



# NECTANDRA INSTITUTE

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## The Rhythms of the World

I might be the only one, but when I think about concepts in ecology such as biodiversity, niche-filling, and symbiosis between different organisms, I'm unwittingly reminded of former TV child star, Gary Coleman. Specifically, I recall the first line from the theme song for Coleman's 1980s sitcom *Diff'rent Strokes*. The lyric, which proclaimed that "the world don't move to the beat of just one drum", pretty much captures for me one of the most important tenets of nature: variety is key.

When our partner communities work on restoring their watershed properties as a means to protecting their sources of potable water, they plant several, as opposed to a few, species of native trees to help speed up the return of the forest. The idea behind this is that the diversity of tree species will attract a diversity of seed-dispersing animals. This dynamic may eventually turn into a positive reinforcement loop that can do much more towards achieving a full-fledged forest than any monoculture of trees ever could. But yet another equally important reason for prioritizing diversity is the fact that a more varied ecosystem is more resilient than a not-so-diverse natural community. For example, if a disease afflicts a specific member of a particular ecological community, then only that member and presumably those other species whose existence heavily relies on that member's well-being will be the ones adversely affected. The rest of the community, however, will be fine. What's more, other species will take advantage of and flourish in the niche left behind by the direct and indirect victims of the disease. At the other end of things, if an ecosystem is made up of a very limited number of species, then a disease is more likely to become an uncontrollable plague that can wipe it out completely.

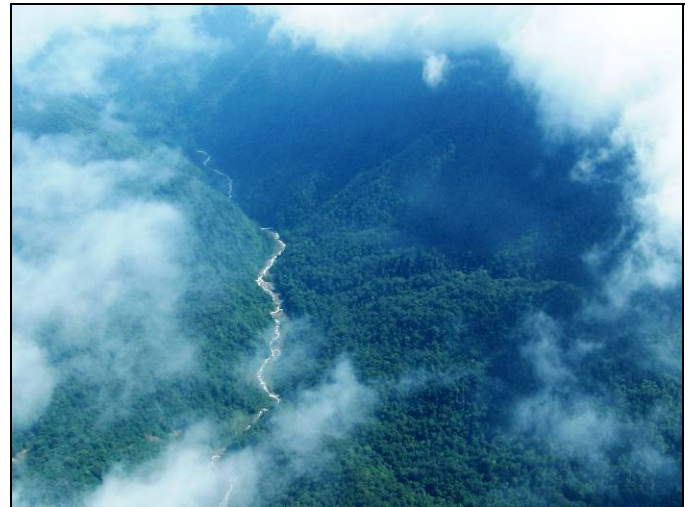
Having come to conservation and environmentalism via detour from the social sciences, I often find myself drawing parallels between what I learn from my current ecological work and what I observe in human social, cultural, and even economic systems. And I see flashing red lights all around. As a global society, we seem hell-

bent on squashing diversity, in all its different categorical manifestations.

Economy-wise, we are all witness to an ever-increasing gap between rich and poor, which put differently, is an increasing concentration of sources of investment capital. Simply put, there are fewer and fewer people making decisions about where to invest wealth and for what specific purposes. From a common sense standpoint, this does not bode well, and it should give one pause, to say the least.



A large metropolitan city, perhaps one of the least diverse ecosystems on earth



A tropical cloud forest, undoubtedly one of the most diverse ecosystems on earth

Energy-wise, for all the talk about alternative and sustainable sources, we continue to place just about all our eggs in the basket of fossil fuels. Industrialized nations' glaring lack of a moral standing in the eyes of countries that want to prop up their own economic growth on a foundation of coal-fired power plants turns affairs such as last year's Copenhagen Summit into little more than costly exercises in rhetoric. Meanwhile, the oil spills in places like the Gulf of Mexico, not to

mention our planet's atmosphere, are getting bigger and bigger.

Nutrition-wise, many people in the industrialized world might as well be a bunch of walking corn and soybean stalks, given the large number of processed foods in our diets that come from these two plants and their derivatives. Then there are the meats we eat, such as corn-fed beef from cattle that originally evolved to be grass-eating ruminants. The negative health effects from consuming so much high fructose corn syrup ubiquitous in processed foods and the marbled, high fat meat associated with corn-fed cattle are slowly, but surely coming into focus.

And culture-wise, since local and regional traditions tend to be closely correlated with a place's particular economy, means of energy, and food system, should we be surprised at the increasing uninspiring homogeneity between the customs of the "developed" world's different peoples? Meanwhile, citizens of so-called developing countries, sadly, seem easily convinced that setting aside some of their long-established, proven ways of life in favor of those imported from the North is for the best. Earlier this year, a group of university students from the U.S. paid a visit to one of Nectandra Institute's partner communities to learn about local watershed restoration efforts. In conversation with me, one of the group members commented how surprising it was to see the amount of trash and litter lining the streets in some places of Costa Rica. I offered that it shouldn't be too surprising considering this country, like many others, is steadfastly moving towards a consumption-based, throw-away economy. Later that day, the visiting students had a typical Costa Rican lunch in the community's dining hall, served in disposable, plastic plates and cups. When I noticed the hall had a set of traditional dinnerware stored underneath the pass-through between the kitchen and the eating area, I asked one of our local hosts why it hadn't been used instead of all the plastic. Her reply was simply that it was a little worn and so it would have been somewhat embarrassing to use it.

So what does a forgotten, dust-covered Costa Rican dinnerware set have to do with bio-diverse ecosystems? Actually, much more than one would think. It perfectly symbolizes how easily we are willing to shelve the many and distinct ways of life we humans have developed over our history. It is an excellent example of forsaking culture and traditions that arose for the purpose of dealing with many different local and very particular environments. And as we've discarded cultural diversity for a one-size-fits-all approach to life (a mono-culture, if you will), we have also damaged our planet's biological and ecological diversity. Because achieving the dubious economies of scale offered by an increasingly global

industrial economy and consumptive culture inevitably means converting important quantities of the planet's natural wealth into manufactured capital useful exclusively to humans. There is no need to go into depressing statistics on deforestation, river and ocean contamination, and species extinction rates to illustrate my last point. We've all heard them already and shouldn't need further evidence to understand how much of the exorbitant cost associated with our material development nature has paid for us.

The success we've enjoyed as a species is due in no small part to our inventiveness in the face of diverse environments. Our ancestors employed this resourcefulness, and over time it resulted in a rich tapestry of human cultural diversity throughout the world. But the diminishing returns of what is proving to be a dangerous and unbridled use of this ingenuity are unmistakable to anyone who is paying attention to how industrialization is insidiously suffocating our cultural heritage and diminishing our natural world. Clearly, we have a ways to go before all of the world's varied cultures are supplanted by a single mega-culture of people living in blandly developed communities, eating blandly processed foods, and working for companies that give them bland job titles ending with the term "associate". That such a scene is not quite at our doorstep, assuming for a moment that it is even possible, is not really the issue. The real question is why, as a global society, do we even insist on taking steps down that dead-end path at all? Haven't we learned by now nature's critical lesson? "It takes *Diff'rent Strokes* to move the world."

— Luis Villa

### Dear Madam President

*On May 8<sup>th</sup> of this year, Laura Chinchilla Miranda became Costa Rica's first female president. In the 2010-2014 plan for government promoted during her election campaign, then-presidential candidate Chinchilla spoke on several issues related to the environment, including the need to improve the country's wastewater treatment strategies, redouble efforts to develop alternative energy sources, and increase the area of Costa Rica's forests in order to help combat green house gas emissions and restore degraded soils. Recently, we asked women from the communities we work with to write a letter to the new President, expressing their hopes and vision for the new government insofar as the environment and conservation.*

*These are some of their words:*

"Distinguished Madam President:

There are many projects and challenges that you must accomplish, but I believe one particular priority must be [protecting] the environment.

I am a humble citizen and mother, and the environmental legacy we are leaving our children is a source of deep worry for me.

I have asked myself, “What does President Laura [Chinchilla] need to do during her administration to protect the environment?”, and I believe the answer to this question is: [protect] “water”. Why water? Because it is the fundamental element for life on our planet; it is the physical representation of God’s love towards man and towards all of Creation’s living things.

It affects us in all aspects of our daily lives.

Throughout history, all of humanity’s major population centers have been founded around sources of water...[however] the enormous economic and population growth worries me. We are rupturing [our planet’s] natural equilibrium as a result of having so much power in our hands...existing sources of fresh water in our country are being contaminated with chemicals, wastewater, and with other agents...We are not doing enough to solve this problem. [Water] is a treasure that God has given us.

Today I challenge you, Madam President to save our beloved Costa Rica...Let us find solidarity around the theme of water. It is up to you to promulgate in defense of water and in that manner fight to conserve its purity and vitality.

Water is all around us. It has always been available to us and it will continue to be as long as we ensure its protection.”

— Maritza Vásquez  
Homemaker and Housekeeper  
Laguna, Costa Rica

“...I wish to request that your administration consider providing...incentives to our country’s families to encourage them to engage in activities that make them feel a part of the [natural] environment that surrounds them...”

— Olga Lidia Arce Paniagua  
School Principal  
La Brisa, Costa Rica

“...more aggressive campaigns are needed to make people understand the future that awaits us if we don’t change our current mentality; if we destroy our natural resources, we destroy ourselves...if we are this planet’s most intelligent species, then we should demonstrate it.”

— Floribeth Mora Vargas  
Teacher  
La Brisa, Costa Rica

“...I live in a small community called San Antonio Barranca...we are currently monitoring water quality along a short stretch of a [local] creek, while also working to restore it given that it is severely damaged and contaminated in certain places...I would like to invite you to our community so that we may show you in greater detail the environmental projects we are carrying out...”

— María Virgita Jiménez Quirós  
Homemaker  
San Antonio Barranca, Costa Rica

“...I have a daughter in 4th grade and I volunteer on different committees in my community...I would like it if your administration worked to protect our natural resources and our sources of [drinking] water. Thank you very much and may God bless you.”

— Marlene Quesada Rojas  
Homemaker  
La Brisa, Costa Rica

## News & Activities, January to June 2010

**January** – Nectandra Institute’s conservation efforts are carried out with a look towards the future. Similarly, one of our community partners, [AFAMAAR](#), a local watershed conservation organization, has set its sights on the future by forming a support group of young adults to serve alongside its founding Board and help bolster its work. The group visited us at [Nectandra Cloud Forest Garden](#) and has enthusiastically embraced its role, revamping AFAMAAR’s website, helping with custodial and restoration activities at [AFAMAAR’s 250-acre property](#) purchased last year with [eco-loan](#) assistance, and planning several activities to increase awareness for their work in support of watershed restoration and protection of water resources.

**February** – The [Balsa River watershed](#) communities of Angeles Norte and Alto Villegas held their annual joint water management association members’ meeting. Residents attending the meeting were treated to a presentation by Nectandra Institute staff highlighting the importance of watershed protection and reporting on the restoration progress of the [communities’ 27-acre property](#) purchased in 2007 with [eco-loan](#) financing.

**March** – Dr. Daniel Norris of the [Jepson Herbarium](#) of the University of California, Berkeley, U.S.A. taught a course on tropical bryology at the [Nectandra Cloud Forest Garden](#). Participants from five continents came together for eleven days of intensive study on tropical bryophytes (mosses, liverworts, and hornworts) of the Costa Rican cloud forest. Fieldwork included a trip to a 250-acre community-owned restoration site. Mosses

and other bryophytes play an important role in montane cloud forest hydrology by capturing moisture and nutrients, providing habitat for countless organisms, stabilizing soils and depositing organic matters. In intercepting, filtering and slowly releasing rainfall and other precipitation, bryophytes reduce erosion and help maintain the flow of streams and rivers throughout the year.

[LightHawk](#) donated two flights to Nectandra Institute. LightHawk's mission is to champion environmental protection through the unique perspective of flight. Flying aboard a small, single-engine airplane with one of LightHawk's volunteer pilots at the controls, Nectandra staff took an [aerial tour](#) of the eastern sector of the upper [Balsa River watershed](#), which included flyovers of some of the communities we work with and the conservation properties they own. The video and photo documentation obtained will undoubtedly serve as a powerful tool in our effort to promote a "watershed vision" by residents of our partner communities.

April – Women from five different [Balsa River watershed](#) communities, in coordination with Nectandra Institute, obtained and analyzed water samples from 17 points along different nearby creeks and rivers. The women are part of a water-quality monitoring network that began a [five-year project](#) in October of last year that will see these same stream locations tested every six months. Data obtained will be publicized with the aim of informing the local land-use planning process.

Nectandra Institute president, Alvaro Ugalde, appeared on the radio show, *Nuestra Voz* (Our Voice). The daily program is perhaps the most tuned-into morning broadcast in Costa Rica. Alvaro took the opportunity to shine a spotlight on conservation initiatives by local communities, especially those aimed at protecting watersheds and forests for the important role they play in the provision of potable water. For all you Spanish speakers, the following is a link to a podcast of Alvaro's April 23<sup>rd</sup> appearance on *Nuestra Voz*. The host's interview with Alvaro begins at about the 40 minute mark:

<http://www.ameliarueda.com/contenido/articles/2187.html>

May – Residents from the Balsa River watershed community of San Antonio spent several hours on the weekends cleaning up the two kilometer-long San Antonio Creek, which flows into the Espino River, a tributary of the Balsa River. In one 200-meter stretch of the creek, [19 large tires were fished out](#) along with enough trash to fill 6 large sacks. One member of the creek's clean-up committee is a local dairy farmer that has acknowledged partial responsibility for the contamination flowing into the creek. Besides

volunteering for the clean-up initiative without any prompting, he is also in the process of implementing new technologies, such as a bio-digester, in his business that will reduce its impact on the creek. San Antonio is one of five communities that have adopted a local creek or river as participants in Nectandra Institute's Río Sano, Río Vivo (Healthy River, Live River) competition taking place throughout this year.

June – Herpetologists Drs. Sean Rovito, Tom Devitt (Museum of Vertebrate Zoology, UC Berkeley) and ecologist Susan Cameron-Devitt (Museum of Comparative Zoology, Harvard University) surveyed the herpetofauna at Nectandra Cloud Forest Garden for ten days. The distribution of Costa Rican amphibians and reptiles is undergoing drastic changes due to climate shifts. Since the extinction of the golden toads (*Bufo periglenes*) documented at Monteverde in 1997, the population of other studied amphibian species has declined sharply as well. Current information on the herpetofauna of Costa Rica is critically important to the future of these beautiful and elusive animals.

**Black Jaguar** – Published in *Brenesia* 71-72:67-68, 2009, is a report of a highly unusual sighting by graduate student Melvin Cartín Núñez (Universidad de Costa Rica) & professor Dr. Eduardo Carrillo Jiménez (Universidad Nacional ) using cameras contributed by Nectandra Institute: "Jaguars can have two different skin colors. The most common pattern in the upper parts is golden yellow with circular black rosettes, usually with a small black central spot. The other type of jaguar has black pigmentation in the fur, which makes it almost impossible to distinguish the rosettes. These black jaguars are popularly known as panthers and are very difficult to find in the wild. In this paper, we report the two first confirmed records of a wild black jaguar pup in Costa Rica. The first photo was captured on February 23<sup>rd</sup>, 2009 at 14:10 h. It was taken with a digital trap-camera of Stealth Cam® (model STC-DVSIR5), in one of the natural trails of the Alberto Manuel Brenes Biological Reserve (ReBAMB by Spanish abbreviation), San Ramón, Alajuela, Costa Rica (N: 10 13.275 W: 84 36.368). A month later, March 26<sup>th</sup> at 13:16 h, the second record was obtained at the same location. On this occasion, the camera filmed a 30-sec video clip, the first five seconds with the jaguar pup. This was the first confirmation of the existence of the black jaguar in Costa Rica since Alfaro (1897) wrote about its presence in the northern lowlands of the country."

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