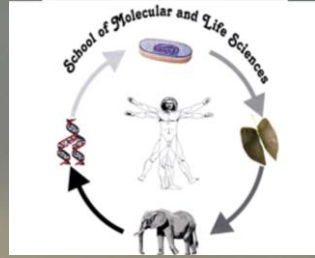


GOING FURTHER THAN FENCES



Academia and Open Spaces:
Building biodiversity support systems
using corridors, community and
connection

Bronwyn Egan

UNIVERSITY OF LIMPOPO, BIODIVERSITY DEPT.

Thank you

- Academics in community engagement in managing public open spaces
- The wild, open spaces and their biodiversity will sustain humanity into the future.
 - But biologists are not going to save biodiversity
 - It will be everyone from every walk of life
- Doomsday findings of research, legislative paperwork and vehement green activism scare off vital collaboration and drain enthusiasm for the task
 - So I start with these words from Mary Oliver

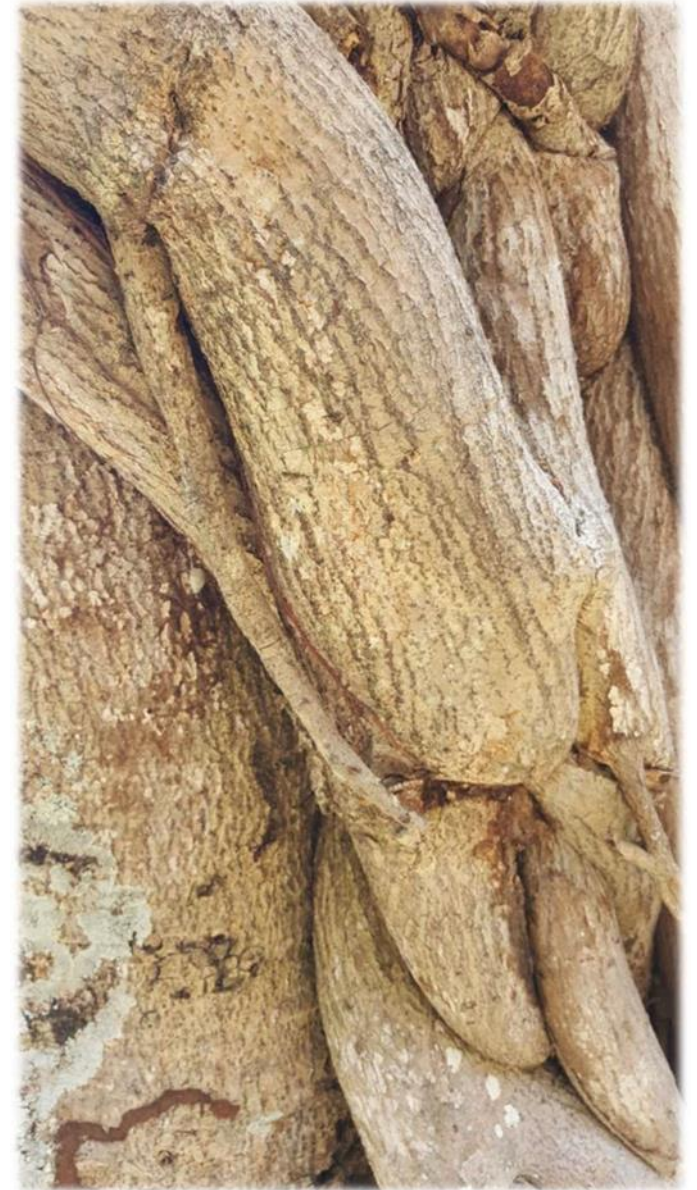




The Black Walnut Tree

Mary Oliver

My mother and I debate:
we could sell
the black walnut tree
to the lumberman,
and pay off the mortgage.
Likely some storm anyway
will churn down its dark boughs,
smashing the house. We talk
slowly, two women trying
in a difficult time to be wise.
Roots in the cellar drains,
I say, and she replies
that the leaves are getting heavier
every year, and the fruit
harder to gather away.
But something brighter than money
moves in our blood—an edge
sharp and quick as a trowel
that wants us to dig and sow.
So we talk, but we don't do
anything. That night I dream
of my fathers out of Bohemia
filling the blue fields
of fresh and generous Ohio
with leaves and vines and orchards.
What my mother and I both know
is that we'd crawl with shame
in the emptiness we'd made
in our own and our fathers' backyard.
So the black walnut tree
swings through another year
of sun and leaping winds,
of leaves and bounding fruit,
and, month after month, the whip-
crack of the mortgage.



We are Here

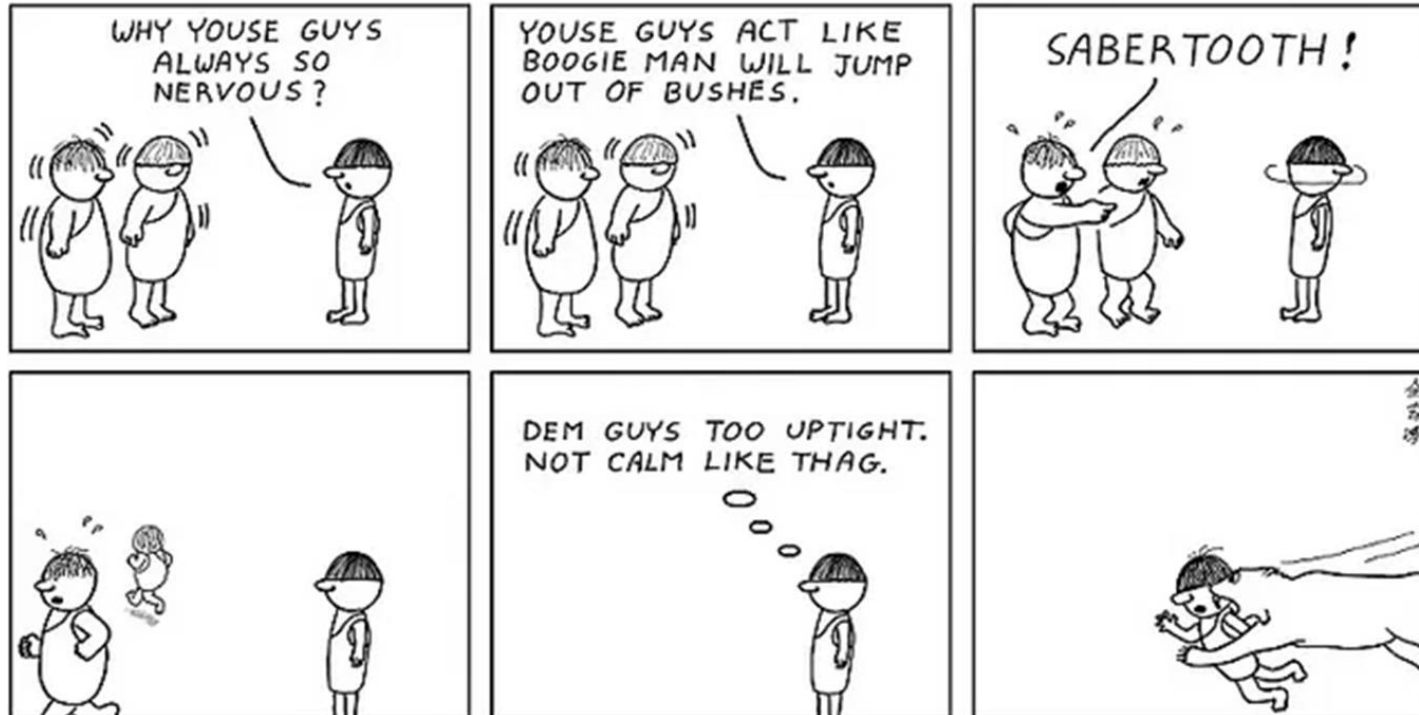
At the whip-crack of the mortgage:
Sell off our environment for important but short term gains like coal fields,
road networks and agricultural monocultures.
Or sacrifice development and popularity for harsh measures that protect the environment
that ultimately protects us.
Joint decision and a collaborative action:
COMMUNITY WORK
and
BLAME AND FEAR PARALYSE!



No blame, No shame

- Norris, 2022: Humans have a natural negativity bias embedded in our limbic systems.
 - This saved us from predators in the past.
- Centuries of caution winning over curiosity contributed to climate change through our striving to create a stable environment and food source.
- Food security, via agriculture, shelters via infrastructure and water storage via dams: **Greed came from Need**
Paradoxically our methods harmed the very environment that supports us

ANSWER: natural selection



QUESTION: Why are anxiety disorders so prevalent today?

SOCIAL AND ECONOMIC IMPACT OF CLIMATE CHANGE



The cost of adapting coastal areas to rising sea levels

Relocation of whole towns



Loss of the capacity to work due to heat

Shrinking productivity of harvests



More wars to gain access to limited resources

Prices of basic foodstuffs and consumer goods will rise



Extreme meteorological phenomena will cause widespread poverty



Fresh water will be in short supply in some areas

Diseases will spread due to higher temperatures



All we need for life are water, soil, air, shelter
All the rest is a bonus, not a necessity

ECOSYSTEM SERVICES

Supporting

- Soil formation
- Biodiversity
- Primary Production
- Habitat

Regulating

- Climate Regulation
- Pollination of crops
- Carbon storage
- Flood control



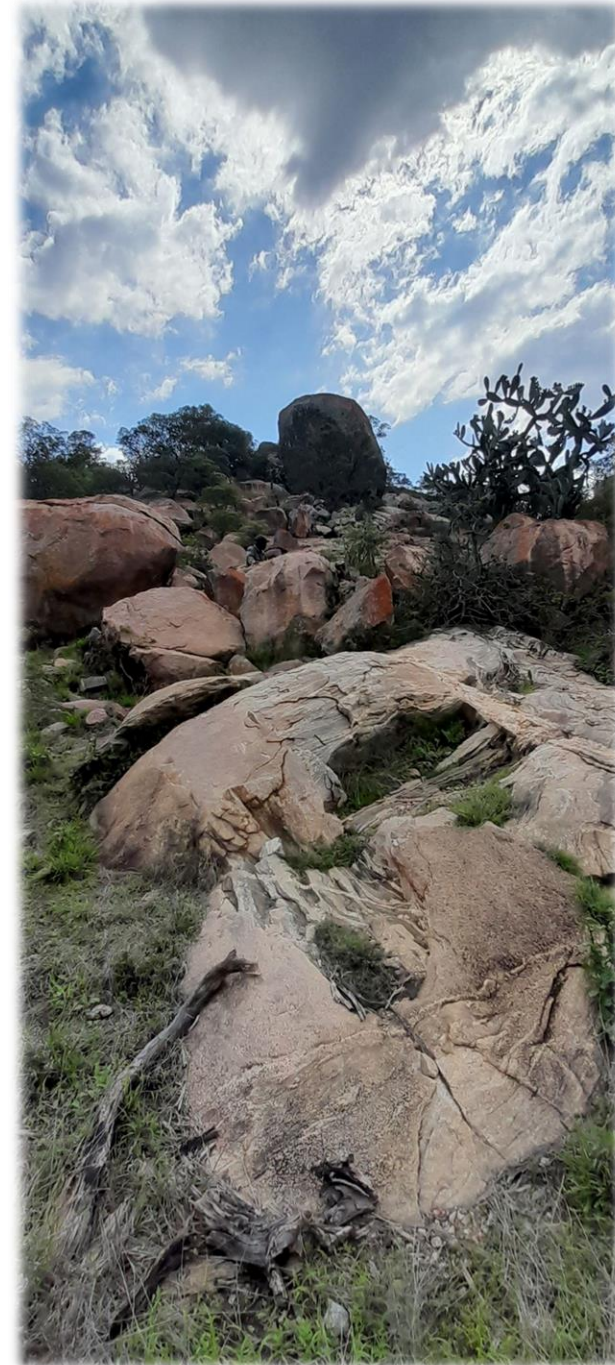
Provisioning

- Food and Fibre
- Wood
- Clean Water
- Medicinals



Cultural

- Spiritual Inspiration
- Recreation
- Education
- Aesthetic





Biodiversity = Beauty

The richer the environment, the more resources present. The more diverse an ecosystem is, the better it functions.

Complex landscapes
result in resilience

Beauty meant safety,
meant feelings of
well-being

Climate Change
damages beauty

Rivet Popper

Loss of beauty points to loss of functionality

Ecosystem services of **soil** health and its retention, **water** regulation and **air** quality require a healthy biodiversity for their maintenance

The four predictions for Climate Change in SA are on our doorstep:

Increases in extreme temperatures: Heat waves in recent summers

Increases in drought: The dire state of Ebenezer and Tzaneen dams

Increases in tropical cyclones: Eloise

Change in phenological events: Num nums flowering in winter, rain in June



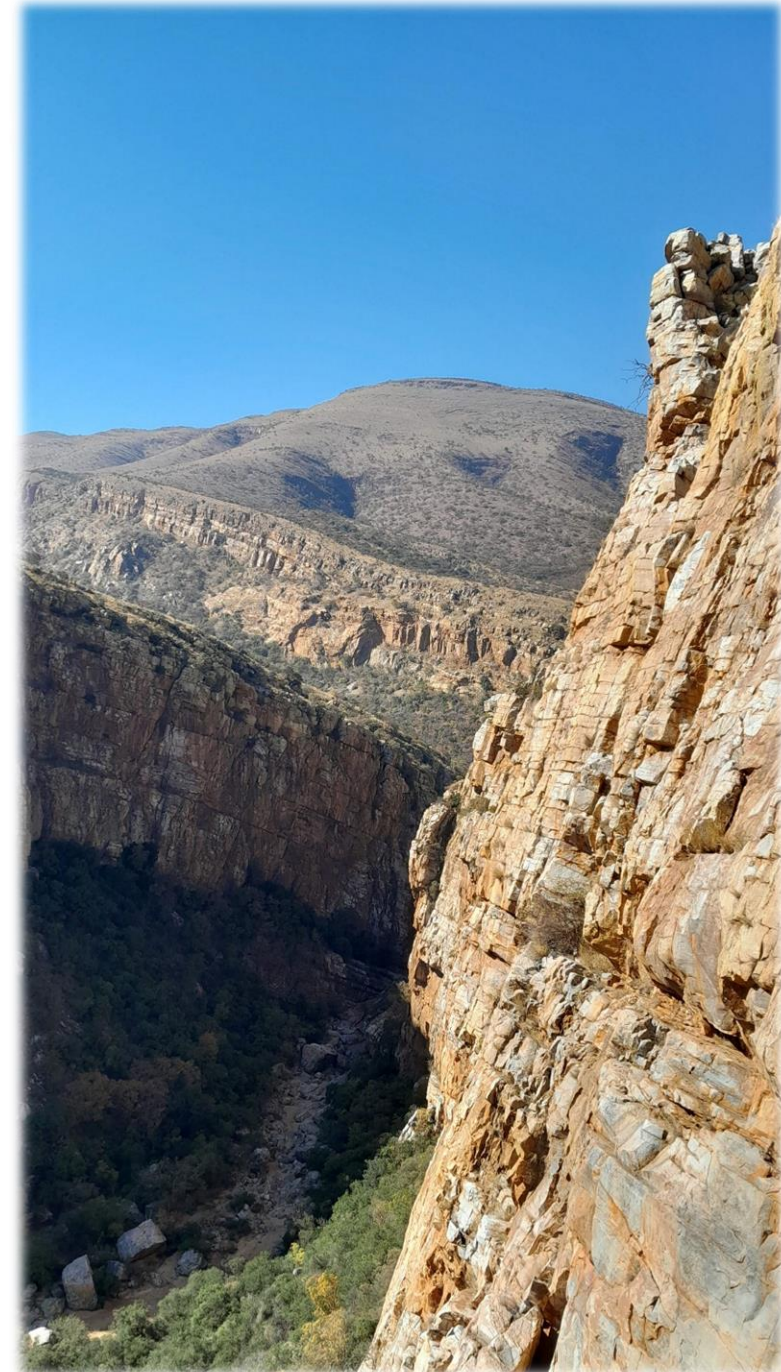
Saving the Safety Nets

Hydrological, ecological,
Climate & sociological models
Advise complicated strategies

BUT

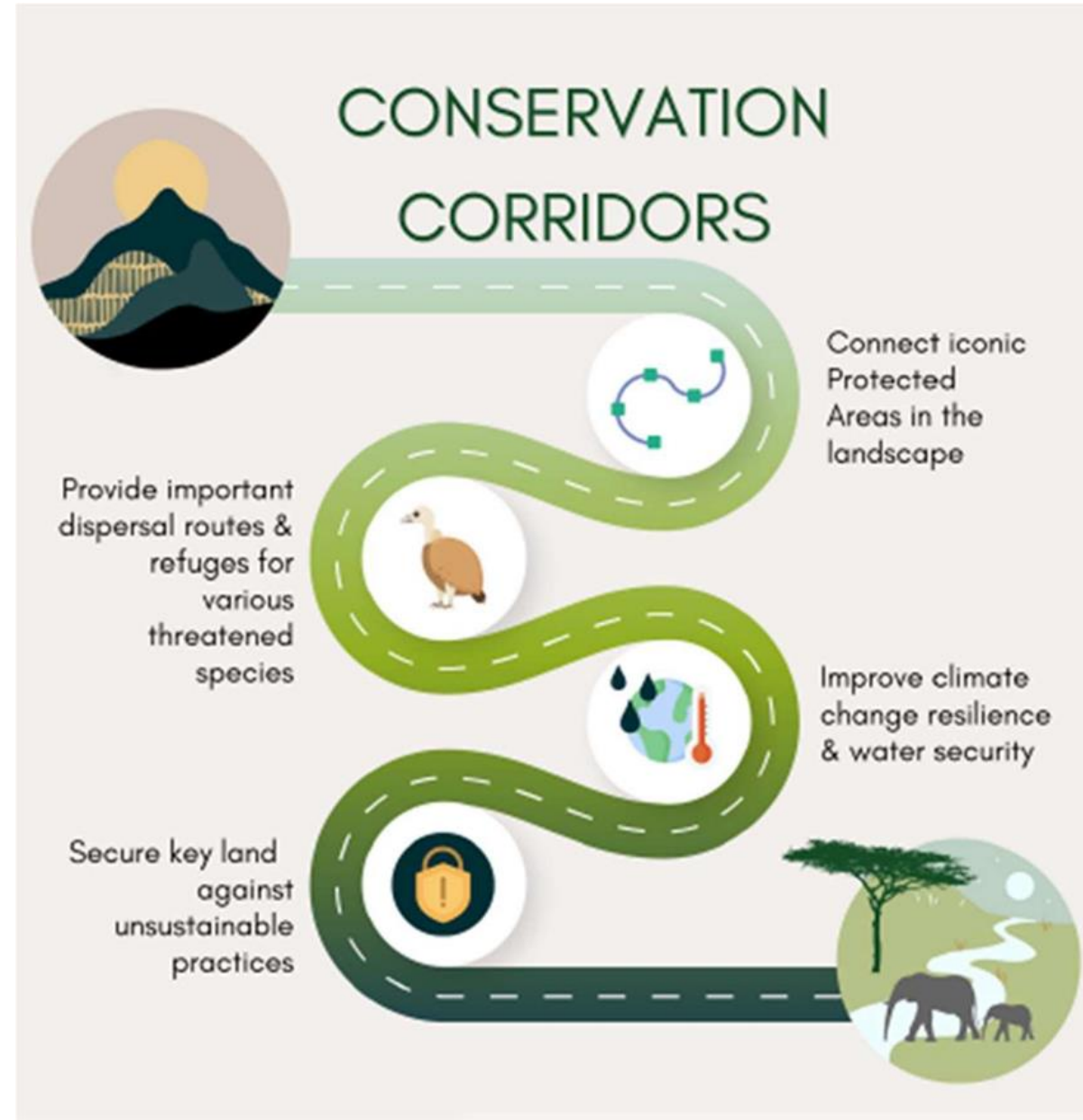
Keep it simple: save what we have
Restore, rehabilitate, regenerate
Keep out pesticides, herbicides
& pollutants
Link up habitats by restoring corridors

This will allow:
Flood attenuation,
Water purification and filtration
Carbon sinks
Faunal migration
Seed dispersal
Biodiversity hotspots
Oxygen replenishment



Crucial work for Communities

- In cities (eg Polokwane), creating and protecting green belts:
 - Safeguards air quality
- Provides opportunities for outdoor exercises,
 - Improves emotional well-being, serenity and sense of place.
- Prevents strip development along roads,
 - Buffers and protects farmland
 - Assists biodiversity conservation by defending habitats and wildlife corridors



Collaboration, Connection, Community

- To build resilience and redundancy back into our natural systems we need space for movement: migration, emigration and replenishment
- Polokwane Plateau Grassland and Mamabolo Mountain Bushveld represented in:
 - Polokwane Nature reserve
 - Turfloop Nature reserve
 - Moletjie Nature Reserve



Collaboration, Connection, Community

These are isolated and should be linked via corridors of natural veld or restored veld:

Radar Hill: Cr En *Euphorbia clivicola*, *Ledebouria crispera*, *Kleinia venterii*

- Ga-Mothiba: Cr En *Euphorbia groenewaldii*

Urban creep, unauthorised housing,
strip development along rivers,
unauthorised industrial development



Policy plus Community

The National Environmental Management: Protected Areas Act 57 of 2003

National Protected Area Expansion Strategy-

Sets protected area expansion targets for vegetation types in South Africa in order to achieve- A representative protected area system.

Maintain key ecological processes across the landscape. Envisages an increase of the protected area system from 6.5% to 17% of the country's surface area to meet CBD targets.

Global push for 30% by 2030



The Biodiversity Stewardship Initiative

A national initiative

Securing land in biodiversity priority areas.

Entering into agreements with private or community
landowners

Led by conservation authorities (MTPA/LEDET)

Supported by conservation NGOs.

Allowing landowners to be custodians of biodiversity
their land (SANBI, 2018).



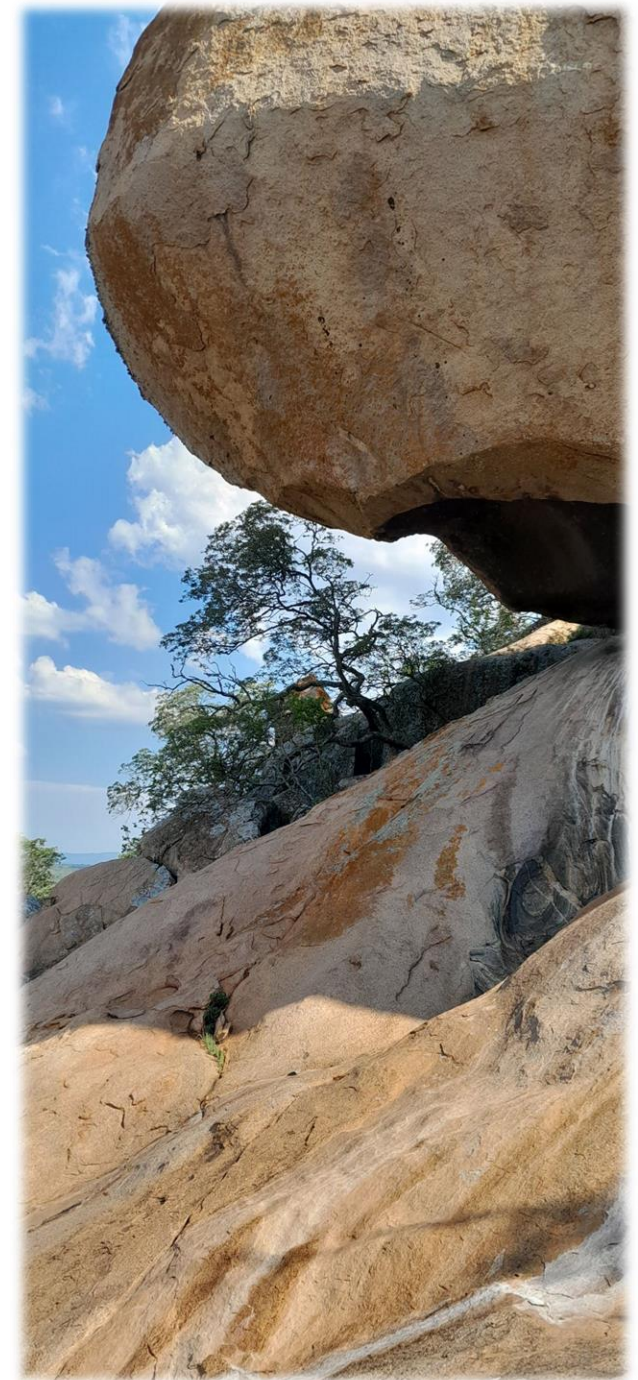
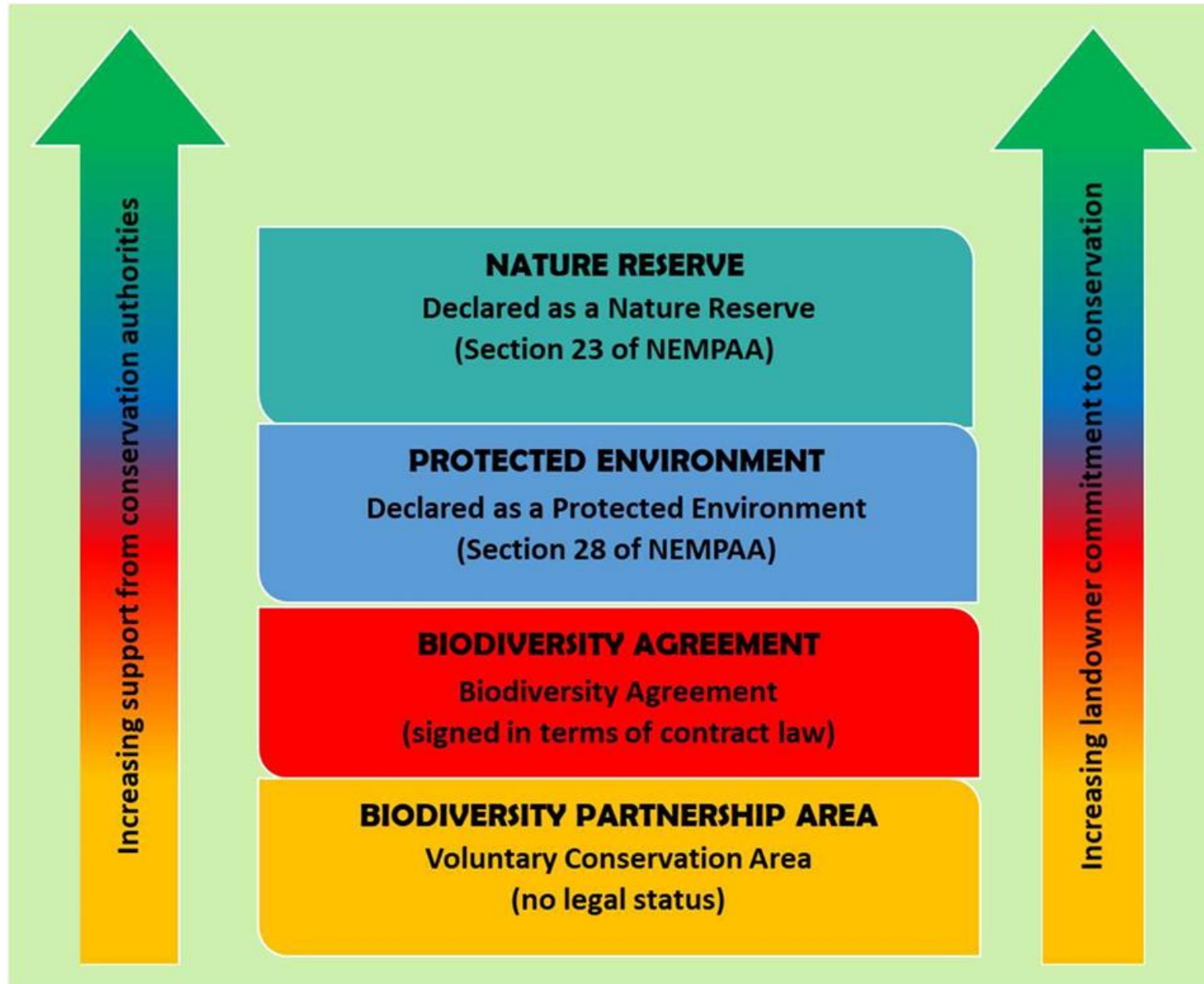
Qualifying

Standards must be met: Criteria on biodiversity value;
Ecosystem protection percentages; Priority species;
Connectivity;
Current land use and various other elements.

Each prospective PA needs to be assessed individually in order to identify what level of protection it qualifies for.



Stewardship Categories



Benefits to Landowners

Legal

- Securing of existing biodiversity conservation land use. Particularly against mining & other incompatible threats etc.

Financial:

- Property rates exemptions.
- National treasury / fiscal benefits.
- Pooling of resources around key priorities such as safety and security; ecological management and other;
- Potential increases in property values due to security of land use status;
- Ability to leverage capital finance for biodiversity-based projects.



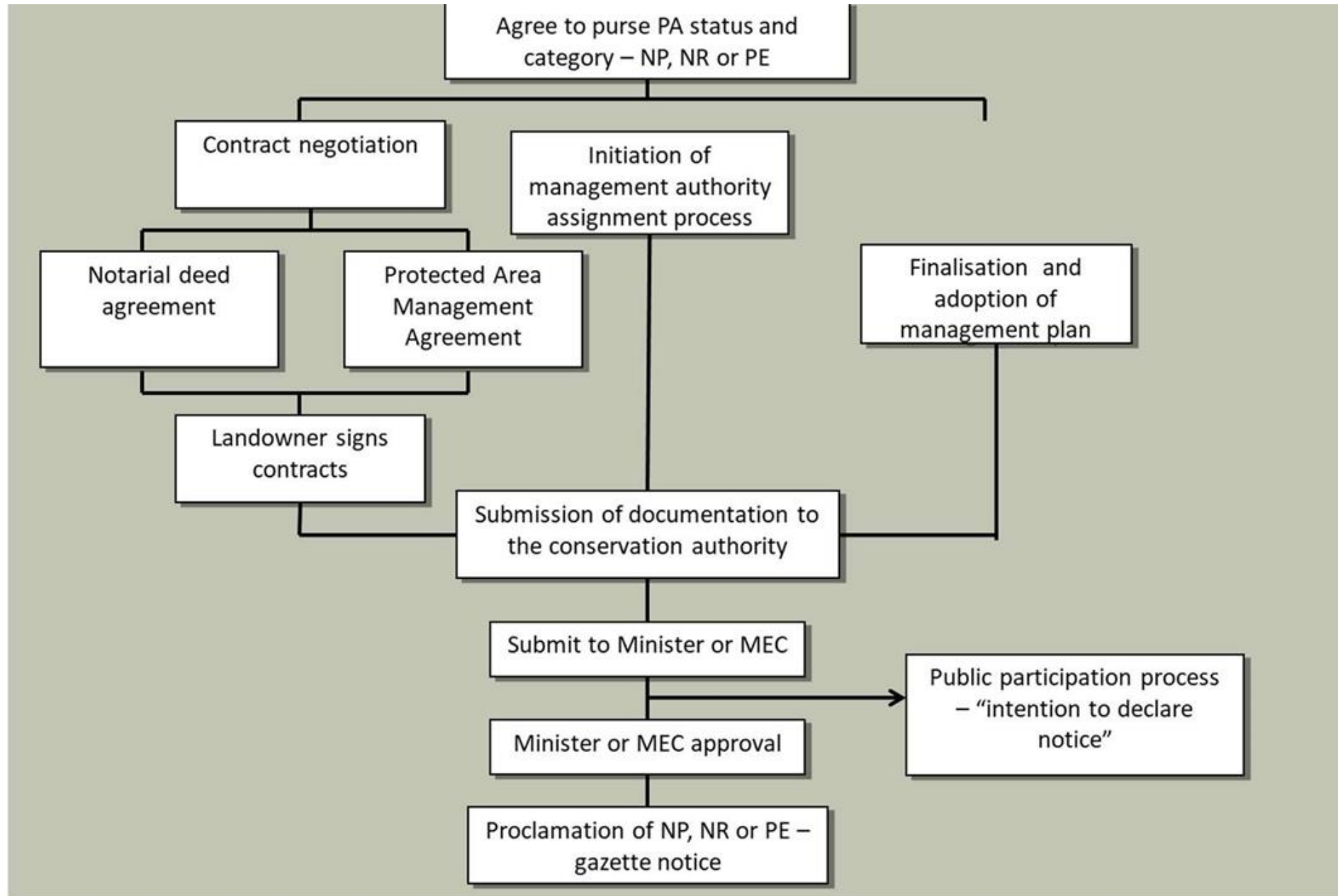
Benefits to Landowners

Non-financial:

- Assistance in protected area planning and management.
- Advice, support, expertise and technical assistance from Kruger 2 Canyons Biosphere, SANParks and other partners.
- Marketing as a biodiversity support area or nature reserve.
- Cooperation and support amongst a network of reserves.
- Potentially focal areas for Natural Resource Management Programmes (e.g. for invasive alien plant control)
- Mining offset support
- Support from NGO sector & conservation authorities.



The Process



Finding out what there is and where



Mapping:

- GIS tools
- Biodiversity value of each place
- Questionnaires for communities and users
- Determining where they can be connected
- Making friends from diverse areas

Awareness:

- Schools and interest groups
- Citizen Science – iNaturalist, Botanical Society, WESSA

Livelihoods

- How can these be enriched
- Training, networking and learning

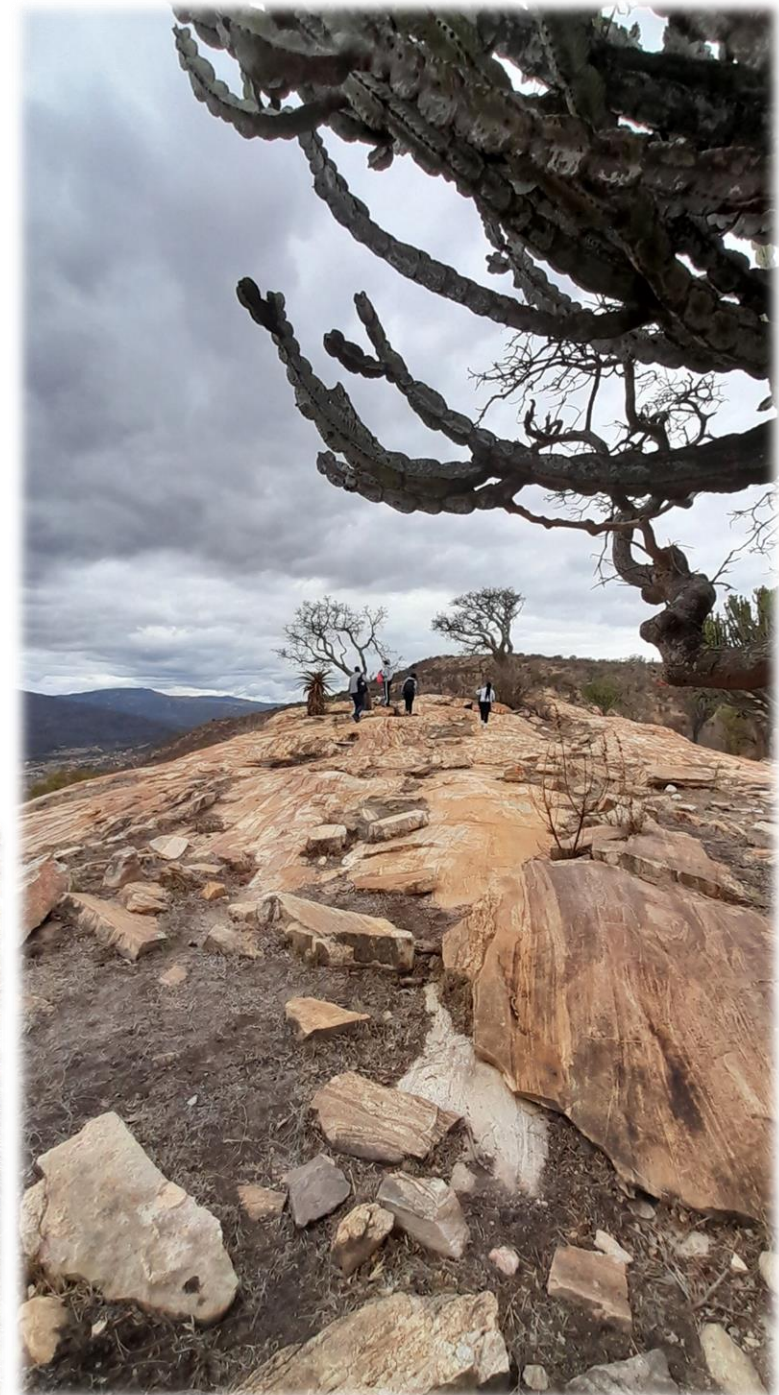
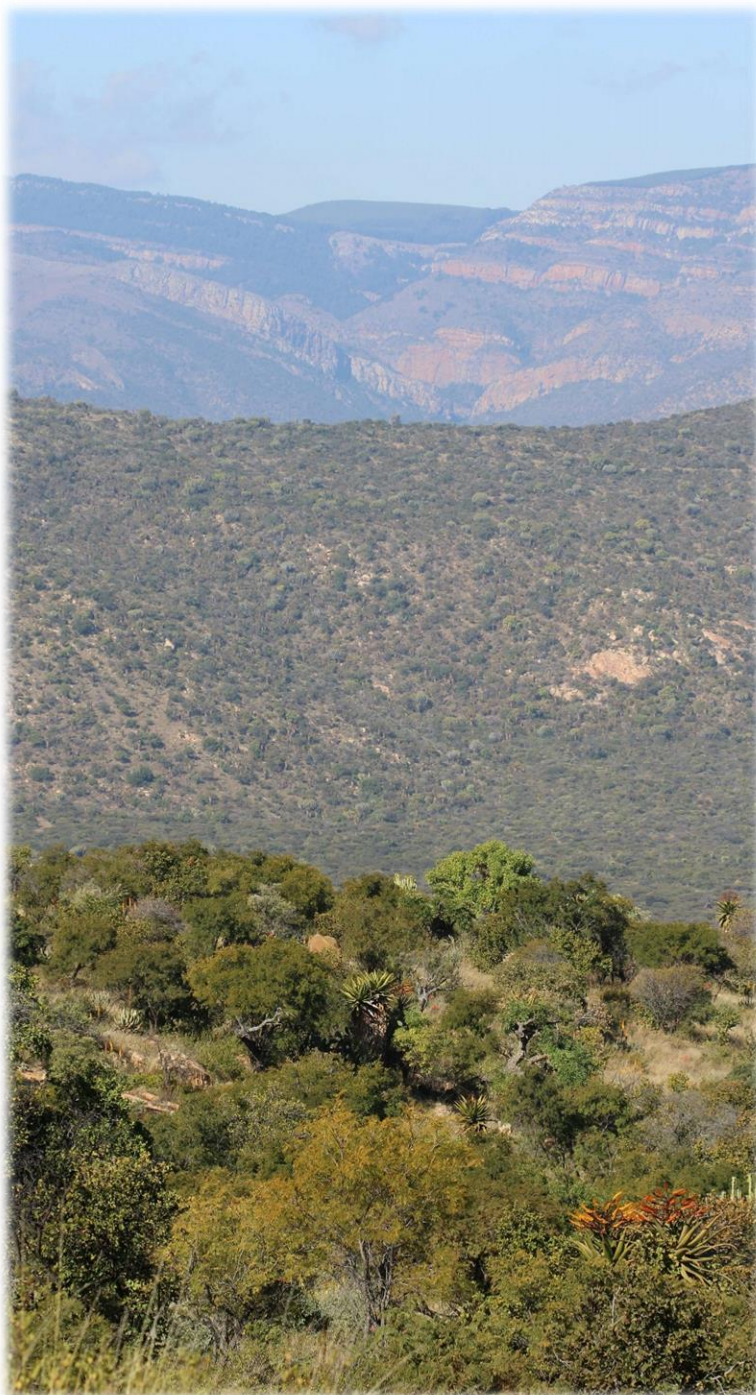
Resources

- Water
- Medicinal and useful plants
- Edible insects

Makgeng Magic

Community Land:

- Already valued for natural resources
- Spiritual sanctuary
- Strong leadership
- Links to diverse natural features
- Feature plants aloes and euphorbias



Makgeng Magic

Community Land:

- Collaboration between UL, Rotary and Botanical Society members
 - Tree tags and hiking research
 - Guided walks
 - Signage
 - Environmental Awareness



Koedoe River



Formal Conservancy:

- ZZ2 driving the process
 - Gazetted, LEDET
- Number of land owners, collaborative
- Conservation main priority = water
 - Research
- Environmental Awareness

Noko Trail

Community Land:
Entertainment and family venue
Adventure tourism

- Commercial
- Guided walks



Wolkberg Zulu

Under discussion
Conservation of one key stone butterfly
Wolkberg Zulu Butterfly
Conservation Servitude

- Research
- Preservation



Haenertsburg Grassland

Commonage

- After 15 years negotiating and motivating was gazetted
- Management and budget purely from Friends of the Haenertsburg Grassland
 - Critically endangered aloe lettyae
 - No government support – not even for EIAs
- Formed to protect Critically Endangered Woodbush Granite Grassland
 - Environmental Awareness
 - Ecotourism



Mphogodiba, Beyer's Nek

Community Land

- No protection, but this was sought
 - Used for natural resources
- Protection solely afforded by the community
 - Hiking, climbing, birding



Open Spaces in Polokwane?

Radar Hill: Botanical Garden and trail

- Corridors from Polokwane Nature Reserve to Bakone Malapa
 - Myngenoegen to Dalmada
- Ga Mothiba: school, hiking trail, environmental awareness garden
- Link through Mankweng Wetlands to UL and into Turfloop Nature Reserve

- PEOPLE ARE DESPERATE FOR THE SERENITY OF THE NATURAL ENVIRONMENT

It is an antidote to anxiety and disconnection, pollution and chaos

- They will pay in time and money for the privilege of walking through these places which are, in reality priceless



Teach the Children

Teach the children. We don't matter so much, but the children do. Show them daisies and the pale hepatica. Teach them the taste of sassafras and wintergreen. The lives of the blue sailors, mallow, sunbursts, the moccasin flowers. And the frisky ones—inkberry, lamb's-quarters, blueberries. And the aromatic ones—rosemary, oregano. Give them peppermint to put in their pockets as they go to school. Give them the fields and the woods and the possibility of the world salvaged from the lords of profit. Stand them in the stream, head them upstream, rejoice as they learn to love this green space they live in, its sticks and leaves and then the silent, beautiful blossoms.

Attention is the beginning of devotion.

Mary Oliver

