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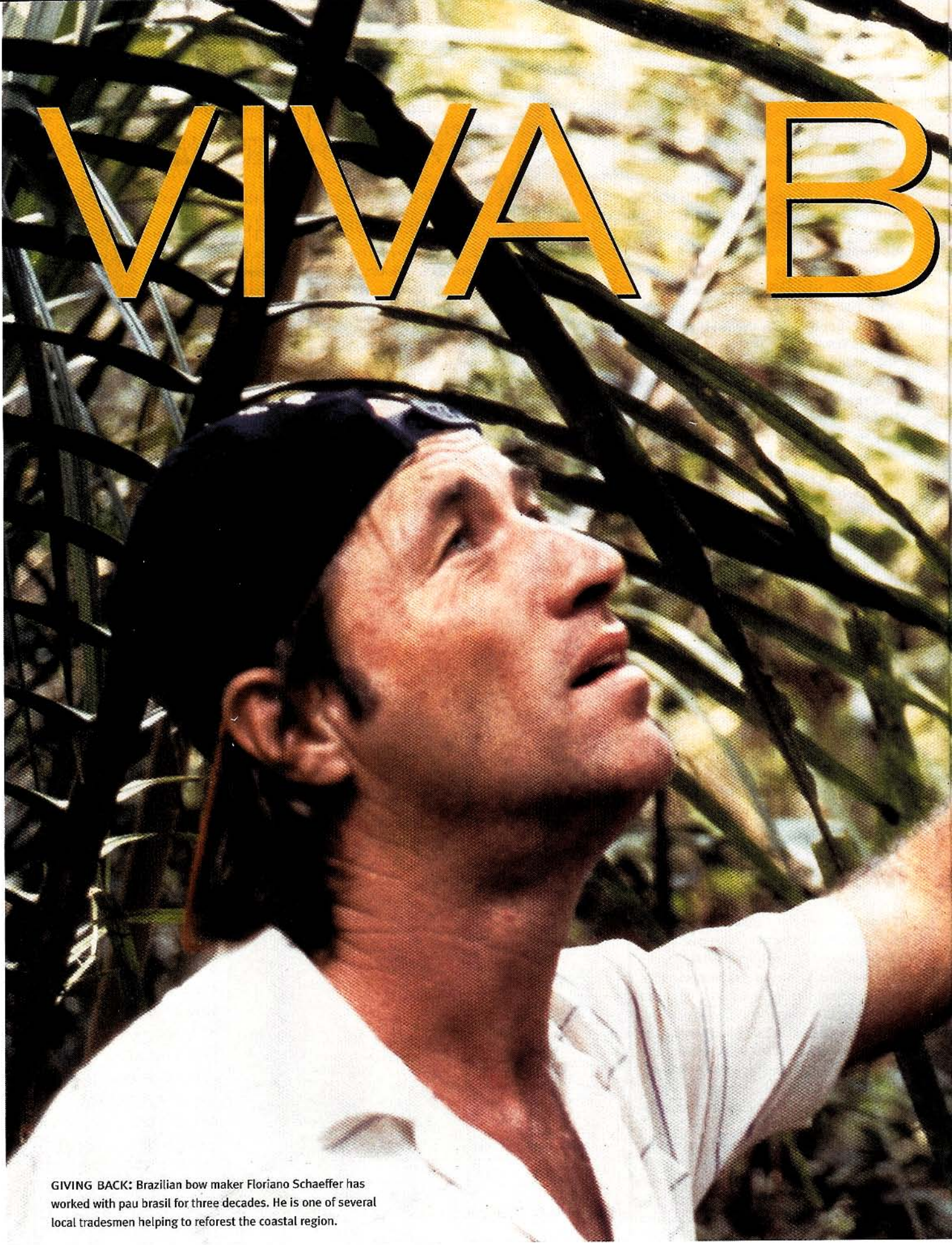

GIVING BACK: Brazilian bow maker Floriano Schaeffer has worked with pau brasil for three decades. He is one of several local tradesmen helping to reforest the coastal region.

RASIL!

Pernambuco is the most cherished of all bow woods, but will it still be here tomorrow?

BY CYNTHIA GRABER

Out in a small patch of forest about a 20-minute drive from his Brazilian bow-making business, Floriano Schaeffer nimbly dashes through the undergrowth, paying no mind to the abundance of thorns, razor-sharp leaves, and vines that can easily trip up less accustomed feet. The forest is humid and dark—only a few thin rays of light penetrate the thick leafy canopy dozens of feet overhead. Schaeffer points out landmarks as he goes: new pau-brasil seedlings that sprouted in the wild or that he planted with the last rain, thin ones he planted 20 years ago, or huge old trees that grew naturally in the wild decades ago. Over the past three decades, Schaeffer has planted tens of thousands of trees.

There is probably no one in the world who knows pau brasil as well as he does.

ALL PHOTOS BY CHARLES ESPEY

PERNAMBUCO

"I love the fact that I understand from the forest to the bow," says Schaeffer. "There are few people in the world with that kind of knowledge. I know what it takes for the tree to grow. I know the wood. I want some of the trees I plant to be for my children, my grandchildren, as bows, but I want them to know the forest the way I have."

For more than 200 years, bow makers around the world have seized on one type of wood above all others as combining the essential mix of qualities for instrument bows: strength, durability, resiliency, and flexibility. The wood is called pernambuco. "It's traditionally been the ultimate choice for the making of bows, because of the particular density and strength of the wood," explains Thomas Dignan, a much-sought-after Massachusetts bow maker. "I've done some experiments with other types of wood. They don't offer the same amount of resilience that good pernambuco does."

SEEDS OF CHANGE: Pau brasil.

This use, however, is threatened. Pernambuco, or *pau brasil* in Portuguese, is found in just one place on earth: the Atlantic coastal forest of Brazil. The Brazilian forest itself is in danger of being destroyed by development, agriculture, and paper production, which endangers the pau-brasil tree as well. In recent years, international groups and bow makers from around the globe have launched conservation efforts that they hope will guarantee the availability of this prized resource for future generations of string players.

When the Portuguese arrived in 1501 on the east coast of Brazil, at the time dubbed "The Island of the True Cross," they found huge stands of these trees all over the shoreline regions of the Atlantic coastal forest. The wood produced vibrant dyes, from fiery orange to deep red, chocolate brown to dark purple. The Portuguese named the wood pau brasil, literally "brazilwood," probably after *brasa*, Portuguese for a live ember, because of the bright orange color of the wood.

The Portuguese began shipping huge loads of the wood back to Europe. The dye from the wood was so popular in the early 1500s that soon "Terra do Brasil," or "Land of Brazil," supplanted Island of the True Cross as the country's name.

For hundreds of years the Portuguese hacked their way through the Atlantic coastal forest to support the demand in Europe. Funds from the pau-brasil trade provided half of all Portuguese revenues from the Americas. This continued unabated for more than 300 years, until chemical dyes replaced natural ones by the middle of the 1800s.

It was toward the end of pau brasil's importance as a dye wood that another specific use, albeit a much smaller one, was discovered. Parisian bow maker François Tourte is credited with changing the music of stringed instruments in the early 1800s, by changing the shape of the bow—from an arc, almost like a half moon, to a slightly inverted arc. This new shape placed greater tension on the hairs and made the bow livelier. Bow makers today tell a tale that Tourte was wandering around the docks at the time, which would have been overflowing with loads of pau brasil. Perhaps it was there that he discovered this beautiful wood and realized that it had the perfect qualities for his new bow. However he came upon

it, since Tourte's re-creation of the bow, pau brasil has been about the only wood used for bow making for nearly 200 years.

Today, Brazil's Atlantic coastal forest, which once sprawled thousands of miles from south of Rio de Janeiro all the way up the coast and contained a diversity of life rivaling that of the Amazon, has been reduced to only six percent of its original size. More continues to be lost as cities, towns, agriculture, and pastureland encroach upon the remaining forest. So much pau brasil was cut during the era of the colonial dye trade, and so much more lost to clear-cutting of the forest, that today the very existence of the national tree of Brazil is threatened in the wild.

Though bow makers use a relatively small amount of wood, they have become aware that without their intervention, they could lose access to the very substance that supports their art. "Until now, bow makers could say we use so little wood, we don't have an impact," says Charles Espey, an acclaimed bow maker from Port Townsend, Washington. "But now that the habitat has shrunk so much, we the bow makers, we do have an impact on the resource."

One of the concerns of international bow makers is that should pernambuco become so rare that it be listed under the Convention for the International Trade in Endangered Species (CITES), trade in the wood could be monitored, even restricted. That has not yet come to pass. But Marco Raposo, owner of a Brazilian bow-making company, thinks this concern has helped galvanize the community. "This is the first time I'm seeing [international bow makers] worried about the situation," says Raposo. "In a way, I think it's good. This is what's making us push forward to find a solution."

Two years ago, bow makers from around the world formed the International Pernambuco Conservation Initiative [see "Rare Beauty," *Strings*, October 2002] in an attempt to preserve the tree, preserve the forest, and preserve their livelihood.

Small-scale conservation efforts have already been taking place for decades in Brazil, initiated in large part by the same people who locally use the wood. Floriano Schaeffer has been working with pau brasil for more than three decades, first in his early teens cutting wood for an exporter, and then later learning the art of bow making. Today he owns one of four bow-making companies in Brazil.

Schaeffer was inspired in his conservation efforts by his mentor Horst John, a German expatriate and tropical-wood exporter who later began a bow-making business in Brazil, training locals to craft the bows. John taught all his employees the importance of returning to the forest what was taken. He encouraged buying plots of formerly farmed land for reforesting and replanting pau-brasil seedlings in areas where trees had been cut. All four Brazilian bow-making companies have their genesis in John's original business. And each has purchased small plots of land to reforest, not just with pau brasil, but with a variety of other forest trees, mimicking the original landscape.

FULL BLOOM: Pernambuco flowers.

This is in only one state in Brazil, though, and the tree used to be found abundantly in at least eight. And all of these replanting efforts are minute compared to the continual loss of forest.

PERNAMBUCO

Schaeffer and his Brazilian colleagues sell handmade bows that are significantly cheaper than those crafted in the United States and Europe. These are sold abroad usually as student and intermediate to beginning-professional bows. Only recently have the business ties that bind Schaeffer's work with that of his colleagues abroad widened to include Schaeffer's long-held beliefs in conservation.

"I started going down to Brazil after I met Floriano Schaeffer," says Espey. "I went into the forest. I saw how the habitat for the tree has been reduced. It's been bothering me ever since. Bow makers didn't have anything to do with that, but at the same time we have to take responsibility and realize that we have to work hard to reverse the situation."

A few events conspired to bring attention to an issue that has become of critical importance to the international bow-making community. In 1997, the conservation group Flora and Fauna International, which has a program focusing on the use of rare and endangered tropical hardwoods for musical instruments, held a conference in Buzios, Brazil about pau brasil. They brought together scientists, wood dealers, conservation groups, and bow makers. Many bow makers were aware of this meeting but not yet convinced that their trade had much of an impact, or that their work would be affected by the results of the meeting.

Marco Ciambelli, with the French group the Confederation of Craftsmen and Users of Natural Resources (the acronym is Comurnat in French), saw things differently. "I felt we were entering a process that might end up in restrictions," says Ciambelli.

Ciambelli has had personal experience with such events. He represents the third generation in a family business that started back in Italy in 1910 crafting small amounts of tortoiseshell for use in such items as combs and jewelry. His family was stunned, and eventually put out of business, when the international trade in new stocks of tortoiseshell was prohibited. Because of this, and because of his own environmental interests, Ciambelli founded Comurnat as a way to try to protect the work of artisans who use natural resources, and also to try to involve the artisan community in the conservation of those resources.

Ciambelli says that artisans want to be able to help conserve the species they use, but they have never seen a way to be involved. Comurnat is providing one. "My father finished life very sad because his profession was his life," says Ciambelli. "I hope that we can have different stories for different professions, and different species."

STICK FIGURES: *Maturing pau brasil trees line a country lane.*

The bow makers constitute the first group that Comurnat has helped organize on a grand scale. To do so, Ciambelli began speaking individually with bow makers around the world, convincing them that they could make a difference. He found a ready audience; within only seven months, the community had already started to discuss what to do.

"We'd like to be out in front of this issue," says Dignan. "When we realized that the tree was really being pushed to its limits because the size of the forest was getting so small, we wanted to be part of the solution."

In Dignan's Boston-area workshop, he admires the sound and feel of the wood as he runs a handmade plane down a small stick, shaving off a fine, fiery layer. "I think we all believe that the closer you work with your hands and the materials, there's a bond, a relationship that grows between you and the end product," says Dignan. "You have to really understand the inherent qualities of the piece of wood in front of you. It's always different."

He is thousands of miles from Brazil, thousands of miles from the destruction of the Atlantic coastal forest, thousands of miles from Schaeffer's planting efforts, thousands of miles from pau-brasil trees. And yet with the piece of wood in his hand, he feels intimately involved.

Despite all these concerted efforts, former wood-cutter Al Raubitschek knows—he says for certain—that there are still bow-making companies willing to look the other way when it comes to purchasing wood. He used to harvest wood illegally himself for more than two decades. He'd go into the forest with saws and oxen and take out individual trees. After seeing the forest destroyed all over the coast, however, Raubechek had a change of heart. He now runs a legal salvage business, buying dead

wood and fence posts. He says the same people who supply him with dead wood, though, cut new trees for exporters.

"I know where they're hiding the logs, right near my house," says Raubechek. "It just kills me. The only thing I can do is not to do it."

Though illegal logging does continue, the bow-making community is trying to find a way to support conservation efforts. They know that there is little they can do from studios and stores around the world, except provide money and coordination. So they are considering adding a small fee to bows to help support their efforts, in the process educating the musicians, the final users of their products, of the need for these additional fees.

Just exactly what those efforts will entail, however, is still under debate. There is not enough understanding of the tree—where it still exists in the wild, how it grows—so the bow makers are teaming up with scientific institutions around Brazil. Bow makers want to preserve tracts of land as private reserves, both to save the forest and to ensure genetic diversity of the trees, so they're enlisting Brazilian environmental groups to manage these future reserves. They would eventually like to buy wood only from certified, sustainably managed forests, so they're considering how to work with certifying groups such as the Forest Stewardship Council (FSC) and even with the wood dealers themselves.

The bow makers are receiving some scientific support from Haroldo Cavalcante de Lima, a Brazilian scientist with the Botanical Gardens in Rio de Janeiro, who has studied pau brasil for years. "Pau brasil is so connected to the national sentiment in Brazil (as the national tree)," says de Lima. "It's something of a symbol of how we've treated nature for the past hundreds of years, and it can today become a symbol of how we can reconcile conservation with sustainable use."

And then there's the issue of demand. Bow maker Thomas Dignan looks over at the many feet of boards stacked up against a wall of his Boston workshop. "I have almost enough wood for the few years that my hands and eyes will hold out," he laughs. Most of his established colleagues have also amassed substantial stocks of wood. So they are discussing selling small amounts of wood to newcomers and are working on new methods of cutting boards to reduce waste. They are also trying to internally assess just how much wood is used around the world by bow makers, and how much exists in private stocks.

If the situation were to become critical, the question does arise about finding an alternative to pau brasil. There is interest in carbon fiber and fiberglass composites for synthetic bows. And research is underway on other types of woods to augment the use of pau brasil. However, all of the best types of woods that could potentially be used for bows are also from the tropics, where most forests, at some level, are in danger of overuse.

"Even if we shift to another wood," says Espey, "we'll probably still have to be working on conservation."

Dignan agrees that he and his colleagues will not enjoy the results of today's conservation efforts, but that is of little significance. "We know we're not going to reap the benefits of the trees that get planted," he says. "But it really is very important to all of us that it doesn't disappear." □