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**Uses, Beliefs, and Conservation of Turtles by
Ashaninka Indigenous People, Central Peru**

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ABSTRACT. – We used informal conservation and focus group techniques to gather information in 2 Ashaninka communities in Pichis River valley, central Peru. We found that turtles were mainly used as food, although some medicinal and supernatural uses were also reported. Locals demonstrated a comprehensive knowledge on the underlying causes of contemporary reductions in turtle abundance within their territory; their spiritual beliefs, including taboos on catching turtles, and those relating to supernatural or sacred sites caused them to avoid hunting and fishing in some wetlands.

Freshwater turtles and tortoises have historically been consumed by Amazonian people (Smith 1979; Klemens and Thorbjarnarson 1995; Rebêlo and Pezzuti 2000). Locals have used turtles in Amazonia as a food resource, for medicinal purposes, and for trading (Smith 1979; Kemenes and Pezzuti 2007; Alves and Santana 2008; Pezzuti et al. 2010).

Although indigenous people can cause or contribute to the problems facing declining species (through trading or excessive consumption), their knowledge, beliefs, and taboos can also help to understand the species biology and protect endangered species (Elick 1969; Balée 1985; Luiselli 2003, 2004; Pezzuti et al. 2010; Pantoja-Lima et al. 2012). For example, greater abundances of African tortoises (Genus *Kinixys*) have been observed around indigenous communities where these species are venerated (Luiselli 2003). In Brazil, Amazonian turtles had been tabooed and were not eaten under certain conditions by locals, and some were avoided and not used in any

circumstances (Pezzuti et al. 2010). Currently, little is known about the uses and beliefs surrounding turtles in Peruvian indigenous communities (Ferronato and Morales 2012).

Ashaninka indigenous people constitute a group of horticulturists, hunters, fishers, and gatherers from the Arawak linguistic family, spread throughout the larger headwater tributaries of the Ucayali River in Peru. Hunting and fishing are activities that are deeply embedded in Ashaninka's cosmovision and beliefs (Elick 1969; Zolezzi 2003).

The aim of this study was to document the species occurrence, taboos, and uses of turtles by Ashaninka communities in central Peru; gather information on the local perception of turtle's abundance; and explore how their traditional knowledge could help to protect turtles.

Study Area. — The investigation took place in 2 Ashaninka indigenous communities located in the Pichis River valley (PRV), Puerto Bermudez District, Pasco State, in central Peru. Santa Rosa de Chivis (SRC) (10°20'06.5"S, 74°59'15.5"W, 264 m elevation) and San Jose de Azupizu (SJA) (10°23'17.57"S, 74°54'26.55"W, 260 m elevation) are border communities that are in the buffer zone of the Bosque de Protección San Matías – San Carlos Natural Protected Area. For further details on the study sites please refer to Ferronato et al. (2010, 2011). Both indigenous communities' people have their living based on agriculture, hunting, and fishing. This study was part of a larger project on turtle biology and conservation in those communities (Ferronato et al. 2010, 2011), and 3 species of freshwater turtles (*Podocnemis unifilis*, *Phrynops geoffroanus*, *Mesoclemmys gibba*) and 1 land tortoise (*Chelonoidis denticulata*) have been recorded so far (Ferronato et al. 2011).

Methods

From February to December 2009 we conducted fieldwork on the ecology of turtles occurring in SRC and SJA (Ferronato et al. 2011). During this period we used 2 approaches to gather information for the present study: informal conversation throughout the fieldwork campaigns and a special workshop to talk about turtles based on the focal group technique (Kidd and Parshall 2000). In each community we worked with a local indigenous field assistant who helped us throughout the ecological fieldwork in their territory, made us familiar with the people in the community, and helped us to conduct the ethnobiology workshop, translating between Ashaninka and Spanish.

The informal conversations were not systematic; we gathered information during the 11-mo fieldwork period that helped us to establish our chelonian ecological project as well as to become familiar with their uses and traditions on turtles. We talked with 13 people in SRC (12 men and 1 woman) from 20 to 70 yrs old, and 9 (8 men and 1 woman) in SJA from 16 to 55 yrs old; our questions

were about uses of turtles, how they hunted turtles, where the turtles could be found, and when they breed. Any information we considered relevant was recorded.

In November 2009 we conducted a workshop in each community. We decided to do this activity close to the end of our fieldwork season, as our rapport with the indigenous people was greater at this time. In SRC we had 8 people (7 men and 1 woman) from 25 to 75 yrs old participating, and in SJA there were 12 people (9 men and 3 women) from 16 to 55 yrs old. We asked them about species occurrence, uses of turtles, how they hunt them, taboos, the status of turtles in their territory, and any legends or myths that were related to the turtles.

Results

Species Occurrence. — In both communities, locals knew the 4 turtle species we have collected during the fieldwork period. The names they use for each are *taricaya*, *charapa*, or *shempiri* (*P. unifilis*); *teparo* (*P. geoffroanus*); *cupiso* (*M. gibba*); and *motelo* or *tortuga* (*C. denticulata*).

Uses, Taboos, and Hunting Techniques. — Turtles in SRC and SJA communities are subject to few taboos and are mainly used as a food resource according to locals, although some medicinal and mystic uses were commented on (Table 1). The preferred species for food are *P. unifilis* and *C. denticulata*. According to the indigenous people, both species have been dramatically reduced over the last decades.

In SRC, *P. unifilis* and *C. denticulata* have been used locally by indigenous people and were not sold in local markets. The consumption of *P. unifilis* was occasional, and for local celebrations. Locals used to collect its eggs in the sand beaches during the dry season, in addition to collecting the nesting females. They commented that during the egg harvesting, all family members searched for eggs on the beaches but only the adults could eat the eggs; they would not allow the children to eat the eggs as they believe that *la flojera de la tortuga* (turtle's laziness) would be transferred to the children.

In SJA, according to the locals, *P. unifilis* was abundant in the Azupizu River, where its eggs and meat were consumed locally. In addition to local use, *P. unifilis* was also commercialized, with traders coming by boat from Pucallpa and Iquitos. To this end, during the 1970s, they used the technique of *comedero* in the *pozas* (deeper areas of the river where the *P. unifilis* was common). The *comedero* technique consisted of immersing banana bunches in the *pozas*, leaving them for 2 d, and finally fishing the turtles with hook and line and banana as bait. Other methods employed for hunting *P. unifilis* in Azupizu River included the use of spears and fishing nets.

The land tortoise *C. denticulata* was also captured for food in both communities. According to locals from SRC and SJA, *C. denticulata* was not actively hunted in forested areas, but they would capture it whenever one

Table 1. Turtles of Pichis River Valley, central Peru, and their uses by Ashaninka indigenous communities.

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Species	Local names	Santa Rosa de Chivis informants (<i>n</i> = 21)								San Jose de Azupizu informants (<i>n</i> = 21)							
		Food		Medicinal		Mystic		Taboo		Food		Medicinal		Mystic		Taboo	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Podocnemis unifilis</i>	Taricaya, charapa or shempiri	21	100					4	19			21	100	3	14		
<i>Phrynops geoffroanus</i>	Teparo	5	24							3	14						
<i>Mesoclemmys gibba</i>	Cupiso	4	19			9	43			3	14					5	24
<i>Chelonoidis denticulata</i>	Motelo or tortuga	19	90							20	95			4	19		

was seen while working in the farmland, walking in the forest, or hunting game animals. *Phrynops geoffroanus* and *M. gibba*, the smaller freshwater turtle species, were also eaten by locals in both communities, but some informants commented that they avoided *M. gibba* due to its bad smell. Both species were occasionally captured as bycatch when locals were fishing with lines in creeks.

According to SRC informants, they do not use turtles or any of their parts for medicinal purposes. However, in SJA informants commented on 2 uses of *P. unifilis*: the fat was used to relieve bone pain (rheumatism), and the eggshell was used to cure facial fungal infection. The eggshell was crushed and ground to a fine powder, mixed with an emollient, and applied to the lesions. The fat should be rubbed onto the affected areas. They also commented on a supernatural use of the heart of *C. denticulata*. They said that eating its heart would increase your lifetime, but they also mentioned that it is not recommended to eat too many hearts because it would increase your lifespan to an undesirable length.

Status of Turtles. — In both communities in which we worked, locals commented on the extremely low numbers of *P. unifilis* and *C. denticulata* seen nowadays. They explained 5 causes that, in their view, attributed to the decrease in abundance of *P. unifilis* and 1 reason for the decrease of *C. denticulata*.

- 1) In SJA our informants commented on the intense commerce during the 1970s and 1980s with traders from Pucallpa and Iquitos to exchange industrialized products (pans, rifles, cartridges, fishing nets, batteries, and other items) for live *P. unifilis* and its eggs, in addition to wild animal skins and timber.
- 2) A second cause considered as contributing to the decline of *P. unifilis* was due to natural reasons. In both SRC and SJA they said that the sand beaches were smaller compared with the same beaches some decades ago and that now, instead of sand, the beaches are mainly covered by rocks. Also, another natural cause pointed out in SRC was that the river flood cycles were altered. They said that in the past the seasons were more stable and during the dry season there were no flooding events, which submerge the beaches and drown the eggs.
- 3) A third reason indicated in SJA is the destruction of the *P. unifilis* habitat, the *pozas*, where intense use of dynamite fishing is causing the depletion of the fish and turtles.
- 4) The fourth cause, commented on in both communities, was the increase in human population in the PRV, increasing the demand on bush meat; with the decrease in game animals in the region, the pressure on *P. unifilis* was intensified.
- 5) A fifth reason explained in SRC to the decline of *P. unifilis* and also *C. denticulata* is connected with their spiritual beliefs of how the forest is protected. They explained that when a species starts diminish-

ing, the “owner of the species” (a spiritual protector) would group the remnant individuals and keep them in a protected area. According to them, that’s why some species are rare today. The *boa* (anaconda, *Eunectes murinus*) is the “owner of the wetlands” and protects the *P. unifilis* and other species that live in the lagoons and *pozas*. The *chullachaqui* (a mythical being) is the “owner of the forest” and protects the *C. denticulata* and the other forest species.

Legends and Myths. — A myth about a *cocha encantada* (enchanted lagoon) in the vicinity of SJA community was told by our informants. The enchanted lagoon is located between the Azupizu and Nazaratequi rivers and, according to the Ashaninka, it is a huge wetland that is feared and respected by locals. They explained if a person were to enter the water, the soil would start to shake and the water level would rise rapidly and the person would drown. They commented that this lagoon has a lot of wildlife, including fish and *P. unifilis*. Another myth told in SRC is about a subaquatic underworld found in some *cochas* (lagoons). Our informants commented that the *boa* (*Eunectes murinus*) is the owner of the lagoon and the other animals serve her in different ways. Locals also believe that the anaconda captures people who enter the water and they live trapped in this underworld.

Discussion

Turtles have primarily been used as a food item by Ashaninka people in central Peru, fulfilling the need for protein through the consumption of their eggs and meat. Some medicinal and supernatural uses were reported, in addition to few taboos. Locals demonstrated a comprehensive knowledge of the causes that have altered and diminished the abundance of *P. unifilis* in their territory. In addition, Ashaninka people reported myths that can locally help protect wetlands and the freshwater turtles that live in them.

The primary use of turtles as food by indigenous communities observed in our study is similar to other indigenous riverine peoples in Brazil (Smith 1979; Rebêlo and Pezzuti 2000; Pezzuti et al. 2010) and Ecuador (Townsend et al. 2005). The use of turtle parts in the traditional folk medicine is more known due to recent investigation (Alves and Santana 2008; Alves et al. 2008; Pezzuti et al. 2010). In the present study, locals reported the use of fat and shell of *P. unifilis* to treat rheumatism and fungal infection, respectively. The use of reptiles’ fat to treat rheumatism is well known worldwide (Alves et al. 2008, 2009). In Brazil, the fat of the tortoise *C. denticulata* (Pezzuti et al. 2010) and the turtle *Podocnemis expansa* (Alves and Santana 2008) are also used for this purpose.

Few taboos were related to the turtles in our study sites. Taboos can serve as regulators in wild animal

populations in the Amazon (Elick 1969; Basso 1978; Balée 1985; Pezzuti et al. 2010). In the Rio Negro, several turtle species are subject to numerous taboos (Pezzuti et al. 2010). The bad smell and taboo attributed to the meat of *M. gibba* in our site is also corroborated in other regions of the Amazon (Rueda-Almonacid et al. 2007). *Phrynops geoffroanus*, a species that is mostly tabooed and believed to cause allergic reactions but occasionally consumed by some human populations in the Amazon Basin (Vogt 2008), is also consumed in our study site. The belief of “turtle’s laziness” described by our informants could help in reducing the pressure on turtle nest collection in a smaller scale.

The reasons our informants declared to be responsible for the declines of *P. unifilis* and *C. denticulata* in their communities are corroborated to some extent with literature from the Amazon Basin region. Overfishing for trade plays an important role in diminishing natural stocks of turtles in the Amazon (Smith 1979; Kemenes and Pezzuti 2007; Schneider et al. 2011). The trade of turtle meat and eggs has been reported in other regions of Peru (Mitchell and Quiñones 1994; Landeo 1997). The unseasonal floods are common not only in Peru (Soini and Coppula 1980; Fachín-Terán 1994; Landeo 1997), but in several countries of South America (Townsend et al. 2005; Rueda-Almonacid et al. 2007), and they are responsible for significant losses of *P. unifilis* nests. The use of dynamite fishing has been occurring since the 1960s in the surroundings of Puerto Bermudez (Elick 1969; Gaviria 1980), and the increase in human population in the PRV has had negative impacts on game species’ availability (Elick 1969; Gaviria 1980), including that of turtles and tortoises. The traditional views of animal population declines experienced in our investigation possibly have their roots in the relationship between the “owner” or “father” of the animals and the behavior of the indigenous hunters (Elick 1969; Zolezzi 2003). According to the Ashaninka’s view, if the hunter was killing too many individuals of any species, the owner of this species would hide the individuals, in addition to punishing the hunter with attack by a large deer; consequently, local people would not hunt more than needed and this would help to control natural populations against overhunting (Elick 1969). We believe that the combination of factors presented above have contributed to the turtles’ decline in the valley in Puerto Bermudez over the last 3 decades, especially overfishing for trade with outsiders from Pucallpa and Iquitos.

The belief in enchanted lagoons in central Peru represents one valuable conservation aspect in the Ashaninka traditional view reported in our investigation. Sacred sites or refugia are respected and protected by locals, and represent major achievements in conserving local biological diversity elsewhere (Gadgil et al. 1993; Del Campo et al. 2004; Ceperley et al. 2010; Negi 2010). Additionally, traditional veneration helps to conserve turtle species, since areas where people venerate chelonians show

higher abundance of individuals when compared with areas where chelonians are not venerated (Luiselli 2003, 2004). Del Campo et al. (2004) reported the presence of sacred sites in northern Peru, locally known as *sachamamas*, which shows some similarities with the enchanted lagoons in central Peru. Other reports of enchanted lakes are reported in the Brazilian and Colombian Amazon (Barros 1998; Wylie 2010). If such sites are protected by Amazonian indigenous people and access is restricted to outsiders or poachers (Gadgil et al. 1993), they can help to maintain turtle populations and locally conserve them. According to Gadgil et al. (1993), systems of refugia such as sacred sites are prevalent elements of indigenous resource management systems and they are easier to implement than harvest quotas.

The *boa* myths (*Eunectes murinus*) could also serve as a way of protecting some wetlands and the turtle species that live in them. Several histories and episodes concerning the presence of giant anacondas have been reported in the Amazon Basin (Galeano 2007; Velásquez 2007). The same fear of the subaquatic world and people being trapped in it by the *boa* that was commented on in our investigation is corroborated in different areas of the Amazon (Velásquez 2007), which could make locals avoid fishing or hunting in certain areas where the *boa* is living and ultimately avoid collection of turtles in those areas.

Our investigation showed how Ashaninka indigenous communities used turtles in central Peru, the importance of gathering their stories to understand the decline of animal populations within their territory, and how their traditional knowledge could help in protecting and conserving turtle species. The importance of taboos in avoiding or reducing the consumption of chelonians has been reported (Pezzuti et al. 2010), but we reinforce that these legends or beliefs—such as the enchanted lagoons or sacred ponds, and anaconda myths—could also be additional tools in protecting large areas of habitat and freshwater turtles in the Amazon Basin. Future research should focus on the effects of the sacred sites and the abundance of Amazonian freshwater turtles, since their movement patterns and nesting are affected by the flood/dry season cycles, which could probably work in a sink-source model.

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