Chapter 3
Local Knowledge and Cultural Significance of Primates (*Ateles geoffroyi* and *Alouatta pigra*) Among Lacandon Maya from Chiapas, Mexico

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3.1 Introduction

Mexico is part of some of the most bioculturally rich regions worldwide. Not only does it contain a highly diverse flora and fauna, but it also houses over 50 indigenous peoples (Toledo et al. 2003). The Mexican south-east, and the region known as the Lacandon rainforest in the state of Chiapas in particular, has been considered one of the most developed, preserved, and floristically and faunistically rich zones in the country (Castillo-Campos and Narave 1992). Land mammals are an important component of this biological diversity, accounting for 12% of the mammal species on Earth. Mexico scores first place in land mammal diversity in the American continent and second place worldwide (Ceballos and Ehrlich 2002; Dirzo 1992). Furthermore, this region is home to many ethnolinguistic groups of people, mainly Chol, Tseltal, Tsotsil, and Lacandon (Ruan-Soto et al. 2007).

Due to the interaction of peoples with their rainforests, they have generated knowledge about these complex systems and the biodiversity they contain (Toledo et al. 2003; Berkes 1999). Mammals in particular can be considered one of the most

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salient groups for societies because they have been put to diverse uses (fur, commerce, crafts, medicinal, ornamental, pets, food) (Ojasti 1993) and they also satisfy other needs, such as cultural, religious, symbolic, and intellectual (Pérez-Gil et al. 1995). This is to say, they are given both tangible and intangible properties ranging from usage to involvement in myths and rituals for their traditionally imposed symbolism, which gives them a remarkable place in cosmovision (Santos-Fita et al. 2009). In general, we could state that the relationship between human groups and different groups of organisms is multidimensional and a product of history (Ruan-Soto et al. 2013).

Among the species of mammals that stand out for their size and behavior are the howler monkeys (*Alouatta palliata* and *A. pigra)* and the spider monkeys (*Ateles geoffroyi*). Perhaps because of our proximity to their phylogenetics, biology, and behavior, the relationship between humans and monkeys has a special relevance (Alves et al. 2010). Ethnoprimatology is a branch of ethnobiology that studies the cultural significance of non-human primates in different human societies and cultures, which may have direct or indirect relationships with these organisms. Furthermore, it delves on the way in which this relationship has been built across history and the consequences of such a history in the conservation of primate species. While ethnoprimatology research is quite novel, most of the work that has been done focuses on monkey species under some degree of risk of extinction in order to plan actions for their conservation based on environmental education projects (Estrela 2009).

Contrasting with the situation in other regions of the world, where relationships between other primates and humans are deemed conflictive due to the damage these animals cause on crops to a degree that they are considered pests (Rocha and Fortes 2015; Lee and Priston 2005), in Mesoamerica, this relationship does not seem to have been conceived that way. In this region, non-human primates have had an important role in the symbolic spheres of societies, and they have been represented in diverse art objects (Bruner and Cucina 2005). While some interpretations of the meanings the three species of non-human primates present in the Mexican south-east could have been proposed (*Ateles geoffroyi*, *Alouatta pigra*, and *Alouatta palliata*), studies giving evidence of the relationship between these species and rural human groups with which they share spaces or attempting to comprehend the multidimensional aspects of this relationship are scarce.

This chapter is an overview of the relationship between Lacandon Mayan people from the communities of Naha and Metzabok and the two species of non-human primates in their territory (*Ateles geoffroyi* and *Alouatta pigra*). We reviewed and interpreted evidences from the presence of these species in pre-Hispanic art in the Mayan area to ethnographic data referring to people's ethnoecological knowledge and an analysis of the local cultural significance of these species.

3.2 The Lacandon Maya from Naha and Metzabok and Their Environment

3.2.1 The Lacandon

Undoubtedly, Lacandon people are among the Mayan groups that have most fascinated researchers since the second half of the last century. Their origins and a great deal of their history during the Colonial period are uncertain and have been diversely interpreted. Regarding this, the term "Lacandon" was used to name various rebellious Mayan groups that fled into the Lacandon rainforest during the Colonial regime (Boremanse 1984). Some of these came originally from different zones of the states of Yucatan, Campeche, and Tabasco in Mexico and from the Guatemalan Peten. They spoke different linguistic dialects of Yucatec Maya, and they are the direct forefathers of the group currently called Lacandon (De Vos 1980). Regardless, the self-denomination of the Lacandon is *Hach Winik*, which has been translated as "true people." Furthermore, there exists a geographical division between northern Lacandonians (inhabitants of Naha and Metzabok) and southern Lacandonians (living in Lacanjá, Betel, and San Javier) (Cano et al. 2009; Eroza 2006; Baer and Merrifield 1972). According to Boremanse (1986), current northern Lacandonians are originally from the Yucatan Peninsula, while southern Lacandonians came from Peten, Guatemala.

Currently, the official organization is represented by authorities from the "Lacandon zone" community, an indigenous alliance including three ethnical groups (Lacandon Maya, Chol, and Tseltal). Their main authority is the communal goods commissary and the vigilance council composed exclusively of Lacandon Maya (CONANP 2006). The subsistence of the Lacandon has been based on knowledge of their environment and the development of a complex traditional agriculture system supplemented by the collection of fruits, seeds, and plants from the rainforest as well as hunting and lake fishing. From late 20th century on, the Lacandons have had strong influence from the outside. Nowadays, they have switched from traditional polyculture to monoculture, and they even pay the Tseltal to cultivate their land. Furthermore, the National Commission for Protected Natural Areas (CONANP), the federal institution in charge of the management of natural reserves, has had strong influence in decision-making by implementing preservation projects and promoting economic support for rainforest inhabitants to engage in conservation.

3.2.2 The Lacandon Environment

The Lacandon rainforest is located in east/northeast Chiapas, Mexico (Fig. 3.1). It is a hydrological basin of relevance for water capture. Among its permanent lakes are the Ocotal and Metzabok. The presence of limestone material, along with the effect

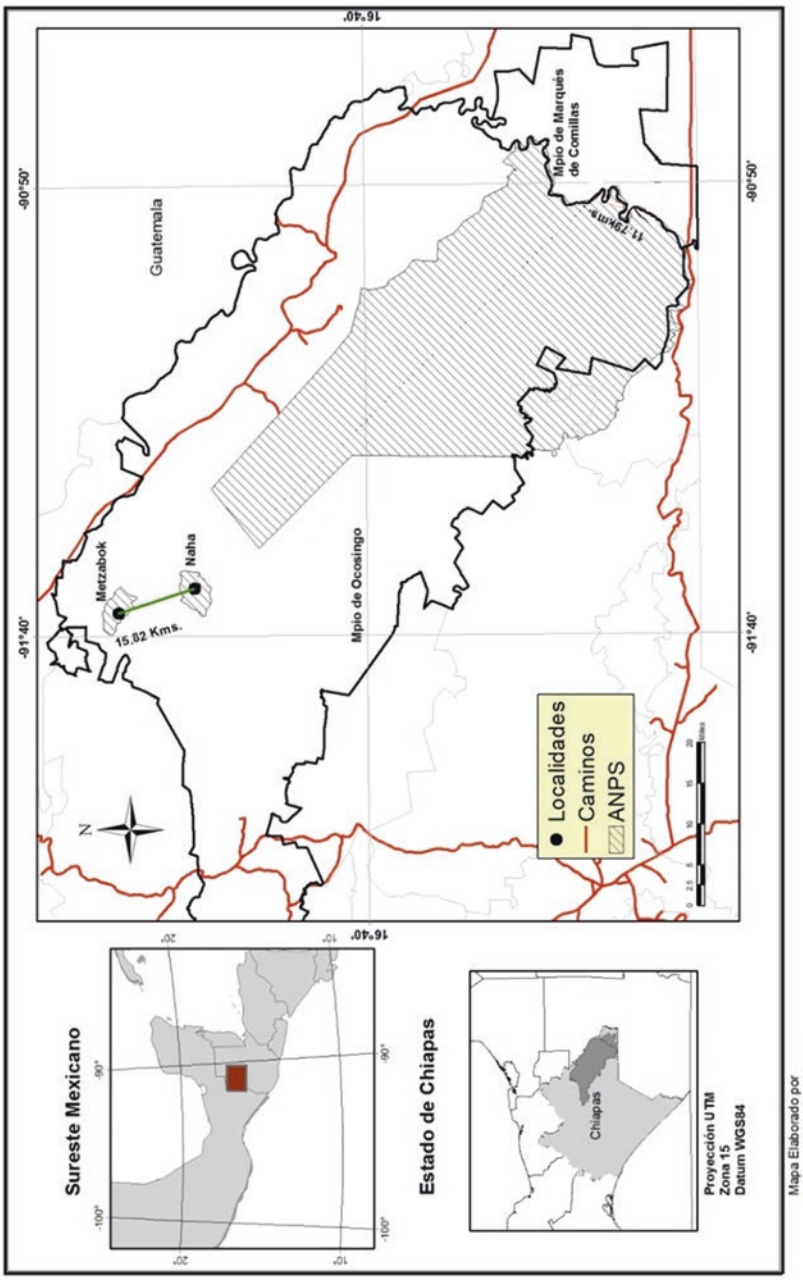

Fig. 3.1 Location of the Lacandon communities Naha and Metzabok, Chiapas, Mexico

of water filtration, accelerates the process of rock dilution, which originates crooks, filtrations, and subterranean circulation (García-Gil and Lugo 1992). The dominant climate is tropical humid with abundant rains in the summer and part of the fall (May through November) and a short dry season from March to May. Mean annual temperature is 25 °C with a medium annual rainfall between 2300 mm and 2600 mm (Quintana-Ascencio et al. 1990). The Lacandon territory has an altitude that ranges from 900 meters to barely above sea level. The vegetation is classified as high perennial rainforest (Pennington and Sarukhan 1998) with additional presence of medium sub-perennial rainforest (Castillo-Campos and Narave 1992). The first vegetation type is a very dense plant community with dominance of perennial trees over 30 meters high with abundant vines and epiphytes. Among the most frequent species of trees are *Terminalia amazonia* ("canshán," bullywood in English), *Ceiba pentandra* ("ceiba," kapok tree), and *Swietenia macrophylla* (locally known as "caoba," mahogany). The most important fruit trees are *Spondias mombin* ("jobo"), *Orbignya cohune* palm ("corozo"), and *Brosimum alicastrum* ("Ramón"); all are very important source of food for monkeys as well as humans (CONANP 2006). In higher ground, pine and oak are the forest composition. The communities of Naha and Metzabok are located in Ocosingo municipality. They were both decreed areas for the protection of flora and fauna in 1998, due to the presence of numerous species of flora and fauna cataloged as "endemic," "rare," "threatened," or "in danger of extinction."

The location of the community of Naha is on the 17° 04′ 53" N and 91° 04′ 09" W coordinates. According to INEGI (2010), the population is 198 inhabitants belonging to 46 families. Although the traditional language is Lacandon Maya, currently, Spanish is the second used language of importance due to the need to establish communication with outsiders. The community of Metzabok is located on the 17°08′36″-17°04′53" N latitude and 91°34′42″-91°40′09" W longitude. INEGI (2010) reports 96 inhabitants grouped in 20 families. As is the case in Naha, the traditional language is Lacandon Maya, and Spanish is a currently important second language.

3.3 Monkeys in the Ancient Maya

The importance of monkeys in Mesoamerica has been made evident by numerous works, specifically in the Mayan culture, such as those presenting research by Nájera (2013; 2012; 2000) about the rich and complex symbolism of these primates in different times and places of Mayan history. Recently, Rice and South (2015) have analyzed the images of monkeys in Mayan ceramic from the Classic period. In the next section, we will present a brief summary of some remarkable aspects about the role monkeys had in pre-Hispanic Mayan cosmovision, mainly through the artistic manifestations of the Late Classic period, but also early Colonial documents have some references. This will help shed a clear light on the multiple meanings and symbolic values monkeys had in ancient times. Furthermore, it will help give a

deeper context to the information gathered from contemporary Lacandon people and illustrate the cultural changes and continuities primate symbology has experienced across particular moments in history.

3.3.1 The Origin of Monkeys

Popol Vuh is one of the most important mythological lore and written historical sources of the Mayan culture. It comprises rich mythological, ritual, narrative, and historical information about highland Mayan peoples, particularly from the K'iche' people (Craveri 2013; Tedlock 1993; Recinos 1953). Because the Spanish conquistadores burned most of the codices (written Mayan documents) at the time of the conquest of Mexico, they realized that they were losing valuable information. Therefore, some of them were transcribed. We know this document was transcribed between the years 1554 and 1558 in what is currently the Quiché Department of Guatemala by descendants of three K'iche' lineages that adapted histories from a pre-Columbian ancient book originally written pictographically and hierographically which was later written in Latin (Sam 2008; Tedlock 1993). The excerpt about the creation of the world is the most famous versions of the origin of the Earth and its inhabitants in Mesoamerica. This myth narrates how creator deities originate the sky, earth, mountains, valleys with their vegetation, and water bodies. Afterward, it tells of how they created the wild animals, who were keepers of the mountains; but since these creatures could not speak nor pronounce the names of their creators, the gods dictated that their destiny would be being eaten. Then, they created the first humans, who were made from earth and mud; these creations spoke senselessly, so the gods unmade them (Sam 2008). For this reason, the creator gods decided to call upon *Xpiyakok* (deity of the sunrise) and *Ixmukane* (deity of nightfall), who knew the count of the days. Using maize (*Zea mays*) seeds and pito coral tree called locally as "colorín" (*Erythrina berteroana*) for divination, they resolved that people should be made out of wood. However, these new beings, even though they were humanlike and could talk, did not have a spirit nor heart. They could not remember their creators, and they did not worship them, so they were harshly punished by storms that flooded the world, with bats to decapitate them and jaguars that ate them. Even domestic utensils such as pots, hotplates, and grinding stones would attack them (Sam 2008). In this way, some of the wooden people from this former creation perished, but as the *Popol Vuh* makes clear, these humans became monkeys:

> This was the dispersion of the human work, the human creation. People fell, defeated. The mouths and faces of all were torn and broken. And before it was said [that] the monkeys in today's forests were their descendants. They were left as proof, because the builder and sculptor used only wood to make their flesh. This is why monkeys look like people: they are proof of a prior human making, a human creation of mere dolls and mere carved out of wood. (Tedlock 1993)

Across the Mayan region, stories about the origin of monkeys express similar divine punishments to a transgression, but they are always originated from pre-human beings (Guerrero 2015; Nájera 2013; Shaw 1972). Another passage of the *Popol Vuh* expresses this transformation of human beings into monkeys. According to this mythical passage, *Xpiyakok* and *Ixmukane* conceived *Wuqub Junajpu* and *Jun Junajpu*. The second had two sons called *Jun Batz'* and *Jun Chowen* (Sam 2008). The names of these characters are composed of a numeral and a noun, so that *Jun* is the number one while *Batz'* is the name of the howling monkey (*Alouatta pigra*) and *Chowen* is the name of the spider monkey (*Ateles geoffroyi*). Thus, their names translate as "One Howler Monkey" and "One Spider Monkey," respectively (Nájera 2013). It is interesting to point out that *Jun Batz'* and *Jun Chowen*, after mistreating their siblings, *Junaipu* and *Ixbalamke*, the hero twins of *Popol Vuh*, received as a punishment to become monkeys after they put their sashes back in place: "but in that instant these [sashes] became their tails and their appearance became that of monkeys. They immediately climbed up to the trees on the small mountains and the great mountains; they entered the forests screaming and swinging between the branches of the trees" (Sam 2008:84). The fact that *Jun Batz'* and *Jun Chowen* are described as wise ones, flutists, singers, writers, and painters in the myth is noteworthy; they were, in short, great artists (Sam 2008; Morales 2001; Tedlock 1993). These qualities were clearly associated with monkeys in the Mayan culture during the Classic period, as they were too in general across Mesoamerica (Nájera 2000).

3.3.2 The Monkey: Lord of Writing

In some richly painted vases from different regions of the southern lowlands of Mexico that are dated from the Late Classic (550–600 to 900–950 A.C.), images of monkeys associated with writing instruments may be found (Nájera 2013). Most of these vases are part of particular collections and lacking an archaeological context, although their place of production has been inferred from the ceramic style and chemical analyses. This has allowed the identification of the main pictorial styles in them and their relation to particular regions (Reents-Budet et al. 1994). Such is the case of the monkey illustrated in the K626 vase (Kerr 1998; Robiscek and Hales 1981, Fig. 53a). This illustration is identified as a spider monkey (*Ateles geoffroyi*) due to its morphological features (Fig. 3.2). The scene depicted in this vase as part of a topical set expressed in several ceramic containers, refers to the mythical time in which the God of Corn receives its attire after being reborn from the Underworld (Quenon and Le Fort 1997; Robiscek and Hales 1981; Coe 1973). There, the spider monkey wears a headdress with a series of sheets or leaves knotted to the center by a ribbon, although, in other examples, the same headdress is described as tied by rods or feathers, which is particularly indicative of scribes, since it confers the title of *aj k'uhun*, "he/she of the sacred books," as part of royalty, that is to say, a

Fig. 3.2 Detail of spider monkey (*Ateles geoffroyi*) in the role of scribe. From vase K626. (Drawing by Marisa Ordaz, based on Kerr (1998: 30). Digitalization by Eduardo Ordaz)

high-ranking character (Halperin 2014; Nájera 2013; Jackson and Stuart 2001; Kerr 1998). We know scribes carried out several tasks related to courtesan life (Lacadena 1996), since they constituted the administrative staff of Mayan governments from the Classic period (Beliaev 2011). Furthermore, the monkey wears a beaded necklace that occupies its entire back and has a cut seashell, which symbolizes the Underworld. Its left arm is stretched out in front of it with the palm of the hand facing upward, indicating an object that represents a book (see Fig. 3.2). Another archaeological piece in which a monkey is represented carrying a book is bowl K954. The fact that this monkey is posed over an aquatic band is interesting; this band can be recognized for the interweaved lines and the presence of chiton mollusks or sea cockroaches; these elements in conjunction symbolize the subterranean world, a dark and damp space, home to ancestors and gods, as well as the place of origin of lives and knowledge.

In other examples, the scribe [writers and accountants] monkey offers some present or tribute to a Lord. Such is the case of polychrome K5744 vase, in which the monkey holds *tamales* on a plate (Kerr 1997). While in another vase from Chocholá (K8740), the monkey holds the sign for *wa tamal* in its hand. The association between the monkey and the Maize God is also due to the fact that this deity is patron of the arts, such as sculpture and writing, according to hieroglyphic and iconographic data. Because of this, it has also been directly associated with the Mexican god Xochipilli, deity of the arts in the Postclassic period (Braakhuis 2009). Occasionally, scribes are human beings with a monkey head, perhaps representing the howler monkey (*Alouatta pigra*). This can be observed in K1225 vase (Robiscek and Hales 1981); in it, two such characters write in books wrapped in jaguar skin, and they carry painted in several parts of their body the sign for *akb'al* which is related to darkness, night, and so the Underworld. This makes the role of monkeys as intermediaries between different areas of the cosmos clear (Nájera 2013; Kidder 2009), and this is further corroborated with their presence as harmful *nagual* (*wahyis, the powerful supernatural spirits*) in different scenes.

3.3.3 *Monkeys as Wahyis (Powerful Supernatural Spirits)*

After deciphering T539 hieroglyph as the logogram *WAY*, many aspects of the beings described by this word in Mayan ceramics from the Late Classic have been made possible (Freidel et al. 1999; Grube and Nahm 1994; Houston and Stuart 1989). The suggestion of linguistic elements in this hieroglyph that indicated its nature of non-possessed noun allowed the establishment of the term *wahyis* as a constitutive or, put otherwise, inseparable part of the person (Velásquez 2009; Zender 2004). *Wahyis* from the Mayan Classic period are considered animated entities or the family spirits that only rulers or other important persons could manipulate, either through specific rituals, by consuming psychoactive substances, or in the dream state. This is indicated by the root *way*, which in many Mayan languages refers to dreams and the act of sleeping (Moreno 2011; Velásquez 2009). People who could control these spirits were called *wahyaw*, meaning "lord who calls the *wahyis*"; these people were able to send these spirits to provoke particular diseases to others, and it has even been suggested that the *wahyis* are the physical representations of certain ailments, represented frequently as hybrid and supernatural animals (Moreno 2011, Helmke and Nielsen 2009). Among the *wahyis* represented in painted Mayan ceramic are monkeys.

A good example of the presence of monkeys as *wahyis* is found in the codex-style vase K1203 (Robiscek and Hales 1981. 31) in which a primate lying down and carrying a cloth across its shoulders and tied in the front appears (Fig. 3.3). It holds in its right arm a plate on which a hand, an eyeball, and a bone can be appreciated (Calvin 1997). These elements have been identified to be human body parts that are devoured by the *wahyis* when they make a person ill in the dream world (Velásquez 2009). The attire we describe is one of the particular identifying features of *wahyis* which is possibly associated with sacrifices (Moreno 2011).

A remarkable anatomical feature of the monkey image in this vase is the presence of deer ears and antlers on its head. The combination of these two animals as *wahyis* is not strange; it is possible to find it in at least nine other vases in which monkeys, particularly spider monkey (*Ateles geoffroyi*), have deer ears and antlers or at least one of these features (these vases are catalogued by Kerr as K1181, K1809, K2010, K3038, K3060, K4920, K7152, K7993, and K8733). Additionally, there are other cases in which the *wahyis* have deer bodies and monkey tails; such

Fig. 3.3 Monkey as *wahyis* with deer ears and antlers. (Drawing by Marisa Ordaz, based on Robiscek and Hales (1981: 31). Digitalization by Eduardo Ordaz)

is the case of vases K3061, K3459, and K2023 (Helmke and Nielsen 2009). Through the analysis of Mayan ritual-medical texts from Colonial times, such as the *Ritual de los Bacabes*, the monkey-deer *wahyis* are the personifications of cramps (Moreno 2011; Helmke and Nielsen 2009).

The names of some of the *wahyis re*presented as monkeys have also been deciphered; an example of this is *yuch max* "flea-ridden spider monkey" which is represented in K1211 vase and *k'ihn bo'lay batz'* "hot howling monkey-jaguar" from K1743 vase (Sheseña 2010). An interesting case is one type of *wahyis* directly associated with the toponym of the archaeological site Caracol in Belize; this one has the name *xukub chih maax* "monkey with deer antlers" (Luin and Matteo 2010). The animal holds on one of its hands a cacao-chocolate (*Theobroma cacao*) fruit. This plant is associated in Mayan cosmovision to the Underworld.

3.3.4 Monkey-Cacao (Chocolate) Associations

Far from few images in Mayan art from the Classic period, monkeys are shown carrying cacao fruits or other direct relationships to this plant (Nájera 2012). Some of these examples are found in the following vases: K4599, K4691, K6312, K8234, and K8357. A special case is a howler monkey (*Alouatta pigra*) illustrated in K5070 vase (Fig. 3.4a). It has been identified as a *wahyis* thanks to the hieroglyphic text that accompanies it and the attire around the animals' neck; also, it is the only being of this type that holds a cacao fruit (Nájera 2013). It is possible that a parallel image to this is the one found in K1789 vase (Kerr 1998). In it are three sitting monkeys,

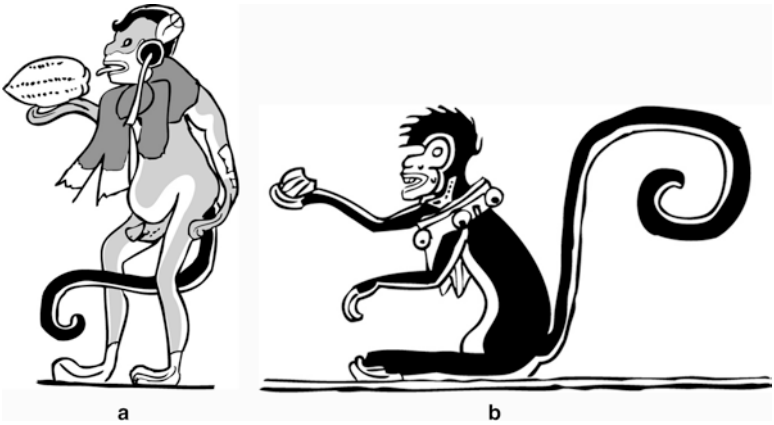

Fig. 3.4 The link between monkeys and cacao. (**a**) Detail from vase K5070 with howling monkey (*Alouatta pigra*) as *wahyis*, holding a cacao fruit. (Drawing by Marisa Ordaz, based on Grube and Nahm (1994: 700)). Digitalization by Eduardo Ordaz. (**b**) Monkey holding cacao fruit, detail from vase K1789. (Drawing by Marisa Ordaz, based on Kerr (1998: 112). Digitalization by Eduardo Ordaz)

all with their right arms spread out showing a kind of fruit and wearing an element from which three eyes hang around their shoulders (Fig. 3.4b). These elements have been interpreted as the motive "eyes of death." They also wear two cacao cobs as pectorals (Nájera 2012). The fruits can be identified as cacao (*Theobroma cacao*) due to the lengthwise lines they have and the concave shape of their top. It is interesting that, in spite of the explanations for the relationship between monkeys and cacao remarking that it is due to the fact that "the fruit was one of the little mammal's preferred foods, making it a seed disperser" (Nájera 2012:154), there is little evidence that monkey species in the Neotropics actually feed frequently from this fruit since the hard shell covering the seeds requires sharp teeth like the one of rodents like squirrels and agouties have to open these seed. Monkeys lack the dentition to open the cacao fruits. This inconsistence is shown in works of ecology, diet, and feeding habits of these primates and related species (Di Fiore et al. 2008; Roosmalen and Klein 1988; Roosmalen 1985). It is known that monkeys prefer fleshy, easily penetrable fruits (Di Fiore et al. 2008); considering this, cacao presents a considerable challenge for consumption for these animals.

Thus, it is possible that the monkey-cacao relationship shown in ancient Mayan art has a lot more to do with the cosmic role associated with this plant as well as the monkey as an intermediary that was capable to take this valuable fruit to different planes as a drink of the deities or combining psychoactive substances for ritual use. This would always take into consideration the symbolism of the cacao tree that makes it closely related to dampness, darkness, and cold, prominent features of the night, caves, and the fertility of the feminine (Nájera 2012, Martin 2006).

3.3.5 Primate Representations in the Archaeological Record

The Lacandon rainforest has several sites in which numerous cave paintings have been discovered, mostly from pre-Columbian origin (Palka 2005). For over a century, researchers have reported the existence of caves, cliffs, and rock shelters with paintings or engravings with various motifs (Thompson et al. 2005, Pincemin 1999, Tozzer 1907), although they have only been systematically studied in the past two decades (Lozada and Núñez 2014, Sánchez 2005, Pincemin 1999). In addition to the rich images of stars and handprints, animals have a significant presence in the rock art found in Lacandon territory (Pincemin 1999). The monkey is a major element in one of the places with most rock representations in the region of the Metzabok lake.

Metzabok lake is surrounded by several cliffs with cave paintings. In the middle of the lake is a rocky front known by the Lacandons as Tzibajná (or Tsibaná according to some authors), which could be translated as "house with writing" or "written house," in reference to the enormous number of images recorded on the rock (Lozada and Núñez 2014, Sánchez 2005). There is a painting representing a monkey which, according to Lozada and Núñez (2014) and Sánchez (2005), is a howler monkey, although its morphological characteristics, such as the posture of its

Fig. 3.5 Painting of a possibly spider monkey from approximately Classic or Late Postclassic Mesoamerican period found on the Metzabok lagoon, Chiapas, Mexico. (Photograph by Fernando Guerrero Martínez)

extremities and its slender body, suggest that it is a spider monkey (*Ateles geoffroyi*), painted red (Fig. 3.5). The drawing of the monkey is associated with other iconographic elements such as negative handprints, as well as anthropomorphic and quadruped figures also outlined in red, probably painted during the Mesoamerican Classic or Late Postclassic period (Lozada and Núñez 2014, Pincemin 1999).

According to the testimonials compiled by Lozada and Núñez (2014) among the Lacandons of Metzabok, the origin of these cave paintings is attributed to the gods, particularly *Hach Ak Yum*, one of the main deities, and Tsibaná, said to live in Metzabok lake. Both gods made the drawings on the rocks after the sky darkened during an eclipse, and year after year, they painted different figures (Lozada and Núñez 2014). However, the Lacandons of Metzabok believe that another god was responsible for leaving the figure of the spider monkey in the rock shelter, because, according to the story of an old Lacandon obtained by Lozada and Núñez (2014), Mensabak is said to have been the character who, in mythical times, created mankind out of mud and then painted it black: “Then he made animals, the maax

(monkey), leaving the black color of his hair and then the monkey fled to the mountain, he quickly fled to the tree, he fled and we did not kill him... then he brought him to life, as he brought people to life ... the monkey is the work of Mensabak... he painted it to show that he was the one who created him" (Lozada and Núñez 2014: 508–509).

It is interesting that the image of the monkey is closely linked to the deities among the Lacandons and that their presence continues to have special meaning for present-day inhabitants. This archaeological evidence shows a certain continuity with respect to the importance of the monkey among contemporary Lacandons, despite the passage of time.

3.4 Current Local Knowledge and Cultural Significance of Non-human Primates

In Lacandon Maya, *Ateles geoffroyi* is named *ma'ax*, and *Alouatta pigra* is named *b'atz'*. Both names are non-analyzable, that is to say, they have non-decipherable etymologies. In both cases, the local taxa correspond directly to taxonomic species in western science. Berlin et al. (1973) call this correspondence one-to-one relationship, that is to say a single local generic taxon corresponds to a species in Linnaean systematics. On the other hand, for both species, the fact that their names are simple and non-analyzable indicates their degree of cultural significance. According to Turner (1988), the level of importance of a group of organisms can be accomplished through linguistic analysis and outlines of local taxonomy and classifications. According to this proposal, the most culturally significant species have the features we mention above.

In a study published for these groups, Garcia del Valle et al. (2015) point out that *Alouatta pigra* was mentioned through the free-listing technique by 40% of the Lacandon Maya that were interviewed. Similarly, *Ateles geoffroyi* was mentioned by 33% of the interviewed. Based on the work by Garcia del Valle et al. (2015), it is possible to reanalyze the data to show how, among Lacandon people, *Alouatta pigra* and *Ateles geoffroyi* occupy the 9th and 12th places in the valuation of mammals with the highest cultural significance, respectively. This includes both communities, and it refers to their placing among 35 mammal taxa. This is defined by what is known as informant consensus indexes. These indexes are defined as the degree of agreement among different interviewed persons when referring to a particular resource (Tardío and Pardo de Santayana 2008; Albuquerque et al. 2006). The most used indicator for this is frequency of mention (Alonso-Aguilar et al. 2014; Weller and Romney 1988). The elements that obtain the greatest frequency of mention in interviewed are assumed to be the most culturally significant for the studied population (Hilgert 2007; Thompson and Juan 2006). Both primates are found below the paca, locally known as "tepezcuintle" (*Cuniculus paca*); the peccary, known as "puerco de monte" (Family Tayassuidae); or the white-tailed deer, known as "venado cola blanca" (*Odocoileus virginianus*), in the significant species listings. These animals have a

frequency of mention above 60%. All these species are conceived to be important because they are food and medicine (García del Valle et al. 2015).

While indexes based on frequency of mention have proved to be a precise tool to evaluate the level of cultural significance of these kinds of organisms, they do not provide much information of the reasons behind such an importance (Garibay-Orijel et al. 2007). As is mentioned above, Lacandons have used several species to solve their needs across their history, giving them a tangible value related to use. Furthermore, they have been appointed an intangible value by involving them in narrations that show the cosmovision of these people.

Currently, Lacandons from Naha and Metzabok consider both non-human primate species important because they are directly used in three cultural significance categories: as food (species that are used or have been used as food), as medicine (species that have useful ailment-combating properties), and as pets (species that are kept in the house, either in the yard in confinement or as company or decorative elements).

With regard to the "edible" category, both species of primates were consumed until about 2010. March (1987) points out that both *Alouatta pigra* and *Ateles geoffroyi* were the most hunted species for meat and that the craniums were occasionally kept as children's toys. In ancient times, the Lacandons hunted these animals with bow and arrows made from the wood of sapodilla, locally known as "chicozapote" (*Manilkara zapota*), and reed grass with points of serrated harpoon-shaped wood, which prevented the monkeys from removing them with their own hands. However, currently, Lacandons explain that these species are no longer consumed at all. This phenomenon is explained by different causes. In the words of the interviewed people, Lacandon women nowadays do not want to season or cook monkey meat because they associate them with small human children. Another reason is their preference of paca/"tepezcuintle" meat, which they find more agreeable and consequently favor above primate meat. Along with this, for many years now, the National Commission of Protected Natural Areas (Comisión Nacional de Áreas Naturales Protegidas, CONANP) together with other government offices in charge of environmental and indigenous development issues have implemented numerous programs aiming for the preservation of biodiversity and the eradication of poverty through monetary compensations in exchange for rainforest conservation activities, which in turn protect the associated fauna. Lastly, the growing tourism in Lacandon communities makes people strive to protect charismatic fauna and their natural environment, which are some of the main attractions for visitors who generate income. For all these reasons, and particularly the last two, monkey populations are not currently object to hunt. They are worth a lot more alive than they are as food.

Along with its former use as food, *Alouatta pigra* is also known for its medicinal properties to combat disease. Fifteen percent of the interviewed Lacandons stated that the meat of howling monkeys cooked as a soup is a great remedy for whooping cough, a highly contagious respiratory disease that is dangerous to these human populations. Furthermore, the hyoid bone is said to combat other respiratory diseases. Worldwide, many non-human primate species are hunted for medicinal products derived from them (Alves et al. 2010). For example, there are registers of the

use of *Ateles geoffroyi* in the town of Catemaco, Veracruz state, Mexico, to cure rheumatism events by using the fried fat obtained from the monkey applied directly on the patient's body (Morales-Mávil and Villa-Cañedo 1998).

The last category of cultural significance is the use of primates as pets. Around 10% of the interviewed Lacandons mentioned this practice to be one of the reasons why these primate species, and particularly the spider monkey, are important. *Ateles geoffroyi* is the species most frequently used as pet because it is more tolerant to captive life. Contrastingly, *Alouatta pigra* is much harder to keep as a pet, since it has very high mortality rates in captivity. Duarte-Quiroga and Estrada (2003) reported that, in Mexico City, 67% of the monkeys used as pets are indeed *Ateles geoffroyi*. This may be due to the fact that spider monkeys can feed from the same fruit that humans consume unlike howler monkeys, which have a leaf-based diet.

Along with the tangible value non-human primate species hold for Lacandon people, these species also have an intangible value. This is clear by the role they have in Lacandon narrative that shows elements linked to the cosmovision of this people, that is to say, the logic and order of elements within their cosmos. With regard to this, the relationship between Lacandons and non-human primates has very particular features. Each species is profoundly related to the origins of people and their beliefs. Howling monkeys or *b'atz'* are related in origin to porcupines or *Kix pach* (*Sphiggurus mexicanus*). Lacandons conceive that, when this animal becomes old, it turns into a howler monkey. Spider monkeys or *ma'ax*, on the other hand, have a kinship, visualized in dreams, in which "one represents another." It is said that when Lacandon Maya dream of spider monkeys, it means they are part of their lineage or *onen*, and they consequently must carry their name. *Onen* is a term found exclusively among the Lacandons. According to Bruce (1975), the *onen* shares traits with totems as well as with *nagual* and *tonal*, although it also has singular features. Names in Naha still have their *onen* name along with their first names (e.g., a Lacandon name is *Bor Ma'ax*). Women only recognize belonging to the lineage but do not have their *onen* name. Currently, people from the *ma'ax* lineage are considered loud, aggressive, and even erotic. On the other hand, in Metzabok, both men and women recognize the lineage they belong to, but it has ceased to be commonly used.

One of the stories most told by Lacandons in Naha and Metzabok speaks of historical times when hunting was a common subsistence activity. Regulation of hunting was achieved through belief that if the number of hunted animals became excessive, the animal itself would come for the hunter and take him to be reprehended. So tells the following narration: "My dad told me that once upon a time a hunter went to kill a monkey, but his arrow missed and the monkey fled; the same thing happened with a peccary, by not casting the arrow the right way the animal fled and died in a cave. The man continued to hunt for monkeys and peccaries until suddenly he saw many monkeys coming towards him. They took him to live with them, he lived as a monkey, ate the same things they did, and they even provided him with females to reproduce with so that there would be more monkeys. The man did not know what to do. One day, they took him to gather fruit which stung his hand; he said it hurt. Then one of the monkeys took the thorn out and told him: 'see,

you feel pain same as we do'. After a few more years living with the monkeys, the hunter was allowed to return to his family and he was asked to explain to them and to the rest of the people about his experience, so that monkeys would no longer be hunted." This narrative lets us realize that, regardless of hunt, regulations did exist to prevent an excessive use and hunt of monkeys among the Lacandon Maya.

3.5 Conclusions

With the information presented in this chapter, it let us conclude that species of non-human primates were considered a valuable edible resource in the diet of the Lacandonians not many years ago. In spite of traditional regulations expressed in narrations, field observation indicates there are few individuals of these species in Lacandon territory. However, the species ceased to be threatened because, for the Lacandon people, their significance in the generation of revenues for the community through different channels has become their most valuable feature. On the one hand, they get government subsidy programs for the conservation of ecosystems that helped the shift to stop hunting monkeys. On the other hand, monkeys bring charismatic status to tourists who visit these communities. Because of this, nowadays, as is stated by Harris (1989), these species have a much greater value for the benefits they provide when they are alive, than the ones they could provide once they are hunted and possibly gone forever. This is, without a doubt, a hopeful thought for the conservation of non-human primate species in the Lacandon rainforest.

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