

# how much is THAT MOUNTAIN?



MALAWI TOURISM MARKETING CONSORTIUM

**M**ount Mulanje in southern Malawi isn't for sale. But its resources – primarily wood for fuel, cedar cultivation and fresh water – are being used faster than they can be replenished. Environmental economist JOY E. HECHT was approached to calculate how much the mountain is worth – and whether its value would increase if it were used less. ▶

TEXT & PHOTOGRAPHS BY JOY E. HECHT

	Miscellaneous	18210
Water		
Charcoal	12700	35500
Fire wood	234798	12400
Cedar	12400	31400
Eco tourism	175424	437400
		3462



## WHAT'S A MOUNTAIN REALLY WORTH?

A lot. But maybe not enough. Soaring above southern Malawi is an abrupt wall of rock, Mount Mulanje. Its lower slopes are scattered with forests known as miombo woodlands. The upper slopes are dominated by pine trees and dotted with clusters of Malawi's national tree, the Mulanje cedar, prized in the manufacture of furniture and tourist curios. At 2 000 metres above sea level, a grassy plateau makes for easy walking after a tough climb. For the truly intrepid, rocky peaks rise above the plateau; the highest, Sapitwa, tops out at 3 002 metres.

The mountain is a source of fear and legend. As one tale has it, pineapples abound on the slopes to satisfy parched climbers, but if you take them with you, they will vanish. Another tale has it that dangerous spirits lurk on Sapitwa – strengthened by the case of Linda Pronk, a young Dutch woman who headed up by herself on a September morning in 2003 and disappeared.

But, for those who live in its shadow, Mulanje is a source of livelihood, not legend. Women scramble up every day, returning with 20-kilogram loads of firewood perched on their heads. Entrepreneurs burn

wood to make charcoal, carried to nearby Blantyre in 30-kilogram bags teetering on the backs of an endless stream of bicycles. Half the population of the two neighbouring districts depends on mountain streams for drinking water. Where forests are gone, farmers plant maize on the mountain, driven by a shortage of land to cultivate the steep slopes.

Bit by bit, they are destroying the resources they depend on. Everyone knows it. Malawian environmental advocates do their best to raise awareness of the problems. The World Bank has endowed the Mulanje Mountain Conservation Trust (MMCT) to protect its forests and streams. Foreign aid donors have spent millions to improve livelihoods around the mountain, hoping to take pressure off its slopes.

The massif is a forest reserve, and the Department of Forestry is responsible for selling permits to use its wood, water and wildlife. But the department is short of staff, and is losing the conservation battle. Figuring out how to help the agency manage Mulanje has been a challenge for everyone who loves the mountain.

In response, COMPASS, a US-funded project, joined MMCT in a new approach. Todd Johnson, the forester in charge of COMPASS, is convinced that the survival of Malawi's resources depends on using them – not using them up, but harvesting them no faster than they grow back. Carl Bruessow, the blue-eyed, blond South African who heads MMCT, shares this conviction. Tired of laments about forest fires and illegal logging, they brought me in to calculate Mulanje's economic value as it is now used, and to compare that figure with what it might be worth if its resources were harvested sustainably. The hope was to show that Mulanje would be worth more if it were used less.

### A SHORT LESSON IN ECONOMICS

How do we figure out the economic value of something that isn't sold? Normally, economists consider an item's value to be what someone will pay for it – its price. But we don't actually buy and sell air or water or, in this case, firewood, and no one pays for the harm they cause by overusing these resources. So environmental economists have developed ways to calculate what the various elements would be worth if they were sold, based on what they fetch elsewhere and surveys of how much is used.

Following this approach, I tracked down dissertations that determine how many trips women make each week for firewood and how many kilograms they carry on their heads. I found surveys of the market price of wood in Malawi. When combined with census data on the population around Mulanje, I could estimate the value of cooking fuel.

Drinking water is crucial too. Every day, Malawian girls carry it from the streams in bright plastic buckets. The water department estimates that each family uses about 100 litres per day. I multiplied that by the price of water at urban standpipes to calculate a value. And likewise for cedar, tourism and other resources.

So what is it worth? The results surprised us. Despite talk of cedar and ecotourism, more than half the mountain's value lies in firewood. Cedar, most of it illegal, comes a distant second. Drinking water is a close third; tourism is trivial. The total value was almost \$US5-million, a lot to subsistence farmers who earn barely a dollar a day, if they work for money at all.

### THE MOUNTAIN ITSELF

Mulanje is more than a few million dollars in a study, though. After a month of playing with statistics and a couple of weeks training in the gym of my Blantyre hotel, I headed to the mountain, accompanied by Julian Bayliss, a young English biologist with MMCT, and Paul Shaw, a Scottish hydrologist. Three nimble porters carried our bags, earning US\$6 a day plus food – good money.

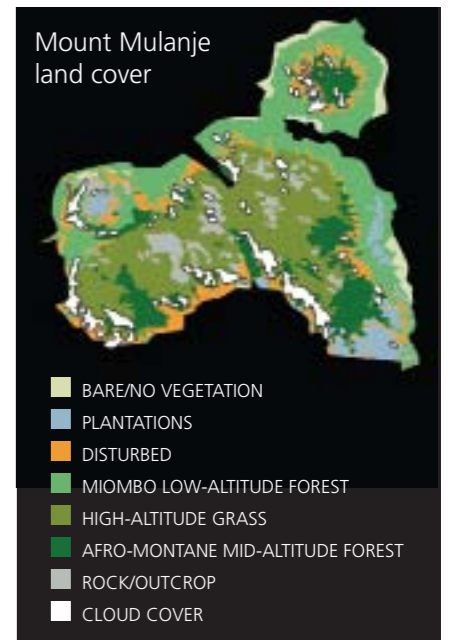
Climbing Mulanje is hard work. We began on steep trails in the relative cool of the morning, but soon we were scrambling up rocks. Julian goes up and down the mountain often, and Paul is accustomed to the hills of Scotland. Our porters didn't even notice that we weren't on flat ground. I struggled to keep up, in growing amazement at the women who scamper up several times a week in skirts and flip-flops and return with heavy loads on their heads.



*Women scramble up every day, returning with 20-kilogram loads of firewood perched on their heads. Entrepreneurs burn wood to make charcoal, carried to nearby Blantyre in 30-kilogram bags teetering on the backs of an endless stream of bicycles*

Lunch was at an old fire outlook, where we gazed at the verdant countryside below. In the higher pine forests, though, we were confronted with skeletons of blackened trees rooted in burnt ground, the legacy of illegal logging. The loggers don't want to be seen, so they work at night. But to see what they are doing and cook their meals, they set fires. In many cases those fires rage out of control, burning long after the men have fled, sending up spires of smoke that are visible from kilometres away.

And then we came to the loggers themselves. Voices and the rasping sound of saws met our ears and Julian disappeared into the trees, followed in panic by one of our porters. In a jumble of English and Chichewa, they argued with the men, who said that their boss had a forest office permit to cut all the live cedar in the area. Julian was furious. Cutting live cedar is always illegal; at that time even cutting dead cedar was illegal. Our porter tried to control him, to keep him from blaming the workers. And to warn him that they had saws, and that violence wasn't ▶





ABOVE Eucalyptus plantations on the tea estates provide wood used to fire the equipment that dries the leaves.

BELOW Malawian women regularly carry 20-kilogram loads of wood on their heads. At the current rate of consumption, though, fuel for their fires may run out in as little as five years.



impossible if they felt threatened. Finally, Julian retreated, pale with rage.

His anger dissipated with the calm of the plateau. The air was cool in the late afternoon, the ground gentle and the paths easy after the long climb. In the distance, we saw a pair of springboks, an antelope now rare on the mountain. At the hut where we spent the night, we sat on the porch gazing at grassy meadows and stony peaks. Life was good, listening to the silence of the mountain under a full moon.

They say that going down is harder than going up, and it's true. Soon we were clambering down steep boulders. The men were tall enough to walk or nimble enough to jump, but I wasn't. Halfway down, my leg muscles gave out and I was reduced to sitting on the ground and swinging my feet over every rock. It was hot and I drained my water bottles long before we got off the mountain.

When we reached the Ruo River at the bottom, though, it was worth it. I plunged in up to my waist, drank the water, poured it on my head and splashed my companions. It was heavenly.

**H**EDGING OUR BETS Having seen the mountain close up, I understood what the threats really meant. Burnt forests, men cutting live cedar and only two springboks where travellers used to fear leopards. How will the girls of today cook for their families? It's useful to know what the mountain's resources are worth this year; it would be even better to know that they will be there next year.

Things don't look so good. Malawians use firewood much faster than it can grow back. If this continues, there may

be no miombo woodlands left by 2011 and no pine forests by 2016. Once the trees are gone, most of the mountain's other products will go with them. The water that we drank straight from the streams will be degraded. Aquaculture will be impossible. If any cedar survives the current onslaught, it will be cut once the forest is gone. Malawi's national tree is could well be a memory by 2016.

But the nastiest surprise was that improving forest management isn't likely to help much. I talked to Tembo Chanyanga, a young researcher with the Department of Forestry, to get an idea of what is possible. He suggested that if everyone joins forces to improve forest management, it might be just enough to double the current yield. If that is achieved across the mountain, the miombo woodlands will last until 2012, instead of 2011.

The department could become more effective, enforcing permit and fee requirements, and keeping the resulting revenue to prevent fires, cedar cutting and agricultural encroachment. This wildly optimistic set of assumptions would keep the miombo woodlands alive until 2016.

It's discouraging, to say the least. When Todd saw the numbers, he rolled his eyes and announced that he would close down the COMPASS project and jump out of the window. (Fortunately his office is on the first floor.) Carl shook his head and said MMCT would keep going, because, 'What's the alternative, letting it go without even trying to stop it?'

### WHAT ARE THE OPTIONS?

Several technological changes might reduce pressure on Mulanje. Alternate sources of energy are obvious, but wood is free now, and local villagers can't afford to pay for it. When their incomes increase, Malawians buy charcoal instead of collecting fuel. But charcoal requires five times as much wood to cook one dinner, so it is far worse for the mountain.

Perhaps they could plant trees. But where? There is scarcely enough land to grow food; using it for forests when wood can be gathered on the mountain could be suicidal. Tree-planting has been encouraged in Malawi for decades, to no avail.

What about increasing crop yields so people could use land to grow fuel

instead of food? Maize is the staple food in Malawi. Most farmers don't have the cash to buy productive hybrid seeds or fertiliser, so they plant seed from their own harvests and don't enrich the soil. Foreign projects have provided seeds and soil additives that increase yields by 50 per cent. But, instead of saving that extra money to purchase improved inputs for the following year, Malawians spent the returns on more immediate needs: food, medical care and funerals for relatives who had died of Aids.

For now, people will keep using firewood from the protected area, because it is cheaper than the alternatives. But they won't die of starvation when the wood runs out. Other parts of Malawi have no forests, and they manage to eat.

Perhaps western environmentalists are asking the wrong questions. We wanted to protect the cedar, and hoped to do it through sustainable use of the mountain's resources. Conservation is the goal; improving livelihoods is a strategy to get there. For the people using Mulanje's forests, improving livelihoods is the goal. Conservation is okay if there are no costs, but they won't do anything that makes them worse off now. They can't afford it. (This shouldn't really surprise us. After all, even rich people aren't willing to give up much to conserve the resources they depend on.)

Malawian decisions about firewood might be caused by a lack of knowledge. Perhaps, with more education, they would understand the impacts of collecting wood on the forests. (And perhaps, with more education, rich folks would give up cars.)

Malawian decisions are rational. The communities around Mulanje could make life harder now, and secure a permanent but modest stream of benefits from the mountain. Or they could live a little easier now, and risk running out of wood in five years. Among people too poor to save for seeds and fertiliser that would increase their food supply by 50 per cent, five years is a long time.

Which brings us to the most basic problem – how to increase rural incomes in Malawi. If we knew how to do that, we could accomplish a lot more than protecting the cedar. But, for now, it would seem that conserving Mulanje's forests isn't the solution. ■



Will using the mountain's resources less secure them for future generations? In an area where people's needs are immediate and urgent, the future is a long way away.

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