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# The Forest as a Field of Mind

## La Foresta como Campo de la Mente

URSULA BIEMANN

Artist - Researcher  
[ursula@geobodies.org](mailto:ursula@geobodies.org)

**Abstract.** In the Amazonian Indigenous context, despite the violent impact of colonization, the understanding that humans are an equal part of all life systems has enjoyed a long uninterrupted history from which we have much to learn at this time of global eco-crisis. At the example of several video works and the co-creation of an Indigenous university in Colombia, this text introduces a new charismatic signifying figure, the Indigenous Scientist, who has the capacity of merging the contradictions of being at once scientific and political actor, studying the natural world while being part of it. Drawing on scientific as well as shamanic perspectives of knowing the world, these forest projects take an ecocentric position in search for the intelligence of nature. The artistic research also highlights new genetic technologies that have been practiced by indigenous medics for time immemorial, allowing them to interact with the cellular energy fields on the molecular level of DNA.

**Keywords:** Indigenous, Amazon, shamanic practice, DNA, video art, knowledge systems.

**Resumen.** En el contexto indígena amazónico, la conciencia de que los seres humanos son una parte igual de todos los sistemas de vida ha disfrutado, a pesar del violento impacto de la colonización, de una larga historia ininterrumpida de la que tenemos mucho que aprender en este momento de crisis ecológica global. A partir de varios trabajos de vídeo y de la co-creación de una universidad indígena en Colombia, este texto presenta una nueva figura significante y carismática, el científico indígena, que tiene la capacidad de fusionar las contradicciones de ser a la vez científico y actor político, estudiando el mundo natural al tiempo que forma parte de él. Basándose en perspectivas tanto científicas como chamánicas de conocer el mundo, estos proyectos forestales adoptan una posición ecocéntrica en busca de la inteligencia de la naturaleza. La investigación artística también pone de relieve las nuevas tecnologías genéticas que han sido practicadas por los médicos indígenas desde tiempos inmemoriales, permitiéndoles interactuar con los campos de energía celular a nivel molecular del ADN.

**Palabras clave:** Indígenas, Amazonas, práctica chamánica, ADN, video arte, sistemas de conocimiento.

The environmentalization sweeping through art and academia in the last 15 years has transformed our respective fields of studies in significant ways. In a series of territorial video investigations, I have gone through several stages of reshaping my artistic practice in relation to the decisive shift of focus from a global to a planetary scope, driven by the growing awareness of the sheer magnitude of the environmental and climatic crisis we are facing. While earlier works examined the correlation between the flow of carbon and mineral resources, big capital, and migration, I later turned to create more explicitly environmental works revolving around the larger planetary streams affecting the climate and experimented with new artistic narratives tackling topics that are traditionally of the domain of natural science. For this, new tools were needed, and new characters had to be invented who could mediate the increasingly alarming ecocrisis. Also, perhaps more importantly, the critique of the devastating conduct by powerful players had to be replaced by propositions that could provide agency. This is the motivation driving my recent video works *Forest Law*, *Forest Mind* and *Vocal Cognitive Territory*, and the collaborative project *Devenir Universidad* about the co-creation of an Indigenous University in the South of Colombia<sup>1</sup>.

#### A NEW CHARISMATIC FIGURE

*Forest Law* addresses the complex entanglement of oil, forest, climate, and geopolitics on a larger plane by bringing indigenous cosmologies and the Rights of Nature into the arena. For *Forest Law*, I was filming in the oil contaminated zones of Lago Agrio in the North of Ecuador, where Texaco-Chevron left hundreds of leaking oil ponds all over the forest in the 70ies. There, I met an indigenous scientist, Donald Moncayo, who was taking toxic soil and water samples for a chemical lab in Quito. When international journalists visit Lago Agrio to report on the contamination case, Moncayo takes them to the devastated sites and dressed in a white protective suit, makes a forensic performance so they would have something explicit to film (fig.1). He is enacting a



Fig. 1. Biemann, Ursula. Video still from *Forest Law*. Donald Moncayo performing a forensic chemist in Lago Agrio. 2014.

scientific gesture, not in search for data, not a useful gesture, but one that simply makes matter expressive. I was intrigued by Donald's multiple roles as a scientist, environmental activist, and performer for each of these roles mediate the relationship between the human and Earth on their own terms.

I have been thinking about the possible role of art in this paradigm shift apart from generally highlighting the role of art in mediating "environmental" knowledge. Obviously, artistic research should go beyond merely adding another perspective to science. Rather it should help to challenge the separation of these different forms of thinking and knowing. To invent new charismatic figures, retell history and propose bold speculations all aim at planting new seeds in the collective imaginary.

When looking for new figures that could reflect global currents and that could move us away from the Digger who relentlessly extracts from the Earth, some suggest we should become Gardeners of the Planet. Personally, I come to see the Indigenous Scientist as a vital signifying figure of the 21st century similar to the way that the Worker or the Migrant were pivotal figures in the 20th century around whom the major social transformations were built. The Indigenous scientist has the capacity of merging the contradictions of being at once scientific and political actor, studying the natural world while being part of it. Most importantly, this figure stands for a different kind of epistemology that reconnects us to other ways of knowing and understanding the human-nature symbioses. In other words, the scientist as an explorer and important mediator of the contemporary understanding of our planetary ecosystems, embodies some of the most fundamental problems in our mind-nature conception which brought forth the very concept of environment as a direct expression of the modernist separation paradigm. Symbolically, and by all means also in actuality, the Indigenous Scien-

<sup>1</sup> *Forest Law*, collaborative project with Brazilian architect Paulo Tavares, sync two-channel video installation, document assemblage, and publication, 2014. Available in: <https://becomingearth.unal.edu.co/video-works/forest-law?vid=11> [Accessed 23/11/2022]. *Vocal Cognitive Territory* is a new two-channel video installation based on the interviews conducted in the territory in January 2021 exhibited at the 17<sup>th</sup> Istanbul Biennial in September 2022. All video materials are in the possession of the Inga community to become part of the future University archive. Available in: <https://deveniruniversidad.org> [Accessed 23/11/2022], bilingual online platform Spanish/English.

tist plays a leading role in the paradigm shift from an extractivist to a more ecocentric worldview. In various guises, the figure makes its entrance in my videos, sometimes as empiricist, other times in poetic or science-fictional appearance. Their role is to activate and perform a relationship to Earth.

My continued interest in the indigenous knowledge producer has led to my current engagement with an Indigenous University in the south of Colombia. The project locates itself at a pivotal historical and geographic intersection where several crucial temporalities come together. One timeline precisely has to do with the rise of modern Western thinking, when the relationship with nature was taken out of the public sphere and delegated to the natural sciences where it was denied any political agency. This moment coincides with the timeline unrolling the trajectory of the first European botanists making contact with the exceptional biodiversity of the tropical forests in South America, Colombia in particular, which became a major driver for the advancement of natural science in Western universities. The beginning of modern science is intimately linked with the project of conquest and colonization. Since indigenous peoples were considered part of the natural realm, they were placed in the scientific area short of any political agency. Their knowledge systems and cosmologies were quickly colonized, converted, and eventually delegated to a new academic discipline where they could be studied under anthropological parameters. As a result, the indigenous peoples were put in a particularly vulnerable spot, not only by colonization, but also by the premises of modern Western science and teaching. In the postcolonial context of Colombia, this becomes evident in that education and knowledge production is still primarily a colonial project. This is why my new projects engage with the politics of knowledge.

Against this backdrop, in terms of an aesthetic strategy, to cast the Indigenous not only as a political subject owning a voice and a territory –this is something that has been done by activists and film makers since the 1980s– but to posit him or her as a knowledge producer, an epistemic agent, is getting to the core of the crisis of the modern separation paradigm, which still largely determines our relationship to the living world. In the Latin-American Indigenous context, despite the violent impact of colonization, the understanding that humans are an equal part of all life systems has enjoyed a long uninterrupted history from which we have much to learn at this time of global eco-crisis. Hence the university is not a project that happens over there. It has very much to do with Western institutions of learning as well.

Given the importance of the history of scientific discoveries by Western explorers in Amazonia, I focus my



Fig. 2. Biemann, Ursula. Hernando Chindoy and Freider Legarda Mojomboy leading our hike through Inga territories. 2019.

new projects entirely on the politics of knowledge. I had previously worked on the Ecuadorian side of Amazonia on related issues around the impact of largescale oil and mining projects on Indigenous lands, and on the Rights of Nature which emerged from these territorial conflicts. With my new projects in Colombia I give less attention to the geopolitical aspect of these disastrous developments in the Amazon. Instead, I was intrigued by the question whether forests have intelligence and consciousness. There is a lot of new science in microbiology and plant neurology, for instance, that helps us better understand this emerging field<sup>2</sup>. Yet on my first research trip to Indigenous territories in the South of Colombia in 2018, I was particularly interested in learning more from the Indigenous communities about the kind of science *they* practice and how they imagine their relationship with the forest. For four weeks, Hernando Chindoy Chindoy, then leader of the Inga people of Colombia, took me through the territories in his bullet proof car, starting in Puerto Asís on the River Putumayo in the lowland, up through the lush Sibundoy Valley and to the high Andean town of Aponte in the province of Naríno, one of the largest Inga settlements (Fig. 2). Taking the opposite direction of the water rushing down from the mountains into the rivers feeding the Amazonian river system, our road trip introduced me to many Ingas but also people from other Indigenous communities. At the end of the journey, Hernando asked me if I would help

<sup>2</sup> There is a growing bibliography on the surprising sensorial capabilities and intelligence of plants by scientists and philosophers alike: Emanuele Coccia (2018), Stefano Manuso (2015 and 2021), Suzanne Simard (2021), Monica Gagliano (2018), Peter Wohlleben (2019), Michael Marder (2013) and Michael Marder and Luce Irigaray (2016).

him build a project that has been a long-term wish of the Inga: to have an Indigenous University in their territory. The project struck me as very promising as it would support the much-needed paradigm shift from an extractive to a more imaginative and generative interaction with Earth and its natural life worlds. At the same time, it would also help to deepen my understanding of Indigenous knowledge systems.

The Amazonian peoples have spent millennia getting to know their living forests with whom they have coevolved. Their accumulated knowledge is invaluable for protecting and restoring the forests and the diversity of living beings and cultures. Yet decades of armed conflict and an enduring history of colonial occupation of territories and knowledge systems in the Colombian forests have left the indigenous communities without a viable system to foster their epistemic cultures. I was touched by the idea that considering all the violence, political and economic pressures the Inga are facing on a daily basis, they decided that it is a university that will make the difference. Biodiversity and epistemic diversity have coevolved over millennia, they are completely entangled, so much so that if one of them dies the other one also disappears. The ancestral knowledge of the forests is critical for the survival of the forest. It is a biological as well as cultural issue, that's why we want to include the term "biocultural" in the name of the University.

#### AN INDIGENOUS UNIVERSITY IN THE RAINFOREST

The project started as a commission for a new artwork extended to me by the Museum of Contemporary Art at the National University in Bogota shortly after the Colombian government signed the 2016 peace contract with FARC. Curator Maria Belén Saez de Ibarra called me up to propose a field trip to the South of Colombia –not with a fix result in mind, more like a recognizance trip to see what I could do in this isolated area–. Upon my return from the field trip with Hernando, I revealed to Maria Belen that my project would not be a film but rather an Indigenous university. She generously promised to grant her full support. After holding a major kick-off meeting in the fall of 2019 in Mocoa, capital of the Amazonian province of Putumayo, together with Inga educators and a group of international scholars emerging from this first meeting, we began to design a visionary project that combines indigenous knowledge systems and modern science with the aim to foster peace and protection for the Andean-Amazonian forests and the indigenous communities who thrive in and with these territories.

Hernando and I began by assembling a group of academics including anthropologists, architects, territorial planners, legal researchers, and educators who work closely with the Inga teams to support the collective process of co-creating a university<sup>3</sup>. The idea is to strengthen ancestral knowledge and collaborate with Western science where they are compatible. I began to call this collaborative process *Devenir Universidad/Becoming University*. And that which is becoming university is not so much the Inga people but the territory, the living, thinking territory. The notion of territory is central to Inga thought. Territory is not a delineated area, it is a cognitive, sentient unit that emerges from the ecological relationships between all beings who inhabit the space. This is perhaps the most fundamental difference between Western and Indigenous thinking. In Western modern science, to know something well is when you can observe it from a distance, when you can measure, register, analyse, describe, and categorize it. From this perspective, territories are represented as a biophysical reality of sorts, i.e. a collection of plants, animals, mountains, forests and rivers. Indigenous science conceives a totally different territorial paradigm. To know something well is to be able to attribute intentionality and thus turning it into a subject where we can have a conversation between persons. To learn about the forest, about the diversity of plants, the different ecologies of their territory, the water that links the water-producing paramos of the upper Andean region through the cloud forest down to the lowlands of the Amazonian rainforest, all these things can only be learned in their particular sites. Education is bound to be site-specific. Hence the concept for this future university is not to build a central campus but to design a network of sites and paths across the Andean-Amazon. The Inga territory is a constellation of many *resguardos* (reservations spread across several departments)<sup>4</sup>. As a result of the armed conflict, the Inga are a dispersed community, in the process of reassembling themselves. There is the expectation that the new university will help connect the territory and the community and engrain the territorial materiality and spirit in the young generation. Knowledge is not a mental exercise, it is an embodied experience. The entire education program will be geared toward instilling place-based learning. The areas that the Inga see

<sup>3</sup> The supportive biocultural study group includes Ursula Biemann, artist researcher; Alvaro Hernandez Bello, anthropologist and educator; Santiago del Hierro, architect and territorial researcher; Giovanna Micarelli, anthropologist; Juliana Ramirez, architect; and Ivan D. Vargas Roncancio, Indigenous Law and Nature Rights.

<sup>4</sup> The Inga territory stretches across Nariño, Putumayo, Caqueta and Cauca, and there are pockets of communities living in cities like Bogota, Cali or Medellin.

most important for their higher education are territorial rights and Indigenous rights, medicinal plants, social organization, forest conservation, agroecology and Inga language and culture.

The Indigenous University holds a vision for a future founded on ecological concepts of mind, knowledge, and the inherent intelligence of life. Knowledge is viewed as embedded in the environment and knowing something means becoming part of this field of meaningful relations. This field of relations is what indigenous people in Amazonia call territory, it is intimately connected to knowledge, wisdom, perceiving and caring. In this regard, the project is a real territorial university and a “*territorio universitario*”, collectively processing the ever-changing interactions between the different entities involved in meaning and world-making. This form of ecological thinking is a practice that encounters the other as mind, not merely as physical appearance. A fundamental problem this University wants to address is the objectifying practice of science. In the modern scientific paradigm, one knows something when one is able to see it from the outside, that is, when the world is objectified and no intentions are attributed to the object of study (e.g. plants, animals, complex tropical ecologies). In contrast, for traditional *sabedores* (medicine people) in Amazonia, to know something well is to be able to attribute intentionality and thus turning it into a subject with whom we can have a conversation between persons (Vargas Roncancio, not yet published; Micarelli, 2018)<sup>5</sup>. The university will be a space for reckoning with plants, animals, rivers and other beings as persons of knowledge, a space for practicing the subjectifying view of indigenous science. It proposes the co-creation of a teaching and research experience and place that actively integrates a living cognitive territory into any educational agenda. This will be a radical departure from traditional Universities, but we recognize that there are also links between Western and Indigenous knowledge traditions that have gone unnoticed, undoubtedly because of the fragmentation and coloniality of western knowledge but also due to enduring misinterpretations and misappropriations of indigenous conceptual practices. Many phenomena, which in the past would have been considered supernatural, of the realm of shamanism or cultural belief, now lie within the fences of science. And the overlapping areas are steadily increasing. To open a contemporary pluri-epistemic dialogue, we align with innovative approaches in scientific fields such as ethnobotany, the anthropology of science, Earth law and the rights of nature, environmental sciences and philoso-

phies engaging with the life of forests and plants, all of which put forward ideas that are compatible with Amazonian cosmologies.

The Indigenous-led initiative emerges from a history of violent encroachments upon the Indigenous ways of life and territories in Amazonia, a trend that in the Colombian context continues today through expropriation of lands, constant violation of rights, rampant deforestation, drug traffic, and social and armed conflicts. Fifteen years ago, the Inga people embarked on a remarkable path of self-determination to strengthen their indigenous identities and practices and reweave their ancestral way of life based on a philosophy of *Sumak Kawsay* (Good Living). Knowledge transmission is founded on the biocultural principle that nature and culture are not separate but form relationships of interdependence and continuity. In this sense, the territory, with its visible and invisible beings, human and non-human, is not simply the stage where culture occurs but, rather, is a sentient and cognizing being, that is, a living “agent” of knowledge. Instead of using knowledge as a tool for domination and wealth generation, the biocultural paradigm on which this University is founded, advocates the co-emergence and ethical cohabitation of and between humans and non-humans (Fig. 3).

The project of building a biocultural Indigenous University in the South of Colombia involved a cooperation with the architecture studio of Anne Lacaton at ETH Zurich, joined by a parallel studio at the Javeriana University in Bogota, resulting in a book that is widely used by the territorial planners in the territory now. Territory is not a geometric space, it emerges from space-making practices, and is alive. Fittingly, the Inga



Fig. 3. Biemann, Ursula. Walking and reconnecting with the natural world is a form of healing the territory. 2021.

<sup>5</sup> Iván D. Vargas Roncancio and Giovanna Micarelli are valued colleagues in *Devenir Universidad*.

conceive of the university as a composition that spreads across the entire territory in an organization of sites and paths where particular knowledge can be produced. For indigenous people knowledge is meaningful only in relation to the specific sites where it can be produced: the chagra-research gardens, the rivers, the primary forest, the páramo, the amazing high moor ecology. A University structure, both material and intangible, would have to take all these factors into account. In this decentralized configuration, the new institution will be a departure from the campus cities of Western universities.

#### DEVENIR UNIVERSIDAD

To locate the project in relation to the art world and beyond, I proposed to create the platform *Devenir Universidad* to set conceptual and aesthetic impulses and support the University project by generating, assembling, and communicating artistic and audio-visual productions for memory keeping, teaching and learning at the future University as well as communicating with the global community. I should start by clarifying that *Devenir Universidad* is not the name of the future university or “pluri-versity” of the Inga people, that name has yet to be determined. *Devenir Universidad* is an-aesthetic companion to the Inga-led process to co-create a university in the Andean-Amazon rainforest, documenting, reflecting, visualizing and projecting the collective process. It is a record of the new pedagogies and architectures that are designed to generate place-based knowledge and drive the paradigm shift from an extractive to a more generative and imaginative relationship with the forest. *Devenir Universidad* is a growing biocultural organism, a collaborative network of different human and more-than-human minds thinking, feeling and acting together with the territory. The project also entails audio-visual productions, exhibitions, events, publications, and an online platform. A major task in the protection of an endangered culture consists in establishing a living audiovisual archive of the pluri-epistemic voices of the elders, healers, social leaders, traditional medics, and other forest beings. *Devenir Universidad* is a collective fabric where Indigenous and Western knowledge traditions intertwine, nurture each other, and mutually transform, with equal recognition granted to academic and indigenous researchers.

This new institution fulfills many vital functions for the Inga. Their territories are under great pressure from state interests who see this region as empty and unproductive. Cattle farms and oil extraction grab more and more land, pushing the indigenous further away from

good fertile land. The indigenous university is also a symbolic way of claiming the land and stem the land grabbing endeavors by powerful actors. The Inga recount their history as a continuous struggle to get the territories under legal protection, emphasizing the importance of being in the territory for that to happen. They lead a dual strategy of working before the state to obtain the titles and of dwelling in the territory to reproduce and constantly rearticulate the recognition. The university project is crucial as a form of occupation, by insisting on walking through the territory to produce knowledge and forming bonds with the living world. The institution operates as a decentralized nervous system of the Inga people. On the other hand, the preservation of ancestral knowledge of the local ecologies is vital for the subsistence of the forests and the communities who inhabit them. The shamans spend many years learning from and with the plants, because the learning is also a form of healing, which takes a lot of time. The learning with plants teaches to heal the territory. We can think of the university as a healing practice for a territory that has been injured by colonial intervention, by extractivist projects and epistemological occupation. The university becomes the possibility of restoring the territory, always remembering that the territory is a bunch of relationships, not a material place. This is how the new university may play an important part in assuring the ongoingness of relationships seized by extractivist economies, acting as a decolonial as well as a relational university<sup>6</sup>.

From the perspective of an artist, I want to make a few reflections on how I see myself and my visual practice transforming in and through my involvement in this project. The images I make in this context work differently from my artistic practice up until now. The first collection of videos I produced consisted of conversations among Inga, other indigenous representatives and Western academics during the four days of the kick-off meeting in Mocoa. Then, as soon as the travel bans lifted last winter, I went back to the territory to collaborate with Inga educators and social leaders Flora Macas and Waira Nina Jacanamijoy, in conducting interviews with the elders on their memory and the territorial history of the Piamonte region in the south of Colombia (Fig. 4). The production and circulation of these images operate in multiple ways.

As a result of colonization and the armed conflict, the Inga people are fragmented and dispersed across the country which makes communication difficult, it's hard

<sup>6</sup> I'm particularly grateful to Ivan D. Vargas Roncancio for sharing many of his well-researched ideas on the Indigenous relationship to the natural life worlds with me. Ivan has been a constant interlocutor and partner in co-writing the texts for the online platform *Devenir Universidad*.



Fig. 4. Biemann, Ursula. *Mocoa Meetings*. Taita Ernesto, Taita Arturo and Taita Aníbal, traditional medics. 2019.

to keep everyone on the same page. The platform and the images have the purpose of reconnecting dispersed people. This is important because a lack of information generates misunderstandings, or worse, exclusion and these images can contribute to reducing misunderstandings. The platform *Devenir University* is a way of letting everyone in the community in on the conversation, generating inclusiveness and bringing everyone on the same page. This enhances transparency of the process, making it comprehensible within the community, between different indigenous communities inhabiting the region, towards the outside and on all scales. Also, these images help to give form to the cognitive and mental stuff this University will be made of. They actively help rearticulate the community by reassembling their cultural identity. A few years ago, they just considered themselves campesinos, peasants, often bearing adopted Spanish names. With the conscious choice to relink to older traditions they took up their indigenous names again and remembered their cosmology, thus the images also help to reconnect and remember. The story of the Inga connects to a larger movement that has gathered momentum in the 1980s and 1990s across Latin America and in the global arena, where the new vocal public persona and globalizing public voice of the indigenous made itself heard. It's not returning to some historical version of indigenous identity, this movement seeks a contemporary edition of what it means to be indigenous in the 21st century, as James Clifford explores in his book *Returns* (2014). The rising indigenous and their self-defined knowledge is a historical moment in the making



Fig. 5. Biemann, Ursula. Interviewing the Inga elders for the future University archive. 2021.

that needs imaging to enter the collective imaginary. As always, to achieve sovereignty of signification over themselves and their way of being, is a major purpose of such a project.

Of course, I have asked myself what my role and contribution could be in this project and the answers have been multiple and shifting over time. I see this art and media project as an aesthetic companion to the indigenous-led project. It translates the issues and concepts for intercultural communication and hence acts as a mediator and connector for international partnerships and participation. As an extended art project, it shifts the focus from bringing ecology into art to bringing art to ecology by directly intervening in, and co-creating, material and epistemic realities on the ground (Fig. 5). Perhaps the process of becoming university is also one of becoming environmental where the outside and inside dissolve in a gradual ecologization of the university. In spite of the restrictions and destructive conducts by the state and corporate forces in the region, *Devenir Universidad* pursues a propositional mode of thinking and imagining in a caring and highly speculative way. In doing so, it disrupts the modern operation of critique and replaces it with a performative imagination, a collectively produced fiction. And when this fiction joins the world, it becomes the world.

#### FOREST MIND

My latest video essay *Forest Mind* is the attempt to bring shamanic and Western sciences into dialog around the fundamental question of whether nature is minded.



Fig. 6. Biemann, Ursula. Video still from *Forest Mind* with performance by Waira Jacanamijoy, Flora Macas and Taita Carlos. 2021.

It draws on some of the fundamental ideas learned and elaborated during my involvement in *Devenir Universidad*. Indigenous peoples in the Amazon hold a biocentric worldview: life is at the center of what constitutes reality. The territory is the maximus teacher, all knowledge comes from there. The forest is cognitive, and sentient. A vital force and spiritual energy permeate all that exists, both visible and invisible entities, endowing them with awareness and meaning. The human mind-spirit is in constant communication with these forces, and so are the plant spirits and the animal spirits. There is an innate intelligence in nature down to the molecular level.

*Forest Mind* and all the other audiovisual productions created during the last 4 years in Colombia, are pleading for greater epistemic diversity in science (Fig. 6). *Forest Mind* unites diverse strands of knowledge on the metaphysics of plants, on plant-human relationships, and the coding of life with its form of storing information. Drawing on scientific as well as shamanic perspectives of knowing the world, the video takes an eco-centric position in search for the intelligence of nature. Indigenous science emerges from the interaction with the intelligence of Ayahuasca, the master plant. The communities in the Amazon consider the plant teacher Ayahuasca an intelligent person. She communicates through chemistry and parts of that chemistry are neural transmitters. Through a peculiar co-evolution, they happen to fit into the receptors in the human brain creating a unique mode of telepathic communication between the plant and the person who ingests it. It is the result of millennia of co-evolution, precisely hitting the part of the brain that activates the sensibilities of perceiving, sensing and imaging. *Forest Mind* also refers to the power of thought and imagination in creating realities. And this mental ability is enforced when using artistic instruments such as the camera (Fig. 6). In this sense, *Forest Mind* is a combination of science and metaphysical research.

My research highlights new genetic technologies that have been practiced by indigenous medics for time immemorial, allowing them to interact with the cellular energy fields on the molecular level of DNA. With the discovery of DNA in the 1950, modern science has also become aware that there is an underlying order that interconnects all life. We also know that DNA emit light waves, so-called biophotons, which hold information. Hence DNA are quantum, they consist of a material and an energetic part which are entangled. The Amazonian medics have developed a technique that allows them to interact with this luminous energetic part of DNA. They sometimes call them spirits. What they call spirit is closer to microbiology than religion. I think that for the longest time, indigenous science has been interpreted through the filter of the early missionaries who applied their own Christian concepts to what they observed.

To bring the different knowledge traditions into dialog, I was curious to find out what modern western science was doing in Colombia. Bogota has become the global hotspot for bioprospecting and biopiracy.<sup>7</sup> Biotech companies have started with DNA sequencing the entire rain forest, breaking it down to the smallest fragments to be used as a resource for the industries. They are very present in Colombia. But these Life-Science Corporations didn't seem open for cooperation with an artist like me. So for this second part of *Forest Mind* addressing Western science, I started a collaboration with ETH, The Institute for Science and Technology here in Zurich. They had made a recent technological breakthrough in new ways of using DNA knowledge. So far, information is stored in the binary digital code of 01. The new technology converts the digital code into DNA code, then turns them chemically into DNA molecules to finally encapsulate them in microscopic glass beads. In this

<sup>7</sup> From conversations with ecologist Brigitte Baptiste, former director of the Humboldt Institute in Colombia until September 2019.



form they are unperishable, they can be stored for eternity. And because it's written in humanity's own code, we will always remember it.

This research is relevant to us digital artists, it might change the way we store large amounts of data in the future. So, we made an experiment at the ETH lab. We took a sound recording, a video image and a tiny piece of a real seed of a tree from the endangered rainforest in Colombia and converted everything into one single DNA code. The problem was that the outcome, these microscopic glass beads, don't make for an impressive presentation in the art space (Fig. 7). So, I asked if the process of DNA sequencing actually generates images that I could use in video. The images you see are from the 160 cross-sections of the double helix, similar to a CT scan of each of the spinal vertebrae. Lining these images up in the video produces a flickering animation, it's like a flip book journey through the double helix (Fig. 8).



Fig. 7. Biemann, Ursula. *Forest Mind* installation at the Cuenca Biennial. 2021.



Fig. 8. Biemann, Ursula. *The Neuronal Forest*, video still from *Forest Mind*. 2021.

Image-making plays an important role in the research on the living cognitive territory and in the project of creating the indigenous University and the art projects developed in this context. In my view, images are not merely depicting already existing realities, they contribute to reality-making, to world-making. Images themselves possess a kind of conceptual, even material capacity to act. This concept of image-making is vital for a project that assembles undocumented histories and memories, engages with nonhuman actors, visualizes dynamics, performs a deep description of the territory, and generally creates a new knowledge organization from scratch. Images transport knowledge in more than textual or purely cerebral ways. They implicate emotional, sensorial, spiritual and physical experiences. For years, I have been thinking about how art can contribute to a reparative, biocultural paradigm that advocates for the ethical cohabitation of humans and all other beings, modelled somewhat after the forest itself, where many nations of species are living side by side, one upon another, or even nested among each other in symbiotic peace<sup>8</sup>.

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<sup>8</sup> This essay refers to the reflections made in my recent artist book *Forest Mind*, published with Spector Books, 2022.

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