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THE IMPORTANCE OF TURTLE MONTHS IN THE
KARAJÁ WORLD, WITH A FOCUS ON ETHNOBIOLOGY
IN INDIGENOUS LITERARY EDUCATION

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The importance of the turtle in the Karajá culture and knowledge and the application of ethnobiology in indigenous literary education is the focus of this paper. Because four lunar months are associated with and named after activities of the turtles, it is clear that these animals are important in Karajá life. In connection with these months, a significant part of this paper will be a description of the turtles as depicted by indigenous artists and writers themselves. The turtles are a significant part of Karajá culture not only as an essential food source, but also as subjects in their indigenous art and in their origin myth.

The Karajá people² occupy Bananal Island. This island is formed by two branches of the Araguaia River in the state of Tocantins in central Brazil. There are approximately 2,700 Karajá living in villages scattered along the riverside and sandbanks. The natural boundaries of the island solve many problems of land division; however, there are government plans to build a road that would cut through their Indian Reserve within ten minutes of one of the larger Karajá villages. Idjarruri Karajá and D. Fortune (1985) discussed this problem in a dual presentation at the III International Symposium on Latin American Indian Literature. The presentation concerned a historical sacred burial ground that would have been in the path of this planned highway and also concerned the destruction of their natural environment. These were among the reasons for the resistance of the Karajá community to the proposed road.

This road would have been constructed at the northern part of the Island, which is now a National Forest Park. As Posey (1982) noted about the Kayapó, the Karajá also "are face-to-face with the unrelenting tentacles of technology and society." These factors affect their Araguaia River ecosystem, an issue the Karajá are confronting in their indigenous writings.

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² Besides the Karajá dialect, there are two others: Javaé and kxybiköwa/kxybybidöwa. All three are mutually intelligible. They often use the self designation INY for any of the variants of the language. In this paper, the term Karajá also refers to the other two dialects. With language data from D. Fortune, the Karajá language was classified as Macro-Gê by Davis (1966).

The author and her husband, David, a linguist, lived among the Karajá in four villages at different times and visited eight other villages, doing linguistic research and making a preliminary study of their rich oral knowledge and literature. During this time, the author became interested in the status of the turtle in Karajá life and culture.

This study will explore briefly the importance of the turtles in the world view of the Karajá as seen through their contemporary writings and early myths, taken from oral and written literature of this newly literate society. Among the species of turtles found in the Araguaia River and on the Bananal Island six species are discussed by the Karajá: 1) *kòtu/òtu*³ (*Podocnemis unifilis*) "tracajá"; and 2) *kòtuni/òtuni* (*Podocnemis expansa*) "tartaruga"; 3) *kòtunini/òtunini* (to be identified); 4) *wema* (*Cheyls fimbriata*) "matamatá"; 5) *kòtubuna/òtubuna* (*Geochelone denticulata*) land turtle or tortoise "jaboti"; 6) *kòtubunani/òtubunani* (*Geochelone carbonaria*) land turtle tortoise.

The first two turtles are considered most important in oral and written literature. Of these two, *kòtuni/òtuni* (*Podocnemis expansa*) tartaruga, the larger⁴ of the two, is considered the more important. (Unlike the Ka'apor people where Balée (1985, p. 499) observed that the tortoise (*Geochelone denticulata*) is most important in their daily lives.) The role of these two species in Karajá daily life is the primary focus of this paper.

INDICATIONS OF THE IMPORTANCE OF TURTLES TO THE KARAJÁ

A. Months or Seasons Named after the Turtles

Activities of turtles are correlated with phases of the moon, with certain months, and with the dry season. The Karajá word *ahádu* refers to either "moon" or to "month."

In 1964, the descriptive names of the months were first elicited from a locally famous Karajá historian, Irikòwy, from the village of Macauba by David Fortune. The original version appeared in the revised *Karajá Pedagogical Grammar* of 1978.

In 1981, a modified version of these names was compiled by twelve Karajá teachers (from five different villages) in collaboration with D. Fortune and the author. This version appeared in the *Karajá Authors and Artists* book (1982).

Because Bananal Island is approximately 250 miles in length, and 50 miles in width, some seasonal variation is found and therefore some variation as well in Karajá descriptions of months from village to village. When the

³ In the Karajá language a distinction is made between male and female speech. In this paper, the first name listed is the one given by women while the second name is by men.

⁴ Smith (1979, p. 165) noted that it is one of the largest freshwater turtles. It may weigh up to 55 kg.

unwritten language became a written one, certain decisions had to be made by the Karajá people as to which description to use and certain concepts become fixed in writing.

1) The small turtle *kòtu/òtu* (*Podocnemis unifilis*) tracajá is normally associated with the month of August. During this month, *kòtusi/òtusi ahádu* "the small turtle egg month," the female lays 18-24 eggs in the sand on the beaches. Another name the Karajá use for this month is *isiderikòsò/isideriòsò*, which refers to a seasonal flowering tree.

2) The large turtle *kòtuni/òtuni* (*Podocnemis expansa*) tartaruga has three months or periods of time associated with it: (a) *kòtunisi/òtunisi ahádu* "the large turtle egg month" conforms to the month of September. An alternate way of indicating this period of time is *isi bededýñnanau*, "the time when the female lays her eggs". During this month she lays from 80-120 eggs in a large nest in the sand; (b) *kòtuni/òtuni ihuduna* the month of November; and the month of December *kòtuni/òtuni riðre/ritxòre beresena ahádu*, "the time when baby turtles fall in the water", or (*iriðre bededýñnanau* "when the baby turtles hatch" (Javaé students).

October is *bebò ahádu* when the water goes down, or goes north and the rainy season is approaching. This is a month of incubation for both species of turtles.

B. The Four-month Cycle of the Turtle is Incorporated as an Integral Part of Karajá Life.

During this time the Karajá move or travel to the beaches where the turtle eggs hatch. The people are dependent on this seasonal biological phenomenon for food. From childhood they have unique opportunities regularly to observe the turtles from a closer and much different perspective than do most scientists. The turtles are a part of Karajá survival and its habits and uses are important knowledge to be passed on to the next generation.

During this part of the year, turtle meat and eggs supply the main source of protein in the Karajá diet. The turtle shell serves as a pot for roasting or cooking the turtle, and the rich oil from the turtle serves as a type of dip or butter which is eaten with dry manioc meal.

C. Description of Turtles from Indigenous Literature

The following section is a translation of the Karajá description of the giant turtle *kòtuni/òtuni* (*Podocnemis expansa*), from the book written by indigenous authors. This section is divided into two parts. The first tells about the turtle and its habits: classification, size, diet, and the time and place of egg-laying, and hatching. The second part describes how the Karajá capture, transport, and prepare the turtles and eggs for consumption.

1. KÒTUNI/ÒTUNI, the giant turtle (*Podocnemis expansa*)

The *kòtuni* lives in the deep water; unlike fish, he has a hard shell. Although different from the fish, he, too, is a water lover.

Because this turtle is like an animal, the Karajá call him an animal. This turtle is a water animal. He is also similar to land animals. Even his legs look like those of the animals: perhaps he is a relative of theirs. He has black eyes, eyes, hands, and nails like those of animals. The meat of the turtle is like the meat of animals. The female of this species is larger than the male.

The Turtle's Diet⁵

The turtle eats the bark and leaves of an *òtètity*: a tree (unidentified) which falls in the water (Karirãma).⁶

Antonio Tewahura (July, 1989) notes that their diet consists of some basic items: *ibutumy beraki resera* (everything that falls in the water); *kuturasàmoluturasàmo* (small fish); *toritãbò* (fruit); *kòtòrade/òtòrade*, *burude*, *adikura/adiura* (types of manioc); *berò*, *kaxiwe/axiwe* (cambu leaf); *welàrinaty*, *terikòraty/teridraty* (fruit of the cedar tree); *tòreky/tòrey*, *kurawebure/jurawebure*, *herynobàtò* (palm heart); *kòdemahi/òdemahi* (unidentified fruit); *rukubrekety/ruubreety* (watermelon fruit), *idehyre*, *idehyreraty*, *toriwona* (papaya), *kýnyde/-nyde* (sand); *burude*, *kuruwebure/juruwebure* (mangaba fruit of the sandbanks); *makixòmo/maixòmo* (rice, when the fields are flooded).

Egg laying

If the beach is too small when the turtle is choosing a new place for egg laying, she returns to the water and goes to a larger beach (Umari). She comes to a dry beach to lay her eggs (Wahãru). The only time she comes to the beach is to lay her eggs (Tehãriule). *Isi bededýnana* is "the time when she lays her eggs" (Javaé student). *òtunisi bededýnana ahãdu* is "the time and month she lays her eggs" (the month of September) (Texibre, 1986; Mabulewe; Kairiwa).

She travels a long way on the beach to lay her eggs (Hywe). She makes a large hole in the sand and then sits to lay her eggs (Javaé student). The turtle spends a long time digging a nest in the sand in which to lay her eggs (Hywe). She lays her eggs at night, midnight, and dawn (Wahãru).

She covers the nest in the sand with her claws. She lays many, many eggs (Wahãru). After the turtles lay their eggs, they immediately return to the

⁵ Almelda (1986) stated that the (*Podocnemis expansa*) tartaruga uses 32 plant species in its diet, and Alho (1979) noted that in addition to vegetable matter, they also eat fish and meat.

⁶ In this section, only the name of the indigenous author is mentioned. The complete reference, unless otherwise noted, is *Karajá Indigenous Authors and Artists: Hywe, Mabulewe, Maidore, Uriawa, Texbre, Umals, Arirama, Tehãriule, Kairiwa* (1987).

water where they live, leaving the eggs to incubate (solar incubation) and hatch unassisted (Mabulewe; Kairiwa; Tehãriule). This takes several months (Kairiwa). There is no other animal like the turtle, because she does not return to take care of her little ones (Kairiwa).

Hatching

It takes time for the turtles to hatch (Kairiwa). They hatch in the month of December (Javaé student). The little turtles come up out of the sand nest by themselves (Wahãru). As soon as the little turtles hatch, they go directly to the water by themselves (Hyme). In the water they live on top of a log (Uberie).

Collecting eggs and catching turtles

The Javaé river beaches are black with turtles when they lay their eggs (Javaé student). In times past there were many turtles eggs because the Indians took only a few, but now they take many to sell to the white man (Mabulewe). We take many, many eggs (Wahãru). The Karajá take canoes full of eggs back to the village (Javaé student).

There are two major ways of catching the turtle: in the water and on the beaches. When they are in the water we first observe where they are, and anchor our canoes by tying a rope around a large rock and sinking it. Then we wait. We use a float with a hook just like those used for fishing (Mabulewe). It is easier when a larger float is used. Catching the tartaruga can be dangerous: men have died trying (Uriawa).

On the beach it is usually difficult to catch the turtle, but when she goes to lay her eggs, it is easy. The time to catch them is at dawn, very early in the morning on the beach (Mabulewe; Wahãru). We follow her footprints to the nest, kill her with an arrow and eat some of her eggs. We also return later when the turtles hatch and take them (Tehãriu). We know the turtle's footprints and that the place where she lays her eggs is like a little hill in the sand. One must have this knowledge to find the nest (Javaé student).

Preparation of the Turtles as Food

We bake both large turtles and baby turtles (Kairiwa) for eating. We eat most parts of the turtles and also use the oil. The latter we eat with manioc, sweet potato, and black manioc (inhame preto). We use the hard turtle shell for baking the meat and for cooking soup with the small pieces of turtle meat, water and farinha (manioc resembling meal in texture) (Javaé student). The large turtle meat is excellent and all the Karajá eat it. The eggs are fine. The small turtle eggs are excellent, but their meat is not as good as the meat of the large turtle and some people do not eat it (Kariãma).

2. KÒTU/ÒTU, the smaller turtle (from the *kòtu/òtu* book by indigenous authors)

Their eyes are large and black like those of the Karajá (Ijeseberi, in Karajá Indigenous Authors and Artists, 1988).

The turtles lay their eggs in the month of August (Texibre, 1986). They (the Karajá) go as a family to the beaches to find the eggs.

D. TURTLES AS SEEN IN KARAJÁ ART, MUSIC, AND MYTH

As early as 1845, Ehrenreich (1891) noted the importance of the turtle, among other animals, in Karajá art forms. The turtle (*Podocnemis expansa*) also is drawn on pottery, and turtle art forms⁷ are made of either ceramic, straw, wood or wax. Figure 1 shows the wax model of the turtle (from Krause, 1911, p 81).

Krause (1911) noted that the shell of the baby turtle was used as a type of percussion instrument used by young men to call attention to their arrival at the village when returning from the jungle.

The *ijasò* Karajá dancers who dance in pairs at festivals are the nominal owners of the turtles (Uriawa).

The *Karajá Turtle-Monkey-Jaguar Myth* tells the origin of the tracajá's smallness. The monkey tricks the turtle by placing him in a tree and leaving him there to eat fruit. The jaguar appears and attempts to help by catching the turtle when he leaps out of the tree. However, as he falls from the tree, the turtle hits the jaguar in the eyes and leaves him blind. The jaguar goes to several healers before he is finally healed. He then locates the turtle and breaks him into small pieces which he throws into the water. The small pieces are sewed together by the folk hero and this turns into the small turtle.

DISCUSSION

It is clear in both oral and written literature that the lives of the turtle are important to the Karajá people of Brazil. This is emphasized in their writings and ethnoscientific explanations of the life of the turtle. Turtles play such a vital role in the lives of the Karajá that they have named four months after them. It can be concluded that the Karajá, even the children, are master observers of animal life on the beaches. One can argue, by extrapolation, that the non-indigenous scientist can obtain, from the indigenous people, significant and insightful ethnological information about the nature of animal behavior and survival (Posey, 1982).

⁷ The author researched the different types of Karajá turtle art forms seen in the villages, in private collections and at various museums: the Museu Paulista, Museu Antropológico of the Federal University of Goiás, Museu Paraense Emílio Goeldi, Museu Nacional of the Federal University of Rio de Janeiro, FUNAI museum in Rio de Janeiro and the FUNAI artefact collection in Brasília.

These wise indigenous men and women are the ornithologists, astronomers, zoologists, botanists, entomologists, mathematicians, artists, musicians, architects, philosophers, master craftsmen, observers and knowledgeable authorities of their world. Their perpetual "oral library" is part of their daily lives. We, as non-native researchers, must research the practical context of indigenous knowledge systems. The indigenous people should be given the opportunity to put their ethnoscientific ideas and knowledge into writing. Having this knowledge in written form will benefit both indigenous and non-indigenous people as they seek to understand each other and the world they share.

CONCLUSIONS

One of the urgent needs in newly literate societies is to produce indigenous materials for their literary education based on their own oral knowledge, with an emphasis on ethnoscientific knowledge (Fortune, G., 1984). Some work is already being done in this area, and ethnoscience booklets by indigenous authors are being produced. These booklets are becoming a part of the curriculum for their literary education and bilingual schools. The following is a partial list of published or forthcoming materials in the area of ethnoscience by indigenous Brazilian authors, edited by assisting researchers⁸: *Math Terms Relating to Palikúr Ethnoscience* by D. Green (forthcoming); *Medical Plants - Kaiwá* (Taylor, 1980); *Salt Made From Plants - Waurá* (Jackson, 1986); *Turtles - Karajá* (Fortune and Fortune, 1988); *Birds - Waiampi* (Jensen, 1986); *Birds - Canela* (Popjes, 1988); *Birds - Urubu-Kaapor* (Kakumasu and Kakumasu, 1987); *Birds - Hixkaryana* (New Tribes Missions/Summer Institute of Linguistics/FUNAI, 1988); *Fish - Guajajara* (Harrison, 1988), *Fish - Karajá* (Fortune and Fortune, 1977/1982).

Ethnoscience, which plays a major role in the worldview of indigenous people, especially those closely tied to their environment, is a rich area for further study. This author feels that, from an interdisciplinary standpoint, all scholars doing research in indigenous areas should be returning some of their research results to the indigenous people in written form for use in their literary education in addition to publishing their research for the academic world.

ABSTRACT: This research investigates Karajá oral and written ethnobiological knowledge, relevant to the life of turtles, found in their area of central Brazil. Results of the study reveal two major factors: 1) The Karajá year is divided into lunar cycles, one third of which have descriptive names directly concerned with the life cycle of two principal turtles: a) *kòtu/òtu* (*Podocnemis unifilis*) tracajá; and b) *kònuni/òtuni* (*Podocnemis expansa*) tartaruga; 2) The four to five month egg-laying, incubation, and hatching cycle of the two turtles is a focal point of Karajá life. During this time, the people travel to the beaches where the turtle eggs hatch. From childhood, the Karajá study the

⁸ Copies of these publications are available through the Summer Institute of Linguistics, SAI-Norte, Lote D, Bloco 3, 70.770 Brasília, DF, Brazil.

turtles from a much different perspective than most scientists. The ecology of the turtle is a part of the cultural knowledge passed on through generations. As a part of the Karajá diet, the turtle is essential to the people's survival. As a part of Karajá culture, the turtle holds a place of prominence.

KEY WORDS: Turtles, Ethnoscience, Indigenous literature.

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