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Research Article

The Totorales of Huanchaco: Support of a Millenary Cultural Tradition

Totorales de Huanchaco: soporte de una tradición cultural milenaria

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Abstract

This research focuses on northern Peru, particularly the resort town of Huanchaco, and highlights the traditional use of totora reeds as a millennia-old cultural element of the Chimú civilization. It details the importance of this plant as an essential raw material for the construction of the "caballito de totora," whose cultural symbolism transcends national borders. Additionally, it analyzes the significance of this tradition for the development of handicrafts and tourism in the northern region. The study is supported by a legal framework that includes conventions, resolutions, and ordinances that regulate the management of this crucial natural resource, notably the Ramsar Convention, which focuses on the conservation of wetlands worldwide. From an ethnobotanical perspective, the medicinal and nutritional uses of the totora are systematized. The factors contributing to the vulnerability of these natural ecosystems are presented. Similarly, the process of constructing a "caballito de totora", its dimensions and necessary characteristics for navigation, are explained. Lastly, the study identifies the problems, both of anthropogenic and natural origin, that threaten the long-term survival of this plant, which has grown since immemorial times in the wetlands of northern Peru.

Key words: Caballito de totora; cultural heritage; urban resilience; cultural tradition; Huanchaco; Chimú culture.

Resumen

Esta investigación se centra en el norte de Perú, especialmente en el balneario de Huanchaco, y rescata el uso tradicional de la totora como un elemento cultural milenario de la civilización Chimú. Detalla la importancia de esta planta como materia prima esencial para la construcción del caballito de totora, cuya simbología cultural trasciende fronteras nacionales. Además, analiza la relevancia de esta tradición para el desarrollo de la artes anía y el turismo en la región norteña. El estudio se apoya en un marco legal que incluye convenciones, resoluciones y ordenanzas que regulan la gestión de este importante recurso natural, destacando la Convención de Ramsar, enfocada en la conservación de los humedales a nivel global. Desde una perspectiva etnobotánica, se sistematizan algunos usos medicinales y alimenticios de la totora. Se presentan los factores que contribuyen a la situación de vulnerabilidad en que se encuentran estos ecosistemas naturales. Del mismo modo, se explica el proceso de construcción de un caballito de totora, sus dimensiones y características necesarias para la navegación. Finalmente, se identifican las problemáticas, tanto de origen antrópico como natural, que amenazan la supervivencia a largo plazo de esta planta, que ha crecido desde tiempos inmemoriales en los humedales del norte de Perú.

Palabras clave: Caballito de totora; patrimonio cultural; resiliencia urbana; tradición cultural; Huanchaco; cultura Chimú.

INTRODUCTION

Archaeological evidence, as well as academic and scientific studies and its current uses in the region of La Libertad, Peru, highlight the cattail as a fundamental plant in the development of fishing, handicrafts, food, medicine, construction and decoration of buildings and art in general of many pre-Columbian civilizations in this region. Without it, the history of many Peruvian civilizations, such as the pre-Inca Chimú, would be incomplete.

The Chimú culture used totora reeds as a means of social sustenance, mainly for the construction of caballitos de totora (handmade rafts) for fishing. However, they were also used to access islands and islets off the coast of Libertador to look for bird droppings that would serve as fertilizer for their crops. These caballitos, which continue to be handcrafted vessels of short duration, were and are created with great skill, functionality and aesthetics. Totora was chosen because of its abundance and because, once dry, it is light, floats and is ideal for "fishing in places inaccessible to other vessels due to its easy manoeuvrability" (Cayetano, 2016, p. 26).

Those above and other associated uses confirm the ingenuity and creativity of a culture that, by sustainably taking advantage of available natural raw materials, was able to solve everyday and emergent situation vital to life, thus demonstrating its social resilience. In this regard, De Balanzo-Joue (2015) asserted that social sustainability "is not only intrinsically related to short-term resilience in the face of major catastrophes but in the long term to adapt and transform from the evolutionary learning brought by social, economic, cultural and environmental changes" (p. 78). This affirmation reaffirms the Chimú culture as a civilization whose ancestral mastery and adequate management of natural resources allowed it to reach our days with a cultural legacy that still resonates in current generations but that needs to be preserved for the use and enjoyment of future generations.

These practices were developed mainly in the community of Huanchaco, Trujillo, Peru. Huanchaco is a millenary town pioneer in the artificial management of wetlands in northern Peru, which is already an achievement of the ancient inhabitants of the area in their primitive experience of plant domestication. This activity remains in the ancestral customs of the inhabitants of Huanchaco. To this day, they build caballitos de totora for artisanal fishing, thus keeping this ancestral tradition alive, guaranteeing economic income and providing food sustenance for the family. However, why, if the possibilities of acquiring modern boats are real, does the Caballito stay in fashion? According to Pulido (n.d.), when a fisherman has to decide between the use of a boat and a Caballito de totora, he chooses the latter, arguing that it is very expensive to maintain and more complex to operate. On the other hand, the caballito, being lighter, allows for better manoeuvrability along the shore.

At present, the presence of the caballitos in Huanchaco has become a tourist attraction that can be seen daily on the seashore, where fishermen line them up in a linear fashion, highlighting their golden colour. Domestic and foreign tourists do not hesitate to take pictures or record videos for souvenirs (Quispe del Águila, 2015, p. 117) and even rent them to live the experience of sailing on these millenary boats.

Likewise, caballitos de totora are used for permanent and temporary exhibits in museums and history halls, cultural houses and educational institutions, and for decorative purposes in restaurants, hotels and places of massive concurrence of people, such as sports complexes, avenues and docks, among others. Thus, they add cultural value to these places, using an original and exceptional cultural symbol recognized by all. In addition, at handicraft fairs, they are sold in different presentations, such as key chains, decorative figures, necklaces, flower pots, hats, etc. This tradition is still part of the living culture of Huanchaco, which was declared a Cultural Heritage of the Nation in 2013.

However, the use of totora reeds goes beyond the caballito. Archaeological studies confirm that the Chimú knew how to use this plant in the elaboration of baskets or useful containers to store food of all kinds, nets to transport vessels, chests to protect textile creations, precious shells or any object of relevance. They also used it to protect themselves from the low temperatures of the place, wrap burials, make and decorate seats, build houses and for medicinal purposes thanks to its healing properties.

What has been discussed so far consolidates the totora as a traditional millenary plant whose importance and uses legitimize the ancestral knowledge of the Chimú civilization. At the same time, an integral knowledge of this ancestral tradition is fundamental for its conservation and preservation over time. Therefore, sustained educational work becomes a socio-cultural necessity that serves as a support for a living culture that also shapes local and national cultural identity. This is confirmed by Dueñas Porras (2017) when he explains that "an educational work from the didactics of cultural heritage favours certain attitudes and actions in individuals, such as the creation and consolidation of a responsible citizen identity" (p. 30) "that merges nature, culture and the history of human beings in the same melting pot" (Reynosa Navarro, 2015).

Geographic location

The area of influence of the cattails is located between the districts of Santiago de Cao, Huanchaco, Moche, Salaverry and Virú in the province of Trujillo, department of La Libertad, on the northern coast of Peru. The capital of the region is located between latitudinal coordinates 8°06'57" S and longitudinal 79°01'47" W, at an altitude of 31 meters above sea level. This area, with a moderate temperature ranging between 14° and 30 °C due to the influence of the Humboldt Current, is characterized as a natural space in which the aridity of its soils predominates. It is also an ecosystem that is sensitive to climate variations, mainly caused by the El Niño phenomenon, which is linked to the warming of the eastern equatorial Pacific.

Archaeological and historical antecedents

Archaeological research in northern Peru reports material evidence of human occupation dating back 11,000 years. The studies of the French mission that identified the Paijanense material culture from the record of a lithic technology industry, where a long point with a small peduncle or support to be tied to a spear stands out. The specialists in the Paijanense, Chauchat and Dricot (1974) consider that these points were used as spears for fishing. Likewise, they elaborated hunting instruments and diverse tools for the treatment of the inputs obtained in these survival processes, especially in an extremely rough environment such as the desert coast. They were able to establish circuits for obtaining resources in the hilly areas, in the coastal strip where there are extremely important renewable natural resources, such as wetlands, shellfish extraction areas and fishing areas.

The findings made by Engel (2015) in the early preceramic site called Paloma (Loma de Chilca) in Tomb 83, report fragments of mats worked with the simple interlacing technique, made entirely with cattail, dating from 6,510 ± 200 years before the present (See Figure 1).

Figure 1.
Mat decorated with bangs

Unquestionably, the influence of the sea and its resources was a determining factor in the development of Andean societies, especially in times when the benefits of agriculture were unknown. For this reason, the coastal peoples, isolated from the rest of the country by the mountain range, with no fields other than the river valleys that descend like torrents from the snow-capped peaks and confined by sandy areas, were forced by their environment to look towards the sea (Rostworowski, 1981).

This historical evolution was deeply influenced by the presence of the first human settlements, the beginning of agricultural activities, the diversification of economic activities, and specialization in the production of goods. This contributed to the generation of surplus production, which allowed the emergence of a ruling class that managed these goods. In the beginning, their sustenance was based on religion. However, with time, it was oriented towards commercial strategies, the exchange of

goods and services, and the technology of war as a mechanism for the subjugation and imposition of peoples. This led to the consolidation of great civilizations such as the Chimú culture, whose area of influence extended from Tumbes to Carabayllo (Lima) in the north and south, as well as in the highland and jungle regions of present-day Peru.

Special emphasis is placed on the Chimú people, whose descendants today are directly or indirectly involved in the management of their natural resources and tangible and intangible cultural heritage. Ancestral elements that identify this group of inhabitants of Santiago de Cao, Huanchaco, Moche, Salaverry and Viru still survive in this region. For the development of these civilizations, the swamps, marshes and lagoons played a crucial role in the economy of the yungas, and according to social needs, these natural elements served as support for their development.

The first resources to be contemplated are the reeds and bulrushes that grew there. The reeds (Scirpus), also known as Matara in coastal Quechua, covered the most diverse needs of the Yungas inhabitants. With the reeds, the common people built their dwellings, roofed their houses, made mats and mats for domestic use, and made boxes to store all kinds of objects. In these boxes or putti, they preserved dried fruits and the delicacies of the indigenous food: dried shrimp or poultry jerky. According to the different sizes, these products were counted in the state warehouses (Rostworowski, 1993).

Archaeological finds show exquisite reed boxes containing balls and artefacts for textile use. However, the most important use for the development of the Yunga economy was the boats made of totara reeds, which allowed deep-sea fishing. The need for greater access to totora reeds led the indigenous people to plant reeds in the coastal lagoons (Rostworowski, 1981).

During the colonial period, with the strong Hispanic presence, there are some references that, in 1654, the cacique of Huamán (Trujillo) claimed to need marshy lagoons to plant a greater number of reeds: “not only for their rafts, mats to cover their houses but also to sell to other Indians” (Rostworowski, 1981).

Various researchers, such as Ruiz (1952) and Edwards (1965), support the importance of the resources obtained from the reed beds, such as waterfowl hunting, egg collection, and other uses such as fishing for mullets (Mugil cephalus). The fishing of these species did not require boats, and it is deduced that it was widely practised, considering the need for more knowledge in the manufacture of caballitos de totora in remote times.

During the development of the republican period until today, despite the socio-economic and cultural impact generated by the colonization process, which altered the entire system of social structures and traditional mechanisms of production in the country and added to the European, Asian, African and North American influence in recent decades, Peru and the northern region remain a storehouse of natural and cultural wealth, where material and immaterial manifestations remain imperishable. In this context, the use of totora reeds continues to be relevant.

Legal framework

The international issue of wetlands and their importance for both ecological and socio-cultural sustainability at the international, national and local levels have led to the regulation of the management of this important natural resource through conventions, resolutions, ordinances, etc. Among the most relevant are:

Ramsar Convention (Iran, 1971): This convention, the first that sought to conserve natural resources on a global scale, is still the only treaty worldwide that limits ratifying countries from selfishly and thoughtlessly exploiting their sovereign natural heritage. Although it was a pioneer in the fight for the conservation of wetlands at a global level, it continues to be an instrument of international conciliation and legal reference for the defence and, if necessary, the rescue of these exceptional natural areas such as the wetlands of northern Peru.

Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris, France, 1972): This Unesco convention (1972), in its article 1, considers as cultural heritage the “works of man or the combined works of man and nature”, including archaeological areas and sites of outstanding universal value from the historical, aesthetic, ethnological or

anthropological point of view. The millenary uses of totora reeds on the northern coast of Peru have contributed to forming an exceptional cultural fabric that has a significant impact on local and national culture. In addition, in Article 2, the convention considers natural heritage "natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty". The wetlands of northern Peru are well-delimited and aesthetically exceptional natural and artificial ecological niches that harbour essential conditions for wildlife through natural ecosystems of high ecological importance.

Resolution N° 005-92 (La Libertad, Peru, 1992): The Regional Assembly of the Government of La Libertad, through this resolution, declared the Huanchaco wetland as a Protected Area in the category of Extractive Reserve. This prohibits construction of any kind (housing, roads, wells, etc.) that could affect the wetlands belonging to the reserve. Declaring these wetlands as protected areas not only aligns with a global protection framework but also serves to highlight local culture to a society that needs to identify with its most relevant assets. However, achieving this objective goes beyond any resolution; it is based on enforcing compliance through preventive, corrective and informative actions, in line with Article III of Peru's General Environmental Law: "Everyone has the right to participate responsibly in decision-making processes, as well as in the definition and implementation of policies and measures related to the environment and its components, which are adopted at each level of government" (Law No. 28611, 2005, p. 1).

Lima, Peru, (2003). The General Law of the Cultural Heritage of the Nation, in its Article I, "establishes the national policies of defence, protection, promotion, ownership and the legal regime, as well as the destination of the assets that make up the Cultural Heritage of the Nation" (Law No. 28296, 2003, p. 7). Similarly, its Article II clarifies that:

> It is understood as an integral good of the Cultural Heritage of the Nation any manifestation of human activity -material or immaterial- that, due to its importance, value and paleontological, archaeological, architectural, historical, artistic, military, social, anthropological, traditional, religious, ethnological, scientific, technological or intellectual significance, is expressly declared as such or about which there is a legal presumption of being such.

Lima, P., (2003). **National Directorial Resolution N°648/INC**, which in its sole article resolves to "declare the Caballito de Totora as Cultural Heritage of the Nation, considering this vessel an expression of the traditional manifestations of the living culture that characterizes the communities settled in the northern coast of Peru and that contributes to the regional and national identity".

Lima, Peru, (2005). **According to the General Environmental Law, Article 107**, related to the National System of Natural Areas Protected by the State, states that:

> The State ensures the continuity of ecological and evolutionary processes, as well as the history and culture of the country through the protection of representative spaces of biological diversity and other associated values of cultural, scenic and scientific interest existing in the continental and marine spaces of the national territory, through the National System of Natural Areas Protected by the State - SINANPE, regulated according to its specific regulations (Law No. 28611, 2005, p. 59).

Lima, P., (2013). **Vice-Ministerial Resolution of the Peruvian Ministry of Culture N°066-2013-VMPCIC-MC**, which in its first article resolves "To declare the traditional use of totora reeds in the coast of the northern coast of Peru as Cultural Heritage of the Nation, since it contains knowledge and ancestral practices in force, constituting an axis of social life, as well as a reference of the cultural identity of artisanal fishermen and the local population".

Lima, P., (2015). **Jefatural Resolution 054-96-INRENA**, "the National Strategy for the Conservation of Wetlands in Peru is approved, whose general objective is to promote the conservation of wetlands aimed at obtaining ecological, social, economic, cultural and spiritual benefits as a contribution to the integral development of Peru" (Supreme Resolution N° 001-2015-MINAM, 2015).

METHODOLOGY

The research followed a qualitative and descriptive approach. The methodology was designed to delve into the cultural, economic, ecological and medicinal relevance of totora reeds and caballitos de totora in Huanchaco, Peru.

The participatory observation was implemented, conducting observation sessions in the Huanchaco region with the objective of documenting first-hand how caballitos de totora are used and manufactured, as well as observing the ecological impact of the reed beds in the area. In parallel, a review of existing academic and scientific literature on cattails and caballitos de totora was conducted to contextualize and enrich the primary data collected. This review incorporated both local and international literature.

The qualitative data collected were transcribed and analyzed using thematic analysis techniques. This approach allowed for the identification of recurring patterns and themes in the data, which helped to illustrate the multifaceted importance of cattails and caballitos de totora in the Huanchaco region.

During the research, all ethical norms were respected, especially those related to confidentiality and respect for the autonomy and culture of the participants. With the implementation of this methodology, a holistic and multifaceted understanding of the importance of the cattail and caballitos de totora in Huanchaco was acquired, and the current challenges and opportunities for their conservation and sustainable use were identified.

RESULTS AND DISCUSSION

Ethnobotany in the use of cattails

The study of the relationship between society and nature can be carried out using various approaches and tools, including ethnobotany. This branch of study has facilitated a deep understanding of the traditional management of plant resources, generating precious empirical knowledge that has led to the discovery of food, medicinal, toxic and sacred characteristics in plants. Historically, societies have utilized plants, creating a considerable body of knowledge about flora. This understanding has provided multiple options to preserve and improve the living conditions of society as a whole (Carapia-Carapia & Vidal-García, 2017).

The results of an interview conducted with environmental activist Percy Valladares Huamanchumo (originally from Huanchaco) revealed that the use of cattail is oriented to the collection of its flowering and, after a dehydration process, it is consumed in the form of an infusion to treat cases of anaemia. As for the fibres or membranes, called moka in the Muchik language, which are found in the lower stem of the plant, they are used as an antibiotic and healing agent to prevent infections. The flower can also be burned and applied to wounds to aid healing and deflate the affected area.

This information is contrasted with the findings of the study conducted by Bela and Chifa (2000). According to their findings, the use of cattail (both external and internal) in the form of infusions and decoctions of aerial and subway parts is common in the aboriginal communities of the Toba, Wichí and Mocoví ethnic groups and natives of the province of Chaco, Argentina. Some national and foreign authors have mentioned this use, although it is not justified in terms of the presence or absence of its active principles.

The results of these studies indicate that there is no toxicity in the samples analyzed. Infusions and decoctions of root, stem and leaf do not produce the laxative effect (Marzocca, 1997, cited by Bela & Chifa, 2000) due to the absence of anthraquinones; however, the high cellulose content, both in the green and dried material, could justify its use as a mechanical laxative. The traces of saponins in the stems (rhizome and cane) suggest its potential use as a diuretic (Lahitte, 1998, cited by Bela & Chifa, 2000), although at much higher doses than those used in the described methodology.

The presence of tannins in the root, stem and leaf of the dried material provides astringent, hemostatic and healing properties in its external use; the decoction of leaves can be used as an antidiarrheal, a use confirmed by natives of the region in traditional medicine. Decoctions of rhizomes justify its use in skin conditions (such as ulcers and sores) due to the presence of starch, a use mentioned by aborigines of the Toba and Wichí ethnic groups.

Positive reactions in alkaloid assays require, in a second stage, complementary analyses to determine their effects in folk medicine. The contents of ash, proteins, vitamin C and minerals in the pollen grains make it suitable as a dietary supplement and justify further research in the search and development of the most suitable pharmaceutical formula for its correct use for nutritional purposes. This would give a rational application to a natural resource not used to its real potential.

Situation diagnosis of cattail reeds

Seven wetlands have been identified in the province of Trujillo. Six of these are coastal, also known as "wachaques", "chacras de tierra húmeda", "chacras hundidas", "totorales" or "balsares". These coastal wetlands can be classified into two: those that have been excavated to reach the water table near the sea, as in Huanchaco and Huanchaquito, and those in which water has sprung up to form springs, as in Salaverry. The remaining wetland is artificial, called Laguna de Conache, located in the district of Laredo.

Cattails grow in wetlands, defined as any area of marsh, swamp, peatland, or surface covered with water, whether natural or artificial, permanent or temporary, standing or flowing, fresh, brackish, or salt, including marine areas up to six meters deep at low tide (Ramsar, cited by Matthews, 1993). Wetlands regulate water quality, support fisheries, ensure biodiversity provide tourism opportunities, and also help mitigate global climate change by capturing greenhouse gas emissions.

However, society puts pressure on cattails. The market serves the growing demand of populations, providing goods and inputs that generate waste due to excessive consumerism. Likewise, urban development, such as the construction of buildings and the circulation of vehicles, directly or indirectly affects these ecosystems and their elements: water, air, soil, and biodiversity. This impact is reflected in the quality of life in these natural areas and results in the continuous degradation of native fauna and flora (biodiversity), affecting the economy of artisanal fishermen by reducing the supply of reeds for building caballitos.

It is estimated that in 40 years, Huanchaco's cattails have been reduced to approximately 14 ha or 22% of the original total of 64 ha. This decline is due to coastal erosion, unplanned urban growth, environmental pollution, and sometimes inadequate wetland management. This has had negative repercussions on the availability of cattail for the uses mentioned above.

One of the environmental problems affecting Huanchaco's cattails is the need for more landfills to manage solid waste, which reflects the lack of planning by local authorities. Likewise, the need for more environmental awareness in a society that is not connected to its local natural and cultural heritage aggravates the situation. Furthermore, Peruvian authorities seem to ignore the fact that the State is obliged to promote the conservation of biological diversity and protected natural areas. This problem is exacerbated by consumerism and the need for waste reduction, recycling and reuse programs as strategies for citizen education.

Cattails and the challenge of subsistence

The ecosystems formed by the reed beds of the Peruvian coast are of great importance at the local level, as they are freshwater reserves in arid areas and are home to a high biological diversity of species and genetic material, including threatened or endangered species. They are also of great scenic value and make it possible to take advantage of diverse natural resources, such as fibre, pasture, and fish, among others. They also play an important regional and international role, as they are part of a biological corridor for the migration of various species of neotropical and Nearctic birds.

According to Percy Valladares Huamanchumo, Huanchaco's cattails are made up of open-pit pools averaging 120 m². The dimensions vary, with the most frequent being 20 x 6 m, and their depth varies between 130 and 150 cm, determined by the water level. They are cultivated with cattails, which grow vigorously. Because they are artificial pools, the Ramsar Convention (1971) categorizes them as Man-Made Wetlands.

However, despite the benefits and strengths they provide, Huanchaco's cattails are in an alarmingly vulnerable situation. Of the 261 pools reported in 2006, there are currently only 150 surviving, due to marine erosion affecting the Libertine coastline. These ponds, being located

on the sea shore, suffer the onslaught of strong waves, which cover them with sand, killing the totora reeds or razing the area until leaving open holes to the sea where before there were ponds planted and delimited with windbreaks made of discarded totora reeds.

Figure 2.
Coastal erosion process in Huanchaco

The Huanchaco cattails not only provide benefits to the inhabitants of Huanchaco, who use the reeds to make the Caballito or balsa but also to fishermen from other northern beaches who demand this raw material. They also play an essential ecological role in maintaining the water table, storing water, controlling flooding, stabilizing the coastline and absorbing natural and anthropogenic contaminants. For these functions to be fulfilled effectively, the cattails must be in good condition (Figure 3).

Figure 3.
Totoral in harvesting process

The Caballito de Totora (Totora reed horse)

The construction of the caballito de totora dates back between one thousand and three thousand years BC. It is made using the stems and leaves of the plant above. According to Agustín Piminchumo Díaz, a local artisan and fisherman with more than 70 years of experience working with reeds for artisanal and fishing purposes, this technique has been passed down from generation to generation to the present day and consists of cutting the reed stems and soaking them in water to prevent them from breaking. Afterwards, they are left to dry in the sun and then joined together to form the boat, tying them at both ends with ropes. The widest part is the stern, which has a cavity to hold the fish, food and the fisherman's gear, while the bow is narrow and curved. The Caballito is between three and four meters long, with a width of 0.6 to 1 meter. When dry, it weighs approximately 40 kg and can carry up to 200 kg of payload. Its useful life is approximately one month, and the fishermen themselves usually build it.

The original name of these boats is Tup, a word that comes from Muchik, the language of the Mochicas, which began to disappear around the middle of the 20th century. The Spanish gave them the name "caballitos" (little horses) because of the peculiar way in which the crew members ride these small vessels.

The huanchaqueros embark on these caballitos and set out to sea for long days of work until they return with their catch. Mastering these boats requires a great deal of skill, balance and strength in the arms to handle the oar, which consists of a Guayaquil reed of approximately two and a half meters in length, sectioned lengthwise. The caballero de totora glide through the water, moving in their boat-like shape with a smooth thrust and a rhythm full of grace and aesthetics. The sea continues in constant motion, and from far away come powerful waves that crash and make the water sparkle at the impact of the sun. It is an impressive sight to see them gliding over the waves and foam with the exuberance of a pagan celebration. As I watch them on top of the waves, I am reminded of those other young men from Hawaii who also surf on their wooden boards. On the "little horses", the acrobats with their white scarves and naked torsos, the sun's glare makes them look like fire, like gods of the sea Miró Quesada. (1964).

Figure 4.
Traditional use of the caballito de totora

Source: Andes Institute Archive

Today, the caballito de totora persists as a traditional fishing tool that not only supports the economy of numerous communities on the northern coast of Peru but also sustains a cultural symbolism of international recognition.

CONCLUSIONS

The totora reed, in spite of its historical antiquity, continues to be a socio-cultural expression that significantly impacts the cultural identity of the heirs of this millenary tradition in northern Peru, especially in the seaside resort of Huanchaco. Therefore, it is an element of living culture that has become indispensable for local ancestral knowledge, which is necessary to explain the cultural identity in this region of the country.

The main use of this plant is in the construction of the caballito de totora, whose cultural symbolism transcends local and national boundaries. On the one hand, it is used as a means of subsistence and family support (through fishing), and on the other, for the development of handicrafts and tourism in the northern region. Fishing, handicrafts and tourism generate economic wealth that improves the lives of the local people.

Knowledge of the healing and nutritional properties of cattail benefits people's health and nutrition. It offers a new alternative to the study of traditional natural medicine, which until now has yet to be used to its full potential.

The different uses of cattails are a historical testimony to urban resilience, as they have been crucial in enabling locals to manage the goods and inputs needed to survive in difficult times. According to Gotham & Campanella (2010), "resilient communities can reinvent themselves with new relationships, modes of organization, and networking," allowing them to "absorb disruption and reorganize while changing while retaining essentially the same function, structure, identity, and feedback" (Walker & Meyers, 2004).

The legal framework examined confirms the local, national and international interest in safeguarding not only the cultural symbology represented by the caballito de totora tradition and its other uses but also in supporting the need to conserve these natural areas that harbour ecosystems essential to ecological balance.

Today, the cattail is in a clearly vulnerable situation as a result of socio-cultural and environmental problems that threaten its persistence over time. This situation should be a cause for concern for national and international authorities and, at the same time, a starting point for the development of new studies that will allow us to propose alternative solutions to this real problem.

Limitations

Despite the richness of the qualitative data collected, the exclusively qualitative approach could have limited a more accurate and objective view of the current situation of cattail and its use in the construction of caballitos de totora that could have provided a mixed quantitative and qualitative approach. Furthermore, the results of this study are contextualized in the Huanchaco region and, despite attempts to generalize from these results, may not be fully applicable to other regions of Peru or to other cultures that use totora reeds.

On the other hand, despite the extensive literature review conducted, we cannot rule out the possibility that there are relevant works that were not included in the review due to the possibility that not all relevant works are accessible or easily located in academic databases.

Contribution to scientific knowledge

This study provides valuable insight into the cultural, economic and ecological importance of cattail in the Huanchaco region, which can inform future conservation initiatives and sustainable

cattail use policies. It adds to existing knowledge about the relationship between people and their natural environment, especially in the context of indigenous communities and their dependence on local natural resources.

The detailed documentation of the construction process of a caballito de totora can be a valuable source of information for future ethnobotanical and anthropological studies and has significant implications for the valuation and protection of cultural heritage. In addition, the results of the study can be used to inform sustainable tourism policies and practices in the region by highlighting the importance of the totora reed and the caballito de totora tradition for local tourism.

Finally, the study highlights the need for further research on the medicinal and nutritional properties of cattail. This research could have important implications for traditional medicine and food security and underscores the importance of this resource as part of the cultural and medicinal heritage of the region.

Author Contribution: Not Applicable

Conflicts of interest
The author declares that there are no conflicts of interest.

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