



Ayahuasca vine *Banisteriopsis caapi*
Photo ©2018 Chris Kilham

Ayahuasca Vine Harvesting in the Peruvian Amazon

Field report assesses supply of ayahuasca vine in areas around Iquitos, Pucallpa, and the Rio Tamaya

By Chris Kilham

Introduction

Over the past several years, members of ayahuasca groups and various social media sites have referred to the supply of ayahuasca vine (*Banisteriopsis caapi*, Malpighiaceae) in Peru as imperiled and environmentally devastated. Ayahuasca, which is the name of both the plant and the psychedelic brew that is typically made from ayahuasca vine and the leaves of *chakruna* (*Psychotria viridis*, Rubiaceae) or *huambisa* (*Diplopterys cabrerana*, Malpighiaceae), is now highly popular in Peru and other areas of the Amazon. It also is brewed and bottled for export for increasingly popular ceremonial use in the United States and elsewhere.



While the leaves of chakruna and huambisa grow on bushes that can be ready for harvest in two or three years, the ayahuasca vine takes a minimum of five years to mature. According to numerous people with whom I have spoken since 2006, the main supply issue concerns the future wild populations of ayahuasca.

To better determine the state of ayahuasca supply, I conducted a multi-site field assessment in the Peruvian Amazon. The first trip took place in January 2018, in the areas surrounding Pucallpa and Iquitos in Peru, where the largest ayahuasca retreat centers are located. In the Iquitos area alone, there are approximately 120 ayahuasca centers that largely cater to foreign *pasajeros* (passengers), according to Iquitos-based guide Juan Maldonado. I have known Juan for more than 10 years and previously have relied on him for information, supply of hard-to-obtain plants, and assistance visiting some villages in the region. My initial assessment provided valuable insight into the status of ayahuasca cultivation and supply in two of the most heavily trafficked areas for ayahuasca ceremonies.

My collaborators and I were repeatedly advised by those with whom we spoke during our first assessment that the Rio Tamaya southeast of Pucallpa had the greatest amount of wild-harvesting and trade in the vine in Peru. Several people interviewed said that they either knew of vine traders in that area or personally dealt with them. To follow up on the many comments regarding the Rio Tamaya, I, along with three others, undertook a field assessment on that river in June 2018.

My partner in both of these assessments was Sergio Cam of Chakarunas Trading Company. Sergio and I have worked and traveled together for 20 years, and we have explored various regions of the Amazon for at least a dozen of those years. Sergio is smart, jovial, and a tremendous asset in all of the activities in which I have engaged in Peru. He and I are ideally complementary in our work. For the Rio Tamaya survey, our two other teammates were Jaime Baca, our friend and boat driver, and Kley-



Ayahuasca vine *Banisteriopsis caapi*
Photo ©2018 Chris Kilham



Map of Peru indicating some of the areas explored during Kilham's travels.

lie Vargas, another friend and an agroforestry engineering student of Shipibo heritage. The Shipibo-Conibo are one of many tribes indigenous to the Rio Ucayali in the Peruvian Amazon.

During these assessments, my team and I visited and stayed in native villages, spoke with people actively involved in ayahuasca trade, asked as many questions as we could, took photographs and notes, and reached conclusions based on the consistency of information we gathered and the conditions we witnessed. The purpose of this field work was to provide those involved in the ayahuasca scene in particular, and the botanical industry in general, with valuable, up-to-date knowledge. We derive no income from ayahuasca or from this particular research effort. All wages, expenses, and project costs for both ayahuasca field assessments were paid for entirely by my business, Medicine Hunter.

Based on my observations, as detailed below, the supply of vine has thus far been sufficient for the current levels of demand in these regions. However, because ayahuasca is also popular in Brazil, Colombia, Ecuador, Costa Rica, Hawaii, and other tropical locales, my field research in the Pucallpa, Iquitos, and Rio Tamaya regions cannot provide definitive information about the supply of vine throughout the entire ayahuasca scene.

For the purposes of simplicity, “ayahuasca” will be used hereafter in this report to refer to *B. caapi*, the ayahuasca vine, and not the ritual brew of which it is a primary ingredient. Among local and native people in Peru, this is common parlance.

Pucallpa, Ucayali Region

To understand the state of supply and cultivation, I traveled around Pucallpa with Sergio, visiting growing sites and speaking with people mostly of Shipibo native origin, who are involved in ayahuasca supply. Pucallpa is the home of the majority of Shipibo natives, who feature prominently in ayahuasca shamanism and supply.

Ayahuasca Legality in the United States

Brewed ayahuasca is illegal to purchase, sell, prepare, dispense, or transport in the United States. Two churches, Santo Daime and União do Vegetal, enjoy limited protected status to employ ayahuasca as a sacrament in their church services.

Ayahuasca vine is legal to purchase, sell, prepare, dispense, or transport, but chakruna and huambisa are not legal due to their DMT content. Any shipping of prepared ayahuasca into the United States, outside of the two designated churches above, is against international drug trafficking laws.



Jimmy Rojas, an ayahuasca maker. Photo ©2018 Chris Kilham

Notes from conversation with shaman Wiler Noriega from the village of Limongema, about an hour by boat south up the Rio Ucayali from Pucallpa:

According to Noriega, he and his son have planted both ayahuasca and chakruna extensively on five hectares of land near Limongema, with the intention to plant much more. They accomplished this

by planting sections of main vine, or vine branches, in soil. Noriega claims that he has planted approximately 3,000 vines, but does not know the exact number in the ground. The vines will not be ready to harvest for at least four years.

Noriega informed us that for several years he has acquired ayahuasca from brokers. Those who supply the vine come from the Pucallpa region, aggregating collections from harvesters who cut wild forest populations along the Rio Tamaya. This river runs east from the Rio Ucayali just south of Pucallpa, toward the Brazilian border.

Currently, Noriega pays 150 Peruvian soles (approx. \$46 USD) per 25- to 30-kilogram sack of dried ayahuasca vine. By his recipe, he will get one to two liters of brew from each sack of vine, and will use approximately five kilograms of chakruna for the same batch. He was introduced to ayahuasca suppliers through friends, and said that if he orders ayahuasca, he receives the shipment in about 15 days. Noriega has been told that gathering ayahuasca has become more challenging, as harvesters need to venture further into the forest to harvest. Vines are typically cut in a sustainable manner, with the roots remaining in the ground, which allows the plant to regenerate over time.

Prepared ayahuasca brew is currently being shipped (in general, illegally; see “Ayahuasca Legality in the United States” sidebar) in liquid form to the United States and other foreign countries for approximately \$400 per liter. Noriega



Wiler Noriega, a shaman in the village of Limongema. Photo ©2018 Chris Kilham

The author at Vivero Ucayali Rainforest with four-month-old seedlings of ayahuasca. Photo ©2018 Chris Kilham

told us that in Peru, the same prepared ayahuasca brew sells for approximately \$100 per liter. In Peru, ayahuasca plants and brew are legal, and the medicine is revered as part of the country’s “national patrimony.”

Noriega also gave us a tip on a place called Tupac off kilometer 15 in Pucallpa, where he says ayahuasca is being cultivated.

Noriega informed us that the best brew comes from freshly harvested ayahuasca vine that is still juicy. The drier the vine, the poorer the quality of the brew. He also claimed that ayahuasca is superior in quality when grown on higher ground.

Notes from boat captain Jaime Baca, with whom I have traveled on several rivers in the Ucayali and Loreto regions:

Baca informed me that a forestry engineer has planted approximately 2,500 ayahuasca vines near the Brazilian border, somewhere along the Rio Tamaya. Through Baca, Sergio and I were introduced to Jimmy Rojas, who makes large quantities of ayahuasca on a regular basis. We were taken to the Manantay neighborhood where Rojas lives and cooks his brew.

Notes from a visit with Jimmy Rojas Minos, in the Manantay neighborhood of Pucallpa:

Rojas comes from Utucuro, a Shipibo village in the Ucayali region, where he was both a shaman and a chief. He learned his craft from his grandfather, Vicente Sanchez, and decided to leave his village for greater opportunities in the Pucallpa area. He has been cooking ayahuasca for several years and supports his family with this activity.

Every month, Rojas makes 30-40 liters of ayahuasca, which he sells to two customers, Kush and Eric, who run healing centers in the Cuzco area. His recipe consists of 30 kg of ayahuasca vine and 12 kg of chakruna leaves per liter of finished brew. He pays 80 soles (\$24.61) per 30-kg sack of ayahuasca, which he obtains from two sources: one is a day priver south on the Rio Ucayali, and the other is along the Rio Tamaya. Rojas sells his ayahuasca for 150 soles (\$45.97) per liter.

Notes from a visit to Vivero Ucayali Rainforest, a supplier of seedlings of medicinal plants, fruit trees, and ornamental plants in Pucallpa:

According to the son of the recently deceased founder of Vivero Ucayali Rainforest, ayahuasca is becoming increasingly popular, and sales of seedlings are up. He was not able to disclose quantities being sold, but insisted that there has been a steady increase in popularity of the vine. Each seedling sells for 5 soles (\$1.55). The seedlings we saw were four months old.

A woman making ayahuasca at Los Cielos. Photo ©2018 Chris Kilham



Notes from a visit to the Ministry of Agriculture in Pucallpa:

We met briefly with Raoul, an officer of the ministry. We asked if the ministry was engaged in any kind of assessment of ayahuasca populations or sustainability. Raoul told us that at present there are no such programs or plans for any programs focusing on ayahuasca.

Notes from a visit to Los Cielos Amazonian Healing Retreat Center:

Sergio and I traveled approximately two hours with a driver named Gilmer from Pucallpa to Los Cielos, south of the city. There we were met by Sylvie Meier, who runs the center. (Her name, which stems from the Latin *silva* for “forest,” seems perfect for her profession and geographical situation.) At the time of our arrival, they were cooking 100 kg of vine and 125 kg of chakruna to make approximately 10 liters of ayahuasca brew.

According to Meier, the center pays about 900 soles (approx. \$277) for 100 kg of ayahuasca, and approximately 800 soles (approx. \$246) for 125 kg of chakruna. Since its inception, the center has purchased ayahuasca from dealers who aggregate collections from the Rio Tamaya. In 2017, the center planted 250 ayahuasca vines, and Meier said they intend to plant more. The center also uses some shade-grown chakruna cultivated near Pucallpa.

Ayahuasca is prepared every two to three months at Los Cielos in an elaborate and lengthy process that takes 11-12 days from start to finish. The center employs strict standards of cleaning, washing, straining, and preparation, making theirs the most elaborate ayahuasca preparation I have witnessed. The resulting brew made from this prepared vine is clean, thick, dark, and sweet, with a tolerable flavor that is uncommon to ayahuasca brew.

Meier gave us a tour of the property at Los Cielos, where dozens of species of native medicinal plants are cultivated. Though they currently obtain their ayahuasca from dealers, they hope in time to be self-sustaining.

Iquitos, Loreto Region

After our time in Pucallpa, I traveled to Iquitos to visit growers and

interview people from various ayahuasca retreat centers about the supply of ayahuasca vine.

Notes from a visit with Elizabeth Bardales Rengifo of Natural Chacrana Productos Naturales:

In the company of Juan Maldonado, I visited Bardales, whose 15-year-old business Natural Chacrana is well-known in the Iquitos area. An agronomic engineer, Bardales runs an impressive herbal processing and manufacturing business including solar drying, grinding, milling, sanitizing, cooking, evaporating, package labeling, and sales. Her business is completely unmarked on the outside, yet is expansive on the inside.

Bardales makes “bricks” of ayahuasca, which are solid blocks of cooked ayahuasca that have been dehydrated. In commercial extraction, this product is referred to as a native extract. The bricks take up relatively little space compared with the liquid ayahuasca brew, and are appreciably easier to ship. She did not say how much ayahuasca vine she uses on a monthly basis, but did share that the ayahuasca comes from the Rio Tamaya. Her recipe of 25 kg of ayahuasca and 7 kg of chakruna also contains smaller amounts of *ajo sacha* (*Mansoa alliacea*, Bignoniaceae), *mapacho* (*Nicotiana rustica*, Solanaceae), and *Ilex guayusa* (Aquifoliaceae), and makes 1 kg of finished solid brick. A single brick, when reconstituted, will yield 10 liters of liquid ayahuasca brew.

Notes from a visit to Francisco Montes, kilometer 18 on the Nauta Road south of Iquitos:

Juan and I visited Francisco Montes at his Sacha Mama Lodge. Montes has been a respected *curandero* (folk healer) in the Iquitos area for 35 years. His ayahuasca retreat center lies some distance away from the Nauta Road, behind his lodge, which has an herbal bar and a visionary art gallery.

Montes has the most ambitious ayahuasca cultivation I have encountered so far. He has planted more than 6,000 vines on his property, and some are more than 15 years old. In fact, he has so much ayahuasca that he uses the dried vines for handrails on stairs, railings around porches, and as decorations inside and outside the many buildings on his property. Montes does not purchase ayahuasca, as the amount he grows is more than sufficient for his needs. Montes currently grows 3,000 DMT-containing huambisa plants on his property instead of

chakruna, because he prefers the somewhat stronger visionary effect of the huambisa. As a result of this cultivation, Montes is self-sufficient.

Montes appears to be a model in the ayahuasca scene. Cultivating vastly more than he needs, he is assured of a steady supply of ayahuasca for as long as he wishes. He provides some prepared ayahuasca to other shamans in the Iquitos area.

Notes from a visit with Ron Wheelock, a “gringo shaman” popularized by a CNN special on ayahuasca hosted by Lisa Ling:

Wheelock has a camp down the Nauta Road at kilometer 23 called *El Purgero*, but we met at his home at kilometer 9 on the Nauta Road. Shortly after we arrived, he pointed to a very large ayahuasca vine in his yard and explained that it is 20 years old, planted in 1997. According to Wheelock, he had harvested 280 kg of material from that one vine just the week before our visit. Looking at the massive climbing vine, it was not possible to tell that so much material had been taken.

Until two years ago, Wheelock had regularly purchased ayahuasca. But he currently has enough mature vines to supply the needs of his camp and the pasajeros who visit. Wheelock estimates that he currently has approximately five tons of mature vine on his home property, and that the five tons of vine will yield 1,000 liters of ayahuasca brew, which he sells for \$250 per liter.

The recipe that Wheelock follows for making ayahuasca brew is 40 kg of ayahuasca and 5 kg of huambisa per pot, yielding 6-8 liters of finished brew.

Notes from a visit with Julio Siri, curandero in San Rafael, about 45 minutes up the Amazon River from Iquitos:

A village shaman, Siri has approximately 50 vines growing on his property, and some are 15 years old. He said that the vine needs to grow for at least five years prior to use, and that younger vines yield a diminished effect.

Siri does not purchase ayahuasca, and grows his own chakruna for ayahuasca brew. He offers ceremonies to those who seek his guidance, and does not run a typical ayahuasca retreat. Ceremonies are held on the porch of his house. He said that he makes a fresh batch of brew once the last batch is gone, however long that takes. Siri's recipe for ayahuasca is 5 kg of vine and 1 kg of chakruna to yield one liter of brew.

Notes from a conversation with Carlos Tanner of the Ayahuasca Foundation, which runs three ayahuasca retreat centers:

The Ayahuasca Foundation has three curanderos making ayahuasca. Tanner estimates his current purchases of ayahuasca at around 10-13 sacks per month, approximately 25-30 kg per sack, at a cost of 150 soles per sack.

Staff members at the centers started planting ayahuasca eight years ago. Currently, the centers have more than 300 vines. Plus, every program participant at the Ayahuasca Foundation plants a vine. This is now standard

Ayahuasca ceremony at the Temple of the Way of Light.
Photo ©2018 Chris Kilham



practice. Tanner intends to get to the point that the Ayahuasca Foundation can rely on its own vines for ayahuasca.

Tanner says that he has never experienced difficulty obtaining ayahuasca. “People understand when there is a market for something,” he explained.

Tanner informed me that shaman Don Lucio of Kapitari on the Rio Nanay has more than 1,000 cultivated vines.

Correspondence from Matthew Watherston, founder of the Temple of the Way of Light:

This subject is of course an important and ongoing conversation and significant focus for us at the Temple! I shared with you last year our plans redeveloping sustainable ayahuasca plantations in local villages and our intention to establish a new initiative called “Ayni Ayahuasca.” This project is still in development although will be launched later this year.

Just around the Temple, we now have over 1,000 vines growing and various different areas with chakruna plants. However, our main interest is to support local communities to grow vine and to generate income over the long term. The plan is to do this through successional polycropping (i.e., regenerating degraded/slash-and-burnt lands through planting fast-, medium-, and slow-growing

plants/trees with ayahuasca planted initially to grow up fast-growing trees and then move on to slower growing trees). Therefore, generating yields over 10 years from different plants in the short-, medium-, and long-term with the main goal being reforestation with ayahuasca growing throughout.

We actually do have issues with the supply of vine (not leaf) which we source from the Ucayali, and we are finding that it is becoming harder and harder to source and more and more expensive. And I hear the same for other centers too.

According to the people with whom I spoke, it appears that the Rio Tamaya region is a primary area for forest harvesting of ayahuasca. Comments about availability of vine are mixed, with some people expressing that harvesting is becoming more challenging, and others claiming no difficulty obtaining the vine. At this time, there appears to be no crisis with regard to supply in the areas surrounding Iquitos and Pucallpa.

Return to Peru: The Rio Tamaya

A few months later, we returned to Peru to conduct the second part of our ayahuasca field assessment. For many years, Sergio and I have relied consistently on Jaime Baca

Rio Tamaya
Photo ©2018 Chris Kilham





Moises Arevalo with ayahuasca.
Photo ©2018 Chris Kilham

and another man, the nearby village of Junin Pablo was the center of a bustling trade in ayahuasca vine where ayahuasca vine harvesters and traders lived. Arevalo took us around Caimito, showed us some remaining vines, and explained that they were used only for local ceremonies.

As evening approached, a woman in the village prepared fish, rice, and plantains (*Musa × paradisiaca*, Musaceae) for us. This is fairly typical in such villages, where women and men will prepare food for visitors to supplement their income. Arevalo stopped by and offered me ayahuasca brew that he and a few other men from the village were preparing to drink. I declined the offer because it is advisable to wait many hours between eating food and drinking ayahuasca. But I was touched and grateful for his kind offer.

In the morning, we bathed in the lake because there is no running water in Caimito. The village has numerous well pumps, none of which work. After the morning bath, I made coffee, which both Sergio and I consider absolutely essential on any project. After our crew drank coffee and ate biscuits, we gathered our gear and headed back out onto the river into a heavy morning mist.

After about 40 minutes, we arrived in Junin Pablo, a 3,550-hectare (8,772-acre) community along Lago Imiria. Fourteen villages occupy the shores of the lake. Along the way, Sergio twice smelled the scent of coca (*Erythroxylum coca*, Erythroxylaceae) cooking in the jungle. We did not realize it at the time, but the area where we were traveling is heavily occupied by armed *narco* traffickers and is largely a lawless region.

Once we landed at Junin Pablo, we were greeted by several men who cheerfully helped us with our boat and belongings. We stored our gear temporarily at the home of a man named Matteo Teco, one of the primary ayahuasca harvesters and dealers in the village. Jaime was aided by a couple of men from the village in stashing the outboard motor in a secure building to avoid theft.

According to Matteo, ayahuasca buyers regularly show up in Junin Pablo to acquire ayahuasca vine. Alternately, harvesters in Junin Pablo boat their collected vine to Pucallpa and sell it at the waterfront to dealers who remain on the lookout for shipments. Matteo says that harvesters have their favorite spots, and that there is a lot of vine growing in the areas around Lago Imiria.

We set off to find lodging for our stay in Junin Pablo. In the clouded heat, we headed over to a four-room lodge, which turned out to be occupied. We were directed to another spartan, four-room building in the village, where we were able to secure a place to stay.

Once we had secured lodging, Matteo took us on a tour of the many ayahuasca vines growing in the village, some young and some old. In the course of the village tour, he also showed us chakruna that had gone to seed.



Matteo Teco with ayahuasca.
Photo ©2018 Chris Kilham

Junin Pablo proved sweltering, dusty, and hot during the day, with intermittent, epic rain. It also proved a feasting ground for hungry, aggressive mosquitoes. After the trip, I succumbed to a fierce case of malaria that would set me back for the better part of a month. (I was able to successfully treat the disease using *Artemisia annua* [Asteraceae], the Chinese herb from which the effective anti-malarial compound artemisinin is derived.)

The village features wide dirt avenues that were swept every day. This minimizes snake traffic and clears away the desiccated dog feces that seems to be everywhere. The materials swept up are burned along the edges of the avenues, and this keeps the village quite neat overall. Luciano, the owner of the place where we stayed, told us of a nearby area called Chaoya where a lot of ayahuasca can be found in the forest. This, we learned later, was one of Matteo Teco's primary harvesting spots.

Junin Pablo Ayahuasca Committee

In the late morning of our first day in Junin Pablo, Sergio, Kleylie, and I met in a small community center building with the village chief Ronald Cauper and a man named Nikeas Vasquez, who is the head of a newly formed ayahuasca committee that was established to put some order to the wild-harvesting in the area. Jaime did not join us, as he was already engaged in a marathon poker game.

According to the two men, buyers from Pucallpa started arriving in Junin Pablo in 2014, requesting ayahuasca. Around the same time, other people showed up from Pucallpa and began to harvest vine without permission from the local communities. In 2017, Vasquez and a few others started a committee to develop a plan for wild harvesting. Both Cauper and Vasquez told us that when harvesters sell to visitors who come to Junin Pablo, they get only 40 soles per fresh 30-kg bundle. At the current exchange rate, this is about \$12.17, a poor wage for difficult forest labor.

Cauper and Vasquez also told us of a US group that arrived in the community in 2017 and proposed a project to purchase large quantities of vine. According to the two men, the group offered to pay 100 soles per 30-kg bundle to start, 200 soles



Matteo tells us that more people are coming into the Lago Imiria area from outside, pulling out 60 or 70 loads at a time, and charging 30 soles per bundle. There is a gold rush mentality, and outside harvesters may not leave enough of each vine to regenerate.

once the project was up and running, and eventually 500 soles per bundle. In this scheme, the harvesters would receive the money. Supposedly, the Americans wanted people from the community to cook pure vine, without any chakruna, to ship out. This proposed project has not yet begun, but Cauper and Vasquez were hopeful about the prospect.

Shipping ayahuasca out of Peru to other countries like Costa Rica, Mexico, and the United States may serve the interests of people who wish to drink outside of Peru, but it puts significant pressure on the supply of vine. Demand

for ayahuasca continues apace, and exports could well prove a big threat to sustainability.

Cauper and Vasquez expressed eagerness for financial support for their committee. They also told us that some academic investigators were in the village conducting an ayahuasca survey, and they suggested that we might want to meet and speak with them.

As we spoke with different people, we heard

varying prices for ayahuasca. We were told that harvesters get 30 or 40 soles per 30-kg bundle. We were also told by several people that vine sells for 80 soles per 30-kg bundle to traders at the port of Pucallpa.

Conversations with Matteo Teco

As we spent several days in the Rio Tamaya area, we had ample opportunity for conversation. In the case of Matteo Teco, we spoke several times. Matteo has been involved with ayahuasca harvesting for about five years, since 2013. He supplies vine to about 50 customers on a regular basis, harvesting an average of 120 30-kg bundles, or about 3,600 kg of

vine, per month. He said that over time he has had to walk an additional 10 minutes into the forest to obtain ayahuasca.

Matteo and others told us that the vine sells for 80 soles per bundle to buyers in Pucallpa. Matteo hires other harvesters and pays them 30 soles per bundle. He also pays 5 soles for each bundle for boat transport to Pucallpa, where he ships every week or every other week. In the case of shipping vine to Pucallpa, his gross profit per bundle, after shipping, is 45 soles. In this case, a month's harvest of 120 30-kg bundles, or a total of 3,600 kg of vine, would result in 5,400 soles profit, or roughly \$1,644.

Matteo tells us that more people are coming into the Lago Imiria area from outside, pulling out 60 or 70 loads at a time, and charging 30 soles per bundle. There is a gold rush mentality, and outside harvesters may not leave enough of each vine to regenerate. Matteo says that the local areas of Chaoya, Saweta, Mapuye, and Michaya are rich with vine. The big problem is that narco traffickers control a lot of territory where there is vine, and one has to get their permission to go into many areas to avoid getting shot. There is a great deal of coca cultivation and cooking in the general area, and virtually no law enforcement. By law, coca cultivation and refining are illegal, but we saw no police or coast guard

Hammes Werner Reinecke, Michael Coe, Laura Dev, and Marcos Maynas. Photo ©2018 Chris Kilham



patrols in the Rio Tamaya area during our stay.

On our second morning in Junin Pablo, we were informed that a few hours earlier three people were found shot dead nearby, possibly by robbers who work the river. The victims were apparently from outside the area, and details were sketchy. A couple of people cautioned us about Puerto Alegre, where we had previously stopped for lunch, saying that robbers and narcos frequent that village. It definitely had the

look of a seedy frontier town. We were told that robbers usually have rifles, and that narcos in the region often carry automatic weapons. The majority of arms in villages, by contrast, are single-shot shotguns. The disparity in firepower keeps the villagers cautious.

A Student Ayahuasca Survey

We set out to find the academic group we'd been told of by Cauper and Vasquez, at a small lodging in the village. Under a blue tarp awning at a picnic bench, we met Michael Coe, a PhD candidate from the University of Hawaii at Manoa; Laura Dev, a master's student at UC Berkeley; and Marcos Maynas and Hammes Werner Reinecke, both from Alianza Arkana, an alliance that promotes the interests of the Amazon rainforest, indigenous peoples, and rainforest

Lago Imiria
Photo ©2018 Chris Kilham



biodiversity. Alianza Arkana made for a natural participant in an ayahuasca sustainability survey.

The information they were gathering, as they described to us, included population density of ayahuasca vine, community benefits related to harvesting and trade, genetic diversity of cultivated vine, and the long-term impact of wild-harvesting. Coe explained that he needed to finish his doctoral thesis, and that the data collection from 2018 was essential to that end. Financial support for the project had dried up, so Coe was footing the bill.

According to the four, in 2017, they plotted several plots of forest 2-3 hectares in size around Lago Imiria, and tagged a number of ayahuasca vines in those plots. This year, they returned to record the vines' size and growth. When they revisited the plots, the team discovered a high level of harvesting. More tagged vines were gone than remained. Coe made it clear that they considered one year to be an inadequate amount of time to assess ayahuasca sustainability, and that he wanted to continue for five more years. I suggested to the group that they might want to supplement their knowledge by speaking with the village traders, who seemed very well informed about the supply.

Conversation with Antonio Sinarhua Cauper

Antonio Cauper lives in a somewhat remote corner of Junin Pablo by the river. He said that he is in touch with 14 people who buy vine on a regular basis, and he supplies them all. He also supplies Jimmy Rojas in Pucallpa, who we interviewed for the first part of our ayahuasca assessment. Antonio told us that he would like to cook and sell finished

ayahuasca, but has found no interest from buyers. That was not a surprise to me, as people cook ayahuasca with many different proportions of vine and leaf.

According to Antonio, orders come in every day, typically around 15-20 bundles per customer. Amenities may be modest in Junin Pablo, but many people have mobile phones, so he is able to know what customers need. He spends much of his time in the forest cutting vine and said that he has to go several minutes further into the woods than before to harvest. Antonio gets between 60 and 80 soles per bundle of vine. He told us that when he brings a boatload of ayahuasca to Pucallpa, he is very easily spotted by buyers who go to his boat to purchase what he brings.

Antonio explained that two types of ayahuasca vine grow in the area: *amarilla* (yellow) and *negra* (black). Amarilla is preferred because it looks nicer cooking in a pot, whereas the negra looks burned. I had heard similar stories when conducting the first part of our assessment in January 2018.

At first, Antonio was reluctant to show us any loads of vine. But he relaxed as we hung out and eventually disappeared briefly, returning with a bundle of vine on his back. He estimated the vine to be 20 years of age, and said that there was a lot of vine of similar size and age in the forest, and some much bigger and older. He claimed to know of 80-year-old vines where he harvests.

For 27 years, Antonio has worked with ayahuasca. This makes him one of the most experienced harvesters in the Peruvian Amazon, and certainly one of the most longtime suppliers. For the last five years, since 2013, he has witnessed a significant increase in demand. I asked him if he is

Antonio Cauper with a boatload of ayahuasca.
Photo ©2018 Chris Kilham



happy with the money he makes, and he said “no.” I then asked him if he wants more business, to which he replied “yes.”

After speaking with us for a while, Antonio decided that it was okay to show us a boatload of newly harvested vine. We walked down the road with him a bit, and then cut through a grassy path to the lake shore, where he had stashed a boat in high grass, obscured by a tree. He pulled the boat over so we could get a better look. The boat was filled with approximately 25 bundles of the same 20-year-old vine, each bundle weighing about 30 kg. At 60 soles per bundle, he'd gross about 1,500 soles altogether, or a little more than \$456. At 80 soles per bundle, he'd make about 2,000 soles, or about \$609. It is a modest sum for hard, sweaty work in a forest filled with snakes and in an area populated by narco traffickers.

We Exit

During our stay in Junin Pablo, we were repeatedly cautioned regarding our safety getting back to the Rio Ucayali and to Pucallpa, via the Rio Tamaya. The morning we planned to leave, two more people were found shot dead nearby, adding to local tensions. Chief Ronald Cauper and Nikeas Vasquez sought us out to advise us to hire an armed guard for the trip out. Luciano, the host of our lodging, had previously introduced us to a guard named Fermine, who we hired for the boat trip. Fermine came with a shotgun and a pocket full of shells, little defense against automatic weap-

For 27 years, Antonio has worked with ayahuasca. This makes him one of the most experienced harvesters in the Peruvian Amazon, and certainly one of the most longtime suppliers. For the last five years, since 2013, he has witnessed a significant increase in demand.

ons of narco traffickers or the rifles of pirates. Still, an armed guard can serve as a warning.

We departed Junin Pablo at 7:20 am and made a dead run to Pucallpa, exiting the Rio Tamaya and arriving in Pucallpa at noon sharp.

Conversation with Pucallpa Trader Carlos Chauca

Once ayahuasca vine hits the docks of Pucallpa,

much of it makes its way to various ayahuasca retreats and to people who cook and resell ayahuasca for a living. We know from the survey we conducted in January 2018 that ayahuasca centers in and around Pucallpa and Iquitos pay upwards of 150 soles per bundle. One center outside of Pucallpa we interviewed for the last survey, Los Cielos, pays significantly more. Bundles of ayahuasca tied together with other vines get transferred into sacks, which then make their way to these customers. I personally have observed dozens of shipments of such sacks at centers, and have observed and participated in the making of ayahuasca with the vines contained in those sacks. The trade in vine and the brewing of ayahuasca are highly popular now, and ayahuasca brew is very much in demand.

In between harvesters like Matteo Teco and Antonio Cauper, and the ayahuasca centers and cooks, traders purchase and resell vine. One such trader is Carlos Chauca in Pucallpa.

Carlos sells cat's claw (both species, *Uncaria tomentosa* and *U. guianensis*, Rubiaceae), *chuchuhuasi* (*Maytenus krukovii*, Celastraceae), ayahuasca vine, and copaiba (*Copaifera officinalis*, Fabaceae) oleoresin. Sergio and I visited with Carlos at his warehouse distribution center to gather information about his trade in ayahuasca vine. During our time there, several men were loading a large truck with sacks of cat's claw.

Carlos purchases around 700-800 kg of ayahuasca vine per month, the equivalent of about 23-26 30-kg sacks or bundles. He stores the vine rather unceremoniously in the corner of his warehouse and sells it for 3.5 soles per kg, equivalent to 105 soles per 30-kg bundle. Carlos also has ayahuasca brew prepared for him, which he sells for 60 soles per liter, the lowest price we have encountered. Previous prices we have been given for prepared ayahuasca have ranged

between 100 and 820 soles (between \$30 and \$250) per liter. Carlos described his sales of ayahuasca as incidental but steady relative to the sales of the other botanicals he trades.

Summary

There is no adequate way to assess how much vine remains in the vast Amazonian forest. But both Matteo Teco and Antonio Cauper have described areas of abundant and largely untouched wild vine around the shores of Lago Imiria. Due to heavy rains and deep mud, our team did not go into the forest with either trader to harvest. This would be an obvious next step.

As far as I can determine, the supply of wild ayahuasca is holding for now, but this will end at some point. The popularity of ayahuasca appears to be steadily increasing, and demand for the brew outside of Peru is on the rise as well. Now, it is no longer simply a matter of supplying small village ceremonies and ayahuasca centers in Pucallpa and Iquitos. Demand from outside of Peru for prepared ayahuasca is compounding the pressure on wild populations of vine, and this demand will likely hasten the scarcity of the plant over time.

This is a classic situation in the herbal trade. A wild product becomes popular, and this puts pressure on populations of that plant. Clearly, cultivation is the way forward. Cultivation assures sustainability and offers full traceability of materials. It also opens up new economic opportunities for individuals and communities. Since ayahuasca likes to climb trees, vines can be planted in wooded areas, and the trees can be preserved because the ayahuasca, not timber, becomes the focus of economic gain.

Cultivation of ayahuasca is very much on people's minds, both from a sustainability standpoint and from a cost perspective. These are great advantages. Additionally, there is a sense among many that ayahuasca, even if it is relatively plentiful



Our Team: Jaime Baca, Kleylie Vargas, Chris Kilham, and Sergio Cam. Photo ©2018 Chris Kilham

in these areas, will sooner or later become endangered if cultivation efforts are not widely initiated.

The work my collaborators and I have conducted is by no means full and complete. Rather, it is an approximation, a snapshot, assembled thanks to the help of a great many people. So far, we have been successful in getting good and relatively

consistent information from key players in ayahuasca harvesting, cultivation, preparation, and trade. At the same time, it is obvious to me and my teammates that we need to continue these assessments.

Acknowledgements

Any project of this kind is a team effort. I especially wish to thank Sergio Cam, Juan Maldonado, Jaime Baca, and Kleylie Vargas. Without their participation and combined talents, I could not have conducted this work. Thanks also to the various individuals in Iquitos, Pucallpa, and along the Rio Tamaya who took time to aid us, showed us around, allowed us to take photographs, and provided the information included in this report. HG

Chris Kilham is a medicine hunter, author, and educator. He has conducted medicinal plant research in more than 40 countries, is the author of 15 books, and has appeared on hundreds of TV programs globally. CNN has called Chris "The Indiana Jones of Natural Medicine." More information is available at www.MedicineHunter.com.

This is a classic situation in the herbal trade. A wild product becomes popular, and this puts pressure on populations of that plant. Clearly, cultivation is the way forward. Cultivation assures sustainability and offers full traceability of materials. It also opens up new economic opportunities for individuals and communities. Since ayahuasca likes to climb trees, vines can be planted in wooded areas, and the trees can be preserved because the ayahuasca, not timber, becomes the focus of economic gain.



Carlos Chauca with chuchuhuasi (*Maytenus krukovii*) Photo ©2018 Chris Kilham