

Birds of prey conservation through the rescue of biocultural memory in communities of Venezuelan Andes



July 2022- July 2023

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Five White Eagles Hawk Watch
Cape Cod Bird Club
Mérida-Venezuela

INTRODUCTION

Venezuela is among the countries with the greatest wealth of birds of prey in the world, with a total of 68 species. This makes this country gain importance in the study and conservation of this group of birds, even more considering that some of these species are threatened.

This diversity can also be reflected in Venezuelan culture through stories, beliefs, and traditions where they refer to birds of prey. This popular knowledge takes on an important role for the study of diversity, interactions between human societies and nature and as an instrument of linkage that allows the conservation of species. Biocultural memory is part of traditional wisdom, it represents the ability to remember to understand the present and gives elements for the planning of the future and to trace similar events that occurred before. The transmission of this knowledge is done through language, therefore, memory is the most important intellectual resource among indigenous or traditional cultures. For these cultures, nature has a sacred quality that is almost absent from Western thought and at the heart of this deep bond is the perception that all living and non-living things, and the social and natural worlds are intrinsically linked. For this reason, one of the most effective ways to conserve natural elements such as landscapes, ecosystems and species is when the communities that live with these elements have a strong sense of community due to their cultural or religious link that drives them to preserve these natural aspects for the intangible value for their societies. However, it is recognized that biocultural memory is a dynamic and highly intercultural entity; which is reconfigured and strengthened, or in its case deteriorates in interaction with other worldviews and cultures, such as educational processes from an integrationist model.

In the Andean state of Mérida there are various aspects of cultural and religious stories, beliefs, and traditions that link the communities with birds of prey, as is the Indian tale of the five white eagles who narrates the origin of the Sierra Nevada, Mérida, and the passage of the migratory raptors as the incarnation and return of dead family members the day of the “animas” (month of November). For this reason, and thanks to the work that has been carried out from Five White Eagles Hawk Watch, we wish to rescue the biocultural memory and use it as a tool for linking and generating a sense of identity that promotes the conservation of all birds of prey in the Andes of Venezuela. To do this, we want to collect the stories, beliefs and traditions that are part of the biocultural memory of the communities living in the Chama River Valley, Andes de Mérida, to then use and disseminate this memory as an educational and cultural strategy that promotes bonding and allows safeguarding the biocultural memory for the next generations and therefore the conservation of birds of prey in the Andes of Venezuela.

STUDY AREA

The activities were carried out in 13 rural communities in the Chama River Valley, in the Andes of Mérida, western Venezuela (Fig 1, 4). The Chama River is 200 km long, its source is located at about 4000 m above sea level in the Sierra de la Culata and flows southwest to Lake Maracaibo (Fig. 2). Along its course, it forms an extensive valley with the same name, where many Andean villages are located. During the autumn migration of Nearctic raptors to their wintering grounds, the Chama River Valley is one of the key crossing points for the Cordillera de Mérida, a natural barrier.

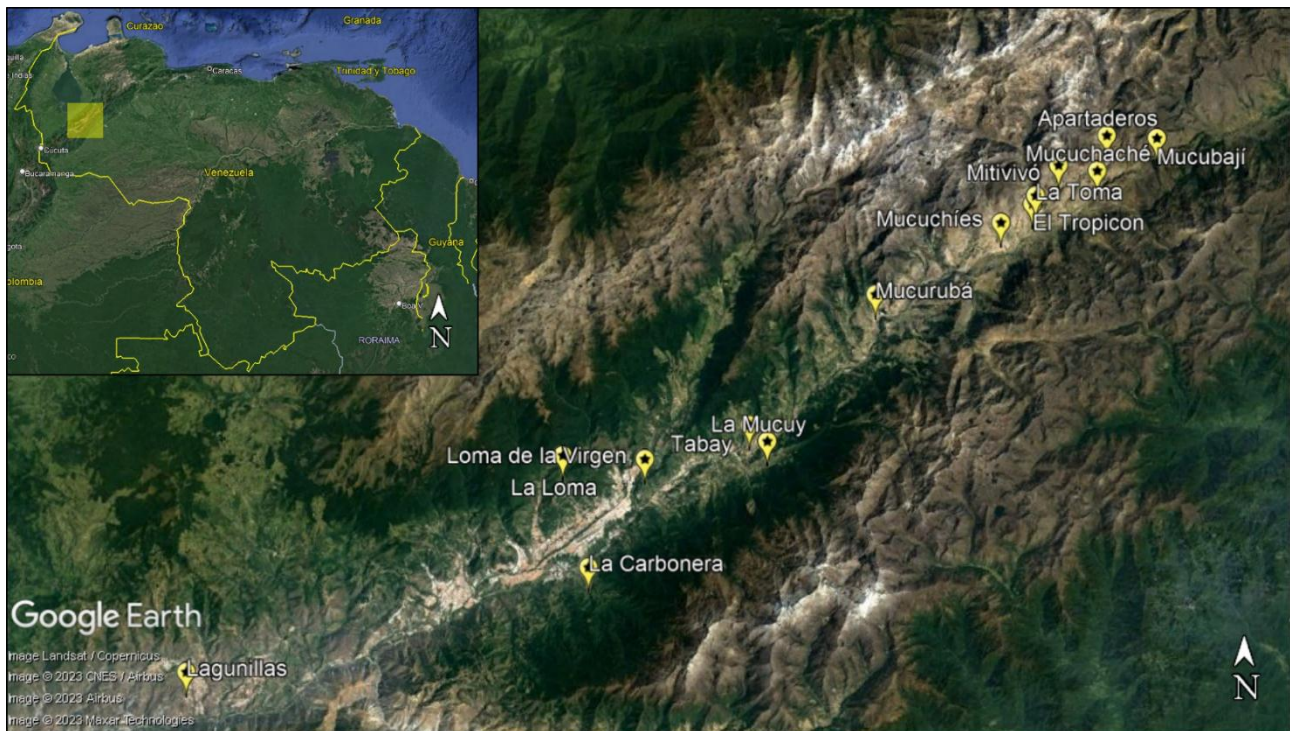


Figure 1. Localities where collecting stories, beliefs and traditions related to birds of prey in the Chama river valley, Andes of Mérida, Venezuela, were carried out.



Figure 2. NE-SW view of the Chama River valley from Five White Eagles Hawk Watch, Mérida, Venezuela. October 2022.

STORIES, BELIEFS, AND TRADITIONS

74 semi-structured interviews were conducted with people from 13 rural communities in the Chama river valley between July and September 2022 (Fig. 3). Interviews were recorded and systematized for information analysis. With the interviewee's permission, the following information was collected:

Socioeconomic information

Only 51 of the 74 interviewees provided their age. A median age of 57 years was observed, while a maximum age of 83 years was observed and a minimum age of 24 years was observed. In terms of gender, 93% of the interviewees were male, while only 7% were female. Some women did not respond to the interviews and instead contacted their husbands to respond.



Figura 3. Persons interviewed. Left, Lagunillas September 17, 2022. Right, La Mucuy, September 19, 2022.



Figure 4. Landscapes of the Andes of Mérida, Chama river valley. Mitivó September 01, 2022.

There were nine occupations recorded (Table 1), with agriculture being the most frequent. The localities are located in rural areas where agriculture and livestock are the primary economic sources.

Table 1. Percentage of trades of the interviewees in the 13 localities of the Chama river valley, Mérida, Venezuela.

Jobs	
Laborer	11%
Housewife	7%
Farmer	38%
Student	3%
Merchant	16%
Park Rangers	1%
Fireman	2%
No response	22%

Although 42% did not obtain information regarding their educational level, 15% only completed primary school, 7% secondary school, and only 1% university.

Biocultural knowledge

Questions were asked about identification, behavior, ecology, migration, human-wildlife conflicts and beliefs about scavenging raptors (Table 2).

The interviewees recognized vultures well and to a lesser extent hawks. They have knowledge of raptor migration, either from their own observations or from shared stories from their ancestors. Additionally, they have a good perception of vultures and recognize them as cleaners of nature. They identify the exact dates when the migratory season begins and ends, and ecological aspects and behaviors are well described. They mention that migratory vultures do not feed when they are passing through, that they observe large numbers of vultures flying in rows and circling in the air, and that they rest in trees at nightfall to continue their journey the next day. All the accounts describe the migration of raptors and coincide with scientific explanations for this phenomenon.

Table 2. Percentage of responses related to respondents' knowledge and perceptions of raptors in the 13 localities visited, Andes de Mérida, Venezuela.

		Vultures	Hawks
Knowledge	Characteristics/identification	65	26
	Behavior	55	5
	Ecology	27	7
	Migration	70	3
	don't know/no response	5	74
Perception	positive	45	5
	negative	1	4
	don't know/no response	54	91

Additionally, when evaluating the existence of human-wildlife conflicts, it was evident that only hawks and eagles were involved (Table 3). No interviewee mentioned vultures being involved in human-wildlife conflicts. On the other hand, hawks were involved in hunting domestic animals. However, a higher percentage of interviewees responded that they had not hunted hawks for preying on domestic animals, although hawk hunting does occur to a lesser extent.

Table 3. Human-wildlife conflict linked to hawks according to the percentage of respondents in 13 localities in the Andes of Mérida, Venezuela.

Depredation	Yes	27
	No	3
	don't know/no response	70
Hunting	Yes	7
	No	16
	don't know/no response	77

Seventy-three percent (73%) of the interviewees mentioned raptors in their beliefs and stories, which are related to raptor migration and its link with religious, climatic, good and bad luck aspects or simply a way of explaining natural phenomena (Fig. 5).



Figure 5. Vulture stones. People believe that some stones can be found in the nests of vultures. They say they bring fortune and good luck to the person who finds them. Lagunillas September 17, 2022.

Mainly, the interviewees talk about the moult-billed vultures, who come every year in October and November, especially on November 2, which is celebrated in the Andes of Mérida as the Day of the Dead or Day of the Animas. Interestingly, the communities relate the vultures (scavenger animals) to the return of the spirits of their deceased. Those interviewed believe that the vultures travel to a lagoon to shed their beaks, that there is a

stone in the lagoon where they leave their beaks, and that the first and last vulture is swallowed by the lagoon.

These beliefs explain, in a way, the behavior of migratory birds of prey as they pass through the Andes of Mérida. There are many high Andean lagoons along their route, and when weather conditions are adverse, vultures or other raptors can be observed at ground level near the lagoons waiting for better conditions to follow their course (Fig. 6). If the fog is thick and at ground level, some raptors may fall into the lagoons and die from hypothermia.

However, all these biocultural memories, at present, live mostly in the thoughts of adults and older adults. Their rescue through the compilation of beliefs is of utmost importance to share them with the new generations. These beliefs are part of the Andean culture and can be used to motivate younger people to appreciate birds of prey to a greater extent and thus promote their conservation.



Figure 6. Mucubají Lagoon, Andes of Mérida, Venezuela. September 24, 2022.

RESCUE OF BIOCULTURAL MEMORY

In the Lumonty community near La Loma (Fig. 1, Annex 1), an audiovisual production was developed based on interviews conducted by the children with older people in their community, as an instrument for rescuing biocultural memory.

Each interview focused on researching and collecting stories, beliefs, and traditions related to birds of prey. At the same time, with equipment such as cell phones, interviews were recorded to create audiovisuals.

This activity consisted of five phases:

- 1) Contacting community members, teachers, and children's representatives. The project was presented to them and their approval and permission to work with children was requested.

2) During the second visit, the first approach was made to the community children. For this purpose, several recreational activities related to migratory birds were carried out, such as memory games and the presentation of a bird documentary. Twenty-one children between the ages of 4 and 11 participated in these activities. In addition, a teacher, six biology students from the Universidad de Los Andes, and four representatives of the children collaborated in the execution and organization of the activities (Fig. 7). We also received educational materials from Environment for the Americas.



Figure 7. Recreational activities carried out in the Lumonty community as a first approach to children. October 15, 2022.

3) On the third visit, the children were explained what birds of prey are, how to identify them, and which species are common in their community. They were also explained their importance for the ecosystem and threats. In addition, a map of the community was made showing the points where they observed birds of prey. In addition, a map was made showing places that represented threats to birds, such as felled forests and garbage dumps. Together with teachers, older people in the community were identified who could function as reservoirs of biocultural memory. On this occasion, eight children participated, in addition to students from the Universidad de Los Andes (Fig. 8).

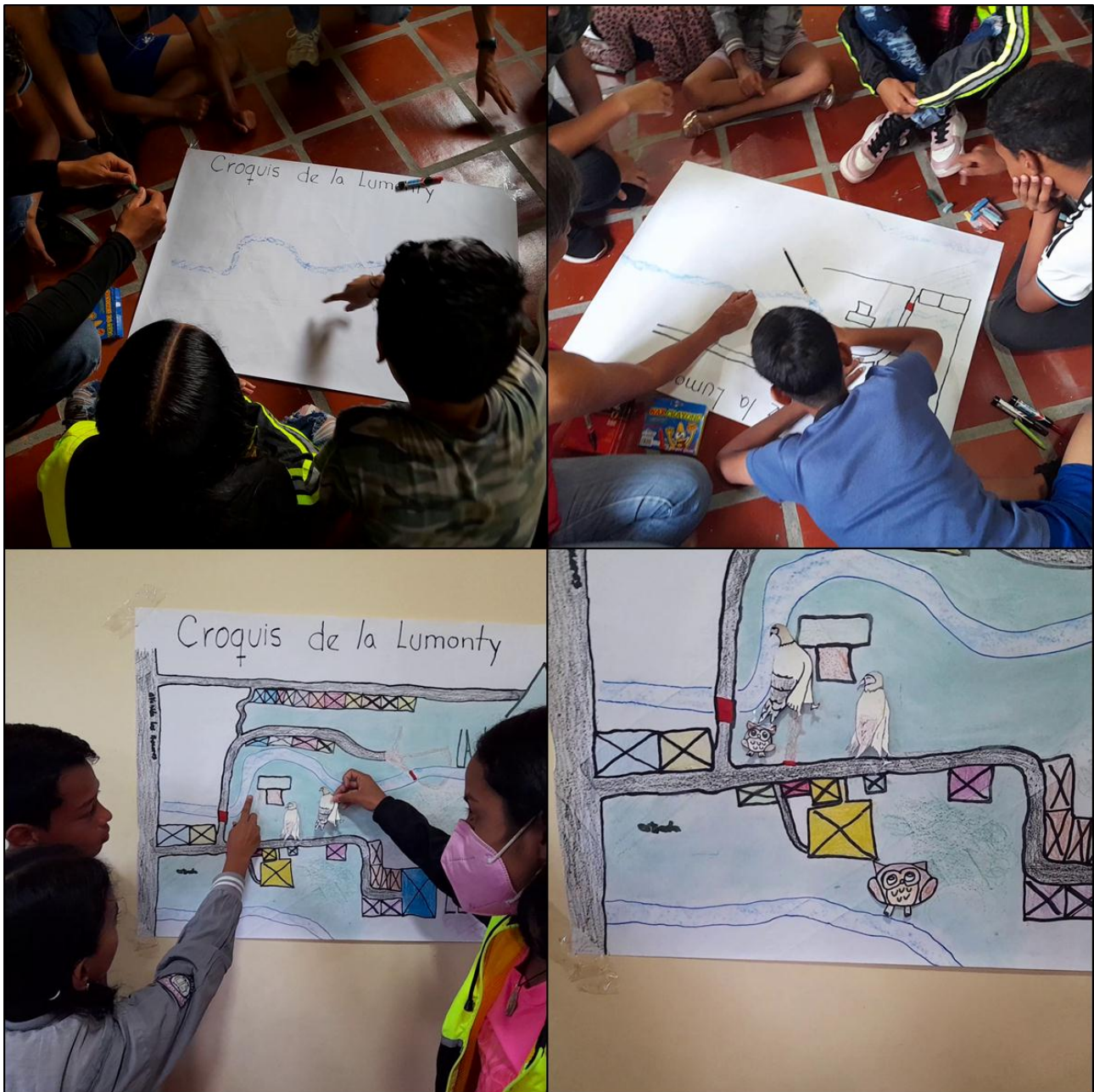


Figure 8. Sketch of the community where points were identified to places where birds of prey had been observed, as well as places that represented threats to birds, such as logged forests and garbage dumps. November 26, 2022.

4) On the fourth visit, together with the children, we visited all the sites represented on the map. We observed birds of prey and other common bird species in the locality and identified possible threats and bird-friendly areas. The children were equipped with binoculars and bird guides. Several representatives and teachers were also present. In addition, interviews were conducted with older members of the community, who were asked about the species present in the community, as well as anecdotes and stories they remembered (Fig. 9). Finally, sharing the activity counted 9 children interviewers, six students from the Universidad de Los Andes and three members of the community.



Figure 9. Visit to the sites identified on the map along with the interviews with community elders. December 4, 2022.

5) The audiovisual was premiered during the fifth visit. For this purpose, all the people in the community were invited: young people and students, parents and representatives, community residents, and the general public (Fig. 10). Thirty-four people participated, including the main protagonists, the children. A discussion and sharing of knowledge and experiences took place at the end of the activity.



Figure 10. Premiere of the audiovisual presentation on the conservation of biocultural memory as a tool for raptor conservation in the Lumonty community, Andes de Mérida, Venezuela.

Annexes.

Annex 1. Locations visited for this project, Chama River Valley, Andes of Merida, Venezuela.

Date	Location	Coordinates
July 24, 2022	La Loma	8°36'49.38"N 71°10'35.22" W
September 10, 2022	Mucuchiés	8°44'52.51"N 70°55'13.17" W
September 10, 2022	La Toma	8°45'48.67"N 70°53'59.84" W
September 10, 2022	El Tropicon	8°45'31.39"N 70°54'6.45" W
September 10, 2022	Mitivivó	8°46'51.97"N 70°53'11.16" W
September 10, 2022	Loma de la Virgen	8°36'41.60"N 71° 7'43.07" W
September 10, 2022	Mucuruba	8°42'23.29"N 70°59'37.84" W
September 17, 2022	Lagunillas	8°29'20.02"N 71°23'45.75" W
September 19, 2022	La Mucuy	8°37'18.75"N 71° 3'25.70" W
September 19, 2022	Tabay	8°37'52.28"N 71° 4'3.18" W
September 24, 2022	Mucubají	8°47'48.48"N 70°49'43.04"W
September 24, 2022	Apartaderos	8°47'54.08"N 70°51'28.88"W
September 24, 2022	Mucuchahé	8°46'40.57"N 70°51'49.52"W
November 01, 2022	La carbonera	8°32'57.76"N 71° 9'41.19" W

Annex 2. Budget used

Item/amount		
Equipment	Laptop	\$400
	Electric extension	\$5
	Video projector	\$260
Field Work	Transportation: \$10 daily x 6 days	\$60
	Food: \$15 daily x 6 days	\$90
Educational activits and audiovisual production	Educational and didactic material	\$25
	Snacks for 87 people	\$152
Total		\$992

Annex 3. Educational and didactic activities. October 15, 2022



Annex 4. Rescue of knowledge. December 4, 2022



Annex 5. Adult members of La Loma community. December 4, 2022.



