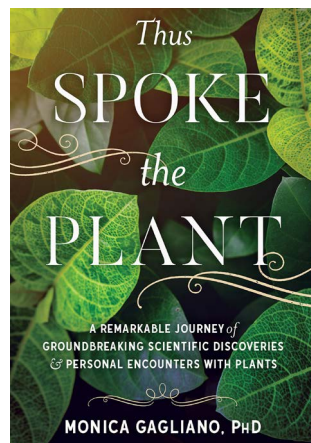


# REVIEW: LEARNING BY LISTENING WITH PLANTS

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## ABSTRACT

This review of Monica Gagliano's book *Thus Spoke the Plant: A Remarkable Journey of Groundbreaking Scientific Discoveries and Personal Encounters with Plants* presents the author's unconventional scientific approach to plant ecology as a human-plant collaborative endeavour. As Gagliano's personal encounters with plants supported by indigenous wisdom changed her way of doing science, the scientist learned to think out and away from the conventional box of scientific determinism and abstraction from the subjective experience. Gagliano's journey led to ground-breaking scientific discoveries in acoustic communication with plants, probing their consciousness and capacities to listen, learn and remember. This book is an important contribution not only to the field of plant bioacoustics but also to any kind of academic work, revealing that a transformative knowledge lies in collaborative ventures with nonhumans as conscious subjects in their own rights. Learning by listening with plants, a common practice in indigenous cultures, is certainly a way to engage an active dialogue with nonhuman intelligences, but we must be willing to open our minds and transcend the view of plants as objects of scientific materialism.

Keywords: Monica Gagliano, Acoustic communication, Plant bioacoustics, Sound, Plant ecology

*Thus Spoke the Plant* is a powerful story about an unifying journey between scientific insight and plant wisdom. Monica Gagliano, an evolutionary ecologist based in Australia, tells us how her personal encounters with plants changed her way of doing science, leading to ground-breaking discoveries in plants communication and cognition. The book, as Gagliano points out, is all *about plants and by plants* - it is a *phytobiography*. It is the result of a close collaboration with the plants themselves, through an amazing journey of discovery and interconnectedness, supported by ancient knowledge of indigenous people. Beautifully integrating the scientist, the spiritual and the personal perspectives, into consistent and revolutionary results, Gagliano describes a real and first-hand account on her scientific probing into the vegetal kingdom during one decade of work. In this human-plant collaborative endeavour, the scientist learned to think out and away from the conventional box, inspired by an entirely new vision of a wide range of communicative means plants use. Essentially, plants guided Gagliano through scientific methods that lead to probing botanical consciousness and their capacities to listen, learn and remember.

### LISTENING TO THE VOICES OF THE VEGETAL OTHER

Gagliano starts the book in an intimate and personal narrative, telling us how one day, back in 2008, her training in marine animal ecology fell apart, breaking down all taxonomic boundaries and changing her life path. On the last day of a study with tropical fish living in the Great Barrier Reef, she realised that she couldn't possibly continue to treat animals as objects and perpetuate the killing in the name of science. As she explains, this is when plants literally came to rescue her career, and an incredible turn happened. A few months later, Gagliano went to the Amazon for a retreat, where she engaged in practices of plant dieting and isolation, guided by plant shamans and indigenous elders. In this deep reconnection process, she became more receptive and eventually started to acknowledge that she was listening to a plant voice, the same plant that guided her to the Amazon through her dreams, and the same plant that she was dieting - the Socoba, the shaman confirmed. The plant revealed to the scientist its benefits to humans as a blood cleanser. And through that message, the Socoba also revealed that plants communicate, that their voices can be heard by humans, that they had done so for millennia and that they still have a lot to teach us. The Socoba was just her first of several plant teachers. As Gagliano points out, when we learn to listen to plants without the need to hear them speak, a language that we have often forgotten emerges. The vegetal archives and plant knowledge are open, *in* and *with* the plants themselves, always available to those who are deep listening. Learning by listening with plants is still a common practice in indigenous cultures. And in the light of evolutionary processes, this has certainly served humans in major selective benefits. The voices of the vegetal other though are revealed in a place of reciprocity. Through receptiveness to close and personal encounters with plants, the human becomes the listen-

er that can engage an active dialogue with these nonhuman intelligences, and ground-breaking scientific discoveries may emerge from it.

## PLANTS GUIDING SCIENTIFIC DISCOVERIES IN BIOACOUSTICS

Back to her work as a scientist, Gagliano was compelled to ask the question: could plants in her scientific laboratory communicate with each other with sound, like they did in the shamanic temple of the Amazon? Facing waves of mockery among scientist colleagues, Gagliano was brave and curious enough to trust her instincts and the support she gained from the plants themselves and the indigenous wisdom to pursue this impermissible scientific question. This is when the experiences started to unfold in an incredible research journey. The challenge lied in how to integrate and unify two world views - wildlife environments and laboratory-controlled environments. As Gagliano points out, our current scientific constructs are too reduced to embrace these possibilities. We must be willing to transcend the view of plants as objects of scientific materialism. The idea that plants communicate in unknown ways had to break through. Therefore, she aimed to run a series of scientific studies (some in collaboration with other scientists) on plant behaviour ecology to provide clear experimental evidence of communication channels between plants, beyond those recognised and studied by science up until then. The first study took place at Gagliano's laboratory with three plants - chilli, fennel and basil - individually isolated in boxes to avoid communication between themselves in known ways (air, earth). Evidence revealed that plants could still perceive the others' presence, therefore uncovering a previously undocumented communication channel. In a study with a *Mimosa pudica*, a controlled drop system helped to probe plant learning, memory and decision-making. In another study, the vibratory signals of kernels of corn were heard for the first time, recorded by scientific laser instruments. It became then official that plants emit sounds, they hear them, and on the basis of what they hear, they change their behaviour.

While unfolding these creative scientific studies through the book, Gagliano reveals how other personal encounters with plants guided her on transformative journeys. One of them was a call received through the root Osha, to go to the California mountains on a vision quest guided by a Native American grandmother. This time, she received clear instructions from an Oak tree, where she sat by for four days and nights, fasting and praying for a vision: "Tell our stories". The message was that her scientific work would be a means of revealing plant consciousness to the human mind and deliver something humanity urgently needed to feel. Meanwhile, as her fellowship was coming to an end, Gagliano decided to write a new proposal on understanding sound communication in plants for federal funding from the Australian Research Council, despite colleagues warning her it would be a career suicide. And as her proposal on plants' bioacoustics got selected for funding, plants continued to guide Gagliano through scientific protocols. Peas taught her that letting go control,

changing perspective and being within the vegetal experience was key to perceive the process of plant communication. The peas also revealed that acoustic cues guided their development, that acoustic masking and noise affects not only animal but also plant communication, in their ability to receive and respond to particular sounds.

These important insights into our understanding of plant ecology and the behavioural nature of plants not only confirmed a wide range of acoustic communicative means used by plants until then unknown, but also indicated that more modalities are yet to be revealed.

## **DECOLONISATION OF SCIENCE AND KNOWLEDGE**

While Gagliano's studies have led to a new understanding of plant-human communication, she also reminds us that this scientific knowledge is yet to fully breach the fortified walls of academia. The modern scientific mode of thinking, the scientific determinism, has become the accepted procedure for gaining knowledge about the world. But the knowledge attained by conventional science (inherited from Aristotle) is largely an intellectual enterprise abstracted from the subjective experience of body, mind and spirit. As Gagliano also points out in her book, the lack of appreciation for our close relationship and interconnection with plants has promoted a destructive attitude. There is still a prevalent inability to recognise our total dependence with these relationships and our responsibility to care and protect vegetal life. Western colonialist culture and capitalist construction of plants and nonhuman life as objects and commodities, has led humans to abuse and exploit them as resources and property, disregarding and depreciating traditional knowledge and indigenous cultures. However, it is obvious that this destructive attitude is taking us nowhere good. Gagliano's journey with plants reveals that a transformative knowledge lies in a generally discredited way of doing science, which goes beyond treating other beings as objects and actually entering into collaborative ventures with non-humans.

## **INSPIRATION**

Simply asking the question about vegetal voices freed Monica Gagliano from preconceived notions that defines plants as voiceless, reclaiming a deeper level of perception of the world than that for which we were trained and accustomed. Opening herself to observe plants as they actually behave, and to encounters with plants as beings, she discovered a shared reality of inter-species communication. The stories to be told, as the Oak spoke to Gagliano, are in this wonderful book. And as she describes, these are our stories as humanity, to remind us of our deep history of connection and interdependence with all other humans and nonhumans. Gagliano's book reveals the precious gift our partnership with plants has been throughout the evolutionary history of our species, in the quest of

understanding who we are and inspires us to open our hearts and minds to re-envision the world.

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