

An
EBONY PLAN

Takes Root



Residents of the village of Ekombite plant a young ebony tree

Our new multimedia storytelling experience, *The Ebony Project*, chronicles our journey toward a more sustainable future for ebony in Cameroon

By Jim Kirlin

Photos by Chris Sorenson

Bob Taylor is reflecting on more than six years of work in Cameroon during Taylor's "From the Factory" podcast, teeing up what proves to be an illuminating conversation about Taylor's efforts to create a more environmentally friendly and socially responsible future for ebony.

"That project has been a real schooling," he says, alluding to what has been a life-changing journey for him personally and as a co-owner of the Crelicam ebony sawmill together with Vidal de Teresa, owner of the Spanish wood supplier Madinter. Since taking the reins in late 2011, Taylor and Madinter have overcome myriad obstacles in pursuit of their ambitious plan to transform nearly every aspect of an under-resourced business in a developing country, and vowing to do it all legally and ethically, with a commitment to greater sustainability.

In the podcast, Bob is happy to report major progress. Crelicam's 75 employees now work in a completely renovated factory environment that he says he himself would be proud to work in. The environment is much safer, with vastly improved saws and machines that have increased efficiency and reduced waste. In fact, many of the saws now used at Crelicam were built or refurbished by Taylor's tooling team in El Cajon and shipped to Cameroon

(see our sidebar on the mill's transformation). Better tools and skills training, along with more defined roles, have given employees an increased sense of pride in their work, while improved wages and other medical and education benefits have helped lift the quality of life of their families. It's a far cry from the conditions Bob and Vidal encountered when they first arrived.

"There were no toilets, no running water, live electricity everywhere, that you tried to avoid," Bob recalls. "You'd be there for an hour and – *bam!* – bandsaw blades exploding and shooting through the air!"

When the two new owners learned that employees didn't eat lunch because they couldn't afford to, they decided to build a kitchen to provide free lunch each day. The only problem was that it was nearly impossible to get the basic tools or materials to do the work, even though the mill was located in Cameroon's capital city of Yaoundé, with a population of 2.5 million.

The whole experience has given Bob a new context for the idea of building something from scratch.

"People hear the story of Taylor Guitars and they'll say, 'Wow, you and Kurt started from nothing,'" Bob says. "Well, starting with what we had in Cameroon was a new definition of nothing."

Remy Eba'a,
a sawyer at the
Crelicam mill



continued

Over the past six years, we've shared periodic reports on Taylor's progress in Cameroon. Our *Wood&Steel* cover story from the summer 2012 issue announced the purchase of the Crelicam mill and laid out Bob and Vidal's plans to become more directly involved in the supply chain in order to ensure legality and greater transparency. The article also relayed the revelation of years of ebony waste in the forest – previously unknown to the guitar industry – in which ebony trees that had been felled and found to have color variegation instead of an all-black complexion were left to rot on the forest floor because of their substantially lower market value. That discovery prompted Taylor and Madinter to spread awareness of this across the industry and led Taylor to feature fretboards with marbling more prominently across our guitar line (including our 800 Series) in an effort to promote greater acceptance in the market. Bob also shared a "state of ebony" address in a video that we posted on YouTube in 2012, and the message of committing to better stewardship of the woods we rely on resonated with guitar owners.

In the same spirit of becoming more directly engaged in the sourcing and supply chain involving the woods we use, we want to connect Taylor dealers, guitar owners, and others to this experience as well, for a few reasons: transparency, for one, because we know that people have a lot of purchasing options when it comes to guitars. While we're committed to producing the highest quality instruments, customers also deserve to know where the ingredients used for them come from. They also deserve to know what it takes to procure them. Both Taylor and Madinter's experiences in Cameroon over the past six years have deepened our sensitivities to the people and work involved along the way. Bob especially remembers those early interactions he had with employees at the mill.

"We're trying to let them share in what we get from this industry," he says. "And when you go there and see the lives they live, and when you see what they've actually contributed to the guitars that we play, but what they weren't getting out of it, you can't unknow that."

Introducing the Ebony Project

We wish that we could take every Taylor owner to Cameroon to experience firsthand what goes into sourcing the ebony used for the fretboard and bridge of every Taylor guitar made. If someone were to walk in the footsteps



Clockwise from top left: (L-R) Scott Winder from Taylor's machine maintenance and repair team, Emmanuel Mendo, Crelicam workshop chief, and Madinter's Cosmin Spinoae; Crelicam employees with a new lathe used to make ebony guitar slide blanks; employees on break at the mill; improvements at the mill included drilling a well for fresh water – which is also piped outside the Crelicam walls to provide the surrounding community with a free, clean supply

Transforming the Mill

When it came to improving the Crelicam mill, the Taylor-Madinter team had their work cut out for them. The infrastructure and most of the equipment inherited by Bob and Vidal were in a state of disrepair. Beyond that, it was impossible to get the necessary replacement parts, tools and materials in Cameroon. Bob knew he would need to leverage Taylor's advanced tooling and machining capability back in California. Fortunately, he knew how to design a factory and who to enlist to drive the transformation: Wayne Brinkley, the lead engineer on our product development team and a highly skilled fabricator (see Bob's column in this issue). Wayne has been involved in virtually every improvement project at Crelicam – he's traveled there at least 20 times over the past six years. He remembers the condition of the old bandsaws the first time he visited.

"They were constantly eating bearings and breaking main shafts due to the heavy use and previous poor maintenance procedures," he says. "And the quality of the saw blade resharpening was terrible."

Taylor purchased seven used Stenner bandsaws – workhorse machines built in the 1960s and '70s that were



Laser guides help the sawyers make more accurate cuts

resilient and could stand up to the rigorous demands of cutting a dense wood like ebony – and shipped them to the Taylor factory in El Cajon, where Wayne and his team fully refurbished them, and then shipped them to Cameroon for installation. New saw guides were made for the existing saws, allowing better cutting decisions and straighter cuts. Wayne and his team also designed what they call a "blockworks" tool to be used on a large industrial bandsaw. This allowed an ebony cant to be clamped at the ends so pieces could be sliced off at any thickness needed in order to get the best use of the material and increase yield.

They also built a "head rig" setup in El Cajon for one of the bandsaws and shipped it over. It consists of a set of rails and a powered carriage to clamp a large block of ebony then roll it past the saw blade.

"This has given us the ability to use the largest material that comes to us and get better use of it," Wayne says. "It also enables us to cut wood for guitar backs and sides. We also built an overhead crane to help load the head rig carriage, since some of these larger blocks of ebony weigh 700 to 800 pounds."

Taylor also purchased and rebuilt four large Northfield industrial table saws and made robust fences and push

tools for them. This marked the first time a table saw had been used in the mill. They improved cut quality, efficiency, and yield, allowing us to get more from less. Other modern machinery and equipment brought to the mill include new generators, air compressors, pneumatic devices, laser guides, kilns and dust collectors.

The electrical wiring for the mill was also completely redone, and when a new building was constructed on site, Taylor shipped every bit of wiring, including circuit breaker panels. Wayne coordinated the entire installation, which took a solid two weeks.

Vehicle Repair

Another ongoing area of need in Cameroon has been the ability to handle vehicle repair, including 20-year-old Land Cruisers that were reconditioned in El Cajon and shipped over, along with two Mercedes Unimogs that Taylor purchased to transport ebony from the forest to a road, where it can be loaded onto a large truck for transport to the mill. The Unimogs are built on a tractor frame, which allows them to keep all four wheels on the ground in



Wayne Brinkley

uneven terrain. But Wayne says keeping them operational initially proved to be challenging.

"The terrain is not very forgiving, and the usage these trucks see is pretty severe," he says. "To get in front of potential issues we established a cleaning and inspection procedure that occurs after every trip into the forest. We've had to replace a windshield, brakes, axle seals, front axle universal joints, steering joints, a steering gear box, air compressors and valves, a fuel injection pump, water pumps, a transmission, at least a dozen tires that have been destroyed, and upgrade to heavy-duty rear gear sets and bearings."

One of the most important additions to the mill has been the construction of an on-site machine shop to handle a variety of repair and fabrication work.

Logan Shively is a mechanical engineer from Wayne's team who also regularly travels to Cameroon. These days about 90 percent of his work at Taylor relates to Crelicam projects. He has worked on the Stenner bandsaws, designed and helped build the head rig and crane, worked on the dust collection system for all the saws and laser guides for cutting, helped set up the machine shop, and more. He also plays an important role in all the container shipments out of El Cajon to Cameroon, including ensuring

that any machines that are shipped arrive without damage.

Logan says one of the most fulfilling parts of the Crelicam project has been working with his Cameroonian colleagues at the mill to show them how to use new tools and machines and how to make problem-solving improvements on their own.

"I'm really proud of how much they've learned from working with us when we are there," Logan says. "Every time I go back I see the ownership and initiative they've taken to make improvements while we were gone. I'll see something new and learn that Ekouma, the head fabricator, made it with the welders using the tools we brought over. We didn't ask them to do that, but they took it upon themselves and did a great job of getting it done."

Producing Other Ebony Products

One of the goals of bringing better tools, training and infrastructure to the mill is to enable Crelicam's employees to have more value-added processing capability in Cameroon. The ability to perform more sophisticated processing of parts will in turn create more jobs, and equip



One of the Unimogs in action

employees to produce semi-finished or finished goods. Ultimately this will generate more economic prosperity for employees and their families. It's been part of Bob's vision for what Crelicam can become, and the mill is getting closer to that capability. The other benefit is that finding uses for smaller pieces of ebony or those that aren't suitable for musical instrument parts reduces ebony waste and translates into more economic value generated by a tree. This is important because there is a strict limit to how much wood we are permitted to bring out of the forest each year.

One example of this is our plan to introduce ebony guitar slides made from Crelicam ebony. Our tooling team recently shipped a Hempel lathe to Cameroon, which is now being used to produce the slide blanks. These blanks are currently the most profitable piece that Crelicam makes, due to the additional work done to transform the material. The finishing touches are handled in El Cajon. Bob hopes that Crelicam will one day have the expertise to complete the work right there at the mill. (For more on the guitar slides, see p. 25.) Bob has also been exploring the development of other product offerings with Crelicam ebony, including a line of kitchenware products.



of a prospector who trudges into a community forest in Cameroon to locate an ebony tree; or to try to lift even one end of a slab of the ebony (one of the densest and heaviest woods in the world) that will be hand-carried to a Unimog, which will then take it down a path to a truck at the nearest road that will drive it to the mill; or to meet the communities that rely on the forest for their livelihoods; and to see the lives that are impacted by the economy the ebony trade creates, that person would likely have a much deeper appreciation for what it takes to procure materials for their instrument.

Since we can't take people to Cameroon, Taylor recently developed an immersive storytelling experience on our website called The Ebony Project. Launched on Earth Day (April 22), the eight-part multimedia feature blends aerial video of the Congo Basin rainforest with written content, video interviews, and photos. Together, they provide the framework of a multifaceted story that continues to unfold. The story's eight chapters are divided into different themes. You'll learn why ebony is a traditionally used wood for stringed instruments and why Taylor decided to become a co-owner of the Crelicam mill; get a taste of Yaoundé, Cameroon's vibrant and sometimes chaotic capital city, where Crelicam is based; get a feel

for the realities of working in Cameroon and the challenges of improving the conditions and operation at the mill; see how the lives of Crelicam employees are changing for the better; discover how we got involved with groundbreaking research into ebony ecology; and learn about an innovative ebony planting program that is on the way to putting thousands of ebony trees in the ground over the next few years.

The Ebony Project content was developed by our marketing team, with videos and photos shot by outside contributor Chris Sorenson (whose photos accompany this piece), and with sound provided by his brother Scott. A more conventional documentary-style film is in the works, but knowing that we want to chronicle more of the community planting part of the initiative, which is still in the early stages of implementation, our team will be traveling to Cameroon to capture more footage and interviews. In the meantime, the chapter-based online experience provides an informative introduction to what has been accomplished so far.

Essentially, the story content can be divided into two main areas of focus: the transformation of the Crelicam mill itself – the improved working conditions, the technology transfer, increased in-country value-added processing and the investment in the

employees; and our efforts to learn more about the ecology of ebony and develop a scalable model for restoration and reforestation. (The "Ebony Project" title originally referred to an ebony research project funded by Bob to better understand ebony's ecology, but it later came to represent our entire story, including Crelicam.)

The last several chapters of The Ebony Project introduce several key partners in the research and replanting work. One is Dr. Tom Smith, a professor in the Department of Ecology and Evolutionary Biology at UCLA and the founding director of UCLA's Center for Tropical Research (CTR) and Institute of the Environment and Sustainability (IoES). Tom has spent more than 35 years in Cameroon researching tropical rainforests. He helped to create the Congo Basin Institute (CBI), a multi-institution forest and agroforestry research center located in Yaoundé. It turns out that relatively little research has been done on ebony ecology, so the ebony research funded by Bob that's been conducted over the last two years at CBI has revealed a great deal about everything from how ebony seeds are naturally disseminated in the forest and how trees are pollinated to effective methods of propagating ebony using leaf cuttings from parent plants as well as via tissue culture.



Another central figure in our efforts is Dr. Zac Tchoundjeu, a leading expert on agroforestry who has been working with forest-dependent communities in the Congo Basin for decades. Dr. Zac's work has provided a detailed blueprint for a scalable, community-based agroforestry program that will enable people to provide food for their families and participate in the planting of ebony to benefit their descendants.

By consulting with hundreds of communities, Zac identified the types of trees and plants that have value to them. These include fruit trees, such as bush mango, along with plants with medicinal value. The challenge has been for communities to see the value in planting a high-value timber tree like ebony, given its 80-to-100-year timeline to maturity. The model that Zac created provides an ideal planting program. Communities are provided fruit and medicine trees that will begin to produce fruit within two to three years. Meanwhile, the communities will also be taught how to cultivate ebony trees and be paid during the first five years of a tree's life to ensure that it becomes established (after five years an ebony tree becomes self-sufficient). The trees are also geo-tagged, and the information, including the name of the family that plants the trees, is recorded in an official registry. This will ensure that ownership rights to the trees are

passed down to future generations so the family's descendants legally can sell the tree – perhaps to Crelicam – at an appropriate time.

A Planting Program Takes Root

As Scott Paul mentions in his Sustainability column in this issue, the community-centered planting program is underway. Thanks to the work of Dr. Vincent Deblauwe and the rest of the team at CBI, the first ebony plant nurseries are starting to be established within communities, and more than 1,400 ebony trees were planted in April. We set a goal of planting 15,000 trees over the next few years, after which we'll evaluate and continue from there, perhaps with additional support from partners who can help scale up the program. We'll be sure to keep you updated.

In the meantime, we invite you to explore The Ebony Project, which you can access from our home page at taylorguitars.com. (You'll also find it at taylorguitars.com/ebonyproject.) To listen to our podcast conversation with Bob about Crelicam and our efforts toward sustainability, go to our home page, under Owners, and you'll see a link to our From the Factory Podcast on the right. Look for Episode 15: Bob Taylor: The Ebony Project Takes Root. **W&S**



Opposite page, from top: Research technicians in CBI's tissue culture lab; ebony leaf cuttings planted in non-mist propagators can produce large numbers of trees. CBI is teaching this technique to local communities; Dr. Zac; CBI scientist Dr. Vincent Deblauwe inspects an ebony tree for flowers. Data on pollinators, seed dispersers and predators has led to new insights on forest regeneration. **Above:** Dr. Vincent Deblauwe (right) talks with Maxime Ndjankoum and Suel Suel Roger Materne at their community nursery in the village of Somalomo

Wood and Steel

Our new Crelicam ebony guitar slides bring a unique feel and sound to those open-tuned riffs

There's something undeniably soulful about the sound of slide guitar, especially in the hands of an expressive player. And as slide players know, the slide's material – usually metal, glass or ceramic – plays a role in both the feel (which impacts your ability to control of the pitch and vibrato) and sound. Metal slides are known for a rougher feel and brighter tone. Glass slides are often smoother in both feel and sound. Ceramic slides tend to live somewhere in between, depending on the actual ceramic composition.

We're pleased to announce that we're adding another material to the mix: ebony, from our Crelicam mill in Cameroon. Ebony's hardness and density help produce a clear sound, while its lighter weight compared to other slides translates into a comfortable playing experience. After introducing these to Taylor dealers at the Winter NAMM Show, followed by some

the slide allow him to get a more expressive sound.

"You need to use a little more gain to get the ebony to sing the same as metal or glass, but the light weight gives me a better feel for the note and for controlling the pitch and vibrato," he says. "It's not as slippery either, which also helps my control. I'm just an OK slide player, so it helps me sound better because of those characteristics. It's also a bit warmer sounding if someone doesn't want as much of that top-end tonal character."

Taylor product specialist Michael Lille is a big fan of Lowell George's slide playing with Little Feat. He compared glass, brass and ebony slides on his Strat played through his SlideRIG pedal by Origin Effects, which was designed to emulate George's heavily compressed tone.

"I found the Crelicam slide to be my favorite for this application," he says. "The light weight of the



fun playing sessions around the Taylor campus over the last few months, the verdict is that these slides offer a uniquely sweet sound with a pleasing mix of warmth and control.

"The part I like is the natural damping factor," says Andy Powers. "With most metal or glass slides, there tends to be a sharp, brittle sound on each note that requires me to carefully damp the length of string between the nut and the back side of the slide to prevent a brash sound. These ebony slides have a slight softening effect on the attack, making them warm and forgiving. It reminds me of rolling back the tone control of a Telecaster just a touch to smooth off the harsh edge."

Terry Myers, a 30-year Taylor veteran who works on our product development team and predominantly plays electric guitar, says the lighter weight and the feel of

ebony slide gave me more control and comfort. It had a little less sustain, but with electric volume and some compression I couldn't put it down."

Our slides will be produced in four sizes. As of our press deadline we were finalizing the details, including the inside diameter for each size, along with the packaging. Because of the mix of black and variegated coloring, each slide will exhibit its own unique visual character.

If you're a slide enthusiast, consider this a must-have for your collection; if you're a beginner, this will help you develop your slide skills with greater ease and a pleasing tone along the way.

Look for our ebony slides at select Taylor dealers and through TaylorWare on our website starting later this summer.