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Marine Turtle Presence in the Traditional Pharmacopoeia, Cosmovision, and Beliefs of Wayuú Indigenous People

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ABSTRACT. – Marine turtles are considered by people of several cultures to be a gift from God. This belief often leads to the use of these reptiles in the traditional and belief systems among aboriginal peoples. Certainly this is the case among Wayuú people, who are an indigenous group settled between Venezuela and Colombia, in the Guajira Peninsula. To assess the value of marine turtles to Wayuú ancestral people, especially as a medicinal resource, we carried out a comprehensive open-ended question-based survey of traditional healers and caretakers (locally known as *Piaches* and *Oütsüs*) from 4 Wayuú communities in the Venezuelan portion of the Guajira Peninsula. We documented customary practices where marine turtles' body parts are used as a key element of the remedies. Eleven marine turtle body parts were identified by respondents as remedies used by Wayuú people, with 7 different ways to administer them (drink, worn, powder, among others). Four of the 5 species of marine turtles present in Venezuelan waters were identified as being used in the traditional pharmacopoeia of Wayuú people; their traditional names are included on this article. Some considerations about the Wayuú's cosmovision, customs, traditions, and belief systems are included here. Our results are important in the context of likely future evaluation of the current Venezuelan legal framework to consider inclusion of traditional use of marine turtles in Venezuela.

RESUMEN. – Las tortugas marinas son consideradas por diversas culturas como un regalo proveniente de Dios. Es en esta creencia en la que usualmente se basan las tradiciones y costumbres de numerosas comunidades indígenas que utilizan a estos reptiles a nivel global. Ciertamente, este es el caso de los indígenas Wayuú, grupo el cual se encuentra asentado entre Colombia y Venezuela, en la Península de la Guajira. Se realizó una valoración ancestral de las tortugas marinas para los indígenas Wayuú, con especial énfasis en los usos medicinales, se llevaron a cabo una evaluación comprensiva y exhaustiva, la cual incluyó entrevistas y encuestas con preguntas abiertas, a pobladores Wayuú con amplio conocimiento sobre las prácticas medicinales tradicionales (conocidos localmente como *Piaches* y *Oütsüs*) en comunidades localizadas en la porción venezolana de la Península de la Guajira (territorio ancestral Wayuú). Se documentaron las prácticas y costumbres en las que diversas partes del cuerpo de la tortuga marina juegan un papel primordial en la creación y aplicación de estos remedios tradicionales. Los entrevistados identificaron hasta once diferentes partes del cuerpo de la tortuga marina que son utilizados en la elaboración de remedios, así como siete diferentes formas de administración de la medicina (tomada, untada, granulada, entre otros). Cuatro de las cinco especies de tortugas marinas presentes en las aguas territoriales venezolanas fueron identificadas como parte importante de la farmacopea tradicional de los indígenas Wayuú, en este artículo se incluyen los nombres tradicionales en Wayuúnaikii de estos reptiles. Así mismo, en la presente investigación se mencionan algunas consideraciones sobre la cosmovisión, costumbres, tradiciones y creencias Wayuú. Estos resultados son importantes en el contexto de una posible futura revisión del marco ambiental legal

venezolano para considerar una posible inclusión de estos usos tradicionales de tortugas marinas en Venezuela.

KEY WORDS. – ethnozoology; traditional medicine; health values; indigenous knowledge; aquatic bushmeat

Marine turtles are connected with many human social systems throughout the world (Frazier 2003; Campbell 2010; Alexander et al. 2017) and many people consider marine turtles to be a sign of prosperity, well-being, and connection to their indigenous cultural values (Fretey et al. 2007, 2015; Poonian et al. 2016). For example, the Seri in Mexico (Felger and Moser 1973; Lee 2004), the Aboriginal people and Torres Strait Islanders in Australia (Butler et al. 2012; Weiss et al. 2013), the Bijagos in Guinea-Bissau (Catry et al. 2009), and the Wayuú of Venezuela and Colombia (Villate 2010; Guerra Curvelo 2011) all have a common perspective that marine turtles are a gift from nature and a sign of prosperity. Indeed, the Wayuú use the marine turtles in many ways, including using their products as a health supplement for thousands of years (Paz Reverol et al. 2010; Chacín 2016).

Wayuú people are the Aboriginal inhabitants of the coast of the Guajira Peninsula, territory shared between Venezuela and Colombia, and marine turtles have always been an important part of their culture and customs (Castellano-Gil and Barrios-Garrido 2006; Noguera Saavedra 2016). They consider marine turtles to be one of the most important species underlying their culture, because they are considered as gifts from the ancestral God *Maleiwa* (Soré et al. 2006). Certainly, traditional stories orally passed among generations described the way these reptiles were provided to Wayuú people for use as food and medicine; indeed, some elders consider the presence of a sacred place located in the Guajira Peninsula called *Julirawanar* Hill, where the turtles are healed by *Pulowi* (a deity) (Guerra Curvelo 2011) to be an important cultural site. Marine turtles are therefore seen as a divine gift, and as such they constitute an important component of the Wayuú people's indigenous knowledge (Parra et al. 2000; Robles 2008; Riaño-Alcalá 2014).

Although Wayuú people have traditionally used marine turtles as food and a spiritual resource, current transcultural issues have led to the modification of traditional practices, such as the inclusion of a commercial use of marine turtle products into a traditionally trade-based local indigenous economy (Rueda-Almonacid et al. 1992; Robles 2008; Villate 2010; Chacín 2016), and the shift toward using Western cultural components such as nylon, outboard engines, and global positioning system devices to catch fish and turtles (Carabalí Angola 2007; Rojas-Cañizales 2015). It is also well recognized that in many parts of the world the commercial use of marine turtles has compromised the stability of some local and regional populations (e.g., Spotila et al. 2000; Bell et al. 2006). Thus without culturally based management, the

continuation of a commercial market by Wayuú could have negative implications for Caribbean marine turtle populations (Rueda-Almonacid et al. 1992; Campbell 2003). For these reasons, in this article we aim to describe the value of marine turtles to the health (physical and spiritual) of Wayuú culture, and the use of marine turtles in traditional, cultural, and ancestral medicine as remedies provided by nature (forming a pharmacopoeia). This could allow the differentiation of uses in a future plans and decisions about use, and determine which uses are traditional and might be allowed. Recovering Wayuú values will benefit turtles and indigenous territory as well as the entire nations.

METHODS

To conduct the research we carried out in-depth interviews with 10 elderly traditional owners, categorized as healers (in Spanish, *Mojanes*) ($n = 4$), and caretakers–witches (in Spanish, *Brujas*; in *Wayuunaikii*, *Yurüüja*) ($n = 6$), from 4 different communities of the Venezuelan Guajira Peninsula: Paraguaipoa ($n = 1$), Kazuzain ($n = 3$), Porshore ($n = 4$), and Castilletes ($n = 2$) (Fig. 1). Our respondents were aged between 56 and 78 yrs old, and they included 6 women and 4 men. We obtained a 100% response rate.

Wayuú people were classified in 2 groups after the European invasion (the mid-1700s): shepherds and fishers (*Apaalanchis* in *Wayuunaikii*) (Martínez 2011; Barrios-Garrido et al. 2017) (Fig. 1). Hence, this research was carried out only among *Apaalanchis* communities because of their close relationship with the marine environment.

This approach is a common, widely used data collection strategy in qualitative research, and it assumes that if questions are verbalized correctly, participants' expressions of their knowledge will reflect their situation (Lambert and Loiselle 2008). The interviewees were considered and approved by the community clan leader (in Spanish, *Cacique*) and people with a particular knowledge of medicinal animal use. The interviewees were identified through consulting other community members.

We used open-ended questions to collect information on several themes: 1) the marine turtle species used, 2) the indigenous name of the used species, 3) the body part(s) used, 4) the method used to prepare and store the remedies, 5) the symptoms shown by potential patients in order to receive treatment, and 6) the traditional uses of the remedies by people. All interviews were conducted by H.B.G., J.P., N.W., and D.R.C., in cooperation with the

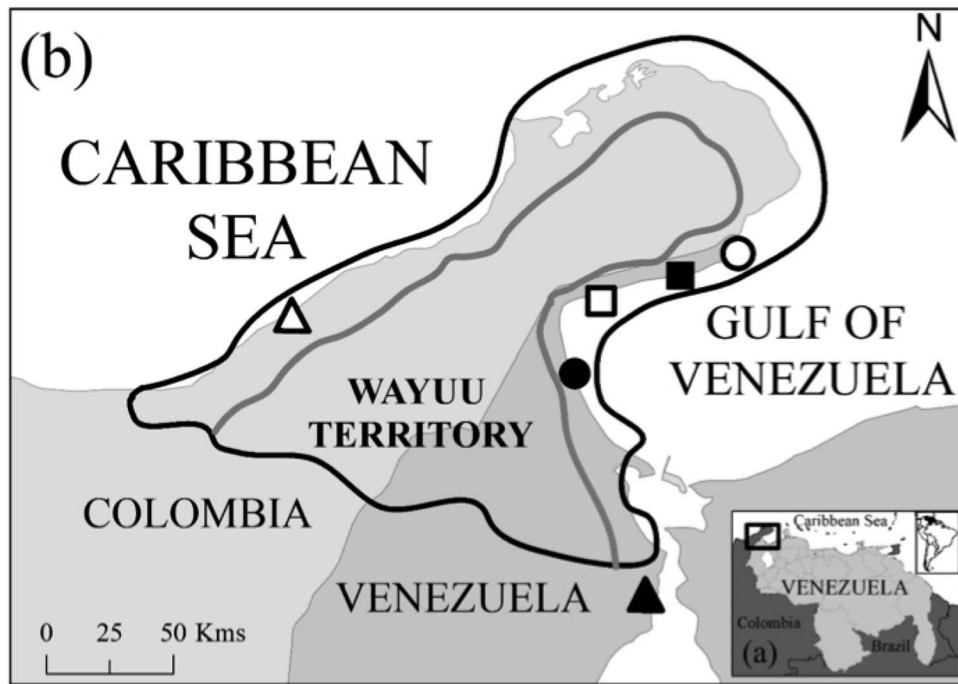


Figure 1. The ancestral Wayuú territory is shared between Colombia and Venezuela. (a) Geographical location of the study area (dark rectangle) within Venezuela, showing its relative position within South America. (b) Detail of the Guajira Peninsula territory, showing the location of the 4 communities studied, (○) Castilletes, (■) Porshoure, (□) Kazuzain, (●) Paraguaipoa, plus the capital cities of both municipalities, (Δ) Riohacha, Guajira Department in Colombia, and (▲) Maracaibo, Zulia State in Venezuela. Grey line represents the limits between shepherd and *Apaalanchis'* communities.

RAO Network, trained community members who are part of the conservation program in the area (see “Acknowledgments”) (Barrios-Garrido and Montiel-Villalobos 2016), in either Spanish or Wayuunaikii (the Wayuú indigenous language). (J.P. is a Wayuú clan leader, and his first language is Wayuunaikii.) The analysis of the information provided by interviewees was carried out by

extracting key topics (content themes) (Borokini et al. 2013; D’Lima et al. 2014; Barrios-Garrido et al. 2017).

RESULTS

All of the interviewees confirmed that marine turtles are used for health remedies, and all mentioned that Wayuú people use marine turtle products for culturally

Table 1. Health-related uses of marine turtle parts by Wayuú people to treat diseases, or as preventive medicine. Wayuúnaikii names of diseases were taken from Captain and Captain (2005). Mode of administration: (a) mixed with food, (b) taken as drink, (c) mixed with alcoholic beverage, (d) worn as a talisman, (e) ingestion of the cooked part, (f) ingested as powder with drink or food, (g) mixed with plant species.

Disease/condition Wayuúnaikii name	Disease/condition English name	Part of the marine turtle used	Marine turtle species	Mode of administration
<i>Tüntaa aa'in aapuwa</i>	Hypertension	Blood	All	a, b, e
<i>Suukala</i>	Diabetes	Blood, gallbladder	All	a, b, e, g
<i>Ososo aapuwa</i>	Asthma	Blood, fat	<i>D. coriacea</i> , <i>C. caretta</i>	a, b, e, g
<i>Shunui</i>	Influenza	Liver	<i>D. coriacea</i> , <i>C. caretta</i>	e
<i>Achü'ü ayuulii</i>	Renal lithiasis	Kidneys	All	e
<i>Ashiitaa</i>	Gallbladder disease	Gallbladder	<i>D. coriacea</i> , <i>C. caretta</i>	a, g
	Urinary tract infections	Kidneys	All	e
<i>Ajapü, ekia</i>	Arthritis	Plastron	<i>C. mydas</i> , <i>E. imbricata</i>	e
<i>Epe'e ayuulii</i>	Rheumatism	Bones, plastron	All	a, e
<i>Ouktasiro'ulu woola</i>	Neoplasia	Meat, liver	All	e, g
<i>Majayülü asha</i>	Menstrual disorder	Blood, meat	All	a, b, e, g
<i>Toolo akuwa'ipaa ayuulii</i>	Erectile dysfunction	Penis	<i>E. imbricata</i> , <i>C. mydas</i>	c, f
<i>Ayolojo, Ayaluju</i>	“Bad spirits” ^a	Carapace, skull	All	d
<i>Ayuulii</i>	Preventive medicine ^b	Blood, meat	All	a, b, e, g
<i>Jotaa ka'i</i>	Insolation ^c	Fat	<i>D. coriacea</i> , <i>C. caretta</i> , <i>C. mydas</i>	g

^a Used for humans, animals, and houses.

^b Directed to children and young women.

^c Used as sunblock by mixing with fungal spores and covering women's faces.



Figure 2. Bottling of oil from leatherback turtles. The oil is collected by Wayúu community members ready to be used as medicine to treat or prevent asthma, especially in children. Photo by H. Barrios-Garrido.

based reasons such as improved physical and spiritual health and that their use could prevent up to 15 different diseases or conditions. Our interviews revealed that up to 11 parts of the animals (oil, blood, penis, fat, among others) (Table 1) were used, and we identified species-specific uses to address various diseases or conditions. It was also clear that some body parts of the marine turtles are used for more than one reason. For example, the turtle fat is used to prevent asthma and sunburn (Figs. 2 and 3), and the turtle meat is used to cure neoplasia and menstrual disorders (Fig. 4).

Also, some specific parts of the marine turtle are used exclusively by women, men, children, or elders, depending on the disease, condition, or symptoms they present with. The most common case was the use of turtle penis, especially those from hawksbill turtles (*Eretmochelys imbricata*), by elderly men to cure erectile dysfunction



Figure 3. A Wayúu woman using marine turtle fat, mixed with fungal spores, as sunblock to protect her face. Photo by P. Barboza.

(Fig. 5). Some interviewees claimed that depending on the species, the effectiveness of the treatment varied.

Seven different ways of administration were described by the respondents (Table 1). Furthermore, interviewees mentioned that in addition to treating or preventing physical issues, Wayúu people also use marine turtle products for improving spiritual health conditions, or more

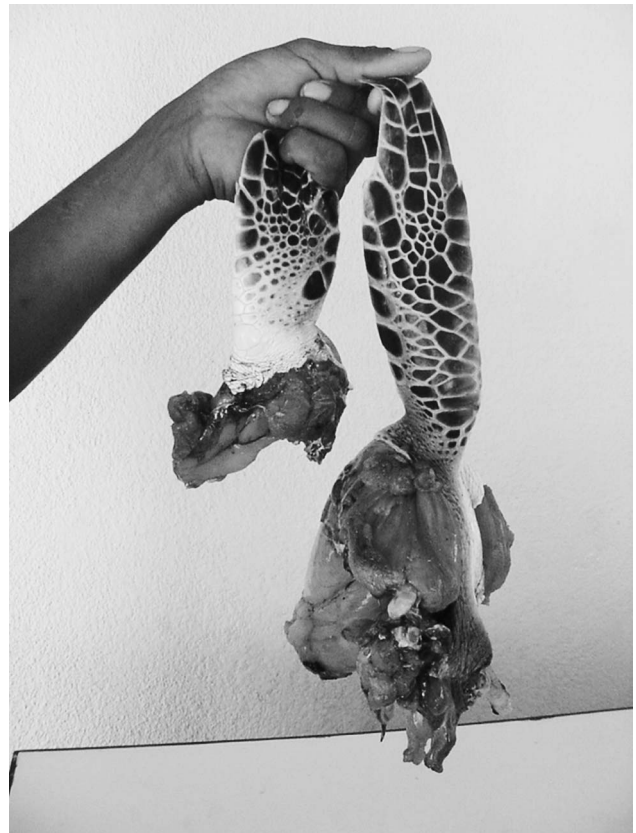


Figure 4. Green turtle meat is used to treat neoplasia and menstruation disorders, and to prevent general illness in woman and children. Photo by H. Barrios-Garrido.



Figure 5. A fisherman and clan leader shows dried penises of a green turtle (oval on the left) and of a hawksbill turtle (oval on the right) ready to be powdered and consumed as medicine. Photo by H. Barrios-Garrido.

specifically, to rid them of “the bad spirits” (*Wanülüü*, in Wayuúnaikii). This is because the presence of *Wanülüü* is believed to be the main source of illnesses and unfavorable conditions in the Wayuú families (Perrin 1989; Morillo Arapé and Paz Reverol 2008; Balza-García 2010). As a traditional safeguard to prevent illness or other adverse conditions for their communities, Wayuú people often hang or place carapaces and skulls in the corral gates, kitchen, houses (Figs. 6–8), and boats. Moreover, the power of dreaming in the Wayuú culture led to the belief that dreaming of marine turtles will provoke good conditions at personal level and also in the family, community, and town.



Figure 6. The use of marine turtle skulls is evident in the vicinity of the population center. They are used to prevent the approach of “bad spirits” (*Wanülüü* in Wayuunaikii). In the picture are a dozen marine turtle skulls (mix of green, hawksbill, and loggerhead turtles) hanging on a corral fence in the Upper Guajira. Photo by H. Barrios-Garrido.

We recorded names in Wayuunaikii (Wayuú’s native language) for 4 of 5 marine turtle species with presence in the Guajira Peninsula’s waters: *Sawain* (or *Sawaiunrriü*) for green turtle (*Chelonia mydas*), *Tagüari* (or *Tagüari’já*) for loggerhead turtle (*Caretta caretta*), *Öjono* (or *Achepa*) for leatherback turtle (*Dermochelys coriacea*), and *Carrei* for hawksbill turtle. The other turtle with presence in the waters of the Guajira Peninsula (olive ridley, *Lepidochelys olivacea*) has no name in the Wayuú’s language.

DISCUSSION

We identified that Wayuú people have strong cultural traditions of believing that there are important health benefits received through the use of the marine turtle products. As suggested by the respondents, marine turtles have been used throughout generations by the Wayuú community, and they remain an important link to the Wayuú’s past, and therefore maintenance of use is significant part of the future culture. Moreover, natural elements are still used to treat health conditions in Wayuú culture, converging with modern medicine (Paz Reverol et al. 2010; Villalobos et al. 2017). Our results show the relevant role of marine turtles in the pharmacopoeia and the health values in the Wayuú rituals, traditions, customs, and belief systems.

Our results show that up to 11 different parts of the marine turtle body are used in Wayuú traditional medicine. Similar quantities, ways of administration, and parts of the turtle’s body are also used in the rituals and pharmacopoeia for Aboriginal communities in Australia, South Asia, South America, and western Africa (Fretey et al. 2007; Pezzuti et al. 2010; Poonian et al. 2016; Watkin Lui et al. 2016; Alves et al. 2017). Previous researchers affirm that in the 1500s, during European colonization of the



Figure 7. The use of marine turtle carapace is evident in the daily life. The figure shows a green turtle carapace being used as a plate to place food in order to transfer health properties from the carapace to the food, which is then eaten to treat the ailments (top) for humans or (bottom) for animals. Photo by H. Barrios-Garrido.

Americas, there were frequent encounters between African people, who had been transported to the American region (as part of slavery) and subsequently escaped from the European fortifications, with the indigenous people in America, including Wayuú people (Moreno Blanco 2004; Vásquez Cardozo and Correa 2004). This link could be one reason why there are similarities among traditional peoples in the use of these reptiles in their belief systems. Further research on both continents and in different indigenous communities is needed to clarify similarities and differences in the use marine turtles and other natural elements (plants and wildlife) (Alves and Souto 2015; Alves et al. 2017; Van Vliet et al. 2017).

The traditional use of marine turtle parts among Wayuú communities is commonly expressed by interviewees. Indeed, all the respondents affirmed that during their lives, they and their family members have received marine turtle-based medicine. This tradition is passed orally, through stories, among and by healers (*Piaches* and



Figure 8. Use of carapaces in the house as an adornment or to prevent the arrival of “bad spirits.” The photo shows a loggerhead turtle carapace painted with the face of “Liberator Simon Bolivar” as evidence of transculturation. Photo by H. Barrios-Garrido.

Oütsüs) who are the specialists in maintaining local traditional rituals and customs across generations. The transfer of knowledge between generations using stories, songs, and art is well described in several indigenous cultures (Tchibozo and Motte-Florac 2004; MacDonald and Steenbeek 2015; Nunn and Reid 2016), and maintenance of these story lines has become an important consideration in continuing cultural identity and belonging for indigenous society (Koptseva and Kirko 2014; Poonian et al. 2016).

Although the traditional use of natural resources is legal according to the Organic Law of Indigenous People and Communities (*Ley Orgánica de Pueblos y Comunidades Indígenas* in Spanish) (Republica Bolivariana de Venezuela 2005), the consumptive use of marine turtle is considered illegal under the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC), which in Venezuela is represented in Venezuelan environmental legislation. An exception in the form of a special permit can be granted if the country can demonstrate that this consumptive use is “local, sustainable, and regulated” (IAC 2011, 2013a), such as has occurred in Costa Rica, Guatemala, and Panama (IAC 2013b, 2015). However, Venezuela has not initiated the process to apply for the special permit.

Despite the traditional component in the use of marine turtles in the Wayuú culture, use is currently considered to be illegal (even if the caught turtle is used for traditional purposes at the local level), according to Venezuelan

environmental legislation. Moreover, Wayuú members have claimed that they must have right to use the marine turtles, as it is part of their ancestral culture (Barrios-Garrido et al. 2017). Similar to the case described by Hasting (2003), who explained the situation in the British Virgin Islands where according to local traditions, *trunkers* (turtle people) use leatherback turtle oil as a traditional medicine. This use is classed as illegal under legislation, yet the use is important for traditional belief systems and medicinal properties (Rose et al. 2012; van Vliet et al. 2017). This conflict is evident also in Equatorial Guinea, where the traditional use of a marine turtle's eggs is penalized by national laws (Tomás et al. 2010), despite it having key cultural importance to their tribal groups. In general, these challenges arise because the Western legal framework in the countries did not include the traditional belief systems of indigenous people and in turn leads to a conservation conflict (van Vliet et al. 2015; Alves et al. 2017).

Our research found that marine turtles are key species in the Wayuú culture. The ways the Wayuú people value marine turtles for cultural and health values are evident in conversations with the local inhabitants of the Guajira Peninsula. In some cases, the use of marine turtles is restricted to traditions, medical uses, and a cultural belief system or customs (e.g., rituals, weddings, funerals, or medical purposes). However, the majority of uses described by previous researchers are commercial (Montiel-Villalobos, 2012; Rojas-Cañizales, 2015), including trade out of the Gulf of Venezuela and sometimes across nations (Barrios-Garrido et al. 2017). This type of use is unequivocally illegal under the Venezuelan legal framework. However, the regulation and enforcement of this use is complex owing to the ancestral customs involved and the fact that it occurs mainly in the remote, predominantly indigenous territories (Wayuú ancestral land). Furthermore, there is a lack of enforcement of environmental regulation, which requires changes in how these regulations are applied.

Based on our research, we suggest the inclusion of regulations and concessions in legislation to allow for the traditional use of marine turtle by Wayuú inhabitants, such as those who remain settled on their ancestral territories (both in Colombia and Venezuela). Similar legislation occurs in Australia (Weiss et al. 2013; Marsh et al. 2015). We acknowledge it will be challenging to develop a similar approach in both countries, but doing so will likely minimize the economic value of the marine turtle products, and as a consequence their value in commercial transactions. We also recognize that this proposed approach may not eliminate the nontraditional market for marine turtle products, but such trade will be easier to identify and restrictions will be easier to enforce. Indeed, understanding the degree to which turtles are used for consumption, either for commerce or tradition, in combination with improved knowledge of marine turtle population sizes, would make a significant contribution toward the devel-

opment of management incentives for the protection of marine turtles in Colombia and Venezuela.

Traditional names for marine turtles were compiled for 4 of the 5 species with presence in the Guajira Peninsula: *Sawain* (or *Sawaiunrrü*), *Tagüari* (or *Tagüari'já*), *Öjono* (or *Achepa*), and *Carrei*. There is evident influence of Western colonization in one name, because the name of hawksbill turtle in Spanish is *Carey* and the name given to us in this research is *Carrei* (strong accent is evident), which are similar. Although it is a frequently seen turtle in the region (the second most abundant turtle in the area), the hawksbill turtle is considered by Wayuú as the “male of green turtle” (Barrios-Garrido et al. 2017), and this may be the reason for the use of this non-Wayuú name for this species. On the other hand, the olive ridley is the least commonly seen marine turtle in the area, and Wayuú people do not recognize this species as being different; instead it is considered to be a “rare green turtle”. *Achepa* is the name for leatherback turtle that is only used in the Colombian portion of the Guajira Peninsula (Borrero Avellaneda et al. 2013).

The use of marine turtles as medicine is a key component of the cultural legacy of Wayuú families. For this reason, it is important to consider the Wayuú's indigenous knowledge when informing future management plans for marine turtles in the Gulf of Venezuela. Also, from the perspective of maintaining the use of marine turtles by Wayuú for cultural, noncommercial reasons, the legal framework which penalizes the traditional use of these species may need revision or clarification because the Organic Law of Tribal and Indigenous People and Communities in Venezuela allows the traditional practices and use of natural elements (Barrios-Garrido et al. 2017).

We acknowledge there are potential differences in the names, customs, uses, and treatments of those described in this article among other Wayuú communities. As previous authors claimed, the Wayuú traditional system is complex and has transformed since the European invasion. Evident discrepancies have been described for other researchers among Wayuú local communities, and even some of our respondents acknowledged this issue.

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