



## Nectandra Institute

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### Concrete Rivers

Let me be candid. Unlike my co-workers here at Nectandra Institute who are either conservation biologists or scientists, I'm coming into this with very little formal or even informal education about biodiversity, conservation, ecosystems, or anything "green" for that matter. I was born and grew up in the "concrete jungle" that is Los Angeles, California. Instead of dedicating time to learning about different tree and plant species in a cloud forest, I've spent a ridiculous number of hours on congested highways staring at all makes and models of cars and menacing looking SUVs (I'm convinced you could fight wars against terrorism in some of those contraptions). For a long time, my notion of a river was limited to the concrete-laden drainage canal that is the L.A. River. (True story: as a kid, I rode my bike on the cemented-over river bed to get to the beach) For most of my life, I haven't had the faintest notion of what the natural environment really is and, even less so, my role in it.

Don't misunderstand me, I've always been pretty good about recycling, not leaving the tap running while brushing my teeth, taking public transportation to work whenever possible, and supporting local small business. I've participated in a neighborhood clean up campaign or two, and as a kid growing up, I was always the one in my family turning off the lights when they were not in use. But why I did all this, I had no clue beyond knowing that it seemed right. My upbringing, schooling, and socialization never really equipped me with the knowledge needed to connect the dots between my relatively small actions and their meaning in the grand scheme that is nature.

### A Pixel of Light

My notion of nature really began to change after moving to Costa Rica from the United States over two years ago. Since then, I've been on one of the most eye-opening journeys of my life. At first I thought I'd stumbled upon it by accident, but now I know better. It is a journey for everyone alive today or in the near future, only some of us will have a bit of a head start. It is a journey that will take us back to the basics, some might even say "back to nature", and it will bring some much needed perspective into our lives. We will make the journey either reluctantly, kicking and screaming, or perhaps understandingly and somewhat resignedly, or maybe willingly, filled with hope and optimism. Whatever the attitude we bring with us, it is a journey we will all have to make.

One particularly poignant moment in my own journey occurred a little over a year ago as I watched one of the last scenes of the movie *An Inconvenient Truth*. A picture is shown of Earth taken from four billion miles away by an unmanned spacecraft. The planet is barely visible, appearing just as a tiny pale blue pixel. The rest of the shot is almost completely dark. As I listened to Al Gore say "everything that has ever happened in all of human history has happened on that pixel," I felt my eyes tearing up. This surprised me, and I felt in that moment the enormity of the truth being spoken to me. There we were, just one little pixel of light, an almost exclusively closed system surrounded by so much space, and all these years with us living on it as if there were no limits, as if there were no tomorrow. It was a defining moment during which I felt a connection to the Earth like never before.

### Eco-Loans

Soon after this, I started working alongside some very dedicated individuals at Nectandra, doing what is in my estimation, some of the most important work I've ever been involved in. Curiously, I was asked to join Nectandra because of my non-ecological expertise, specifically for my experience administering a loan program for non-profit housing developers. Nectandra wanted to set up its own lending program, only the idea was to make credit available not to housing developers but to "ecosystem re-developers". Loans would be made to rural community water management boards or associations in order to help them acquire the lands necessary to protect their sources of water for drinking and other uses. Instead of charging interest on the loans, Nectandra would require certain commitments from each borrower such as allowing natural regeneration to take place on the acquired property, assisted and planned reforestation with native species, and perhaps most importantly, a formal commitment to launch and sustain a community education campaign in order to foster awareness and appreciation among residents about the true cost of maintaining the environmental services provided by healthy forest ecosystems.

A few weeks ago, I helped the representatives of the first eco-loan client with some preparatory work to begin reforestation of the eleven-hectare property they purchased. We started very early in the morning and spent several hours climbing around the broken, extremely compacted terrain of the former cow pasture, finding and marking the most appropriate spots on which the first thousand trees will be planted once the rainy season begins. In identifying these reforestation areas, we considered some of the varying conditions of the land that might help or hurt the young trees' chances of survival: slope, shade, wind, soil compaction, etc. The work wasn't easy. At the end of it, tired and sweaty, the only thing I kept thinking was how difficult actual tree planting was going to be if merely staking reforestation parcels had been so exhausting. This brings me to the first major point I want to make: helping nature restore itself is hard work. It requires significant investment on our part in terms of time, money, and other resources we normally dedicate to other things. From my



Land purchased by the Tapezco local water board with the assistance of an eco-loan. The community plans on eliminating agricultural production and reforesting it to protect a nearby freshwater spring.

perspective, that's a critical part of our purpose at Nectandra: getting as many people as possible to understand that protecting and healing our environment will not be easy nor will it come cheaply.

## Community Ecosystems

And how do we get and keep folks excited about investing in conservation and restoration? Zero-interest eco-loans are a good start, but the linchpin is most certainly education. One particular educational front Nectandra has initiated is our series of workshops directed towards rural community water boards. Participants in the free classes are exposed to such topics as basic watershed hydrology, environmental law, water quality analysis, and even fundraising beyond the usual water service revenue they collect. From my own participation in the workshops, I learned that it is critical for the water boards and their respective communities to start viewing their water supply systems from a more holistic standpoint and investing in them accordingly. The fundamental message: a water delivery system is much more than just a series of supply lines, storage tanks, and water meters.

Alvaro Ugalde, Nectandra Institute's president, likes using the phrase "community ecosystems" when describing the comprehensive view we must have of the infrastructure that makes human communities possible. Such a view, he feels, will better inform the decision-making process when determining public investment priorities. Visiting the communities we work with, I've been impressed with their level of organization. Many have a development association through which residents formulate, obtain financing for, and bring about several projects that aim to improve the quality of their lives.

Community development associations in rural Costa Rica have been the impetus for the construction of many a school, church, and soccer field. However, few rural towns, with or without these associations, have made it a priority to secure the resources necessary to ensure long-term protection of their

headwaters. Instead, there are numerous examples of water boards (which incidentally are often administered by some of the same town residents managing the development association) undercharging domestic and commercial users for the service. Sometimes, a flat fee is charged for unlimited water use, a fee that in at least one case I know of is as low as ten dollars per year! To be fair, corruption or fraudulent intentions are not behind this absurdly low price. It has more to do with a pervasive attitude in many parts of the country that sees clean, fresh water as a never-ending resource. Several folks have told me that when they were growing up, the repeated message from teachers and other adults was that they would never run out of water. Unfortunately, this way of thinking has carried over into a time when sources of clean water are facing ever-increasing strain from land-use change, contamination, and other human activities. Instead of raising water rates to defend against these pressures, the status quo continues in many cases.

The funds collected fall well short of what is required to make any significant investment in the long term sustainability of the system. The nominal revenue may pay for routine maintenance, costs of supply lines, storage tanks and other man-made components, but it is not enough to maintain the heart of the system: the forests and recharge areas. Environmental education is a critical piece of the puzzle in changing all this, and that I would say is my second major point: we all have a lot of learning to do regarding how intimately tied to the health of the natural world is our own well-being. Once we've done that, we will likely see the end of ten-dollar-a-year water service fees.

## Limits

So where are we? Repairing nature is going to require a lot from us. And we have no choice but to repair and protect it because our own well-being depends on it. But there's one more thing, and it's the toughest pill of all to swallow: we have to be brutally honest with ourselves about the implications of real, unabashed measures to restore and protect our planet and the environmental services it provides us (third major point, if you're counting). As a global society, we have to accept there will be trade offs, particularly when it comes to our current conception of "development." Think about it: An agricultural community makes a decision to purchase land that could otherwise be used for economically productive purposes and sets it aside under a regimen of environmental restoration and perpetual conservation in order to protect its sources of potable water. In so doing, that community is respecting its limits to growth, but it is also going a long way towards assuring a healthy quality of life for its residents.

In a world where the idea of "development" is akin to growth, this sort of action may not compute. Having been born and raised in the "developed" world, I am not immune to the cognitive dissonance that can arise when one begins to accept there really are environmental limits to economic growth. The most sobering lesson in my journey thus far has been discovering I can't have my piece of cake and eat it too. I've started reconciling my desire for a better world,

environmentally and socially, with how my personal lifestyle makes that more or less the case. Limits, carrying capacity, ecological harmony, cyclical processes, natural capital, quality in lieu of quantity...these are all words and phrases that should be part of our everyday vocabulary. Maybe the day we stop viewing our world as a never-ending resource to be pillaged and plundered and start seeing it for what it really is: our only home, a tiny pixel of light, barely visible in the cosmic expanse in which it is suspended, then that will be the day we will have come full circle and our collective journey will be complete.

— Luis Villa

June 2008

### Inauguration

This mid-year issue of our newsletter inaugurates a new tradition to provide information about the Institute's off-site programs, which are an increasing part of our activities. These outreach programs for the water associations are vital to a continuing working relationship with the communities and to a lasting impact of our eco-loans on the environment.

Luis Villa will be the main contributor to the mid-year newsletters. Luis is a Stanford graduate who moved to Costa Rica two years ago to work as a volunteer for Habitat for Humanity International, an organization that builds houses for people in need. Prior to that, he administered loans for a non-profit financial institution that provides capital for the low income housing industry in California. Currently, Luis is enthusiastically managing the Eco-Loan Fund for Nectandra Institute.

### Nectandra Institute Events, January to June 2008

**January** – The Institute launched its VIDA Club initiative beginning with the communities of Pueblo Nuevo and Palmira in the Balsa River watershed. “Vida” is the Spanish word for life. The clubs are comprised of women who are eager and motivated to design and implement environmental projects in their community. The VIDA Clubs are designing their projects around recycling, reforestation, and environmental education

for local schoolchildren. The active involvement of women in environmental initiatives through VIDA Clubs is an excellent complement to the efforts of community water boards, whose volunteer directors are predominantly men. VIDA Club members' children, of course, are our hopes for the future as well.

**February** – Nectandra made its second eco-loan. The recipient, was the small, rural community of Pueblo Nuevo. Together with funds raised by the community itself, the town's water board used the loan to acquire a 61-hectare property, at least part of which falls within the boundary of Juan Castro Blanco “Water” National Park (JCBNP). (Most of the aforementioned park's lands have yet to be purchased by the state.) Pueblo Nuevo obtains its water from the acquired property. Approximately 25% to 35% of the 61 hectares are forested with the rest having been cleared for use as cow pastures. Over the next several years, the community of Pueblo Nuevo and Nectandra will work together to restore the deforested areas of the property, maximize its water-producing capacity, and bring back as much of the lost biodiversity as possible.

**March** – Ten representatives from Uganda's Wildlife Authority paid a special visit to the Institute as part of two-week tour of Costa Rica to see and learn about some of the best practices employed in this country to sustainably manage the natural environment and its resources. During their time with us, we highlighted for the Ugandan delegation our work with rural communities, stressing how important it is for local peoples to take the initiative in restoring and protecting the nearby forests, rivers, and other ecosystems that make their communities possible.

**April** – The Institute made its third eco-loan, and with it, the community of Tapezco purchased a small, but critically important property to protect the spring that provides approximately 80% of the town's water and part of its recharge area. The four-hectare property is located just on the outskirts of JCBNP. Once reforested, it will play an important role in bolstering the park's buffer zone, as well as protecting the town's source of water from potential contamination from neighboring agricultural activity.

**April/May** – Working in partnership with some of the communities of the Balsa River watershed and CAVU, a non-profit, film production organization, Nectandra produced “Agua...más que un tubo” ( Water... more than a pipe) , a documentary about the communities’ efforts to protect their sources of water and restore the forests and recharge areas in order to ensure its availability long-term.

**May** – Manrique Esquivel joined Nectandra Institute. One of his primary roles here will be as lead coordinator for restoration projects on properties acquired with the help of the Institute’s eco-loans. Manrique holds a bachelor’s of science degree in biology with an emphasis on tropical ecosystems from the National University of Costa Rica. Manrique’s expertise will be critical in developing baseline studies, selecting appropriate strategies for assisted reforestation, and monitoring restoration progress.

**Throughout** – The Institute’s free workshop series continued with the participation of three new rural community water management boards. The new participants, Anateri, La Peña, and San Luis, are all communities in the Balsa River watershed, part of the larger San Carlos River watershed, the Institute’s priority action area.

Nectandra continued its participation in ProBalsa, a regional commission set up specifically to spur the creation of a management plan for the Balsa River watershed. The goal is a plan that considers the various actors and diverse socio-economic activities in the basin and reconciles them with the need to develop in a sustainable manner. In addition to Nectandra's participation, others who sit on the commission include representatives from the three different municipalities that are present in the watershed, the hydro-electric companies that depend on its rivers, the government's ministry of the environment as well as the ministry of agriculture, and community leaders

Juan Castro Blanco National Park is located in the upper most region of the San Carlos River watershed. It is considered one

of the top two freshwater-producing eco-regions in Costa Rica. The many streams, rivers, and springs that flow from it give rise to an extraordinary degree of biodiversity. The park’s over 14,000 hectares (34,600 acres) includes cloud forest, both low and upland tropical rain forest, and an elevation range of 400 to 2267 meters (1312 to 7438 feet). However, it is often described as a national park “only on paper” because about 95% of the properties that comprise it have yet to be acquired for lack of federal resources. During the first half of 2008, Nectandra Institute continued working in partnership with Costa Rica’s Parks Service and others in an effort to consolidate this important national park. Besides actively seeking funds for land acquisition, this concerted effort also aims to obtain the necessary resources for all pre-acquisition due diligence (e.g. land entitlement research) and for the development and implementation of an effective park management plan.



*Hyla pseudopuma*, identified by National University of Costa Rica students Elena Vargas and Juan G. Abarca Alvarado, is a highland tree frog in the partially forested property acquired by Pueblo Nuevo. In general, the presence of amphibians is a good indicator of an ecosystem's health.