Ultimate Sustainability

We, modern Man, have become a rather peculiar species. We are of this planet, which in English we call the Earth, but we think ourselves above, apart from it. We think the earth is something we have graduated from, and now we own it. We can do with it what we want. We do to this Earth things that endanger not only the other life forms but the climate, and so very possibly ourselves.

I know -- not just think -- that I am of this earth. My molecules, the atoms, chemicals of which my body is formed are totally of this earth. My brain is of this earth, My brain allows me to see and feel, hear, taste, smell, and probably has some other abilities as well. Combined with the hardware, so to speak, the way my sense organs are integrated in the total design, make it possible to see distance, for instance, and -- after we've been taught-- the colors we associate with certain wave lengths. I learn not only what sweet means, or bitter, but from the beginning we have the ability to know whether we like it or not. Bitter? Babies make a face! It is also our brains that allow us to live as part of this earth. Where to find food. Which plants to avoid, which animals to avoid. How and where to run or fly to escape from some other life form that threatens. From the beginning of our human existence we interacted with our environment, a very close interaction -- an intimate interaction. We had to understand what wind, sun, plants, trees, animals were, how we could live among those riches. We survived, and every now and then some new ability was added, "evolved," or learned. But, even newborn humans could squirm, cry, scream, lash about with arms and legs. Babies recognize individuals, maybe by sight, or smell, or feel, or--more likely--with a whole "gestalt," based on complex interpretations, learning, then stored somewhere. And that is only a small part of what is going in our brains all the time.

Something like that is going on in all animals that have nervous systems, and brains, however small. I have whole tribes of chickens around me, and the brain of a rooster cannot be much bigger than a pea. But roosters relate to their environments very efficiently, they do all the things necessary for survival. And they certainly develop individual personalities. Roosters have a hard time to learn, however. Hens, at least here, are obviously smarter: they learn well and often quickly.

Plants? They have no brains, but they must have nervous systems of a sort. Many plants can and do adjust their leaves in response to changes in the environment: touching a "touch-me-not" makes the plant fold up its leaves almost immediately. Plants droop in bright sun, or even turn their leaves to and away from where the sun is. Plants often react to other plants near by: some plant species cannot live close, others are stimulated with they live next to a plant they "like." Tomato and Basil like each other. I also think that plants communicate. I'm not alone, of course. Almost anyone who has gardened and observed plants for a while, knows when a plant is "happy" or too dry, or leaning away from an obstruction, toward the sun. If we learn the language it is not hard at all to know when a plant needs some help, maybe a touch of chicken manure, or some iron, or less sun.

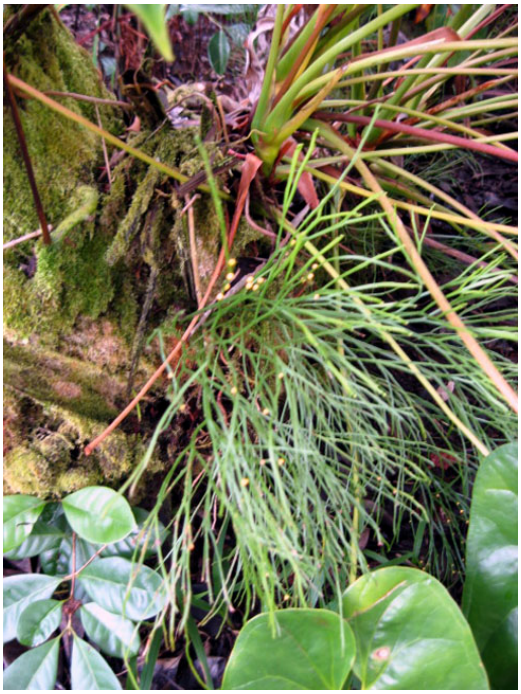
How I relate to plants is probably my own: I relate to some of them as beings. I see a plant, a tree, as an individual as well as one of a species. Plants that like it here obviously will spread. I smile at a particularly aggressive plant, I have learned that "wild" plants are often difficult to transplant where I want them. And I see plants and trees for their beauty: I greatly admire palms for the geometrical patterns their leaves make. Palms are often tough, they can survive in different climates. Their needs are modest, they make fruit that sometimes we can eat: coconuts, dates. Vines I find intriguing. How do they do it? They have many snake-like capacities. Trees are rooted, and stay put -- vines always reach out, higher, wider, under and over. And I have a great fancy for the smallest plants in my neighborhood. Weeds with their tough natures. Tiny, tiny marvels of shape and color, and miracles of sustainability almost all.

In Hawai'i we know that plants and animals, and people of course, have "mana." My dictionary says the word means "supernatural or divine power, miraculous power, etc." I have heard it used also as "life force." It always means *power*. One of the native species of these islands is 'ohi'a, a tree that is a bush when it grows in cracks of fairly "young" lava that is, as yet, little more than rock. 'Ohi'a (pronounced Oh-Hi-Ah) has much mana. It has great power to adjust to circumstances. If a seed can find even a tiny crack in lava, it will start something tiny there. There may not be much nurture, not much rain, hot winds, but it will survive, almost dormant for years perhaps. Slowly, over years, with a few drops of rain now and then, it will grow to be a bush. Dry, brown, hard wood, leathery leaves. It grows so slowly that it is hard to capture its growth in human terms. But then, the very same 'ohi'a, when over here -- also lava, but lots of rain, and sun, it will grow to a 20-25 feet tree, and more if we would leave it alone. 'Ohi'a are known for being very sensitive to being encroached on. If a bulldozer destroys the rock too close to even an old tree, the tree dies. It can stand there for years, without leaves, its upreaching arms a silent cry. The mana of 'ohi'a shows in its immensely tough ability to survive our unique environment: this island is a live volcano.

There are other trees that thrive here as well. Sandalwood is another tree with great mana, although different from the tough mana of ‘ohi’a. Sandalwood must start as a seedling, under the protection of another species of tree. It is very hard to start. Once it has started it grows very slowly. The wood is dense, it never gets to be a very big tree. Its wood, as we know, is fragrant. Sandalwood was perhaps the first product almost completely eradicated shortly after these islands were “discovered.” Sandalwood fetched a good price in China -- here, the first westerners thought, there were “forests of sandalwood trees.” Not really. Sandalwood does not make forests, but grows between other trees. Its mana is expressed in its precarious beginning and then its slow, careful growth, its dense wood.

Another tree with yet another kind of mana is an import from Brazil, although it is found in many other tropical and semi-tropical areas, My plant books gives different names for this tree, *Albezzia, Albizzia,* and more. It grows on our lava, but not because of ‘ohi’a’s patient, tenacious ability to find cracks, but rather because *albezzia* spreads its roots horizontally, as far away as it takes to tap into some soil and water. We consider it a “junk tree” because the wood is not good for anything much, it is very light and brittle, and it is stealing water and nurture from other plants hundreds of feet away. It is, however a beautiful tree: large, with a wide crown, majestic, and because of its copious shed leaves the source of important mulch that allows the growth of other aggressive plants, such as, also imported, berries with stickers. Albezzia wood is, and has been, used to build canoes because it is so light and relatively easy to work with, but otherwise it does not even make good mulch. It is a nitrogen-fixing tree, but unfortunately it does not need much real soil which would have been enriched by the nitrogen. Its mana is its aggressive root system that powerfully invades neighboring ground to find water and nurture. There was a huge abezzia tree in the next lot. The (multiple) trunk at least eight foot across, maybe a hundred feet high, more feet wide. But its arm-thick roots snaked far into my lot, farther than a hundred feet from the tree.

All plants and animals (and people), have mana of course. Different kinds of mana for different methods of survival. ‘Ohi’a has the mana of perseverance, endless patience. Albezzia has the mana of aggression, surviving by finding resources far away if needed -- reminds me of America.



But there is another kind of mana, what I think of as the mana of simplicity. Most algae, mosses, ferns, and simple weeds, as we call them, have the mana of simplicity. They survive on lava because they can survive with very little. All they need is the ability to attach themselves to a rocky surface. A little water, maybe something from the air, is enough to help them survive. In many environments they are the first green that grows on what does not support “higher” plants. They are the first that make some crumbs of soil. They do not change shape over time -- they don’t have to. The mosses of today look identical to mosses described in ancient texts. And all of them produce quantities of seed, almost always in the form of a fine powder that spreads easily on even the lightest breeze. I admire weeds for their sustainability despite being stepped on, killed with chemicals, eradicated -- and they always come back. There are sorts of grass or sedge that find a crack in concrete, and eventually split man-made surfaces.

To me, there is one plant that demonstrates survival through ultimate simplicity. Here it is called moa[1] (Psilotum nudum). An icon of the mana of simplicity. According to my plant book its imprint has been found on rocks, dated 350 million years old[2]. Recognizably the same form, the same plant (I think of it as a pre-plant). Moa looks like thin green sticks. No leaves, no flowers, not even roots: it obtains nurture with the help of a fungus. In the Fall it has tiny yellow balls of spores that then miraculously disappear. In Hawai’i the pollen is supposed to have medicinal value. I am not surprised, it is the mana that makes it medicinal, and the spores of course hold the essence of that mana.

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[1] moa in Hawaiian also means chicken, in New Zealand it refers to the now extinct large birds.

[2] That great age is disputed -- but certainly it has existed for thousands, probably a million years, unchanged

Moa lives in crushed lava, in sand, in rotten trees, in the bark of tree ferns. It is found almost everywhere in the tropics. It is often hard to see because it looks like nothing at all. It does not like much sun, but can tolerate some, and it can survive almost drought conditions. Obviously, it is a survivor! Powerful mana of another kind.

We in the west think of "power" as force, muscles, aggression. Moa is the opposite of that kind of power, but it is sustainable because of its ultimate simplicity. Green sticks that occasionally branch, and branch again. Here they grow to as much as ten inches tall. In Volcano, where I used to live, at 4000 feet (1200 m) altitude, moa grew to no more than four or five inches.

Moa's mana is the very opposite of modern man who so adores all forms of force. We created for ourselves an immensely complex culture, that we call civilization. This complex construct, gets more and more distanced from anything that is natural, and so continues to need fixing and patching -- not to mention maintenance. We must change our creation constantly, more and more feverishly when we see that many parts of our creation do not work. While our right hand is soothing the banking and credit card companies' rude awakening from a period of almost uncontrolled greed, creating a financial system based on empty air, the left hand is printing money to give us, no longer able to pay for food in an economy imploding: a few hundred dollars to keep us quiet.

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How about simple? The sure way to be sustainable is to live within the planetary ecology as we did for the first 100,000 years of our being human.

Here another story about this ultimately simple plant: <http://www.wildwolff.com/moa.pdf>
Moa is a chapter in the book Ha'ina Mai Ka Puana; Let The Story Be Told

On the picture, only the green stems are moa, the reddish lines are the roots from a fern that grows much higher up.