida de la diversidad y las contribuciones ofertadas por la naturaleza, las áreas protegidas o espacios delimitados en los que se busca mantener una muestra de los ecosistemas naturales son una de las principales medidas de conservación. Dentro de las estrategias de conservación basadas en áreas, las áreas protegidas privadas son la categoría más ampliamente implementada en el planeta y una de las más efectivas. En Colombia, las áreas protegidas privadas están legalmente constituidas bajo la categoría de Reservas Naturales de la Sociedad Civil (RNSC) que han sido implementadas en varias regiones del país. En el departamento del Quindío, reconocido por su tradición ambiental, sorprende que tan solo nueve predios han sido declarados bajo la categoría de RNSC. En este estudio, a través de encuestas y entrevistas semiestructuradas se describen los factores socioeconómicos, asociados a propietarios de predios con vocación para la conservación que ejemplifican tres escenarios de predios privados en conservación a nivel departamental: RNSC, predios asociados a RESNATUR, y predios privados no afiliados a ninguna organización. Nuestros resultados señalan que la conservación asociada a predios privados en el Quindío está fuertemente influenciada por condicionantes históricos y socioeconómicos del modelo cafetero. En especial, los valores de la clase media cafetera, relacionados con la formación académica y la cultura ambiental.

PALABRAS CLAVE: contaminación ambiental, nemátodos anisákidos, peces marinos, bioacumulación.

ABSTRACT

In response to the environmental crisis of the so-called Anthropocene, which involves the rapid loss of diversity and the contributions offered by nature, protected areas are among the main conservation measures. Private properties dedicated to conservation are the most widely implemented area-based conservation strategies and one of the most effective. In Colombia, private protected areas are legally constituted under the category of Natural Reserves of Civil Society (RNSC) that have been implemented in several regions of the country. Surprisingly, at the department of Quindío, recognized for its environmental tradition, only nine properties have been declared under the RNSC category. In this study, through surveys and semi-structured interviews, we described those socioeconomic factors associated with owners of properties with a vocation for conservation that exemplify three scenarios of private properties under conservation at the departmental level: RNSC, properties associated with RESNATUR, and private properties, not affiliated with any organization. Our results indicate conservation vocation of land owners in Quindío is strongly influenced by historical and socioeconomic factors of the coffee culture, in particular, the values of the coffee middle class, related to academic training and environmental culture.

KEYWORDS: environmental pollution, anisakid nematodes, marine fish, bioaccumulation.

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Introduction

Protected areas are considered the most valuable places for in situ conservation globally; they safeguard biological diversity, ensuring fundamental services provided by nature. Their role has never been as important as now, in these times of environmental crisis, during which, as a result of anthropogenic action, there has been an accelerated increase in biodiversity loss (Elbers 2011). According to the IUCN in 2016, less than 20% of key areas for biodiversity conservation were completely covered under any form of protection, despite the establishment of 202,467 protected areas by that same year, covering almost 20 million km² or 14.7% of the Earth's surface.

In Colombia, protected areas are managed by the National System of Natural National Parks, totaling 1,514 areas, covering 49,309,849.96 hectares (RUNAP 2022). In 2010, through decree 2372, management categories were established, with Civil Society Natural Reserves (RNSC) being the only officially recognized figure, which includes private properties in the National Registry of Protected Areas (RUNAP). Therefore, RNSCs are considered a more effective community participation strategy in conservation, totaling to date 1,087 RNSCs covering 238,964.68 hectares, representing a significant contribution to biodiversity conservation at the national level (RUNAP 2022).

The declaration of private properties as RNSCs is a completely voluntary process, in which the owner decides the proportion of their property area to be allocated for conservation without any minimum or maximum limits in extension. The National System of Natural National Parks of Colombia is the designated institution to review the documentation, conduct a technical visit to the property, and issue an opinion on the suitability of the property proposed as an RNSC. The registration process concludes with the resolution issued by the Ministry of Environment and Sustainable Development. In compensation, owners receive various benefits, including reductions or exemptions in property taxes (according to municipal agreements), payments for environmental services, participation rights in the planning processes of development programs, among others (Decreto 1996 de 1999).

Despite being the smallest department in the country (IGAC 2010), Quindío harbors high biological diversity due to its strategic location on the western slope of the Central Cordillera, being primarily mountainous with a wide elevation gradient between 900 and 4,750 meters above sea level (Mantilla-Meluk et al. 2017).

Paradoxically, in the department of Quindío, there are only 14 recognized protected areas by the National Registry of Protected Areas (RUNAP) in the following categories: one National Natural Park (Los Nevados), three Integrated Management Districts (Chilí Bosque Altoandino Pijao, Upper Basin of the Quindío River in Salento, Paramos and Altoandino Forests of Génova), one Soil Conservation District (Barbas Bremen), and only six Civil Society Natural Reserves (RUNAP 2022).

Ecosystems in Quindío, a flagship department of coffee culture in the region, recognized as a World Heritage Site for these practices, have undergone extensive transformation of their original vegetation cover. That is a result of the advancement of agricultural and livestock frontiers (Kattan 1997), with the department nationally having the highest degree of ecosystem transformation accumulated by the year 2015 (Buriticá 2016).

The advance of productive frontiers over high Andean forests and paramos, responsible for water and climatic regulation, is aided by the effect of climate change and global warming, and a verified migration of thermal belts in the elevation gradient, which has made lands previously unsuitable for productive activity available (Etter et al. 2011). This situation is further exacerbated by the worrying titling of areas for mining practices, which, although currently representing a minor economic sector, are responsible for changes in environments associated with the development of infrastructure that predicts its boom, such as roads and small hydroelectric plants. In this context, it should also be noted that Quindío has become one of the three most visited tourist destinations in Colombia, with its population multiplying by a six-fold each season, and its cities rapidly changing their demographics, becoming targets for real estate projects, exerting more pressure on natural environments from the demand of cities and their peripheral areas.

Collectively, the aforementioned factors make it urgent to include a greater number of properties in the protected areas system, especially RNSCs, in order to conserve biodiversity and guarantee the contributions and associated ecosystem services that, through the participation of civil society, ensure the long-term sustainability of conservation processes.

Considering the importance of the RNSC figure and the low number of properties, this study refers to the first systematically analyzed impressions on the perception that property owners with a conservation vocation have regarding the declaration procedure.

Materials and Methods

Study Area

The department of Quindío is located in the central-western part of the country, between 04° 04' 41" and 04° 43' 18" north latitude and between 75° 23' 41" and 75° 53' 56" west longitude; with elevations ranging from 900 to 4,750 meters above sea level, the climate of the Quindío department is varied, mainly due to factors such as latitude, altitude, orientation of mountainous reliefs, winds, etc. The average temperature ranges between 18°C and 21°C.

Owner Identification

Through the database available in the National Registry of Protected Areas (RUNAP), the owners of properties currently declared as RNSCs in the department of Quindío were identified. For owners of properties not declared as RNSCs but engaging in conservation processes on their properties, the national office of the Civil Society Natural Reserves Network (RESNATUR) was requested for the database of affiliated properties in the department. Additionally, the Environmental Management Subdirectorates of the Regional Autonomous Corporation of Quindío (CRQ), which coordinates the Departmental System of Protected Areas (SIDAP), was requested for the database containing information from each municipality's environmental or development department, which includes properties that are part of the twelve Municipal Systems of Protected Areas (SIMAPs) and properties identified with areas dedicated to conservation.

Methodological Tools

A survey was conducted where only personal data of property owners or responsible individuals were recorded, including:

§ Name

§ Age

§ Education level

§ Occupation

§ Does the reserve or property represent your economic livelihood?

For owners of properties NOT declared as RNSCs, the following questions were included at the beginning of the survey:

§ Do you know what Civil Society Natural Reserves (RNSCs) are?

§ If you know what RNSCs are, what has prevented you from registering your property as an RNSC?

A semi-structured interview technique was used only with property owners declared as RNSCs, based on reflection on the following axes and guiding questions:

a) How was the process of applying for the property as an RNSC?

b) Benefits vs. Challenges or concerns

c) Institutional support

d) Procedure for applying for the property

e) Self-perception of ownership

Information Recording

§ Survey: The information was recorded in digital format.

§ Interview: Due to the technique implemented, a Sony ic recorder icd - ux512 recorder was used, in addition to notes in the field notebook.

The recordings were played back and analyzed during transcription, contextualizing the silences and/or sounds that accompanied the comments and responses of the interviewees. The recommendations of Tonon (2009) were considered. Graphs and mathematical calculations were elaborated in Excel and edited in the digital drawing software Krita.

Results

Identification of Civil Society Natural Reserves in Quindío.

As of the date of this publication, there are nine properties declared as RNSCs in Quindío (Table 1). Two properties in the municipality of Salento are awaiting the resolution accrediting them as RNSCs (M. Hernández PNN, personal communication). Contact was established with eight of the nine owners, as it was known that the owner of the “Mina San Pacho” RNSC is currently out of the country, and the municipal administration has not had contact for over five years.

Table 1. List of Civil Society Natural Reserves in Quindío as of November 2022. Ha = total hectares of the property

Name	Municipality	Ha	Declaration Support
El Paraiso	Salento	3.05	Resolución 0037 de 18/09/2012
Kasaguadua	Salento	6.0	Resolución 0085 de 20/09/2013
Sacha Mama	Salento	3.252	Resolución 105 de 30/09/2013
Mina San Pacho	Salento	1.9	Resolución 0002 de 23/01/2014
El Camino del Tesoro	Salento	4.01	Resolución 0018 de 01/04/2016
Samaria 2	Montenegro	19.59	Resolución 0093 de 17/08/2016
Cocorasecret	Salento	34.03	Resolución 116 de 05/11/2020
El Cairo	Salento	60.96	Resolución 0213 de 28/12/2021
Pino Hermoso	Salento	70.42	Resolución 200 de 15/11/2022

Source: RUNAP

Identification of Properties with Conservation Vocation

The database managed by SIDAP was obtained, in which the participation of more than 433 private properties undertaking conservation actions on their premises could be verified. From this database, the property with the largest area for each municipality was selected, considering that it was not an

RNSC and did not belong to RESNATUR (except for the municipalities of Salento and Montenegro, which have RNSC representation). To verify the properties currently belonging to RESNATUR, access was made to the database with information for the department of Quindío, provided by the National Office of this association (Table 2).

Table 2. Properties in Quindío currently affiliated with the Civil Society Natural Reserves Network Association

Name	Municipality
Agua Clara-Valle Lindo	Génova
Aguas Claras-La Palmera	Salento
El Oasis	Córdoba
El obsequio	Montenegro
Guadualito	Montenegro
La Cabaña La Esperanza	Salento
La María	Armenia
Serbia	Génova
Soñarte	Córdoba

Source: authors

The properties were grouped into three different categories as follows: i) Civil Society Natural Reserves (RNSC) = 8; ii) Civil Society Natural Reserves Network Association (RESNATUR) = 9; iii) Private Properties in Conservation (PP) = 10, for a total of 27 properties included in our analysis. 96.29% of owners in all three categories stated that they had not received institutional support in their conservation processes. Additionally, 70.37% of the owners indicated that they fear losing ownership of their property by registering it as a protected area.

Table 3. Level of education among the owners of the three categories

	Education level			
	None	Highschool	Technical Diploma	College
RNSC	0	1	1	6
RESNATUR	0	0	1	8
PP	1	3	0	6
Total	1	4	2	20

Source: authors

Figure 1. Summary infographic of the results of interviews and surveys with property owners in the three analyzed scenarios

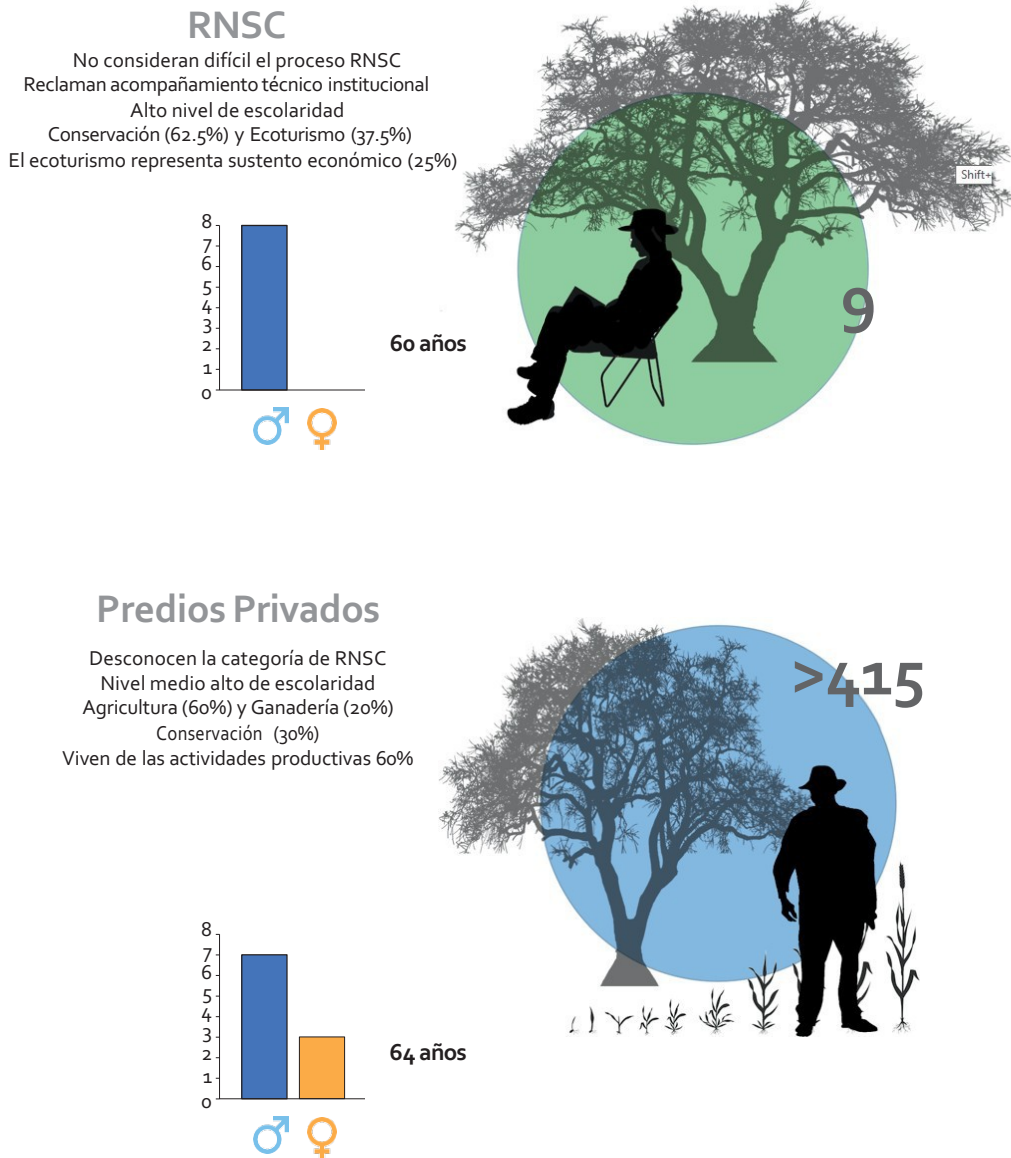
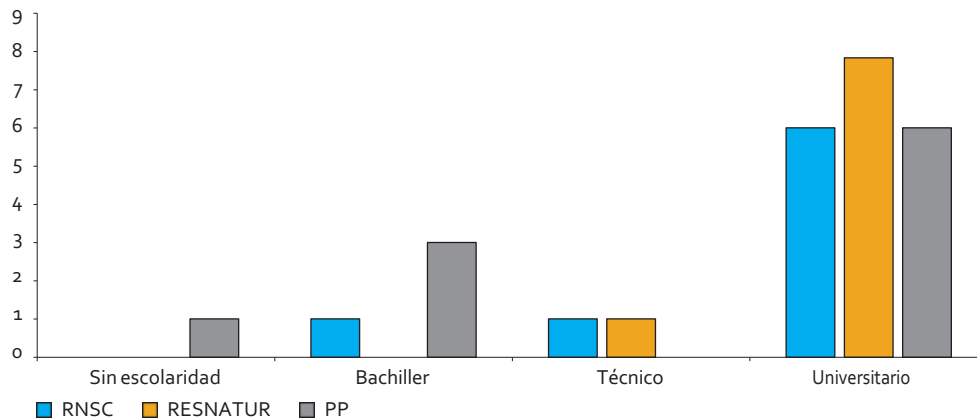
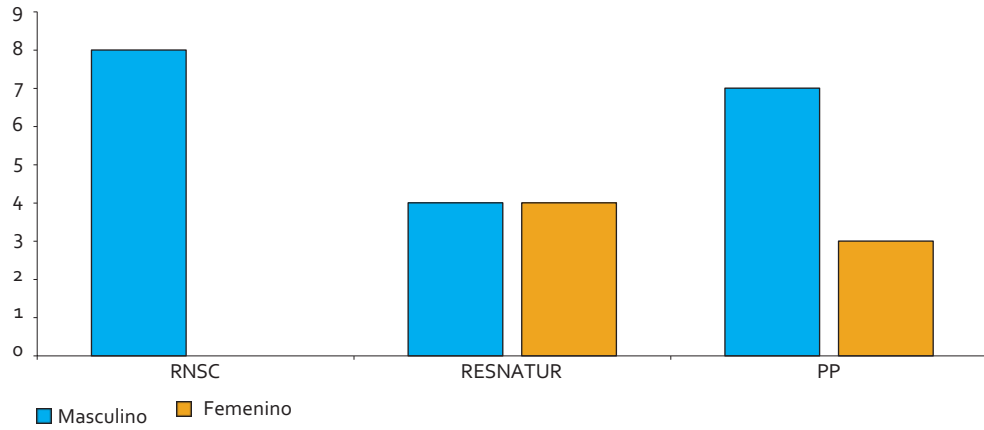


Figure 2. Education level of surveyed property owners



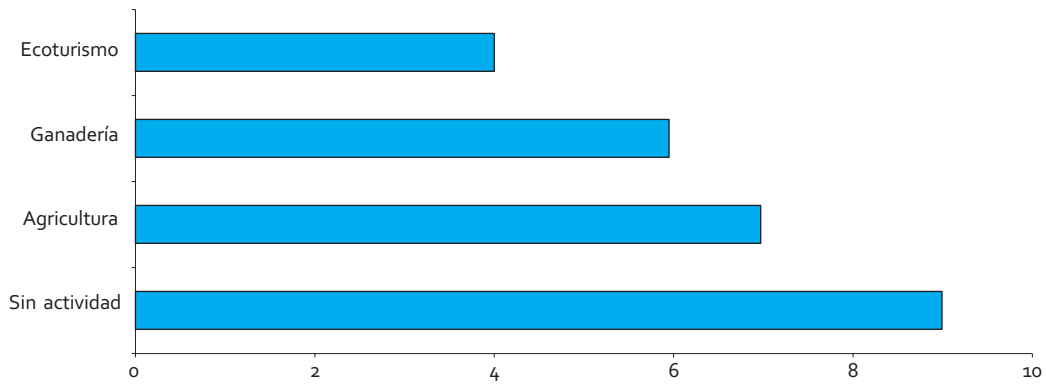
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Figure 3. Gender structure in the population of property owners with a conservation vocation in the department of Quindío



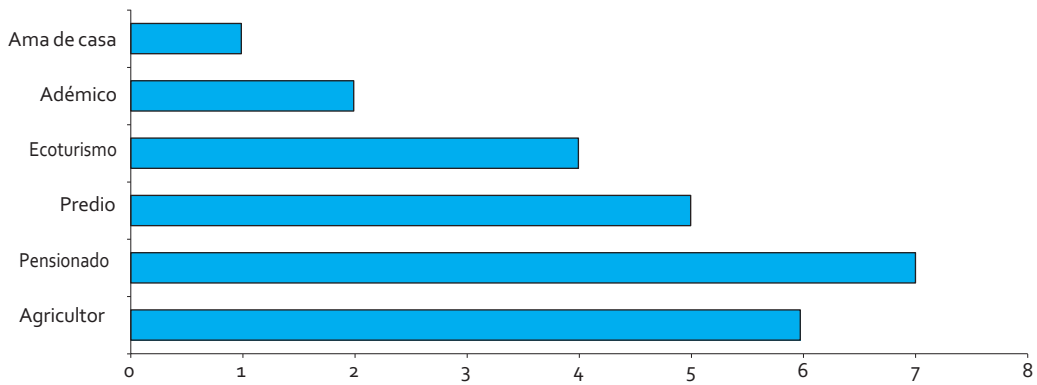
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Figure 4. Vocation of the analyzed properties



Source: authors

Figure 5. Occupational activity of surveyed property owners



Source: authors

Discussion

Despite governmental efforts in nature protection, over 93% of the land and its diversity remain vulnerable to a growing array of stressors that primarily affect the planet's most diverse ecosystems (WRI et al., 1998). In light of this situation, the establishment of in situ alternatives that complement institutional conservation efforts emerges as a priority in conservation policies.

Private Protected Areas are the most widely implemented strategy for protecting larger areas globally and, therefore, one of the most effective. This success is partly attributed to utilizing citizen capacity for formulation, establishment, and, above all, safeguarding diverse heritage over time. Private Protected Areas are an important strategy for generating connectivity between conservation areas (Chacón, 2008). In addition to these benefits, Private Protected Areas become scenarios where complementary conservation schemes such as conservation incentives, particularly payment for ecosystem services and carbon credits, can be effectively implemented. They also serve as venues for implementing alternative strategies for sustainable productivity, making Private Protected Areas a living tool for environmental education that is part of the Convention on Biological Diversity (2004).

In Colombia, it is the state's duty to protect the diversity and integrity of the environment, preserve areas of special ecological importance, and promote education to achieve these goals. Therefore, Article 80 dictates that: "The State shall plan the management and use of natural resources to ensure their sustainable development, conservation, restoration, or substitution. Additionally, it must prevent and control factors causing environmental deterioration, impose legal sanctions, and require compensation for damages caused." The state also determines citizens' duties: Protecting the country's cultural and natural resources and ensuring the conservation of a healthy environment. Article 334 mentions that: "The general direction of the economy shall be in the hands of the State. It shall intervene, by virtue of law, in the exploitation of natural resources, land use, production, distribution, use, and consumption of goods, and in public and private services, to rationalize the economy in order to achieve an improvement in the

quality of life of the inhabitants, equitable distribution of opportunities and benefits of development, and preservation of a healthy environment."

In addition to the above, Civil Society Natural Reserves pose an alternative solution to the potential conflict between individual interests and rights versus collective interests and rights, particularly those related to fundamental rights associated with nature and the environment. This aspect is of particular importance in Colombia since the National Constitution has been categorized as a green constitution, and various sections enshrine the preservation of biological diversity as a fundamental right. Civil Society Natural Reserves are the only figure in Colombia that provides legal support at the constitutional level for conservation efforts on private properties (Ocampo, 2010). The official recognition in these properties of the existence of biodiversity heritage and its derived environmental services shields the property containing them from interventions associated with projects or processes that the state determines are of common national interest.

In Article 79, the Colombian Constitution establishes that: "All persons have the right to enjoy a healthy environment." It further notes that "The law shall guarantee community participation in decisions that may affect it." Despite the Colombian state protecting private property, Article 58 of the National Constitution states that: "When the application of a law issued for reasons of public utility or social interest results in a conflict between the rights of individuals and the need recognized by it, private interests shall yield to public or social interest."

It prioritizes that: "Property is a social function that implies obligations. As such, it has an ecological function...". This philosophy is ratified by Law 472 of 1998, which establishes norms on ecological balance, management, and use of natural resources to ensure sustainable development, conservation, restoration, and substitution (Munévar et al., 2022).

Colombia has been recognized as a megadiverse country, and its recent governments have focused political discourse on biodiversity conservation and the sustainability of its productive sectors. Despite this, it is striking that the percentage of consummated declaration processes does not correspond to

the number of properties with conservation potential or even to those where their owners have expressed their intention to conserve. This situation is particularly true for the territory of the department of Quindío, where only nine out of 433 private properties with high conservation potential have been recognized as Civil Society Natural Reserves, corresponding to 2% of the properties with a conservation vocation enjoying the benefits of declaration.

Even though there is a “Guide for the Elaboration of Management Plans for Civil Society Natural Reserves” (Ruiz et al., 2009); and the “Accompaniment Guide in the Civil Society Natural Reserves Registration Procedure” (TNC, 2019), which provide recommendations on the procedures prior to declaration, Quintero and Arias (2016) conducted an analysis of Civil Society Natural Reserves for the department of Valle del Cauca focused primarily on understanding why conservation occurs on these properties. However, the absence of analysis on the declaration process has obscured the problem of effectiveness in adhering to areas with conservation potential under the Civil Society Natural Reserve figure, also hindering understanding of their causes and obscuring the effects that ignorance of them may have on the conservation process.

Implications of the declaration: It is possible that the full legal importance of the environmental protection power that the declaration of a Civil Society Natural Reserve actually has, and the advantages of stability in the conservation process that it confers to properties, have not been fully realized.

It has been mentioned that even though Article 58 of the Colombian Constitution alludes to respect for private property and the legislation that protects it, in a situation of conflict between public utility or social interest and individuals, public and social interests take precedence over private ones. The logic underlying this article prioritizes the collective, what belongs to everyone, over the individual, what

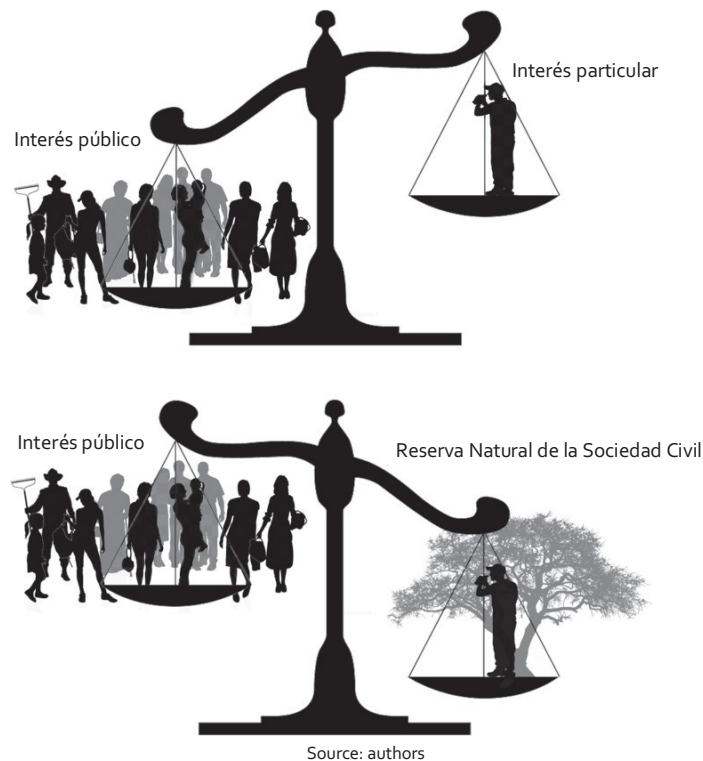
belongs to someone or some. The legal designation of an area as a natural reserve turns the conserved portion of the natural environment on each of the declared properties into something that belongs to everyone. Even though the land remains the owner's, its usefulness, the conservation of its nature, is public, and its interest is social, and as also mentioned, protecting the natural environment has been elevated to a fundamental right in the National Constitution.

Interestingly, in our study, 70.37% of owners who have a conservation vocation identified in the declaration the potential for property dispossession and a surrender of individual rights to the public. This “giving a part of the private to the public” and the consequent loss of individual autonomy over the governance of their property is perceived as negative and influences the intention to register properties under the Civil Society Natural Reserve figure.

Equally striking is how property owners do not have a clear understanding of how the declaration shields the property from potential impacts and conflicts of interest. Despite identifying the transformation of natural space as something negative, all interviewees are unaware of how adhering to the Civil Society Natural Reserve figure provides their properties with protection against potential conflicts of interest with public interest projects with a high capacity for transforming natural environments, such as mining, or the development of infrastructure of collective interest.

Private property owners who conserve on their property do not necessarily identify that the legal protection associated with the Civil Society Natural Reserve category protects them against potential conflicts of interest with other private properties, which, in the course of their utility activities, may jeopardize nature preservation, which, as a fundamental right, is being exercised on their property.

Figure 4. Explanatory infographic about the legal protection provided by the Civil Society Natural Reserve figure to property owners



Source: authors

Civil Society Natural Reserve, a figure not designed for everyone in Colombia.

In our analysis of the nature of property owners with a conservation vocation, we identified that both the intention to conserve and their willingness to adhere to the Civil Society Natural Reserve figure are associated with sociological determinants, among which were identified as important elements: i) gender; ii) age; iii) level of education and/or understanding of the various technical procedures that must be completed; as well as iv) the economic capacity to finance the declaration process in all its phases. Interestingly, these elements are not independent and are associated with idiosyncratic processes in the department of Quindío.

Socioeconomic determinants of land tenure in Quindío.

Land tenure in Quindío is not unrelated to the historical sociological and economic processes of the country. Since the time of the conquest, the territory of Quindío was part of the military objectives

of the campaigns of Sebastián de Belalcazar and J. Robledo, tasked with taking the connection pass of the Central Cordillera to establish an exit route from the west to the Magdalena River. With the same purpose, the National Road was established during the independence era, facilitating migration and the establishment of the first human settlements by Antioquian muleteers, many of them attracted by indigenous treasures (guacas). The main agricultural development, the main economic driver of the region, thus bears the bias of a founding effect of these muleteer migrants, who established their “farms” obtained by possession in processes of logging and clearing derived from the Napoleonic Civil Code (National Law in 1873), which, in addition to establishing the ways of acquiring ownership of real estate, defined the predominantly private nature of labor contracts. This results in two important elements in our analysis: i) the transformation of the natural environment as a means of access to private property and ii) land inequity, with an associated social power structure. This latter aspect is referred to by Palacios (2009), who also points out

how changes in the coffee market have had effects on the nature of ownership and socio-economic relationships (Table 3).

Table 4. Social hierarchy over time of coffee producers in Quindío

Transformation of the world coffee market	Social hierarchy of producers
"Free trade" 19th century. Invisible intervention from Brazil 1850-1907	<ul style="list-style-type: none"> • Dominant estates • Peasants • Sharecroppers • Peasant harvesters
Open intervention from Brazil 1906-1937	<ul style="list-style-type: none"> • Dominant peasants • Remnant landowners • Peasant harvesters
Hemispheric multilateral intervention 1940-1946 (USA and Latin America)	<ul style="list-style-type: none"> • Dominant peasants • Remnant landowners • Itinerant laborers
Worldwide multilateral intervention 1962-1989 (Main coffee-producing and consuming countries)	<ul style="list-style-type: none"> • Emerging entrepreneurs • Coffee middle class • Marginalized peasants • Itinerant laborers
Free market and dominance of multinational food companies	<ul style="list-style-type: none"> • Predominant peasants • Struggling entrepreneurs • Itinerant laborers

Source: authors

From the above, two elements related to the nature of the property owners identified in our study are evident, as noted, they were mostly men over 50 years old, with an average age of 62 years. From these data, a first analytical element is derived, which is that most of these individuals experienced the benefits of the coffee boom and the emergence of a middle class that has, as one of its objectives, the higher education of its youth, with 96.2% of the respondents having some form of schooling, including 74% being university graduates. Likewise, these individuals also experienced and participated in the global shift towards a more corporate structure in traditional production methods, hence the documented technical training in some of them (7.4%).

Effect of age and gender, men as decision-makers in the rural context: Cited by Morales and Cediell Barrera (2018), Fuentes et al. (2010) point out a gender imbalance in power dynamics, with a patriarchal

culture in society. This primary structure has been maintained in rural areas, where there is a strong gender division in labor, as is the case in the Quindío department, which was 100% rural until less than a decade ago. Under patriarchal schemes and practices, the man is considered the head of the family and the owner of the family's heritage, and therefore, the decision-maker regarding agricultural production, the management of family assets, and the distribution of family resources and income. In Colombia, the gender gap in the countryside is evident in decision-making about agricultural production units, which is mostly done by the head of the household. Although some rural women in Colombia are autonomous and exercise control over their property activities, 78% of them own less than 5 hectares. It is important to recognize in the Quindío context that the emergence of the middle class and its educational model based on academia has contributed elements of gender equity, and although the percentage of female property owners is lower, it is still significant (25.9%) (Figure 3).

Similarly, since the early 1990s, coffee landowners have been forced to diversify their ventures, considering alternatives to address the "land tenure crisis," including alternative or mixed enterprises, with a strong orientation towards sustainability.

Level of education and its influence on the declaration process: As mentioned earlier, our study suggests that the consideration for adhering a property in Quindío to a conservation figure, such as the Civil Society Natural Reserves, is influenced by the socioeconomic changes experienced by the department, and their effect on the conceptual construction of the property owner. It is also important to note that the process of declaring a Civil Society Natural Reserve (RNSC), as established in Colombia, requires an understanding of technical aspects, dynamics, and complex concepts, starting with the very concepts of conservation, sustainability, ecosystem services, and contributions, as well as an ability to visualize productive opportunities that must occur either in an alternative context or in alternation with traditional agricultural practices, or that simply involve a change to completely novel sustainability models, such as nature tourism.

This is where education perhaps has its greatest influence on the declaration process because the property owner who is motivated by conservation must have a management flexibility to help design and incorporate modes of existence different from those proposed by inherited traditional agricultural production.

Changes in the territory's vocation: The Quindío department is framed within the Andean geography, with elevation being the main explanatory variable of the high wealth and distribution of the department's biotic diversity, as well as the cultural and particularly productive processes of the Quindío territory. In general, the high mountain environments on its eastern border are characterized by steep slopes covering an altitudinal range between 2300 and over 4,000 meters above sea level in 30 linear kilometers. This geographical condition explains both the degree of transformation that natural covers have undergone and the pattern of land distribution in the territory. Properties located on the most fertile and flat lands in the valleys of the main rivers have been heavily transformed and have been subdivided into increasingly smaller parcels; on the other hand, properties in the high andean mountain zone maintain the few conserved forest remnants and are generally larger properties. In this forested high Andean portion of the department is where the vocation for conservation has been concentrated due to the double effect of the difficulty of access and implementation of productive systems, a situation that has maintained the natural cover. It is also worth noting that greater attention has recently been paid to high mountain environments as bio-diverse spaces providing environmental goods and services, with the main one being the regulation of hydrological and meteorological cycles.

On the other hand, Quindío is one of the departments that has experienced one of the most rapid demographic transformations, with a high influx of visitors attracted by the coffee culture that has earned the region recognition as a World Heritage Landscape by UNESCO in 2011, as well as by its biological diversity, with tourism now being one of the main drivers of change in the economic and

social dynamics of the department (Zapata & Jaramillo 2018).

In the face of the decline of coffee farming in Quindío, landowners have been forced to change their production methods for new agricultural practices and products, such as plantains, and recently the establishment of large areas of Hass avocado and other fruits. Likewise, it should be noted that, because of the armed conflict in Colombia, properties mainly located in the Quindío high mountains, mainly intended for dairy farming, had to be abandoned in the last two decades (Paz 2022). The RNSCs of Quindío are concentrated in the municipality of Salento, which may be influenced by other conservation processes that are visible at the national level and that have technical support from the Andean Western National Parks for its jurisdiction in this municipality.

As seen in this study, it is within these scenarios of productive transformation that tourism has emerged as an economic alternative in those properties that still retain a sample of the biodiversity contained in these ecosystems (Figures 1 and 4). Ecotourism or nature tourism in our sample constituted one of the activities carried out and from which economic sustenance is derived.

In Colombia, a country with potential for sustainable tourism development, the discourse of tourism as an alternative for economic growth and social development, especially ecologically sustainable tourism (now known as ecotourism or nature tourism), has been promoted by different institutional bodies. We emphasize that, following the signing of the peace agreements, the number of international tourists and travelers visiting the country, especially the coffee region, has increased by 69%, generating 19% of the revenue, according to data from the Ministry of Trade, Industry in its Tourism Sector Plan 2018-2022.

Civil Society Natural Reserves and other area-based conservation alternatives: It is also very striking from this perspective how there has been a campaign with a greater deployment of resources from the institutional capacity to promote OMECs (Other Effective Area-Based Conservation Measures), which,

despite their advantages in recognizing civil conservation efforts, do not have the fundamental constitutional legal protection.

According to the Ministry of Environment and Sustainable Development, OMECs were defined in Decision 14/8 of 2018 of the Convention on Biological Diversity as “geographically defined areas different from a protected area, which are effectively governed and managed to achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, ecosystem functions and services, and associated cultural, spiritual, socio-economic, and other locally relevant values when applicable”.

Conclusions

The declarations of properties as RNSCs are mainly influenced by historical, cultural, and socio-economic determinisms, highlighting the economic development of the region supported by coffee activity. The combination of biogeographical and economic determinisms resulting in a differential use of the landscape are the main explanatory variables of the conservation vocation of Quindío properties.

The socio-economic structure of Quindío and its historical transformation from landowners to coffee entrepreneurs and the recent decline in the coffee market have forced a change in land use, in search of alternatives. Decisions about land use continue to be strongly influenced by the patriarchal model. Finally, our data show a new cultural phenotype with high academic and technical training, committed to their rural tradition.

Recommendations

Being aware that the number of private properties with a verified interest in conservation is under-represented in this study, it is important to develop research in the department focused on understanding the particularities present in private properties where conservation actions are taking place. Likewise, we call on the institutions that integrate the National Environmental System (SINA) to strengthen the accompanying processes on properties with a conservation vocation so that they remain

informed and participate in the different processes that occur in the environmental sector.

The updating of the multipurpose cadastre being carried out in Colombia will be a great advance that will facilitate one of the key requirements in the application process of private properties as RNSCs.

Acknowledgments: To the institutions that provided land information (CRQ, RESNATUR, PNN, IAvH). To the property owners who were always willing to participate in this research, thank you for your conservation efforts for the benefit of all.

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