

## COMMENTARY

**Adopt a Forest**William F. Laurance<sup>1</sup>

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AS TROPICAL BIOLOGISTS, MANY OF US ESPOUSE ENVIRONMENTAL CONSERVATION to our students, our peers, and sometimes to the media and general public. In doing so, we are helping to spread the word, to inform the populace about the importance of tropical nature and the many perils it faces. But the things we talk about are often general in nature, such as the looming dangers of deforestation, or the generic threat of global climate change. Are we really having a positive impact? As one who has spent much of his professional life attempting to influence conservation policy and action in the tropics, I have become convinced that there is one strategy, above all others, that is most likely to achieve real success. One should adopt a forest.

The potential of this strategy is revealed by perhaps the most famous tropical forest-adopter of them all, Daniel Janzen. Working and often residing in Costa Rica since the 1970s, Janzen has adopted the critically threatened tropical dry forests of Guanacaste (Janzen 1986, 2000, 2002; Campbell 2002). He has studied these forests and their biota intensively, told the world of their importance, worked tirelessly to establish and expand Guanacaste National Park, and helped to acquire and rehabilitate a considerable expanse of tropical dry forest surrounding the park. Were it not for Janzen, Guanacaste would likely be an obscure and degraded relict of an endangered ecosystem, rather than one of the more famous places in the lexicon of tropical biology.

Janzen is not alone, of course. Patricia Wright's tireless efforts to study and protect Ranomanfana National Park in Madagascar (Wright & Andriamihaja 2002, Conniff 2006), and Scott Mori's attempt to protect forests around Saül in French Guiana (Mori & de Granville 1997, Mori *et al.* 1998), also spring to mind as examples of determined forest-adopters, although the Saül forests have since been overrun by illegal gold miners. Also prominent in a list like this are those in-country conservation leaders, such as Paulo Nogueira-Neto in Brazil (Nogueira-Neto 1966, 1991; Lovejoy 2005) and Emil Salim in Indonesia (Salim & Ullsten 2000, Anon 2006), who pioneered protected-area networks in their respective nations.

**THINKING GLOBALLY AND ACTING LOCALLY**

At its 2007 annual meeting, the Association for Tropical Biology and Conservation (ATBC) recognized Ghillean Prance, the former

director of the Kew Gardens, UK, as ATBC Honorary Fellow. Sir Ghillean received the award for a career dedicated to tropical research, leadership, and conservation, and I believe his efforts provide some general lessons to those of us who aspire to have an impact on environmental protection.

Since 2001, Prance has devoted much of his time and energy to the Yabotí Biosphere Reserve in far northeastern Argentina (Prance 2007), which at about 237,000 ha contains the largest contiguous remnant of the severely degraded southern Atlantic Rain forest in South America (UNESCO 2007). Yabotí Reserve was initially established under the leadership of Marcio Ayres, a leading Brazilian primatologist. Sadly, however, cancer ended Ayres' life prematurely—long before the Yabotí Reserve was truly viable.

By the time Prance entered the picture in 2001, two core areas of the reserve totaling 21,000 ha were nominally protected (UNESCO 2007) and yet the reserve was losing a war of attrition to logging, illegal forest clearing, and poaching. Compounding these problems was the fact that the government of Misiones Province in Argentina, which was responsible for protecting the reserve, had poor relations with the Guaraní Amerindians, the main indigenous group in the region. The reserve also suffered from a paucity of basic scientific information.

Once he became involved with Yabotí, Prance quickly became a leading advocate for the reserve. Among his first actions was to search for funds for basic capacity-building. Prance and his colleagues at the Eden Project in Cornwall, England submitted and received a large (US\$914,000) grant from the Darwin Initiative in the United Kingdom, for training and conservation in the reserve. The funds facilitated badly needed aerial surveys of the park, to document its present status and threats. They were also used to help an Argentinean foundation, Instituto Darwinion, to upload data for a systematic botanical survey of the reserve. In addition, the grant helped to support a dynamic group of young zoologists from nearby Iguazu in Brazil, who began to work in the reserve at Prance's behest. The zoologists used camera-traps to document the reserve's wildlife, and among their most exciting findings was that an individual jaguar traveled between Yabotí and the Turbo Reserve in Brazil. This involved a straight-line movement of some 20 km, as well as swimming across the 200-m-wide Uruguay River, and demonstrated that ecological linkages between the two reserves were potentially important.

Along with his colleagues, Prance began working to build a constituency for Yabotí Reserve, and to improve relations with the local government and populace. Short courses were developed and

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taught for local ethnobotanists, and other local scientists were invited to the UK for training (Prance 2007). The head of Instituto Darwinion was invited to join the reserve's international advisory board. Among the most politic of Prance's initiatives was to recruit a local ethnobotanist, Hector Keller, as a doctoral student. Keller had at that point been working for the local Guaraní Indians for 7 yr, was fluent in their language and customs, and had excellent relations with the local tribes. With Prance's help, Keller played a crucial role in improving relations between the Guaraní and the provincial government. This, in turn, earned Prance the gratitude of the provincial government and its environment minister. The provincial government soon hired an additional 50 park rangers, many of which were assigned to Yabotí Reserve. These rangers have now greatly reduced wildlife poaching and illegal encroachment in the reserve.

Prance and his colleagues are also striving to reduce the threat from industrial logging. They are currently attempting to raise US\$1.4 million to purchase a 10,000-ha logging concession in the reserve. They are already well on the way to achieving this goal, thanks to a major grant from the World Land Trust in the United Kingdom, a group that has already purchased critically endangered forests in Ecuador and the Atlantic region of Brazil.

Having greatly improved the situation at Yabotí, Prance and his allies in the Misiones Provincial Government are today pondering an even loftier goal: creating a corridor to link Yabotí to the only other major forested area in the region, located at Iguacu some 200 km to the north. This would involve protecting and rehabilitating a large expanse of fragmented and degraded land between the two reserves. Clearly, Prance and his colleagues cannot be faulted for thinking small. Prance now makes two mo-long visits to Yabotí each year, and much of his remaining time is devoted to fundraising and raising the profile of this critical region.

## ANOTHER CONSERVATION STORY

Does one have to be a world-renowned scientist to make lasting contributions to forest conservation? The answer, I emphatically believe, is 'no'. From the opposite end of the spectrum, consider Guido Berguido, the operator of a small ecotourism business in Panama. A self-effacing 33-year-old who becomes galvanized when discussing nature conservation, Guido seems to embody an old sporting aphorism: It's not the size of the dog in the fight, it's the size of the fight in the dog.

Guido grew up in humble circumstances in Panama City. By age seven, he had developed an active interest in nature, fostered by Jacques Cousteau programs, and he eventually received his B.Sc. in biology at the University of Panama. Along the way he was given an old pair of binoculars and soon became fascinated with birds. He had also learned English during a stint in the United States, where he was sent to avoid military conscription during the final throes of the Noreiga dictatorship. He parlayed his nature interests and English fluency into a small business, Advantage Tours, guiding foreign birders and ecotourists around Panama.

As a keen birder, Guido became intrigued with the idea of finding locally endemic species and subspecies. In 2004, knowing that isolated montane areas often harbor such endemics, he decided to explore Cerro Chucantí, a poorly known, 1440-m-high massif located 120 km east of Panama City (see cover image of this issue). As he and a colleague ascended the summit on horseback, they were shocked to see that much of the forest was either being logged or razed to make cattle pastures. Even as they identified a number of rare or locally endemic birds and monkeys, they realized that the mountain cloud forests were imperiled.

Guido returned to Chucantí frequently, often accompanied by fellow biologists lugging liquid-nitrogen tanks for tissue samples destined for molecular genetic studies. Even in their preliminary surveys, they discovered several apparently new and endemic frog, lizard, and orchid species, recorded many high elevation endemics, found evidence of top predators such as jaguars and pumas, and markedly increased knowledge of the fauna and flora of the site.

Most of the forest at Chucantí is privately owned, and Guido began to contact local landowners, imploring them to sell their properties to help preserve the forest. He managed to acquire his first forest property, totaling 42 hectares, for \$8200, in a devilishly complex transaction that required him to pay both the landowner and a logger that was bent on extracting the big trees in the forest. He began to buy other properties, concentrating on strategic forest blocks that were in most danger of being cleared. He now owns five properties in Chucantí, totaling about 300 hectares in area. Much of the money has come from his own pocket. He has invested nearly all of his personal savings, and a third of the proceeds of his company, to buy the forests. Several of his birdwatcher clients, stirred by Guido's selflessness, have also made generous donations; a Canadian doctor, for example, simply wrote him a check for \$19,000, so he could buy a vulnerable forest block.

Although he owns just a twentieth of the Chucantí forest, Guido is actively working to preserve the entire area. He has built a seven-room field station at the site, and now employs three rangers to maintain the area and patrol for illegal land-clearing and poaching. Except for small-scale subsistence farming, it is technically illegal in Panama to destroy primary rain forest—although enforcement of this law is rare—and Guido has reported some of his neighboring landowners to the Panamanian authorities for such transgressions. This has complicated his relationships with his neighbors, but he has softened the blow by often employing them and their families as guides and cooks for his bird-watching tours.

Although Guido Berguido has made enormous inroads, his mission is far from finished. Each year, more of the Chucantí forest is whittled away, and he estimates that he needs \$1 million to buy and develop a buffer zone that would completely protect the mountaintop forests from the expanding agricultural lands below. Eventually, he aspires to see the Chucantí cloud forests, as well as a linked belt of rain forest that extends into the coastal lowlands, preserved as a national park. This is essential, he believes, to provide ecological connectivity for the many animal species that migrate seasonally in response to phenological changes along elevational gradients (Loiselle & Blake 1991, Powell & Bjork 2004). One complication is that he has no politically powerful relatives

or friends—an enormous asset in Latin America—but he is undaunted. On behalf of the Panama Audubon Society, he is currently writing a proposal to the IUCN Small Purchase of Nature Program, in a bid to buy more of the endangered forest at Chucantí.

## LESSONS FOR CONSERVATIONISTS

How have Ghillean Prance and Guido Berguido accomplished so much, so quickly, as conservationists? Each brings something very different to the table. Prance has a great deal of experience in scientific leadership and diplomacy. His personal demeanor and credentials demand respect, and his connections with conservation foundations, especially in the United Kingdom, have been helpful for gaining key financial support for his endeavors. Berguido lacks such high-level experience and connections, but is possessed

of a single-minded dedication that has surmounted innumerable obstacles.

Despite their differences, I believe that Prance and Berguido share some key attributes that have contributed fundamentally to their success. Among the most vital are their determination, their dedication, their strong sense of focus, and their capacity to engage and motivate others. Equally important are their clear vision and sense of individual empowerment: each sought out an imperiled forest of exceptional conservation significance, and then set himself the task of helping to save it, sincerely believing they could make a difference. Moreover, while both benefited greatly from their scientific training, they were also adaptable generalists, reasonably adept at fundraising, administration, legal matters, interpersonal relations, and communicating with laypeople as well as other scientists. Finally, in a strategic sense, both have worked tirelessly to generate local support for their initiatives,

TABLE 1. *Advice for aspiring conservationists. While there is no simple formula for becoming an effective environmental advocate, these goals and strategies might be helpful.*

| <b>Personal goal</b>   | <b>Potential ways to attain that goal</b>  |
|--|--|
| Gain practical experience in environmental conservation              | Volunteer to work for an environmental organization<br>Found a university conservation group<br>Enroll in an environmental leadership course<br>Contribute to the conservation efforts of a professional scientific organization, such as the ATBC |
| Develop strong technical skills in conservation science              | Undertake advanced training in biology or environmental science, with a focus on conservation science<br>Study environmental law   |
| Develop good oral communication skills                               | Give frequent seminars and talks at scientific conferences<br>Join a public-speaking group, such as Toastmasters®<br>Speak to lay audiences, such as at public schools and civic groups<br>Testify at public conservation hearings and meetings    |
| Develop strong writing skills, especially for nontechnical audiences | Publish editorials in local newspapers<br>Write articles for popular magazines<br>Take a creative writing course   |
| Become an effective administrator                                    | Work to develop strong grant-writing skills<br>Read books describing how effective leaders manage their staff, resources, and time<br>Take a basic course in financial administration  |
| <b>Conservation strategy</b>   | <b>Potential ways to promote that strategy</b>   |
| Have a strong focus  | Focus on a specific conservation issue rather than on general issues or on many different issues<br>Make a long-term commitment to a single site; if possible, think in terms of decades rather than years   |
| Develop local support for your efforts                               | Foster close relationships with local landowners, community groups, and key government officials<br>Provide direct financial or educational benefits to local stakeholders   |
| Acquire vital financial support                                      | Network with others to identify foundations, donor institutions, corporations, or private donors that can help support your efforts<br>Foster long-term relationships with key funders   |
| Improve scientific knowledge of your conservation area               | Support biological inventories in your conservation area<br>Document key environmental threats to your ecosystem<br>Lead an Earthwatch® expedition to your site  |
| Engage young people  | Involve students and volunteers in your efforts<br>Offer short-courses for students or visit public schools  |
| Tirelessly promote your efforts to the public                        | Write press releases, sponsor media events, and work actively with journalists<br>Focus on charismatic, rare, or imperiled species in your conservation area, which help to galvanize public interest  |

by providing tangible benefits for neighboring residents and local government.

How can one develop the skills needed to become an effective conservation advocate? I have highlighted what I regard as key personal goals and strategies, based on my own experiences (Table 1). Among the most important, I believe, is to gain a practical grounding in conservation work. As an undergraduate, I acquired invaluable experience by founding and directing what became one of the most active student environmental organizations in the western United States. Focusing on wildlife and wilderness issues, we testified frequently before state legislatures and at public hearings, published many editorials in regional newspapers, formally evaluated dozens of environmental impact statements, and participated in televised debates. We soon realized that conservation decisions are usually dictated far more by politics, money, media savvy, and public relations than by hard science. Later in my career, I became involved in dozens of international conservation issues as a member of professional scientific groups, such as the American Society of Mammalogists and ATBC. Among my most empowering discoveries is that a mere handful of vocal, well-prepared individuals can sometimes have a remarkably big impact, simply because the vast majority of people never become seriously involved in political and environmental decisions.

Another vital lesson I have learned is the value of adopting a particular forest. For example, our initial contributions to Amazonian conservation were general in nature, spanning the entire basin (e.g., Laurance *et al.* 2001, 2004; Laurance 2005), but we have since become more focused. Along with others, including Regina Luizão and Thomas Lovejoy, I am now involved in a struggle to protect from encroachment the 1000-km<sup>2</sup> study area of the Biological Dynamics of Forest Fragments Project in central Amazonia, and with it a highly vulnerable section of the Central Amazonian Conservation Corridor (Laurance & Luizão 2007). I still work on many other issues, as co-chair of the ATBC Conservation Committee, but I often fear that I am frittering away much time and energy—hand-waving too much, chasing too many crises, and ultimately accomplishing too little.

My advice to aspiring conservationists is this: find yourself an imperiled patch of the earth, as Ghilleen Prance and Guido Berguido have done. Tend it, defend it, make it your own—if only in spirit. Forge alliances, build bridges, encourage others to share your vision. Do not expect it to be easy; it would not be. But by adopting a forest, you just might create a lasting legacy.

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