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'We owe a lot to the rural people living in strategic water source areas.'

# These are the people who look after our water

Young people from the area chop out invasive alien wattle. Grass is now growing where the wattle was, and water retention has improved greatly, with the water flow in springs maximised.

**H**igh up in the Drakensberg mountains near the Eastern Cape town of Matatiele, you can hear chopping and sawing and see smoke rising from kilns close to a tributary of the uMzimvubu River, one of South Africa's strategic water sources.

Here, you'll find a team of young people from the area, chopping out invasive alien wattle, chain-sawing it into logs and feeding it into the kilns to make charcoal.

Not far from here, young men on horseback are herding community-owned cattle into fresh grasslands as part of a communal cattle grazing programme in which many local communal farmers are participating.

Charcoal entrepreneurs are helping to restore these grazing areas by removing the wattle, after which it returns to indigenous grass species, increasing the land available for livestock grazing and restoring ecosystem function.

Springs in the area that have been dormant for years are reappearing, there is a noticeable recovery of the wetlands and grasslands, and a reduction in soil erosion.

"These are the people who are looking after South Africa's strategic water source areas [SWSAs] that provide more than 50% of our entire country's surface water, including a significant proportion of the supply to all our major cities," says WWF-SA's water source areas manager Samir Randera-Rees, who works closely with the WWF Nedbank Green Trust on several projects in SWSAs.

The uMzimvubu River is one of the largest river systems in southern Africa and one of South Africa's SWSAs. It drains over two million hectares, supplying water for hundreds of kilometres to regions as far as Port St Johns.

Matatiele is one of the regions where the WWF Nedbank Green Trust and Nedbank have been supporting catchment areas and natural resource conservation through projects like charcoal-from-wattle and grazing management.

"The most cost-efficient, sustainable way to conserve and free up freshwater is by looking after the natural landscapes, starting high up in the mountains in the catchment



**ABOVE:** The uMzimvubu River is one of the largest river systems in southern Africa and one of South Africa's strategic water source areas.

**ABOVE RIGHT:** Charcoal entrepreneurs help to restore grazing areas by removing the wattle, burning it in kilns and making charcoal. **PHOTOS: ERS**



area, and then down from here all the way to the river mouth," says environmental scientist Nicky McLeod of Environmental and Rural Solutions (ERS), a non-profit social enterprise that was founded two decades ago in Matatiele by McLeod and soil scientist Sissie Matela.

ERS' landscape and water restoration projects, in partnership with the Lima Rural Development Foundation (Lima), operate under the banner of a local multi-stakeholder partnership called the uMzimvubu Catchment Partnership (UCP). It feeds into national initiatives, such as the Green Business Value Chain initiative, driven by the Department of Forestry, Fisheries and Environment.

"To make the business case for cutting down alien trees, and encourage more corporates to invest in alien-tree clearing to attain their water sustainability targets, we worked with Dr David Le Maitre from the Council for Scientific and Industrial Research, who specialised in research on the impact of invasive alien plants on water systems," says Matela.

"He calculated that in the Matatiele area we are losing about two million litres of water per hectare per year as a result of the uncontrolled and rapid growth of black and silver wattle."

Worryingly, the trees are not just using up rainwater, but groundwater

as well, which is reducing the flow of water into rivers, wetlands and springs, and forcing boreholes to be dug deeper and deeper, resulting in a severe water deficit.

A number of corporates have set water sustainability targets to "replenish" every litre of water they take out of the system through their operations.

"Through WWF, we are facilitating a voluntary 'payment for ecosystem services' initiative," Randera-Rees says. "Corporates are able to pay the stewards of our SWSAs to maintain and restore landscapes in exchange for litres of water that they can report against their sustainability targets."

"When more corporates, governments and communities recognise their dependence on the SWSAs for their water, then formalised mechanisms for facilitating payment for ecosystem services can be developed," Randera-Rees adds.

Matela says: "We would restore trillions of litres of water and the rivers would flow as they should if we could clear even one quarter of the 30 000ha of wattle here in the upper uMzimvubu River catchment area."

"People employed through Working for Water and other Extended Public Works Programmes are paid to clear invasive alien plants, so why not extend this to communities and organisations doing the same in our

country's SWSAs?"  
"In areas cleared by the charcoal entrepreneurs, the wattle is not re-invading the cleared areas. They have learnt how to remove it permanently and areas where they work are showing tremendous recovery."

Randera-Rees adds: "We owe a lot to the rural people living in the SWSAs."  
"They are the stewards of our freshwater supply and green infrastructure, and they are mostly financially poor rural people with very little access to services themselves, including water."

South Africa needs to address active payment for ecosystem services, such as the freeing up of water. "The water bills we pay do not sufficiently take into account the people who are looking after the water, and a proportion of the money should go to them," says Matela. "The fee structure could be based on how much water would return to the environment per hectare cleared or managed. It is achievable and the whole process could be tightly audited."

McLeod says: "Our district municipality spends millions on contractors to put in huge piped water schemes that regularly break down as they are high-tech and rely on diesel and maintenance. It's not practical. "Protecting the springs with simple, locally designed and locally built

spring capture systems offers people a safe, reliable, basic water supply in our area at very little cost."

To help address this, a WWF Nedbank Green Trust project is partnering with Lima on the construction of 18 spring capture systems. These will offer drinking-quality water to 600 households in 12 villages, where more than 4000 people live. With other funding, an additional 25 springs are being constructed. All the work on the springs is preceded by wattle removal to make sure that the water flow in the springs is maximised. "Keeping the springs flowing and healthy relies on the rehabilitation and maintenance of healthy grasslands, wetlands and soil," Matela explains. "Healthy grasslands slow down the water flow from the top of the catchment area, which recharges the rivers and streams, forming a landscape 'sponge system', which slowly releases clean water throughout the year."

"Well-managed grazing systems for the cattle, sheep and goats, which are the key forms of income for people in our area, keep the grasslands and wetlands healthy, and the soil mantle intact. To do this, communities are forming rangeland associations and signing conservation agreements to eliminate unmanaged grazing which leads to grassland degradation and severe soil erosion."

The ERS team works in partnership with Matatiele's communal farmers in six chiefdomships spanning 55 rural villages to reintroduce some of the traditional methods of rotational grazing and rest, in combination with high-density, fast-rotation grazing to improve and restore the health of the landscape.

To tackle the wattle infestation in the region's river courses, in 2019 ERS trained young local people to establish and run Forest Stewardship Council-accredited eco-friendly charcoal production micro-enterprises along the tributaries of the uMzimvubu River. The project is supported by Avocado Vision, a small-business-development company whose managing director, Henry Sebata, says: "Our vision is to help to drive the eradication of alien invasive species through micro-enterprises and SMMEs."

One of the businesses, called Eco Char, is owned and run by Thobani May (28). Another called Moru-motsho is owned and run by Atang Ramabele (29).

Chainsaw in hand, May explains: "We cut the wattle into kiln-size logs and bake them in three kilns at 600°C Celsius. Each kiln uses one ton of logs to produce 120kg to 150kg of charcoal. We sell it locally for R32 per five kilograms and to a business in Pietermaritzburg and Lesotho for

R2128.00 per ton. Our production model is to make 20 tons per month but we still have to scale up to that; at the moment we are making 12 tons."

Production is labour-intensive and weather dependent, and they deal with theft of the wattle logs and charcoal, and broken kilns. In a good month the total profit before paying salaries and expenses is about R60 000 or R18 000 per owner.

Ramabele says they are passionate about making charcoal from wattle. "We want to help the environment where we are living as this wattle is growing everywhere, using a huge amount of water and invading space where the livestock should be grazing."

The charcoal teams monitor the restoration of the landscape after they have cleared the wattle and treated the stumps to prevent regrowth, and regularly send photos to ERS. "They have a proper understanding of the landscape and they have managed to keep the wattle down," says Matela.

May and Ramabele studied after school but decided to return home to look after their families, due to the expense of staying in the cities and because they feel there is still a strong sense of ubuntu in their communities.

"They are doing an amazing job in restoring the landscapes. Where wattle was growing before there is now good grass cover and moisture retention, and soil erosion has visibly reduced," says McLeod. "But while selling the charcoal helps to make ends meet, there is no surplus for growth and to cover what they need, such as kiln replacements and herbicide."

"We are appealing at a national level for a payment for ecosystem services like this to be introduced," says Matela. "It has the potential for multiple spin-offs, including water security, increased livelihoods and employment for young people."

When you see young rural girls and boys walking down the road smiling and chatting, you wonder where they will end up, and how they can develop skills and employment for a better future. Some of them will be able to pursue higher education or find work in the cities, but what about the majority? People need to be able to make a living where they are." — WWF