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Contribution of Environmental Interpretation Activities to the Sustainable Development Goals in Mazatlán, Sinaloa (Mexico) †

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Abstract

An informed society can contribute to the conservation of nature. Environmental interpretation encompasses experiences and topics that involve direct interaction between visitors and nature, and such interaction promotes ecological awareness. Exhibits in public places constitute educational settings that complement traditional institutions, promoting learning that involves not only teachers and students but also society at large, including visitors and tourists. The city of Mazatlán, Sinaloa (Mexico), presents a landscape dominated by wetlands, which are a representative ecosystem of this city. However, their conservation requires the active participation of the population. Currently, Mazatlán has 501,441 inhabitants, who affect the wetlands. By 2030, it is expected to have around 756,823 inhabitants, and by 2050, 1,306,423. Additionally, Mazatlán receives 3,872,691 tourists per year. The objective was to evaluate the themes of environmental (interpretation) activities and determine their contribution to the Sustainable Development Goals. Three sites were analyzed to collect information on the topics and develop a correspondence matrix. The results showed that the information provided contributes to 13 of the 17 Sustainable Development Goals: 1. End of poverty, 2. Hunger and food security, 3. Health, 4. Education, 6. Water and sanitation, 8. Economic growth, 9. Resilient infrastructures, 11. Cities and settlements, 12. Sustainable production and consumption, 13. Climate change, 14. Ocean Conservation, 15. Forests, desertification, and biodiversity, and 17. Partnerships.

Keywords: wetlands; tourism; urban growth; mangroves

1. Introduction

At the 2015 summit of the United Nations (UN), world leaders adopted the Sustainable Development Goals (SDGs) and the 2030 Agenda, establishing a framework of 17 goals to be achieved over 15 years. This plan aims for countries to be able to improve the quality of life for all people, leaving no one behind, by eradicating poverty and addressing social needs such as education, health, social protection, and employment opportunities, while simultaneously combating climate change and protecting the environment [1]. Although progress has been made, current efforts remain insufficient in both speed and scale to fully achieve these goals [2].

Similarly, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, known as the Ramsar Convention, establishes as its primary objective "the conservation and wise use of all wetlands through local and national actions and

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international cooperation, as a contribution towards achieving sustainable development throughout the world" [3] (p. 3) and the vision "A world living in harmony with nature, where wetlands are valued, conserved, restored, and wisely used, supporting a healthy planet and delivering benefits for all people" [4] (p. 6). This is implemented through the designation of Ramsar sites—wetlands of international importance— committing to carrying out activities to promote ecological awareness, environmental education, and public engagement to facilitate their participation in the conservation, wise use, and restoration of wetlands, incorporating livelihood strategies and traditional community knowledge to support sustainability [3].

The Ramsar Convention has identified the contribution of wetlands to the achievement of the following SDGs: 1. No Poverty, 2. Zero Hunger, 5. Gender Equality, and 6. Clean Water and Sanitation; as well as 19 specific targets. Furthermore, its Fourth Strategic Plan (2016–2024) established the vision that "wetlands are conserved, wisely used, and restored, and their benefits are recognized and valued by all" [3] (pp. 2–3).

Non-formal environmental education is understood as a flexible and participatory process that complements formal education, aimed at fostering awareness, values, and attitudes in community and recreational settings (4). Within this framework, environmental interpretation is scientifically defined as an educational process that seeks to reveal meanings and relationships through direct experience with the environment, beyond the mere transmission of information. Freeman Tilden (1957) established foundational principles, such as the need to relate content to the visitor's personal experience and to conceive interpretation as an interdisciplinary art [5]. Later, Ham (1992; 2013) expanded on strategies to transform scientific information into accessible and relevant messages, highlighting its influence on attitudes and behaviors toward conservation [6,7]. Complementarily, Ballantyne and Packer (2005) emphasized the role of environmental interpretation in non-formal education contexts, such as parks and visitor centers, stressing its capacity to foster experiential learning and pro-environmental behavioral change [8]. Taken together, these contributions consolidate environmental interpretation as a crucial bridge between non-formal environmental education and the development of ecological citizenship.

Environmental interpretation and non-formal environmental education have increasingly moved beyond the transmission of factual information. Kopnina (2020) critiqued traditional sustainability education and called for ecocentric perspectives and experiential learning that foster planetary ethics [9]. Velempini (2025) highlighted the decisive role of environmental education in achieving the SDGs, integrating it into school and community contexts that strengthen socio-ecological resilience [10]. Esenarro et al. (2026) demonstrated how sustainable interpretation centers in sensitive areas, such as the mangroves of Tumbes, Peru, serve as platforms for awareness and community engagement [11]. Together, these contributions emphasize that interpretation should provoke reflection, generate meaningful experiences, and encourage sustainable practices. Incorporating these perspectives strengthens the conceptual framework of this study and clarifies the meaning of the "educational contribution" of interpretive messages.

Exhibitions in public spaces represent a complementary educational setting to formal institutions, promoting learning processes that involve not only educators and students but also society at large [12].

The contribution of environmental interpretation activities to the Sustainable Development Goals (SDGs) is reflected in diverse approaches that link tourism, infrastructure, and environmental education. In Mexico, Meza-Osorio et al. highlight that community-based ecotourism in Sisal, Yucatán, strengthens endogenous development and ecosystem conservation [13]. Complementarily, Al-Khatib and AlHanaktah show that the modernization of wastewater treatment plants integrates renewable energy and constructed wetlands,

aligning sanitation with biodiversity [14]. In Colombia, Forero Ausique et al. demonstrate that urban wetlands face ecosystem disservices that challenge sustainable tourism but also provide opportunities for regenerative governance [15]. Likewise, Ozdemir and Zonah emphasize that smart technologies revolutionize heritage interpretation, enhancing communication and sustainable tourism [16]. Finally, Zheng et al. compare the effectiveness of different interpretive media in environmental education within a global geopark, showing that methodological innovation strengthens participation and learning [17]. Together, these studies confirm that environmental interpretation is a key bridge to achieving the SDGs through educational, technological, and community practices.

The city of Mazatlán, Sinaloa (Mexico), is characterized by a landscape dominated by wetlands and mangroves. However, their conservation requires active public participation. A previous study on public perception regarding the values, uses, and ecosystem services of Mazatlán's wetlands found that 34.2% of respondents associate their value with serving as breeding grounds for fish, shrimp, and crabs; 18.45% recognize them as habitats for birds, raccoons, crocodiles, and other species; 18.45% value their role in protection against hurricanes and flooding; 15.8% associate them with timber production; 7.9% with climate regulation; and 2.6% consider their value lies in community ownership [18].

An informed society can contribute significantly to sustainable development. Non-formal environmental education and interpretation activities encompass experiences and topics that involve direct interaction between visitors and nature; such interaction promotes ecological awareness. Therefore, the present study was proposed with the aim of assessing the contribution of non-formal environmental education and interpretation activities in wetlands carried out in the city of Mazatlán to the achievement of the SDGs. The specific objectives were to

i. Identify and classify the environmental messages communicated in three wetland and mangrove interpretation settings, according to their explicit or indirect relationship to an SDG, ecosystem service contribution, or educational relationship with the SDGs.
ii. Record and analyze the environmental interpretation messages and media in three settings in Mazatlán and develop a correspondence matrix to identify their contributions to SDGs.
iii. Quantify the similarity in site contributions to the Sustainable Development Goals using the Jaccard index.
iv. Evaluate visitors' knowledge acquisition through interviews at the Aquarium, the record of people approaching the exhibitions in the shopping center, and the impact of guided tours at El Yugo wetland.

2. Materials and Methods

2.1. Study Area

The study was conducted in the city of Mazatlán, Sinaloa (Mexico), located approximately between 23°10′ and 23°17′ north latitude and 106°21′ and 106°27′ west longitude [19] (p. 8), within an extensive coastal plain in the North Pacific characterized by the presence of wetlands [19] (p. 39). The area includes 1421.7 ha of wetlands and 1906.9 ha of mangroves [19] (pp. 42–46). The primary economic activities are fishing, agriculture, aquaculture, tourism, and industry. The city has an approximate population of 501,441 inhabitants [19] (p. 65) and receives around 3,872,691 tourists annually [20] who affect the wetlands. By 2030, it is expected to have around 756,823 inhabitants, and by 2050, 1,306,423 [21] (p. 167).

2.2. Methodology

The research was conducted using a qualitative, descriptive, and interpretive approach, aimed at identifying the educational contribution of three environmental interpretation experiences focused on wetlands and mangroves in Mazatlán, Sinaloa, in relation to the Sustainable Development Goals (SDGs). The methodological design was based on direct observation, thematic recording of interpretive content, and the construction of a content–SDG correspondence matrix linking the identified environmental messages with the SDGs of the 2030 Agenda [22].

Field visits were carried out in June 2024 at three educational settings: (a) the mangrove exhibition at the Gran Acuario Mazatlán "Mar de Cortés" the largest aquarium in Mexico; (b) the exhibition and constructed wetland located in a shopping Center Cabo Carena; and (c) the guided visit to the El Yugo wetland, associated with Ramsar Site No. 1349, Playa Tortuguera El Verde Camacho [23].

At each site, the contents presented to the public were recorded, as well as the interpretive media used—information panels, guided tours, museographic resources, constructed water bodies, and direct ecosystem observation. To clarify the relationship between the interpretive contents and the SDGs, and to ensure reproducibility and consistency in the analysis, explicit coding protocols were applied in the classification of interpretive contents at each site. Linkage criteria were defined across five levels of analysis: EXP_SDG (explicit mention of an SDG), IND_REL (indirect relationship to an SDG), ECO_SERV (ecosystem service contribution), EDU_CONT (educational contribution), and, when there was an absence of contribution, ABS_CONT (absence of contribution). Based on these criteria, a correspondence matrix was developed in which each interpretive content was associated with one or more SDGs; see Supplementary Materials S1. Five levels of linkage criteria with the SDGs.

In addition, we calculated the Jaccard similarity index to quantify the proportion of Sustainable Development Goals (SDGs) shared between two sites. The Jaccard index is a widely used ecological similarity measure that compares the number of shared elements between two sets relative to the total number of elements present in both. Values range from 0 (no similarity) to 1 (complete similarity). Intermediate values show different levels of coincidence: low values (0.01–0.25) represent very limited similarity, moderate values (0.26–0.50) indicate partial coincidence, and high values (0.51–0.99) reflect strong similarity between the sets. This interpretation allows us to assess how similar the sites are in terms of SDG contributions. The analysis was performed using the free software PAST 5.1 [24].

Finally, semi-structured interviews were applied to a group of visitors (n = 40) upon leaving the Aquarium during June 2024 (17 interviews) and August 2025 (23 interviews) [22]. The questions focused on four dimensions: 1. Most striking information from the panel, 2. Important functions of mangroves, 3. Most relevant exhibition elements, and 4. Educational and sensitization impact. Results were expressed in percentages. At the shopping center, the number of people who approached the exhibition and the constructed wetland was recorded over a one-hour period across five dates: 22 and 24 June 2024; and 2, 8, and 11 August 2025. Additionally, at the Yugo wetland, a guided tour was conducted on 1 March 2024, during which the guide was interviewed regarding the impact of the environmental education program. The above procedures were carried out to evaluate visitors' knowledge acquisition and perceptions.

3. Results

The First educational setting was at the Cabo Carena shopping center, which includes an artificial wetland and five informational panels describing wastewater treatment in the artificial wetland; the second educational setting was the exhibition on mangroves

featuring an informational panel about their importance, ecosystem services, and values in the Gran Acuario Mazatlán "Mar de Cortés", Figure 1.

(**a**) (**b**) (**c**)

Figure 1. Educational settings featuring mangrove and wetland exhibits: (**a**) Cabo Carena Shopping Center, (**b**) the aquarium, and (**c**) El Yugo wetland. Source: Photograph by the author (Bautista-Gómez, G.).

It also has a circular glass structure filled with water, a living mangrove tree, rocks, fish, and seating areas for visitors; the third educational setting was a guided visit to the El Yugo wetland conducted by the Center for Research in Food and Development (CIAD). Natural Protected Area and Ramsar Site No. 1349 Playa Tortuguera El Verde Camacho includes an informational session at a CIAD visitor center, a guided trail, and observation of flora, fauna, and the wetland ecosystem.

3.1. Contribution to the SDGs

The information displayed in the aquarium exhibit addresses thirteen SDGs; the constructed wetland and exhibition at the shopping center address nine SDGs; and the guided tour at the El Yugo wetland contributes to seven SDGs; six SDGs are present in all educational settings, seven SDGs are present in one or two educational settings, and four SDGs are not present in educational settings, see Figure 2.

Figure 2. Presence and absence of Sustainable Development Goals in the analyzed educational settings. The arrows indicate the cyclical and interconnected relationship among the Sustainable Development Goals, emphasizing how their presence or absence in the analyzed educational settings reflects continuous interaction and reinforcement.

3.2. Correspondence Matrix Describing the Educational Contribution

The correspondence matrix describing the educational contribution of mangrove and wetland exhibits in Mazatlán, Sinaloa, to the SDGs is summarized as follows in Table 1.

Table 1. The educational contribution of mangrove and wetland exhibits in Mazatlán, Sinaloa, to the SDGs.

	Sustainable Development Goals	Mangrove Exhibition at Gran Aquarium Mazatlán	Exhibition and Artificial Wetland at Cabo Carena Shopping Center	Guided Tour of El Yugo Wetland
1	No Poverty	Mangroves as one of the most productive ecosystems. ECO_SERV, IND_REL	ABC_CON	ABC_CON
2	Zero Hunger	One hectare producing up to 800 kg of shrimp. ECO_SERV, IND_REL	ABC_CON	
3	Good Health and Well-Being	Defense against hurricanes and erosion. ECO_SERV, IND_REL	The exhibit highlights primary wastewater treatment. ECO_SERV, IND_REL	ABC_CON
4	Quality Education	Promote knowledge dissemination and appreciation of mangroves. EDU_CONT, IND_REL	Public awareness of wetland value. EDU_CONT, IND_REL	This site is a Protected Natural Area and Ramsar Site No. 1349 Playa Tortuguera El Verde Camacho [23]. IND_REL
6	Clean Water and Sanitation	Purify water. ECO_SERV, IND_REL	Largest and most complete water treatment system in the region. ECO_SERV, IND_REL	Includes an Environmental Education and Interpretation Program. EDU_CONT, IND_REL
8	Decent Work and Economic Growth	They function as breeding grounds for fish and shrimp. 7 out of every 10 types of fish caught in the sea are raised in mangroves. ECO_SERV, IND_REL	ABC_CON	ABC_CON
9	Industry, Innovation and Infrastructure	capture CO_2. ECO_SERV, IND_REL	Primary wastewater treatment. ECO_SERV, IND_REL	
11	Sustainable Cities and Communities	Protect coastlines and beaches and help prevent flooding and mitigate climate change. ECO_SERV, IND_REL	Oxygen production from nutrients in treated water. ECO_SERV, IND_REL	Mangrove and wetland conservation. ECO_SERV, IND_REL
12	Responsible Consumption and Production	Mangroves as one of the most productive ecosystems. ECO_SERV, IND_REL	Reuse of over 90% of wastewater for irrigation. ECO_SERV, IND_REL	ABC_CON

Table 1. *Cont.*

	Sustainable Development Goals	Mangrove Exhibition at Gran Aquarium Mazatlán	Exhibition and Artificial Wetland at Cabo Carena Shopping Center	Guided Tour of El Yugo Wetland
13	Climate Action	Recreational tourist sites that contribute to the knowledge and appreciation of mangroves. EDU_CONT, IND_REL	Water conservation through the reuse of treated wastewater in a constructed wetland. ECO_SERV, IND_REL	Contributes to mitigating climate change. ECO_SERV. IND_REL
14	Life Below Water	They function as breeding grounds for fish and shrimp. 7 out of every 10 types of fish caught in the sea are raised in mangroves. ECO_SERV, IND_REL	ABC_CON	Protecting wetlands. ECO_SERV, IND_REL
15	Life on Land	They are forests that grow in both land and marine environments. IND_REL	Creation of wetlands as natural treatment systems. ECO_SERV, IND_REL	It supports the conservation of 275 genera and 393 species of angiosperms. ECO_SERV, IND_REL
17	Partnerships for the Goals	Recreational tourist sites that contribute to the knowledge and appreciation of mangroves. EDU_CONT, IND_REL	Commercial site that contributes to the knowledge and appreciation of wetlands, particularly for water treatment. EDU_CONT, IND_REL	Offers guided tours for schools and tourists. EDU_CONT, IND_REL

The non-formal environmental education and interpretation strategies analyzed across the three selected educational settings incorporate content that contributes to disseminating information to both visitors and residents regarding the values and benefits of mangroves and wetlands for the achievement of the SDGs.

3.3. Thematic Similarity Analysis Using the Jaccard Index

To compare the thematic overlap of the SDGs represented across the three environmental interpretation settings, the Jaccard similarity index was applied; results can be found in Table 2.

Table 2. Jaccard similarity index for the analyzed educational settings.

Comparison	Shared SDGs	Jaccard Index	Similarity Level
Aquarium–Shopping Center	9	0.692	High–moderate
Shopping Center–El Yugo Wetland	6	0.600	Moderate–high
Aquarium–El Yugo Wetland	7	0.538	Moderate

Source: authors' own elaboration.

The results show that the highest thematic similarity was found between the Gran Acuario Mazatlán "Mar de Cortés" and the shopping center (J = 0.692), indicating a high-to-moderate overlap in content related to environmental education, water, infrastructure, urban sustainability, responsible production, climate action, and partnerships. The comparison between the shopping center and El Yugo wetland yielded a value of J = 0.600, corresponding to moderate-to-high similarity, mainly in content related to education, water,

sustainable cities, climate action, terrestrial ecosystems, and partnerships. Finally, the similarity between the Gran Acuario Mazatlán "Mar de Cortés" and El Yugo wetland was J = 0.538, representing moderate similarity.

3.4. Visitors' Knowledge Acquisition and Perceptions

3.4.1. Gran Acuario Mazatlán "Mar de Cortés"

Results were expressed as percentages and qualitatively interpreted to identify perception patterns. The findings are presented as follows: Most striking panel information: 35% highlighted mangroves as the most productive ecosystem, followed by shrimp production (23%). Coastal and hurricane defense was mentioned by 31% in total. Important functions: Visitors recognized both environmental services (water purification 20%, CO_2 capture and climate buffering 30%) and economic functions (fish and shrimp nursery 15%, 7 out of 10 fish species raised in mangroves 23%). Exhibition elements: Fish (25%) and the information panel (20%) were the most valued, followed by the mangrove tree and water display (15% each). Guide interaction: Only 10 people received direct explanation, evidencing low educational mediation. Exhibition impact: Awareness of conservation was the most frequent perception (35%), followed by recognition of economic and protective value (28%) and education for responsible attitudes (25%).

3.4.2. Shopping Center

A total of 537 individuals were surveyed, of whom 334 (62%) approached the exhibition, and 203 (38%) did not. The fact that more than six out of ten visitors engaged with the exhibition reflects a positive level of attraction, suggesting that the theme, location, or presentation strategy were effective in capturing attention. However, the group that did not approach represents a relevant segment, potentially explained by factors such as limited visibility, distractions inherent to the shopping mall environment, lack of available time, or disinterest in the topic. Overall, the proportion indicates that the exhibition generated more attraction than indifference, which is a positive indicator of initial success. Nevertheless, the margin of non-participation highlights opportunities for improvement, including optimizing location and signage, incorporating interactive dynamics, promoting the exhibition in advance, and segmenting audiences to replicate effective strategies with engaged groups.

3.4.3. Guided Tour in the Yugo Wetland and Interview with the Guide

Between 200 and 250 individuals visit the site weekly, including tourists and school groups of all ages. Visitors gain an appreciation of the importance of mangrove and wetland conservation and actively participate in related actions, fostering attitudinal changes, as they often return to relive the experience. They become involved in conservation, restoration, and environmental protection activities. The facilities include a visitor center, a bird observation cabin, and an interpretive trail.

4. Discussion

The findings confirm that environmental interpretation activities in Mazatlán make distinct contributions. The results obtained show that the three environmental education strategies analyzed—the artificial wetland at Cabo Carena shopping center, the mangrove exhibition at the Gran Acuario Mazatlán "Mar de Cortés," and the guided visit to El Yugo wetland—constitute complementary settings that link wetland and mangrove conservation with the Sustainable Development Goals (SDGs).

The aquarium exhibition stands out for its broader thematic coverage (13 SDGs), reflecting an effort to integrate both ecosystem services and the social and economic values

of mangroves, consistent with Ham's strategies for transforming scientific information into accessible and relevant messages, highlighting its influence on attitudes and behaviors toward conservation [6,7]. The shopping center, although with a smaller scope (9 SDGs), provides an innovative approach by situating a constructed wetland in a high-traffic urban space, thus fostering awareness among diverse audiences, coinciding with Al-Khatib and AlHanaktah in the integration of constructed wetlands in wastewater treatment plants to promote environmental interpretation [14]. Meanwhile, the guided visit to El Yugo wetland, with 7 SDGs represented, emphasizes direct experience and active participation in conservation, strengthening social appropriation and attitude change; these results align with international studies: Meza-Osorio et al. highlight the role of community-based ecotourism in conservation [13].

The analysis of the correspondence matrix shows that the three educational settings share six SDGs (3, 4, 6, 11, 13, and 17), reflecting a common foundation centered on health, education, water, sustainable cities, climate action, and partnerships. However, each site contributes a specific focus: the aquarium emphasizes mangrove productivity and its role in the fishing economy (SDGs 1, 2, 8, 14).

The thematic similarity analysis using the Jaccard index confirms a moderate-to-high degree of convergence among the settings, especially between the aquarium and the shopping center (J = 0.692), suggesting that educational content tends to reinforce itself around axes such as water, sustainable cities, responsible production, climate action, and partnerships. However, the lower similarity between the aquarium and El Yugo (J = 0.538) indicates that experiential field education contributes distinct dimensions, more closely linked to biodiversity and active conservation. This complementarity is key to designing comprehensive environmental education programs that combine technical information, urban awareness, and direct ecosystem experiences.

Regarding visitor perceptions, the data reveal that information panels on mangrove productivity and coastal defense were the most remembered at the aquarium, while in the shopping center, initial attraction was positive but limited by visibility and contextual factors. In contrast, El Yugo shows a deeper impact on awareness and participation, with visitors returning and engaging in conservation actions. This suggests that educational mediation and direct interaction with guides are decisive in transforming information into sustainable attitudes and practices.

Likewise, the literature on non-formal environmental education and interpretation [5–8] demonstrates that these practices transform scientific information into meaningful experiences, fostering ecological awareness and behavioral change. These perspectives justify the importance of the three educational settings analyzed in Mazatlán, as they combine technical knowledge, experiential learning, and public engagement to strengthen ecological citizenship.

In this context, the findings from Mazatlán represent a local application of global principles: the aquarium, the shopping center, and El Yugo wetland integrate ecosystem services, public education, and community participation, aligning with recent studies that highlight experiential education, community-based ecotourism, and interpretive innovation as key strategies for achieving the SDGs. Thus, the discussion is supported by evidence that environmental interpretation not only transmits information but also generates social appropriation and mobilizes communities toward active conservation of mangroves and wetlands.

5. Conclusions

The three environmental interpretation strategies contribute in different and complementary ways to achieving the SDGs, highlighting the importance of diversifying

educational settings to reach broad and heterogeneous audiences. The aquarium offers the widest thematic coverage and a structured focus on ecosystem services, while the shopping center introduces environmental education into everyday urban spaces, and El Yugo strengthens experiential learning and community action. The thematic similarity among settings indicates the existence of a common core of SDGs addressed, but also reveals gaps and opportunities to expand coverage toward absent goals. Visitor perception and learning largely depend on educational mediation: the low level of guide interaction at the aquarium contrasts with the high participation at El Yugo, underscoring the need to strengthen communication and facilitation strategies. Overall, the results demonstrate that non-formal environmental education in Mazatlán's wetlands and mangroves is a strategic resource to raise awareness, educate, and mobilize society toward conservation and the achievement of the SDGs, provided that visibility, interaction, and continuity of experiences are optimized.

The international frameworks (UN 2030 Agenda, Ramsar Convention) and scholarly contributions confirm that wetlands are strategic ecosystems for achieving the SDGs. Non-formal environmental education and interpretation consolidate their role as complementary tools to formal education, fostering ecological citizenship and behavioral change. The three educational settings in Mazatlán exemplify how global principles are translated into local practices, integrating ecosystem services, public awareness, and participatory conservation. These findings demonstrate that environmental interpretation is not only an educational resource but also a policy-relevant mechanism that strengthens socio-ecological resilience and contributes directly to the 2030 Agenda.

This study explicitly acknowledges its limitations and preliminary status. The scope was restricted to documenting and analyzing the thematic contribution of exhibitions and guided activities to the dissemination of the Sustainable Development Goals (SDGs). The results reported here provide a baseline of information that may serve as a foundation for future longitudinal assessments to measure changes in attitudes, perceptions, behavioral modifications, or direct participation in conservation activities in a broader and more comprehensive manner.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/eesp2026042017/s1: S1. Five levels of linkage criteria with the SDGs.

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Abbreviations

The following abbreviations are used in this manuscript:

UN	United Nations
SDGs	Sustainable Development Goals
CIAD	Research Center on Food and Development

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