

Blackwood Down

Exploring the wood that drives our art. *Part I*

by Vincent Janoski

WHAT DO TOILET SEATS and Highland bagpipes have in common? No, this is not another abusive bagpipe joke—and the answer is not “people are happy to sit on them.” The answer is they, along with knife handles, bassoons, and traditional animal statues, are carved from the heartwood of the mpingo tree, otherwise known as *dalbergia melanoxylon*, or African blackwood.

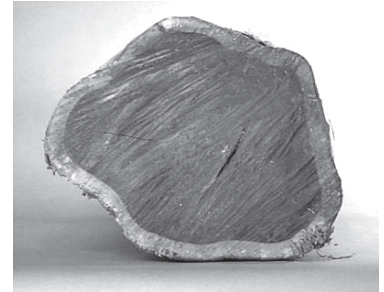
But how much does the average piper know about the wood that drives our art? Over the last twenty or so years, screams of a blackwood shortage have waxed and waned from shouts of panic to dismissive shrugs. We currently seem to be in one of the shrugging periods as reports suggest the supply of African blackwood may take 80 or more years to be exhausted. That’s a lot of chanterers. Recent timber import/export restrictions notwithstanding, bagpipe makers seem to have no trouble getting their hands on ample blackwood billets to keep on hand.

In the screaming periods, not more than ten to fifteen years ago, the supply of proper-aged blackwood came into short order. Deforestation in some African countries and overharvesting and excessive illegal logging in others such as Kenya, completely exhausted the supply of harvestable mpingo in the late 1980s and early 1990s. By some reports, under those earlier conditions, pipers would have seen the end of all-blackwood stands of drones by 2010. A growing global marketplace, however, has seen supplies of blackwood drawn from other, more resource rich countries. In 2007, there are more pipe makers than ever, and all are producing more seemingly quality blackwood bagpipes than has been seen in several generations. The mpingo tree does not seem to be in danger of extinction, however, the source of the current supply and the long-term viability of mpingo as a marketable wood are another matter.

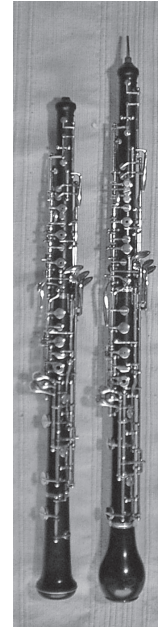
Does the demand for the typical blackwood set of pipes exist to sustain affordable pipes? Would you pay \$12,000 or more for a typical set of blackwood bagpipes? By 2012 to 2020, the premium placed on mpingo billets just might place your basic set in that range.

Like any natural resource, the mpingo tree is subject to the natural cycles of weather, regional politics, local population needs, and global economics. All of these things contribute to the variability and instability found in the timber trade of Africa, and the mpingo trade specifically.

We live in a consumer culture. Supply is fueled by demand. But it is that very demand that might all but cause the extinction of new blackwood stands of drones. Not because so many people will want to be pipers (or bassoonists, or clarinet players for that matter), but because the demand for fine furniture, fuel, and flooring, not to mention electronics such as cell phones, or the needs of local populations in harvesting countries might end up exhausting or diverting the marketable supply of blackwood for good.



The Mpingo tree (dalbergia melanoxylon) as it looks before harvest (top). Trees can reach about 25 feet. (Center and bottom) Pieces of raw mpingo before processing alongside a few heartwood billets ready for market. A tree must be at least 70 years old before reaching these diameters. Only the straightest pieces are suitable for musical instruments. Photos courtesy the Blackwood Conservation Project.



The heartwood of the mpingo tree is used for a variety of common, and not-so-common items. It is valuable timber used for making clarinets (top left), traditional carvings (bottom left), hardwood flooring (center), bassoons (center right), and luxury decorative items such as this one-of-a-kind mobile phone from Gresso (right).

WHAT IS BLACKWOOD?

What we call “African blackwood” is actually the heartwood of the mpingo tree and a member of the rosewood family. The raw tree is harvested and the thick outer layer of lighter, softer wood is removed to form pure, straight heartwood billets for market. The longest and straightest lengths of wood are sent for the musical instrument trade primarily, while the rest is used for traditional carving and the general trade.

Although some very good sets of bagpipes are being made these days, and despite a larger global marketplace providing easier access to goods, good quality blackwood for musical instruments is not an easy thing to come by. The high value for billets on the open market will attest to this.

Only the straightest lengths of wood and those most free of defects can be used for musical instruments, with the most being used for clarinets, oboes, and bassoons. This relies on straight trees that are only considered

“harvestable” when they reach maturity in 70 years, although some trees are harvested as young as 30. Raw logs are normally seasoned and dried for up to 3 years before processing.

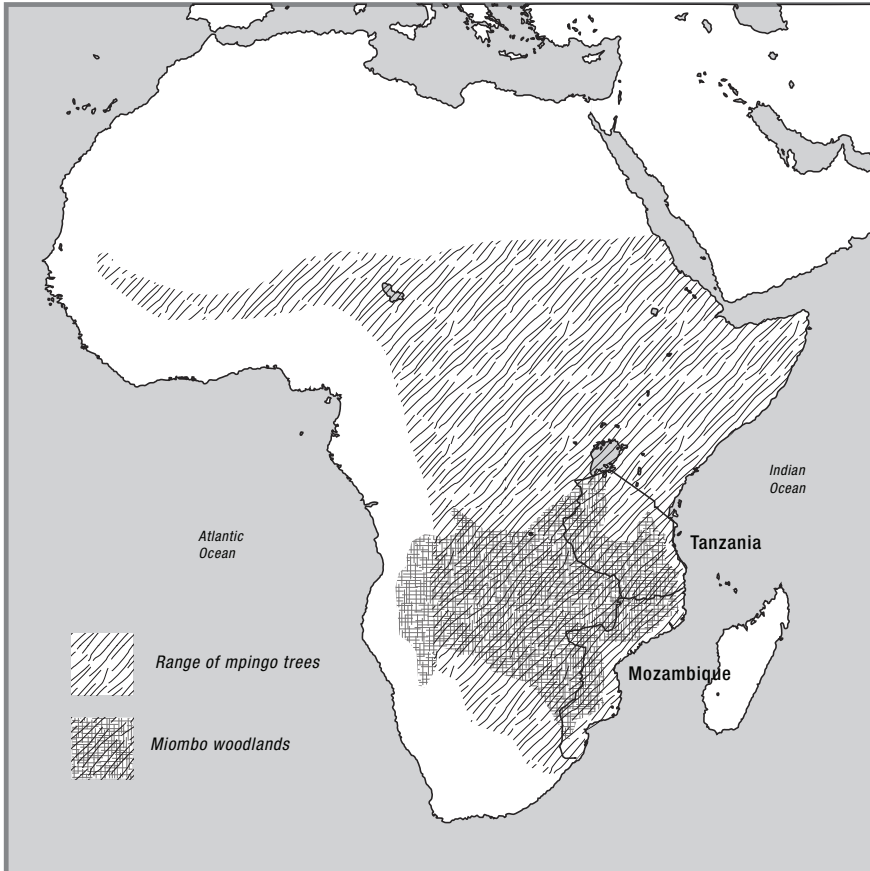
While that may seem like a long time to wait for quality timber, it gets even more difficult. Straight billets are normally a result of only a 10 percent yield of raw logs with a 90 percent waste rate for all timber harvested! Processing straight billets for musical instruments narrows the supply even further, those making up only 15 percent of the total yield of billets. Therefore only 1.5 percent of harvested, processed blackwood is available for any musical instruments. Although bagpipes use the most blackwood per instrument (.006 cubic meters per set), they represent less than one-half of one percent of the total blackwood billets use for instruments, making quality blackwood supplies for bagpipes extremely sensitive to disruptions.

COVERAGE AND HARVEST

Mpingo trees grow in a broad range of sub-Saharan Africa. The most accessible and harvestable timber, however, grows in what is called the miombo woodlands that stretch from Tanzania and Mozambique on the east, through the Democratic Rep. of Congo to Angola on the west. The majority of marketable mpingo timber is harvested in Tanzania where it is the national tree.

Some 250 million of the poorest people in Africa rely on wood as their primary source of fuel and the populations of mpingo harvesting countries are no different. Firewood is 75 percent of the energy consumption in sub-Saharan Africa. Timber represents 6 percent of the total \$10 billion GDP of Tanzania. Mpingo is only a small portion of harvested timber, but it is the most valuable timber harvested, with billets gathering US\$18,000 per cubic meter on the open market. Timber in general is a large industry, but market demand and demand for fuel wood far outstrips the regeneration of forestry.

Commercial timber licenses are not easily granted and are out of reach



The range of African blackwood extends through much of sub-Saharan Africa. Commercial operations are mainly found in the miombo woodlands of the south-central countries.

for many locals. Mpingo is also very expensive to harvest, requiring special equipment and treatment because of its dense and oily nature. It is also difficult to transport due to its growing locations. Many locals will often cut trees indiscriminately for charcoal (mpingo makes excellent fuel) and other domestic uses without regard for their commercial value. More viable local economic and export opportunities are found in farming and livestock, requiring clearcutting of forests by burning and illegal cutting. The United Nations Food and Agriculture Organization (FAO) estimates that agriculture coupled with overgrazing and slash and burn cultivation, is responsible for 70 percent of all deforestation. It's estimated that legal mpingo harvesting represents only 4 percent of mpingo trees cut.

DANGERS

The above issues have led to the local depletion of mpingo in Kenya. Supply had been diminishing for years and in the mid-1990s, supply dried up entirely. Population expansion, commercial opportunities in agriculture, improved infrastructure all contributed to unregulated harvesting and export of valuable timbers such as mpingo. Rampant deforestation creates additional problems. A landscape devoid of trees increases soil erosion and desertification, making any replacement growth in such areas impossible. The FAO estimates that 4 million hectares of African forests are lost each year for a variety of purposes (an area twice the size of New Jersey). More than 13,000 square kilometers are lost through forest clearing alone. Much of this is a result of clear cutting for agriculture and illegal trade,

population expansion, and harvesting for fuel. This rate has only reached this level within the last ten years leading to the extinction of rainforests on Africa's western coast. Nigeria has experienced the worst deforestation to date with more than one-half of its primary forests lost between the years 2000 to 2005 alone. At current rates, it is estimated that all of western Africa's forests will disappear by 2020.

Such activities can be considered the byproduct of developing global economy, but just as the world can benefit from growth in one country, dire consequences can be felt worldwide by the depletion of natural resources and unmanaged growth. Such rampant forest clearing through slash and burn techniques saturates the market with "illegal" timber, driving down market prices and undercutting local economies and legal operations, thereby diminishing the viability of valuable timbers such as mpingo. In addition, forest clearing through burning negatively affects the stands of mpingo trees that are left for legitimate logging, causing multi-stemmed, diseased, and crooked trees which results in lower market value with billets unsuitable for musical instruments such as bagpipes.

Despite the fact that harvestable mpingo exists in ample quantities and will remain available for some time, it is more likely that current social, political, and economic trends will disrupt its continued availability. Although mpingo remains available, current rates of local and international trade remain unsustainable. Changing land use from forestry to agriculture, in addition to minimal regrowth programs and the constantly increasing demands of the local population, threaten the viability of mpingo as a marketable resource making what stocks that do exist more rare and expensive and less likely to see market, nevermind be available for making bagpipes.

And it just might be pipers' appetite for antique or vintage stands of drones that would hammer that

THE DIFFERENT NAMES FOR MPINGO

"Mpingo" is Swahili, but the tree also goes by other names.

- ❑ African Blackwood (English),
- ❑ Pau preto (Portuguese)
- ❑ Grenadilla (trade name)
- ❑ Zebrawood (trade name)
- ❑ Other African names include Mugembe, Poyi, Endisika, Kidamo, Kinti, Masojanda, Mgembya, Mhembote, Mhing, Minday, Mupako, Mwajinde, Ngembibi, Nyamfunga, Oitlaska, Q'oya, Tam umo mhembete

THE DIFFERENT USES FOR MPINGO

In addition to the well known carvings and musical instruments, the mpingo tree is also used for traditional medicine.

- ❑ The roots can be used to treat abdominal pain, hernia, and gonorrhoea. The smoke of burning roots is inhaled to treat headaches and bronchitis.
- ❑ The bark from the root and the stem is an antidiarrhetic.
- ❑ The juice from leaves is used to treat sore throats, heart problems, dysentery, syphilis, and gonorrhoea.
- ❑ A decoction of the bark is used for cleaning wounds.

final nail in the coffin. Greater value placed on vintage sets and lower value on new sets would put pressure on the use of blackwood for drones, thereby diverting the wood to other uses. Cheaper blackwood for other uses might make it that much harder to obtain good quality wood for making bagpipes, and make obtaining instrument-quality wood prohibitive for many pipe makers, reducing the number of new sets. The resulting increased value of existing or vintage blackwood sets just might place bagpiping in general out of reach for the average enthusiast.

TURN OFF YOUR MOBILE FOR BLACKWOOD

The continuous supply of mature blackwood today says more about a more active global marketplace than it does about the amount of supply or its method of harvest. Population expansion, greater worldwide trade, and demand for particular goods all contribute to satisfactory supplies of blackwood as a byproduct. Loggers are able to reach mature trees deeper within forests because of improved roads. Population increases lead to more manpower to accomplish greater volume of timber harvest. By itself though, the mpingo tree does not provide the local population, much of whom live in poverty, with a sustainable or viable option for their

The area of the Congo River basin is under immense deforestation and exploitation. Neighboring countries such as Tanzania and Mozambique stand to feel the disruptions in commercial trade of all resources, including mpingo.

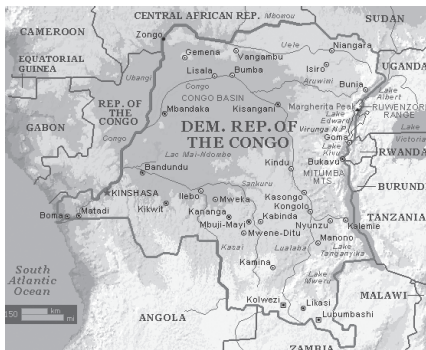


Africa possesses a large portion of the world's primary growth forests. An area twice the size of New Jersey disappears each year, without hope of return. Slash and burn deforestation techniques, the primary method, adversely affects the growth of mpingo, making it unsuitable for instruments.

own prosperity. The greatest threat to the supply of African blackwood these days would seem to be the very global marketplace that provides greater trade in timber generally.

Just as in Kenya, local infrastructure improvements—bridges, improved roads—can make cutting and transporting timber less expensive and more lucrative in other countries throughout sub-Saharan Africa—for a time. Such activities clear the way for changing land use making conservation programs and forest regeneration a low priority for the locals.

A decade of civil war and unrest in the Democratic Republic of Congo—as well as spillover racial violence in neighboring countries such as Rwanda—has allowed unmanaged exploitation of a number of natural resources. Timber conservation is probably the least fashionable use of national funds in countries such as DRC. Prime examples of this can be seen in the west of Africa where primary forests have disappeared, and illegal logging and resource harvesting increase at a rate that exceeds global averages. Locally, the mpingo tree is already easily ignored in favor of other



economically viable harvests.

Next time you want to ponder the sustainable supply of mpingo, think of it the next time you make a call on your mobile phone. Who would have thought that an upgrade to that newer model phone, would make a dent in the supply of wood available for bagpipes? It is not something that typically comes to mind, but the need for coltan, the primary mineral in cell phone and computer components has led to a host of local abuses in the DRC, fueling years of political unrest. Money is to be made in the mining of this mineral both for local workers and land owners. Corruption is rampant as is abhorrent criminality such as increased rape and murder.

Why does this matter? (Aside from the obvious humanitarian issues, that is.) Coltan is mined in the Congo

river basin, deep in the heart of miombo woodlands. In a region where fast money is to be made from digging in the dirt to feed a hearty appetite for electronic gizmos, an easy choice is made over commercial timber harvest when the land can be bought or stolen and clear cut for later mining. It's estimated that 1.1 million hectares of forests per year disappear in this area—an area nearly the size of Connecticut. Timber money is just icing on the cake.

The number of mobile phones has continued to grow by 30 percent annually, adding some 300 million phones each year. And current growth trends for personal mp3 players, handheld game systems, and smartphones such as the Blackberry show no sign of abating. The global appetite for flashy communication gadgets perhaps makes the greatest

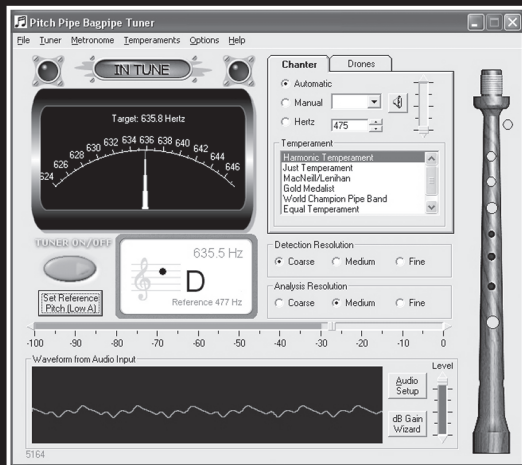
contribution to the instabilities under which all timber supplies—including mpingo—suffer.

Miombo forests suffer greatly across Africa. Their health is vital for the biodiversity that is needed for sustainable timber harvest, agriculture, and local prosperity. Conservation efforts across African countries result in large areas of protected land, but even with this, fragmentation of ecosystems result having a severe impact on the integrity of protected and unprotected lands. Add to this increased desertification and population growth and the conditions exist to threaten the sustainability of future markets for sensitive natural resources such as timber.

Part II will explore current conservation efforts as well as innovations and substitutions by makers of fine instruments.

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Blackwood Down

Exploring the wood that drives our art. *Part II*

by Vincent Janoski

ALL RECENT REPORTS that delve into African timber as a resource agree that a sustainable market for mpingo is threatened by legal and illegal activities despite its high value. One thing that the numerous reports do not agree on are the specifics of the timing of such an outcome. You can find specific numbers pertaining to hectares of growth, areas of harvest, timber stocks cut and sold, processed, and distributed, etc. Data even goes as far to specify 80 or more years of marketable mpingo available for all uses. But what's missing is the amount of time the legitimate market for mpingo will be completely disrupted or eliminated entirely. Is it all alarmist or are pipe makers looking at whatever stores they currently have on hand, as long as they might last, as the only decent source of wood for bagpipes?

Clear-cutting and illegal harvesting continue at an ever-increasing pace as growing populations in African countries place greater pressure on resources. (See *Part I, Fall 2007*.) Land is switched from forest growth to agriculture, mpingo is cut by locals for fuel, and illegal timber floods markets. A forested area just about twice size of New Jersey is lost each year to such uses across Africa, all of it with no hope of return to continued foresting.

Given such conditions, and factoring in current political instability—particularly in the west and central part of the continent—and uncertainty in the current global economy, it is not hard to envision instrument-quality African blackwood becoming a scarcity as we approach the end of the first decade of the 21st century. Are pipers ready for



a new stand of drones that is higher priced than an older silver and ivory mounted vintage set?

CONSERVATION

The dangers to blackwood are compounded by the ease with which it is sold. Easier routes to market entice the illegal trade. Once the wood, blackwood or otherwise, makes it to market for processing, its origins do not typically factor into the final sale. A brief search on Google.com will turn up numerous sellers of instrument quality blackwood. There are even eBay shops where one can purchase billets with bids starting out at \$2. A billet of instrument quality blackwood for turning drones can cost as little as \$30 for a single piece from some wood dealers. Raw billets for turning a complete set of drones can cost a maker as little as \$350. With such ease and availability, it

The Mopane tree (Colophospermum mopane), an emerging substitute African hardwood preferred by some instrument makers that presents many of the same properties as African blackwood. Trees grow in hot, dry areas of southern Africa. Photo by Declan McCulloch.

is not hard to see why the dangers exist.

In Tanzania, such an issue has been on the mind of Sebastain Chuwa and Steven Ball, founders of the African Blackwood Conservation Project (ABCP) and the Mpingo Conservation Project (MCP) respectively for many years. The ABCP and the MPC have strived to develop programs that balance commerce with the needs of the local populations for sustainable forest management.

Under one part of a program de-



The above map shows the impact of several thousand years of human activity on African primary forests. Primary forests—or “old growth forests”—are those forested parts of the planet that are generally older than human habitation. Nearly half of this change has occurred in the last 200 years. The whole of sub-Saharan Africa stands to be severely adversely affected as its old growth forests disappear.

veloped by the MCP, local communities in Tanzania are encouraged to set aside some of the forest growing in their area as a Village Land Forest Reserve (VLFR), which will then be under the control of the village government. Their management of this land must follow the guidelines set by the central government to receive a certification of their harvestable forestry. Once such a plan is certified, then the village government owns the rights to all timber trees, including mpingo, within their area. New laws in Tanzania also force timber buyers to pay a fair market price for legitimately harvested timber, and strictly control the transport of that timber to better protect their quickly

vanishing forests. The MCP also provides technical and logistical assistance to the local population to help build awareness and enhance their continued management of their land.

Sebastain Chuwa of the ABCP has worked for many years developing sustainable agriculture techniques to benefit his fellow Tanzanians. In 1996, he turned his attention to the valuable mpingo tree and has worked to develop educational and replanting programs throughout the prime growing regions near Mt. Kilimanjaro. The ABCP stresses integrating the mpingo tree with the local culture to provide better farming options and teaching, simply, that one must replant what one

consumes. As a result, local populations have consistently planted mpingo saplings on private and public land over the past ten to fifteen years. “The people of Tanzania want to plant mpingo after learning that it is good for their economic future,” Chuwa explains. “Townpeople plant the seedlings for shade and windbreaks, while farmers interplant mpingo trees in their cropland and use them as living fences.”

Well more than 1 million mpingo trees have been planted as a result of Chuwa’s efforts, with nearly 20 to 30,000 trees being planted per year—a number that nearly exceeds the trees felled per year for commercial harvest.

Aided by the Tanzanian government, both groups are helping create a growing and legitimate source of income for Tanzanian citizens that is both sustainable and profitable. The pilot programs in place require time to mature, and even the MCP acknowledges that manufacturers are currently unable to switch to sustainable timber for 100 percent of their materials. The MCP are hopeful that by 2009, sustainably certified blackwood will be on the market as a viable choice for instrument makers. Given the maturity time of 70 years or more for mpingo trees, these are programs that will require dedication and continued commitment by all.

THE ECOLOGY-MINDED PIPER

So, where does all of this leave the modern globally-conscious Highland piper? Or still, where does it leave the pipemaker who wishes to buy legally harvested and sustainable stock for their instruments?

Twenty years ago, there were probably fifteen active bagpipe makers in the world producing instruments in large quantity. In 2008, a quick count will give you 35 active makers worldwide—all of them producing sets in African blackwood.

Many dealers will also stock other hardwoods for instruments. Rosewood, walnut, cherry, and maple are just some examples if one is looking to buy an Irish flute or guitar. In fact, makers of

these instruments long ago abandoned blackwood as their primary material in favor of other woods. Players now have many options, all of which depend on the craftsmanship and skill of the maker rather than the wood alone. Highland bagpipe makers, on the other hand, have been reluctant to offer substitute materials, relying exclusively on African blackwood for the last 100 or so years.

It was only British colonization and exploitation of the West Indies, African, and Asian countries that exposed bagpipe makers to the variety of exotic woods available in the first place. Up until the eighteenth century, bagpipes were made of local European hardwoods such as yew and boxwood. An influx of exotic timber resulting from an expanding British empire offered craftsman of all ilks a variety of possibilities. For instrument makers, those possibilities became necessary for producing quality sounding instruments, and this included bagpipe makers. The exotic ebony and rosewood pouring into the country then became known for its quality in making musical instruments. These woods eventually became the wood of choice for all pipe makers for a length of time, eventually driving some species to the brink of extinction. Instrument quality ebony and Indian rosewood must come from trees that take 150 to 200 years to mature. Once cut, it is a long wait until the next harvest. The subsequent search for similar timbers created a ready availability of African blackwood that then brought pipemaking to another level.

The current influx of blackwood rivals, if not surpasses, the supplies of 100 years ago. Certainly, high quality sets of bagpipes are being made by modern makers but players the world over will still look for those drones made 80 to 100 years or more ago.

One of the reasons vintage stands of drones are so coveted by players is that the origins of mpingo harvests at the time were mainly from primary forests, forests that no longer exist. (See map on previous page.) Trees were fully mature, probably well more than 100

years old, and had their entire existence untouched by humans. The full quality of the wood was able to be drawn out by quality bagpipe makers of the time in stands of drones that now fetch high prices and are still beloved by their owners today.

Thinking Outside the Boxwood

When supply lines are disrupted, manufacturers often put effort into finding substitute materials for their products. Just as ebony supplies became scarce with the near extinction of the species, instrument makers sought out alternatives and found blackwood. One might think that disruptions in blackwood supply over the last twenty years would force bagpipe makers to start thinking of alternatives just as their counterparts did 100 years ago. But in all but a few cases, pipe makers seem oblivious. Highland pipers are steeped in tradition, and try their best to preserve their familiar ways. Here too, bagpipe makers stick to what's known and expected in continuing to stock up on African blackwood to feed an increasing demand for Highland bagpipes. In 2008, however, trends suggest that this position will come at a price.

The stubbornness that makers show toward blackwood is not without precedent. Bagpipes made of woods other than African blackwood have gotten a sour reputation by serious pipers, mainly due to inferior sets historically made in Pakistan from native cocus and rosewoods. Any makers veering from blackwood as their material of choice were soundly derided in the greater community of musicians. But does this preclude blackwood as the only viable choice for making bagpipes?

Makers of smallpipes, border pipes, and Northumbrian smallpipes have been experimenting with other woods for many years with much success. (See inset following page.) Many of these sets present an option over ebony or blackwood that is preferred by players. Here, the key is simply acceptance (as well as good moisture resistance). Are Highland pipers willing to “break

tradition” and give a set of pipes made of alternative materials a chance?

Some Highland pipe makers have answered that question and are finding that other timber sources offer similar opportunities for creating instruments with unique qualities. MacLellan Bagpipes in South Carolina has been producing drones for many years from South American cocobolo, a genus of *Dalbergia* that has many of the same physical working qualities.

While not as obvious in U.K. band circles, MacLellan drones are a common and distinctive sight on U.S. Highland games fields. Owners of MacLellan drones speak affectionately of their pipe’s “old world sound” and the refreshing and unique harmonics. Problems exist, however, with cocobolo timber in Central and South America that mimic those found in Africa with mpingo. Cocobolo is already extinct in Central America and its continued exploitation in South America (both legal and illegal) is a direct result of an expanding global economy.

Other makers, such as MacPherson bagpipes of Forfar, Scotland have taken a cue from the makers of old and has begun using mopane as an alternative wood for his bagpipes. Mopane is the local word for the *Colophospermum mopane* tree, the only tree in this genus. Related to the pea, mopane is more of a scrub tree that grows in dry, hot locales of southern Africa on land that is typically avoided by farmers and other agriculture. In this, it is fairly insulated from the type of exploitation experienced by other timbers. Its primary use by the local population is as fuel wood and as a source of the mopane worm, a traditional part of the local diet.

Unnatural Leanings

The scarcity of natural woods have led other makers toward synthetic manufactured raw materials for their instruments. Many pipe makers offer a Delrin (polyoxymethylene) option for their drones, the same material that has been used on pipe chanter for a few decades. Some sets, such as those advanced

by the late Jack Dunbar at Dunbar bagpipes of Ontario, have the benefit of years of practice to produce sets that are indistinguishable in both sight and sound from traditional wood sets.

Delrin has already cemented itself as an excellent material for other Celtic woodwinds such as flutes and whistles. Its increasing use for Highland bagpipes is a response to the growing uncertainty surrounding blackwood. Polyoxymethylene is a petroleum product, however, whose manufacture and distribution brings up other environmental and economic issues.

In Oregon, Pipe Makers Union is successfully experimenting with Carbony, a “space-age” carbon fiber material being used in the production of practice and pipe chanters. Owner Rob Gándara is designing pipe chanters, digiridoos, and flutes from this unique material. Carbony (carbon + ebony) begins as typical carbon fiber of the type being used in automotive and aerospace industries. The material is impregnated with an epoxy resin and is then molded into tubes much like processed blackwood billets. Carbon fiber has found its place as a preferred material on modern drone reeds. Its application on full instruments is a logical step. The formula for Carbony is a closely guarded secret, however, but the material bodes well as a suitable alternative to wood in several types of woodwinds.

CONCLUSION

We live in a consumer culture and being “green” or environmentally conscious is a trend that has major manufacturers and retailers taking notice. Companies are coming around to the idea that being environmentally friendly is just good business. Environmentally aware citizens are delving into the source and manufacture of many of the products they use everyday in an effort to consume products with an “Earth-friendly” impact. Whether it is using green building materials, alternative fuels such as biodiesel, buying fair-trade products from countries with sound economic policies, or simply putting

glass and paper back into circulation, a movement is afoot that has people paying close attention to where their “stuff” comes from. And bagpipers are not exempt.

Bagpipe woods of the past such as ebony and rosewood are endangered and have stiff restrictions on trade for their protection. It is not impossible to see a similar situation happening with African blackwood. It is a logical step from there to demand more information on the timber that supports the art of bagpiping, and demand higher standards from pipe makers, wood dealers, and suppliers.

Just as people demand, for example, that their local market stock produce that is grown organically from sustainable local agriculture, Highland pipers can demand of makers that the pipes they lust for are turned from blackwood obtained from legal harvests on sustainable forest land. With such a demand on pipe makers, it is then necessary for them to place the same demands on their wood dealers. Forcing change through natural market activity is always a better option to draconian governmental bans or sanctions.

Perhaps the simplest approach is encouraging the use of native timbers in the production of instruments. Small efforts in North America and the U.K. are at work planting local trees on plantations for eventual harvest. Walnut, maple, ash, sycamore, cherry, apple, and other fruitwood have a historical place in bagpipe making and could provide a local alternative to the *Dalbergia* species used today. The environmentally conscious adage “think globally, act locally” can surely be applied to musical instrument making—particularly in the bagpipe maker’s workshop. The art of Highland piping will be better for it.

OTHER WOODS

Several other woods currently have similar properties as African blackwood and present themselves as substitutes for making Highland bagpipes.

❑ **COCOBOLO** *Dalbergia retusa*. Orange and reddish-brown in color, this wood possesses many similar, if not the same, qualities as African blackwood. Its high value encourages illegal over-exploitation in Central and South America.

❑ **ROSEWOOD** *Dalbergia nigra*, Brazilian rosewood, had been used for musical instruments for at least a century. It is probably the best for musical instruments but is now a protected and endangered tree because of overharvesting. *Dalbergia latifolia*, East Indian rosewood is more common among flute makers and luthiers and possesses many desirable qualities for musical instruments.

❑ **TULIPWOOD** *Dalbergia decipularis*. A wood possessing many of the same qualities as other species of *Dalbergia* along with tall growth (excess of 100 feet). The wood has a light, deep yellow appearance as opposed to the deep blacks and browns of other trees in the genus, making acceptance among musicians an issue.

❑ **MOPANE** *Colophospermum mopane*. A relative of the pea in the legume family of flora, mopane timber is oily, heavy, and possesses nearly the same qualities as mpingo in all respects: Locals burn it for fuel and it is increasingly becoming a wood of choice for woodwinds such as clarinets. The fact that it grows in dry, hot areas of Africa lends itself to greater sustainability but its limited growing range perhaps restricts its widespread use.