


## PRACTICE INSIGHTS

# Other Conservation Strategies in Colombia: A practical approach

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## Abstract

1. This paper introduces a practical and locally grounded conservation model called Other Conservation Strategies (OCS), developed in Caldas, Colombia, as a flexible alternative to traditional protected areas and internationally recognized Other Effective Area-Based Conservation Measures (OECMs).
2. It outlines a three-phase strategy ('Recognize, Highlight, and Promote') designed to identify and manage geographically delimited areas with ecological value under diverse governance models.
3. Through this approach, more than 13,000 hectares have been included, engaging multiple stakeholders and contributing to biodiversity records and regional planning processes.
4. The OCS model demonstrates procedural and participatory innovation, expanding conservation beyond state-centred frameworks towards more inclusive, place-based governance.
5. *Practical implications.* despite challenges in securing sustainable funding, defining effectiveness metrics and being integrated into broader policy frameworks, the OCS approach offers a replicable pathway for enhancing biodiversity conservation through flexible, context-sensitive and participatory strategies.

## KEYWORDS

CBD target 3, collaborative governance, ecosystem services, nature conservation, regional policy

## 1 | INTRODUCTION

Colombia ranks among the most biodiverse countries in the world and is a leader in developing conservation strategies driven by civil society (Santamaría Gómez et al., 2021). However, the

country faces significant ecosystem loss and degradation (Ruiz-Agudelo et al., 2022). To confront these challenges, Colombia has implemented various conservation initiatives involving both governmental and non-governmental actors. The country has established an extensive network of protected areas under the National

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System of Protected Areas (Spanish acronym: SINAP), which includes national parks, regional public areas and private conservation initiatives (Decree 1076 of 2015; Ministry of Environment and Sustainable Development of Colombia, 2015). Additionally, it has promoted community-based conservation strategies that empower local and Indigenous communities to manage resources sustainably (Santamaría et al., 2018).

Despite these efforts, drivers such as deforestation, degradation and fragmentation continue to threaten biodiversity (Santamaría Gómez et al., 2021), especially in highly diverse but heavily transformed regions like the department of Caldas. Located within the Central Andes Ecoregion—one of the world's most biologically diverse areas—Caldas has undergone extensive ecosystem transformation due to land-use changes (Figure 1). According to the Humboldt Institute (2024), more than 60% of its natural ecosystems have been altered, creating significant challenges at both national and regional levels.

Drawing on various global strategies that support biodiversity conservation, one approach stands out as adaptable for achieving conservation goals in Caldas. Other Effective Area-Based Conservation Measures (OECMs) offer an opportunity to strengthen biodiversity protection. Using these initiatives as a reference can

enhance the integration and connectivity of the National System of Protected Areas (SINAP) while recognizing the contributions of diverse actors in biodiversity conservation (Alves-Pinto et al., 2021).

The international framework for OECMs offers an opportunity to recognize and support areas that contribute to the long-term in situ conservation of biodiversity outside formally designated protected areas. OECMs differ from traditional protected areas in that they recognize areas based on scale, governance structures and innovative management approaches that reflect local conservation values. Additionally, the process is more flexible than the one outlined in Colombian legislation for declaring protected areas. This framework broadens the visibility of diverse conservation efforts and connects a wider range of actors, including Indigenous peoples, local communities, the private sector and government agencies (IUCN, 2025). The International Union for Conservation of Nature (IUCN) advised parties to the Convention on Biological Diversity (CBD) on OECMs through a World Commission on Protected Areas (WCPA) Task Force. This process led to the adoption of guiding principles and criteria in CBD Decision 14/8 (2018). The IUCN WCPA OECM Specialist Group now oversees the framework's implementation, offering guidance on identifying, recognizing, supporting and reporting OECMs (IUCN WCPA OECMs Specialist Group, 2025).

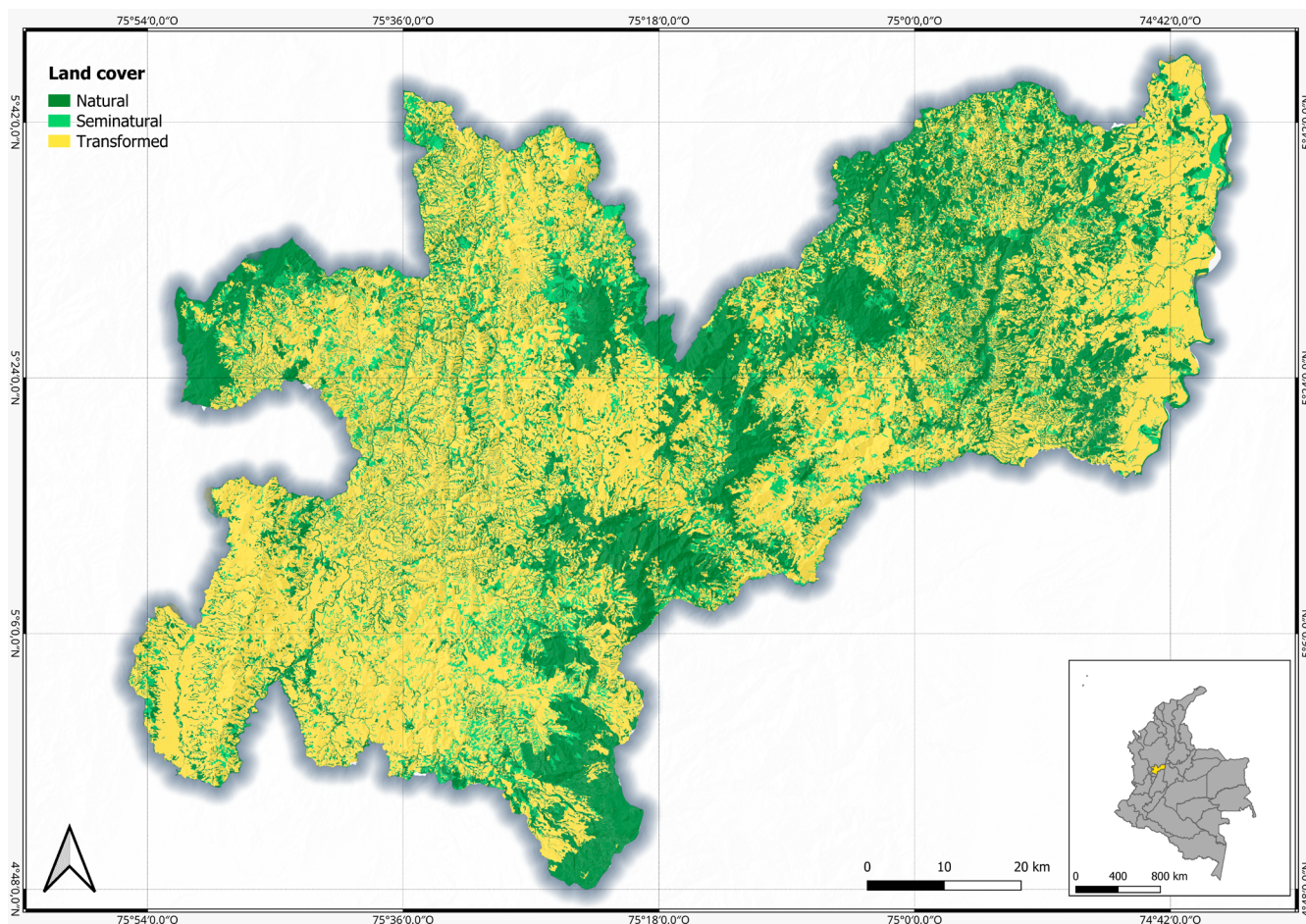


FIGURE 1 Land cover in Caldas. Source: Authors based on CORPOCALDAS (2021).

Between 2014 and 2018, the Caldas environmental authority (Corpocaldas) engaged in conservation planning initiatives led by the Regional System of Protected Areas of the Coffee Region (SIRAP) and the Wildlife Conservation Society (WCS). Building on the OECM framework and insights from these efforts, Corpocaldas introduced a new conservation category in 2020—Other Conservation Strategies (OCS)—to address ongoing ecosystem degradation and promote targeted conservation actions. Fieldwork was launched to identify areas suitable for this approach. While initiatives of this nature are not new in the literature, the OCS model offers a practical and innovative contribution to local conservation governance and decision-making.

Corpocaldas defined OCS as '*geographically delimited areas, distinct from protected areas, promoted and managed under various governance arrangements. These areas contribute to conserving biodiversity and its ecosystem services while enhancing the ecological structure of the territory*'. This definition remains valid in Caldas as of 2025, having been incorporated into environmental regulations and various planning instruments. Although both OECMs and OCS aim to highlight and strengthen conservation processes, they display key differences and points of convergence (Table 1).

Both frameworks share key characteristics, such as well-defined geographical boundaries and diverse governance structures, which facilitate their integration into territorial planning processes. They also contribute to biodiversity conservation by complementing the primary objectives of protected areas, which serve as core conservation zones. However, the main difference between OECMs and OCS lies in governance and recognition. OECMs follow structured governance criteria, require effectiveness assessments like protected areas and gain international recognition through the World Database on OECMs. They primarily contribute to conservation at ecosystem and landscape scales. In contrast, OCS are more flexible, operate mainly at the local level and lack national or international visibility.

As a result, OCS currently remains local or regional initiatives in Caldas, despite their potential for broader implementation at the national level. Integrating OCS as an initial stage in various conservation processes can support compliance with national policies and international commitments, such as the 30×30 target. This approach recognizes the diversity of conservation strategies, each with varying levels of restriction, which can work synergistically to strengthen biodiversity conservation efforts. It also emphasizes that conservation should not be exclusively state-led but should involve communities and multiple stakeholders through diverse conservation approaches.

## 2 | HOW TO MANAGE OCS?

The Caldas Environmental Authority (Corpocaldas), responsible for managing natural resources and protecting the environment in the department, proposed a comprehensive strategy structured around three main phases: '*Recognizing*', '*Highlighting*' and '*Promoting*' OCS. This strategy aims to enhance biodiversity and

**TABLE 1** Comparison between Other Effective Area-Based Conservation Measures (OECMs) and Other Conservation Strategies (OCS).

OECMs	OCS
<ul style="list-style-type: none"> <li>Both correspond to defined geographical areas, distinct from protected areas, contributing to the conservation of biodiversity and its ecosystem services.</li> <li>Conservation objectives can be primary, secondary or subsidiary. In contrast to Protected Areas, which must have a primary conservation aim.</li> <li>Both involve various forms of governance not recognized in protected areas, allowing the recognition of different actors involved in conservation management within the territory.</li> <li>Depending on their location, both contribute to the buffer zone and buffering function of protected areas.</li> <li>Both correspond to conservation strategies that land planning can recognize and manage within the framework of SIDAP, SIMAP and SILAP<sup>a</sup>.</li> <li>OECMs have criteria for measuring their effectiveness, similar to protected areas.</li> <li>Governance criteria are more comprehensive, applying the 10 principles of good governance with specific questions for each principle.</li> <li>All the OECMs comply with the criteria established for OCS in Table 2.</li> <li>The World database on OECMs, contains them</li> <li>OECMs primarily contribute at the ecosystem and landscape scales, while also playing an important role in species and genetic conservation</li> <li>Experts in Colombia identify them and report them in the global database of protected areas based on the criteria defined by the IUCN for their recognition.</li> </ul>	<ul style="list-style-type: none"> <li>Greater flexibility regarding effectiveness measurement criteria as applied in protected areas. The socio-environmental characterization of OCS, is an exploratory and descriptive study that provides an overview of how stakeholders have managed and contributed to conservation efforts.</li> <li>Not all OCS can comply with the criteria established for OECMs.</li> <li>Some are in municipal or regional databases, with limited visibility at the national or international level.</li> <li>OCS primarily operate at a local level, maintaining specific natural or semi-natural areas with high ecological value and contribute to ecosystem and landscape connectivity.</li> <li>The residents of Caldas identify and recognize them. There are criteria for their identification.</li> </ul>

<sup>a</sup>Departmental system of protected areas—SIDAP, Municipal system of protected areas—SIDAP and Local system of protected areas—SILAP.

ecosystem service conservation in Caldas over both the short and long term.

The *Recognizing* phase involves identifying potential areas that align with the strategy and determining the individuals or organizations that own land capable of addressing these objectives.



**TABLE 2** Criteria for identifying Other Conservation Strategies (OCS) (Gaviria-Ortiz et al., 2024).

Criteria for the identification of OCS in Caldas	<p><i>It must not be a protected area: It will be verified that the area under evaluation does not overlap with any protected area in the National Register of Protected Areas (RUNAP). Some overlaps may be individually reviewed</i></p> <p><i>It must be a Geographically delimited area: The area must have clear boundaries that are verifiable using any geographic analysis software. In the event of not meeting this requirement, the possibility of delineating the area may be evaluated with technical assistance within a specified timeframe.</i></p> <p><i>Intent to conserve biodiversity: Those responsible for the administration and management of the area must demonstrate a willingness and commitment to conserving the natural and biocultural elements present in the area under evaluation.</i></p> <p><i>Time permanence: It is expected that the area under evaluation remains for a period of no less than 12 years</i></p> <p><i>Governance arrangement: The area under evaluation must have a defined organization for decision-making, which must be legitimate to exercise administration and management of the area.</i></p>
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Assessing the willingness of these owners or managers to participate in the conservation strategy is essential. The next step is to evaluate the identified areas using specific criteria (Table 2). This evaluation enables the classification of areas into different typologies that then progress to the second phase:

- Public OCS refers to land owned by public entities, primarily municipal and departmental administrations. These properties have been acquired with the main objective of protecting water resources and conserving strategic micro-watersheds for public water supply.
- Private OCS corresponds to areas located on properties owned by individuals or legal entities, with ownership supported by official land titles. In some cases, these areas may also involve possessors—individuals who use the land without formal property titles—or good-faith holders, who occupy the land with the consent of the legal owners.

The *Highlighting* phase focuses on integrating identified areas into the OCS strategy and incorporating them into regional and local land information systems, including the establishment of management indicators. The final phase, *Promoting*, seeks to incorporate OCS into environmental planning tools at various levels of land use. This approach seeks to strengthen the role of OCS in long-term conservation efforts and ensure their inclusion in broader territorial management strategies.

During the *Highlighting* phase, the characterized areas were integrated into local and regional land-use planning using the proposed

typologies. As part of the systematization process, a consolidated database of the characterized OCS was developed based on the information provided by the stakeholders involved in the strategy. This database is periodically updated and refined to ensure accessible and relevant information for decision-makers engaged in territorial environmental planning, including environmental authorities and municipalities.

Compiled in Excel format, the database includes fields, such as cadastral code, name of the OCS, responsible individual or organization, contact information, municipality, village, overlapping environmental determinants or biomes, type of governance, area, altitude and preliminary evidence of conservation. This structured information enables the generation of key statistics and practical analyses; for example, the total area (in hectares) under OCS status in the department, the number of OCS per municipality in Caldas, and the conservation levels reported for the characterized areas.

Efforts were also made to validate these areas through the Municipal Systems of Protected Areas and the OCS Network, which is currently being consolidated. OCS adopted a mixed governance approach that integrates hierarchical and collective interventions (Primmer et al., 2015). This approach emphasizes the importance of local conservation efforts and provides social legitimacy. The phase concludes with periodic reporting on the progress of OCS management in Caldas, following a cyclical process. Additionally, these areas have been incorporated into the portfolio of environmental offsetting zones, which includes sites designated for compensating the negative impacts of human activities, on biodiversity and ecosystems, in accordance with Colombian environmental regulations.

In the *Promotion* phase, the most suitable formal conservation strategy is defined according to the area's typology. These typologies are based on different forms of governance—public, private or mixed—and reflect decisions made at the property level. They are designed to align with various national and international registration systems while promoting local recognition. Accordingly, each landowner defines their own path and selects the appropriate type of registration based on the specific requirements of each system. Conservation strategies include: (i) OCS (per se), (ii) Protected Areas, (iii) OECM sites, (iv) TICCAs (Territories and Areas Conserved by Indigenous Peoples and Local Communities), or (v) other relevant categories. An example of this process is the ongoing transformation of three OCS into OECMs: 'La Licorera Forest' (Manizales), 'Riomanso Natural Reserve' (Norcasia) and 'Valle de la Samaria' (Salamina).

The pathway to promoting OCS also included the possibility of applying regional or local incentives to strengthen bottom-up conservation efforts and ensure the project's long-term sustainability. A range of instruments was identified to support OCS management (cf. Gaviria-Ortiz et al., 2024), most of which were developed based on existing regulations and initially focused on public mechanisms. However, many of these tools can also be adopted and managed by private actors. Therefore, while the process is primarily envisioned as a public initiative, it remains open to mixed governance models or full implementation by the private sector, especially within frameworks of environmental and social responsibility. Proposed



strategies include Payments for Ecosystem Services, biodiversity offset schemes, subsidies and legally mandated environmental investments.

Command-and-control instruments have also played a significant role, involving direct regulations, such as property tax deductions. During the development of the OCS project, efforts were made to advise different municipalities on how to foster these types of instruments. So far, tax reduction incentives have been the most widely implemented, with initiatives promoted in three of the 27 municipalities of Caldas.

### 3 | OCS'S OUTCOMES IN CALDAS

Identification of OCS involved activities, such as social media announcements, stakeholder workshops, consultations with regional actors and community visits. The process contextualized OCS, emphasizing their importance to local landscapes and the goal of the project: conserving the department's ecosystems. The strategy reached over 500 people and collected data through surveys, leading to the identification of 'potential OCS' areas. The project produced a socio-environmental characterization of 289 areas, examining both social and environmental aspects and summarizing how local administrations and landowners manage and contribute to conservation efforts. Of the 289 socio-environmentally characterized areas, 258 have been spatially identified (150 public and 108 private) and are now part of the OCS database, designed to support decision-makers in land-use planning. Additionally, the project established a network of stakeholders involved in these processes. This process consolidated a database to support decision-makers in land-use planning and strengthened the network of OCS participants. The project promoted a flexible coordination mechanism, allowing members to organize it according to their needs and objectives, without traditional hierarchical models (Castañeda Pérez & Pérez Rodríguez, 2005).

A significant conservation achievement in Caldas achieved through the OCS initiative has been the identification and characterization of key conservation areas. This facilitated the recognition of properties with strategic ecological value, a critical advancement since only 5.2% of the department's territory is under formal protection. OCS represents an opportunity to recognize conservation efforts beyond the strict national conservation categories (CONPES 3680, 2010; Corpocaldas, 2023; Decree 2372, 2010). These efforts strengthen the integration and connectivity of Colombia's SINAP (CONPES 4050, 2021) and help identify areas with potential to be part of international conservation designations—such as OECMs or TICCAs (Ley 70, 1993; Parra, 2019). They also contribute to the targets set by the post-2020 Global Biodiversity Framework of the CBD, which calls for at least 30% of terrestrial and marine areas to be conserved through ecologically representative and well-connected systems (CBD, 2022).

Among the highest strategic conservation areas are those within threatened ecosystems, such as the tropical dry forest in the inter-Andean valleys of the Cauca and Magdalena rivers, classified as

critically endangered (CR). Given its limited representation within protected areas, OCS serves as a key conservation strategy. Similarly, vulnerable (VU) forest areas often overlap with highly altered landscapes where natural cover is scarce or fragmented (Figure 2). In these cases, conservation mechanisms like OCS offer vital opportunities to safeguard remaining ecosystems, providing an essential alternative for conservation when their small size prevents designation as protected natural areas.

Another key achievement of the OCS approach is the active participation of local communities and key stakeholders, including the Environmental Authority of Caldas, municipal and departmental authorities, the National Natural Parks of Colombia, as well as landowners and land managers. This participatory engagement was fostered throughout the phases of *Recognize*, *Highlight* and *Promote*, carried out between 2020 and 2024. This process has enhanced their involvement in environmental monitoring and facilitated their integration into large-scale conservation initiatives, such as the Andean Forest Conservation Corridor of Caldas.

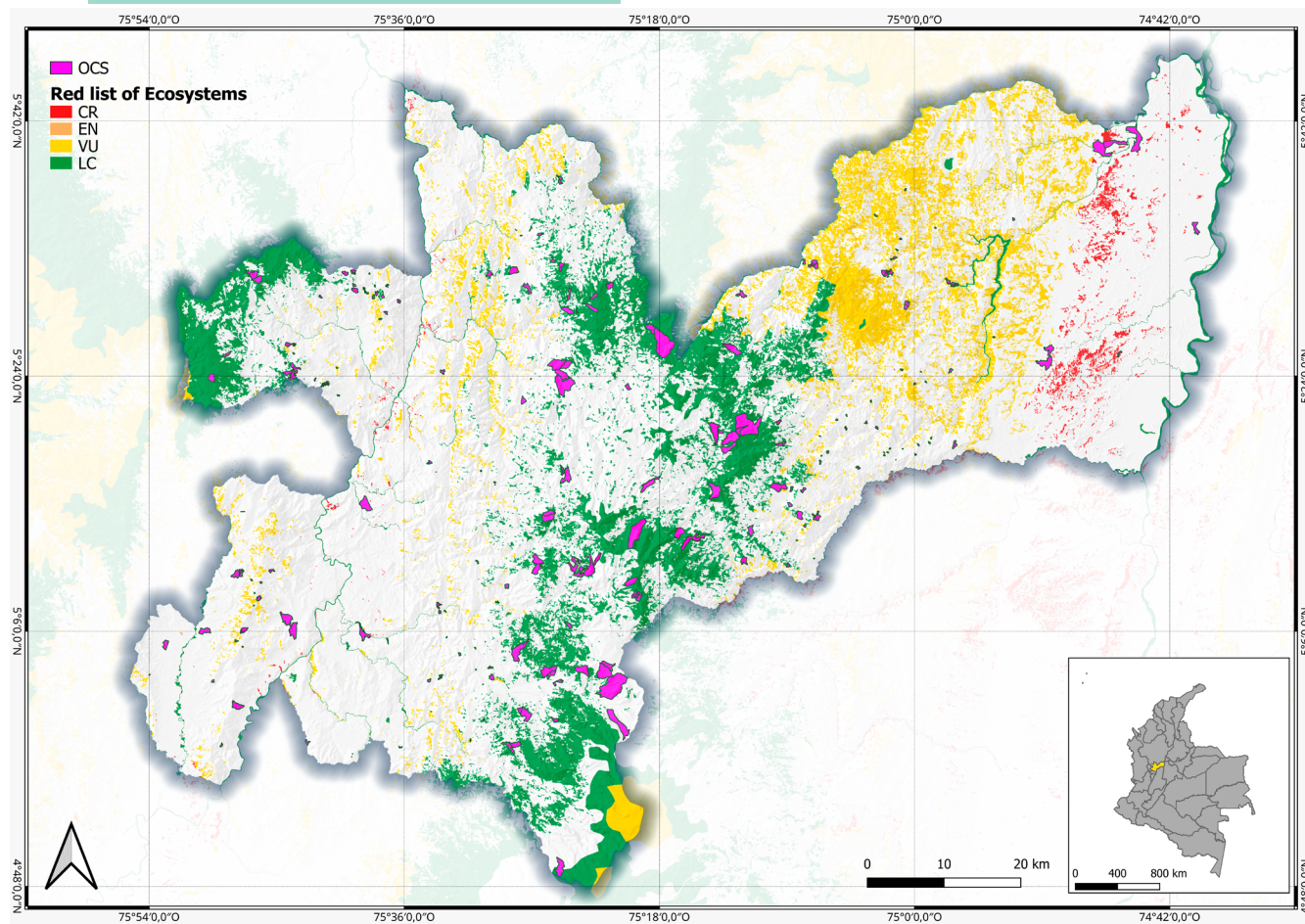
The identified OCS in Caldas have been incorporated into strategic regional planning instruments, such as the Caldas Regional Environmental Management Plan, and have contributed to territorial and environmental planning tools like the Integrated Climate Change Management Plan and Watershed Development and Management Plans. These areas are now integral to the department's Ecological Structure, serving as an environmental guideline for municipal territorial planning according to Resolution No.: 0825 of 2023 by Corpocaldas. Moreover, having OCS has helped to increase private protected areas in Caldas (Figure 3).

Corpocaldas has also strengthened the OCS approach by developing a recognition platform on its official website, providing information about conceptual frameworks, outcomes and successful conservation experiences through videos and podcasts.<sup>1</sup> Figure 4 outlines additional achievements associated with each phase of the strategy.

### 4 | OCS AS A PRACTICAL AND NOVEL APPROACH

The traditional model of biodiversity conservation through strictly protected areas has proven effective in reducing habitat loss and preventing species extinction. However, it often imposes significant social costs and fails to adequately address complex socioecological dynamics (Lele et al., 2010; Locke & Dearden, 2005). As a result, there is growing recognition of the need for alternative and complementary conservation approaches that go beyond the boundaries of protected areas (Cebrián-Piqueras et al., 2023; Kothari et al., 2012). These approaches emphasize the importance of integrating biodiversity conservation with the livelihoods, rights and cultural identities of local communities, highlighting the imperative of social justice

<sup>1</sup>See all the evidence here at Corpocaldas official website: [https://corpocaldas.gov.co/Corpocaldas/Contenido/?pag\\_id=2394](https://corpocaldas.gov.co/Corpocaldas/Contenido/?pag_id=2394).



**FIGURE 2** Overlay of Other Conservation Strategies (OCS) with the International Union for Conservation of Nature (IUCN) Red List of Ecosystems map (Etter et al., 2017).

in contemporary biodiversity governance (Brechin et al., 2003). A shift from displacement-based models to place-based conservation enables the recognition of local territories as vital to both ecological integrity and sociocultural continuity (Bray & Velazquez, 2009). In this context, recognizing the role of OCS offers a promising pathway to conserve biodiversity while enhancing ecological connectivity and territorial cohesion through a mosaic of public and private governance strategies (Gaviria-Ortiz et al., 2024).

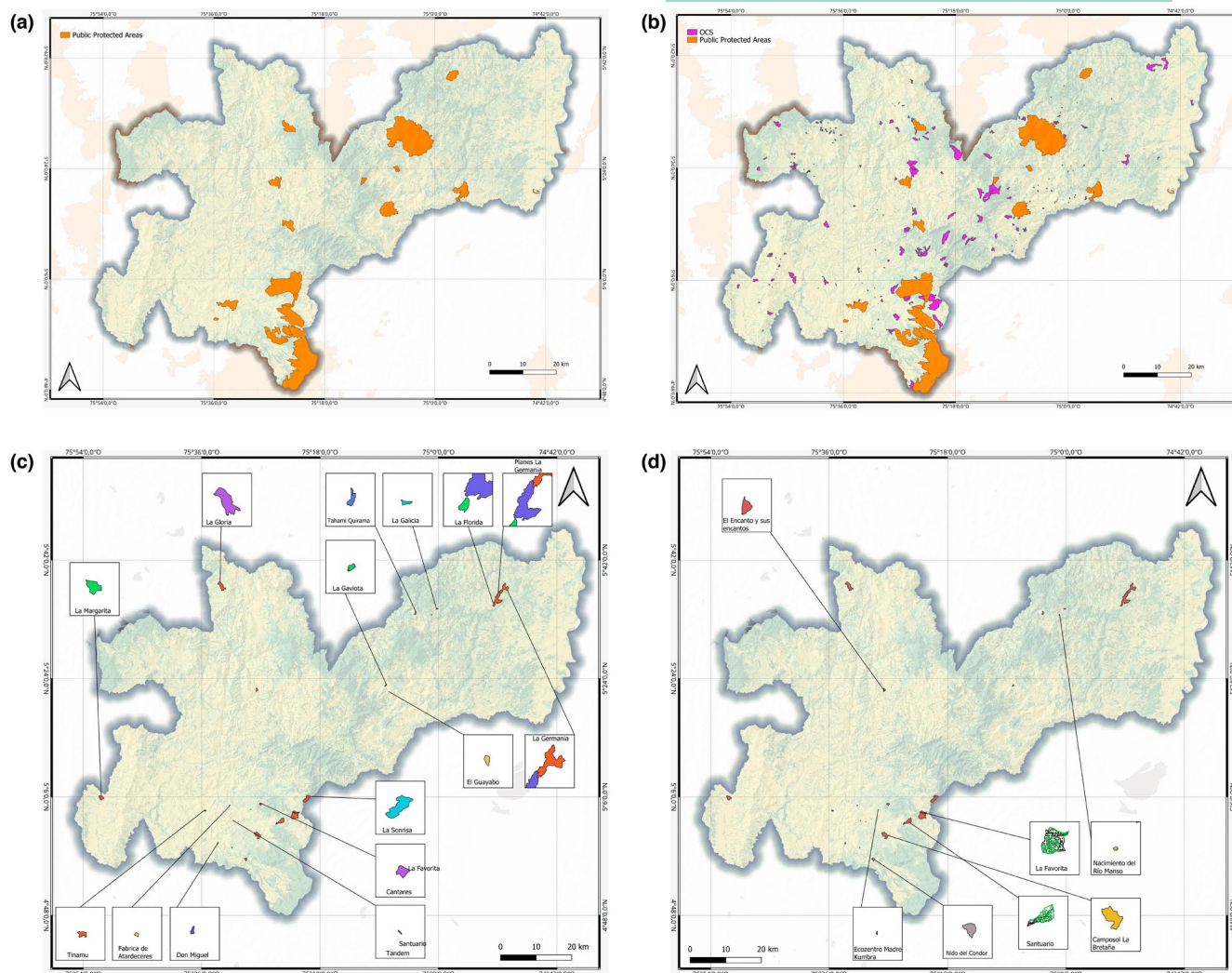
Our contribution does not claim conceptual novelty, but rather procedural and practical innovation. It is procedural because, through the implementation of OCS, we demonstrated that achieving effective conservation requires more than just acknowledging that context matters—it involves designing a concrete strategy to respond to that context. By 'context', we refer not only to ecological specificities but also to social dynamics, institutional frameworks and the availability of resources. In our case, these contextual elements were effectively addressed through the three-phase strategy we proposed ('Recognize', 'Highlight' and 'Promote').

In terms of practical innovation, our approach integrated participatory methods—particularly in the case of private OCS—with negotiation and strategic collaboration with public institutions to advance the establishment of public OCSs. This combination

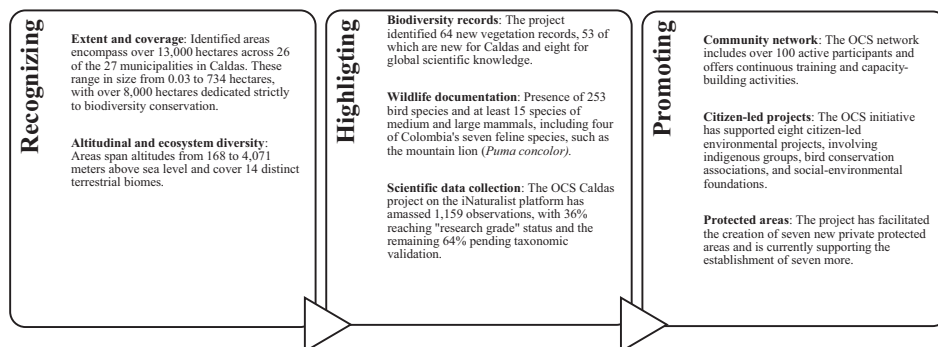
allowed us to develop a flexible, results-oriented framework aimed at consolidating conservation areas beyond the more rigid mechanisms, such as protected areas or even OECMs. Additionally, it facilitated the engagement of a diverse range of actors who are not only interested in conservation but also actively involved in local and regional decision-making processes. In this sense, our approach holds relevance beyond the context of Caldas, as it demonstrates an alternative, structured pathway for achieving conservation outcomes through multiple, context-sensitive strategies.

The *Recognizing* phase of OCS is imperative, as it engages stakeholders early in the process, evaluating landowners' willingness and local governance structures—key considerations for long-term sustainability, as emphasized in global frameworks (Jonas et al., 2023). The *Highlighting* phase strengthens the integration of OCS into regional land management systems, enhancing their visibility—an innovative step aligned with international strategies advocating for robust area-based conservation measures (Cook, 2024). Moreover, the adaptability of the *Promoting* phase in formalizing conservation strategies based on contextual needs echoes recommendations for flexible and locally attuned conservation planning (Alves-Pinto et al., 2021). By combining hierarchical and collective governance, the OCS approach





**FIGURE 3** Achievements of Other Conservation Strategies (OCS) in Caldas. The figure illustrates the quantitative increase in areas dedicated to conservation under OCS. No strategy (a, Public protected areas; c, Private protected areas) and with strategy (b, Public protected areas + OCS; d, New private protected areas resulting from OCS).



**FIGURE 4** Key achievements in Other Conservation Strategies (OCS) phases.

aligns with international calls for integrating diverse governance types in conservation, ensuring long-term ecological and social sustainability (Paterson, 2023). This integrative and adaptive framework not only enhances local biodiversity conservation but also contributes to Colombia's alignment with global biodiversity targets.

## 5 | OCS AND OEM

The management framework for OCS in Caldas adopts a nuanced, phased approach that distinguishes it from conservation models like OEMs. While OEMs emphasize structured governance and strict



effectiveness criteria (Matalana-Tobón et al., 2018), the OCS approach offers greater flexibility and inclusivity. Moreover, while OCS are already acknowledged at local levels through self-identification by communities or local actors, OECMs require validation through nationally defined criteria and procedures. In Colombia, this involves a formal pathway for recognition and reporting, culminating in inclusion in the World Database on OECMs managed by the UNEP-WCMC. This raises an important discussion about self-recognition at the local level—as seen with OCS—and the challenge of demonstrating value and legitimacy to external stakeholders, particularly in gaining recognition at national and international levels, as required for OECMs.

However, a notable weakness lies in the strategy's funding approach. OCS currently relies solely on local and regional financial resources, overlooking opportunities to engage with international funding mechanisms. This limited financial scope represents a missed opportunity to amplify the strategy's impact through global environmental governance initiatives. Expanding its funding base could enhance the long-term sustainability and scalability of OCS efforts.

While the OCS process is designed to be flexible and foster local participation, a key challenge lies in developing standardized metrics and protocols to evaluate long-term conservation effectiveness in a manner aligned with international standards. These include those established for OECMs, which have defined effectiveness criteria. Although progress has been made in socio-environmental characterization, establishing a more robust system to monitor ecological and social indicators would strengthen the evidence base for demonstrating conservation impact.

Despite efforts to engage diverse stakeholders, effectively integrating OCS into territorial and sectoral planning instruments across all levels of government remains a persistent challenge. Achieving this integration requires ongoing coordination and awareness-raising to ensure that OCS are systematically considered in decision-making processes across other sectors, such as agriculture, infrastructure and development planning.

Moreover, while community participation is essential, the long-term sustainability of certain OCS initiatives may depend on enhancing the technical and managerial capacities of local actors. This would likely involve sustained training programmes and the allocation of dedicated human resources to support implementation and governance.

## AUTHOR CONTRIBUTIONS

Fabian Gaviria, Andres Suarez, Tatiana Enriquez, Alejandra Gutierrez, Alexandra Areiza and Santiago Córdoba conceived the ideas and designed the methodology. Nathalia Castilla and Juand D. Corrales collected the data. Nathalia Castilla, Juand D. Corrales and Santiago Córdoba analysed the data. Andres Suarez and Tatiana Enriquez led the writing of the manuscript. Marcela Cardona and Maricel Arias supervised the overall process. All authors contributed critically to the drafts and gave final approval for publication.

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## CONFLICT OF INTEREST STATEMENT

The authors declare their membership of a company or non-profit organization board of directors, which includes Fabian Gaviria, Tatiana Enriquez, Juan David Corrales and Andres Suarez (Más Biomas SAS). The authors declare their close personal relationship with the following authors of a manuscript they have been asked to review or edit: Andres Suarez and Tatiana Enriquez (spouses/partners); and Fabian Gaviria and Alejandra Gutierrez (spouses/partners). The authors declare their employment by a private company or non-profit organization, which includes Alexandra Areiza (WCS Colombia), Maricel Arias (Corpocaldas), Santiago Córdoba and Nathalia Castilla (Más Biomas SAS), and Claudia M. Cardona (public municipality of Manizales).

## PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1002/2688-8319.70161>.

## DATA AVAILABILITY STATEMENT

The datasets used and analysed during the current study are owned by Corpocaldas, the regional environmental authority in Caldas, Colombia. Access to these data requires an official request to Corpocaldas, as they are not publicly available due to confidentiality and administrative regulations.

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