

# Protecting nature, protecting ourselves: How a healthy environment can prevent disasters



An intact riparian buffer area on Touws River.

*How do scientists translate the value of ecosystem services to general members of the public? A group of environmental and conservation scientists are aiming to do just that in the Wilderness, in the Southern Cape. Article by Klaudia Schachtschneider.*

The scientific approach is a much used way of generating knowledge. It begins with curiosity which leads to discovery and then to translation of this knowledge into concepts that are understood and can be used by society. Bringing scientific knowledge into everyday life to build a better place for humanity to live in – is a

real and challenging endeavour.

A group of environmental and conservation scientists from the CSIR, the Nelson Mandela Metropolitan University (NMMU), South African National Parks (SanParks) and the World Wildlife Fund (WWF-SA) are grappling with this problem, and are trying innovative ways of communicating with

stakeholders in the Wilderness area. Their aim is to help people change the way they look at water in the Wilderness area where they live and have summer holidays.

This new understanding may help people to choose to involve themselves in improving the state of their surroundings. If they do, it could reduce the risk of being negatively exposed to water-related events, such as droughts, floods, sea storms or pollution.

Translating ‘science to action’ in this study focuses on the value of ecological infrastructure – An example is a piece of natural vegetation that forms a protective buffer. At the beach these buffers consist of coastal fore dunes that act as useful barriers in coastal storm events, protecting people and their homes. Upstream, along rivers, these buffers consist of narrow strips of plant growth that look different from vegetation in the rest of the landscape.

They are called ‘riparian buffer zones’ and are typically made up of a mix of plants, animals and micro-organisms that form an ecological filter through which water moves. Plants trap soil with their roots, minimising erosion. Plants, micro-organisms and soils also absorb or immobilise pollutants. Flood water is slowed down by the dense mat of vegetation, reducing flood risk downstream. The combination of good, absorbing soils, held in place by dense vegetation, will also retain moisture for longer, resulting in a slow and steady release of water, thereby reducing the effects of drought.

So, intact buffer zones perform very valuable services, but ongoing developments have resulted in the removal or degradation of many of these critical buffer zones. In the Wilderness area land is used for farming, forestry, residential and tourist development. Whilst these land-uses produce multiple benefits, they often negatively affect buffer zones and the services they perform for us.



Abigail Crisp

*Dune erosion with mid-air staircase evident on Wilderness Beach, with housing developments in the background.*

As the buffer zones degrade, they become less and less capable of buffering their surroundings from the effects of floods, storms, droughts and pollution. In a way one can liken it to a body with a compromised immune system. At a human level we understand and value a healthy immune system, as it keeps us resilient against many bacterial and viral onslaughts. A compromised or absent immune system can make us susceptible to any illness, and a common cold can become life-threatening. Living with high levels of risk and vulnerability is very challenging. The same is true of living in a compromised landscape as it also affects our vulnerability and resilience and

exposure to risk – but it does so collectively and at a larger scale.

Scientific proof regarding the maintenance of a healthy human immune system has been successfully communicated within our society and we are encouraged to look after our own immune system by observing a healthy lifestyle. The researchers of the Wilderness project would see it as a true success if the value of ecological infrastructure, such as buffer zones, was equally understood and integrated into people’s everyday knowledge. So that the inhabitants of the area would be motivated to maintain the buffer zones of their rivers and their coast, and to continue to enjoy the benefits of greater resilience and reduced risk. □



Abigail Crisp

*View from Pig’s Head toward Nature’s Valley showing intact coastal buffer dune.*