



Biodiversity Day feedback from

The first ever K2C biodiversity day celebrations were held in the region on the afternoon / evening of the 16th May and Saturday 17th May 2008.

The **concept and context** of the K2C B-day activities:

◆ In 2002 – Convention of Biodiversity (CBD) agreed “...to achieve, by 2010, a significant reduction of the current rate of biodiversity loss...” this has since resulted in the CBD holding a Conference of Parties (COP 9) in Bonn, Germany, which is currently underway.

◆ It is believed that Biosphere Reserves / Regions can be vehicles for promoting & implementing sustainable development & conservation of biodiversity beyond the borders of protected areas.

◆ This year the theme for International Biodiversity Day (IBD) is “Agriculture & Biodiversity”. This is particularly pertinent to the K2C Biosphere because Agriculture is a significant economic driver in the region & the region is rich in Biodiversity. With greater awareness and the potential partnerships the agricultural industry of the K2C region has made progress towards implementing more sustainable agric practices, crop diversity and *Fair Trade in Agriculture* amongst other associated initiatives such as the “From the Region for the Region”

◆ K2C’s philosophy is that “We cannot conserve what we do not understand”. Creating awareness of the region’s exceptional diversity

was one of the main motivating factors towards initiating and implementing the B-day activities.

◆ K2C biodiversity filmlet is being presented at COP 9 to showcase the region, its spectacular diversity and diverse activities.

What did the day entail?

◆ Teams of 2 to 3 “specialists” and 8 to 12 K2C stakeholder representatives from varied backgrounds (school kids to senior community members) got together to assess a variety of pre-selected sites in the area

◆ On the afternoon / evening of the 16th – some of the sites conducted night drives

◆ On the morning of the 17th May the teams walked a transect (size varied according to site & ecosystem) 4hrs was the max time spent at each transect.

◆ Terrestrial sites recorded: plants (trees & grasses), mammals, birds, herpetofauna, invertebrates (at a basic level)

◆ Aquatic sites recorded: Fish, macro-invertebrates using SASS 5 (South African Scoring System version 5), and also the above in the riparian sections of the river systems.

The main aims of the biodiversity day celebrations were:

◆ To compile an inventory of the variety of organisms, habitats & landscapes present at the representative sites of the K2C Biosphere Region

◆ Be able to compare expected vs observed (the K2C has an extensive list of important species as compiled with the submission of the nomination document).

◆ Be able to compare system functioning between different land-use types in the same / similar systems.

◆ Create awareness, amongst different stakeholder groups, of the different habitats and organisms in different land-use types and the general value of diversity.

◆ Have tried methods in place that may provide a basis for future biodiversity days at the same sites i.e. 2008 biodiversity day is seen as a trial method.



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Unfortunately this time of the year, our autumn / winter, was not an ideal time to be measuring biodiversity as many of the region’s organisms have flown to greener pastures such as the migratory birds, while others are in a dormant phase such as some plants and insects. The reason for celebrating at this time of the year in the K2C Region was because we were guided by the IBD on the 22nd May, the CBD - and the COP9 conference being held in Bonn, Germany from 19 – 30 May, and the Kruger to Canyons Biosphere and its biodiversity celebrations are going to not only be show cased there, but also receive a tremendous amount of focus and attention.

The sites: In the end we had 18 sites (14 terrestrial & 4 aquatic) located in the region, unfortunately this was a couple less than we had hoped for due to unforeseen circumstances. For example we had really hoped to have a site in the Wolkberg Wilderness area, one of South Africa’s 7 botanical hotspots for biodiversity. These sites encompassed all the major biomes / ecosystems (The montane grasslands, the afro-montane forests, the savannah and the freshwater aquatic systems) of the K2C region, and were spread out between all three biosphere zones and its associated land-use types.

This year’s IBD theme was “Agriculture & Biodiversity”, the emphasis being on food security and the importance of biodiversity in our daily lives including indigenous species harvested e.g. mopani worms, marulas, the many medicinal plants utilised in the region, the value of biodiversity to agriculture such as pollinators in the form of bees, other insects and birds, as well the importance of variation in agricultural crops.

What is biodiversity? Biological diversity as it is properly known, encompasses 3 main components: ecosystem diversity – the different types of ecosystems, landscapes and habitats; species diversity – the different types of flora and fauna on species level; and genetic diversity – the variation in genetics in populations of the same species.

Known biodiversity in the K2C region includes:

- ◆ 3 Terrestrial biomes: Grassland, Forest, Savannah
- ◆ Varied landscapes, some natural islands = speciation
- ◆ Many different vegetation types
- ◆ Unique geological formations (such as the rare Tufa, the 3 Rondawels, Wolkberg caves etc)
- ◆ 149 mammals; 510 birds; 147 reptiles; 42 amphibians;
- ◆ 57 fish; 2700 plants; 174 endemics, 169 RDB
- ◆ 309 economically important species that underpin or sustain (tourism, medicinal, food, ecosystem functions, and angling to mention but a few)

Reasons for biodiversity in the K2C region:

Over a relatively short distance of about 50km, a range of factors contribute:

- ◆ Altitudinal range (200-2050 m.a.s.l) – due to the height of the Drakensberg and flattening out down to the low levels of the savannah Bushveld below.
- ◆ Geological diversity (form and type e.g. Quartzite, basalt, dolomite, rhyolite etc) – many of the plant endemics are specific to certain soil types.
- ◆ Wide variation in rainfall (averages varying from 400mm to 1000mm p/a) and even measuring 3000mm at God’s Window
- ◆ Climatic variation (the natural temperature ranges from the escarpment to the Lowveld and from inside the forested areas to the savannah)

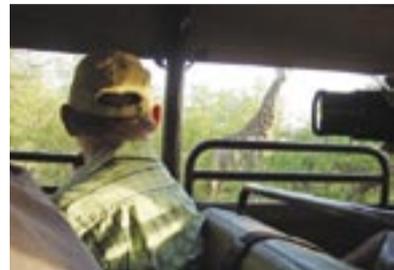
Threats to biodiversity in the K2C region:

- ◆ Fragmentation of habitats caused by monoculture (agriculture), and developments that create ‘islands’ or fenced areas, these reduce habitat availability and limits the movement of organisms, drastically damaging biodiversity.
- ◆ Habitat destruction and damage.
- ◆ Over-harvesting and over-utilization e.g. timber from the forests and medicinal exploitation for national markets and beyond.
- ◆ Alien invasive species – both flora and fauna.
- ◆ Over-development – where sustainability is often questionable.
- ◆ Veld management practices in some places are dubious at times such as incorrect burning regimes.

The **value of biodiversity** to the region and its variety of land use types.

Grasslands:

- ◆ Very important for water regulation especially in the palustrine (vegetated) source-setting wetlands.
- ◆ Stabilise and protect the soil.
- ◆ Grasses are popular grains because they are exceptionally nutritious and can be cultivated relatively easily



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Kruger to Canyons Biosphere



By Jenny Newenham

- ◆ Variety of other uses include: construction, ornamental, lawns, essential oils, beverages and fuel.
- ◆ Important for shelter to fauna, nesting material and a valuable food source.

Mist belt Forests:

- ◆ Forests are carbon sinks, meaning that they use and convert the carbon emissions produced by humans and their activities.
- ◆ Help stabilize stream banks thus reducing erosion into our precious water resources.
- ◆ Socio-economic value to tourists e.g. hiking, and view points such God's Window.
- ◆ Cultural value – initiation / spiritual ceremonies.
- ◆ Source of large variety of medicinal (bulbs, bark etc).
- ◆ Home to rare and diverse fauna and flora that would not otherwise exist in this region

Savannah:

- ◆ Tourism – a major economic driver in K2C where there is an abundance of wildlife and spectacular scenery.
- ◆ Provides a number of direct benefits such as marulas, mopani worms etc

Preliminary summary of results:

- ◆ A peak at some of the stats regarding biodiversity day:
- ◆ More than 200 people participated in the monitoring activities (specialists & stakeholder reps).
- ◆ Approximately 80 different landscapes + habitats sampled
- ◆ 600 different species were recorded (not bad for this time of the year).

The highlights and concerns from the sites are as follows:

Waternalspruit (Grassland site in Blyde R Canyon NR):

- ◆ **Highlights:** 93 plant species, catching a shrew in the Sherman Trap (set up the night before), Orchid, *Protea parvula* - endemic & possible red data *Erica* sp

Matibidi communal rangeland (Transformed grassland):

- ◆ **Highlights:** 60+ plant species; 2 snakes & 2 gecko sp. The Household interviews revealed the supplementary dependence on indigenous herbs and insects to their diet. A concern was the 11 Alien invasive plants sp.

York's London plantation (Transformed grassland/ forest):

- ◆ **Highlights:** Final results still forthcoming. The site did however sample the Treur river for macro-invertebrates. This site is also the location of the endemic fish species *Barbus treurensis*.

Mariepskop (Indigenous Afro-montane forest):

- ◆ **Highlights:** 40+ Species of plants on the plateau (amongst the *Capensis* flora) & > 60 plant species in the forest with a number of muthi and endemic sp. Crowned eagle and lanner falcons were bird highlights. Windy conditions made it difficult.

Bavaria Organic Mango (transformed Savannah):

- ◆ **Highlights:** 17 bird species were recorded, 23 plants and 20 invertebrates and a snouted cobra.



Bavaria Citrus (transformed Savannah):

- ◆ **Highlights:** A surprising amount of diversity was recorded in the orchard and surrounds: 40 plants, 33 bird and 34 invertebrates.

New Dawn Restituted Farm (transformed Savannah):

- ◆ **Highlights:** The Barn owl and its left over mouse dinner was a highlight. 5 mammals, 46 plants and 15 bird species (including a Trumpeter Hornbill) were sighted on the farm.

Raptors View Wildlife Estate (semi- transformed Savannah):

- ◆ **Highlights:** La Valliant's Cuckoo and aardvark spoor were highlights. And what lovely photo's of the team with different species.

Kapama PNR (Savannah):

- ◆ **Highlights:** A great variety of plants 80+, 35 invertebrates and 36 bird species. In a short night drive they also had an opportunity to see 11 mammals including a civet & 10 birds were also seen.

Ntsiri Private Nature Reserve (Savannah):

- ◆ **Highlights:** A 5km transect, but narrow. 16 mammal species recorded by spoor presence. Some fascinating invertebrates were sighted such as the grasshopper that blends in with the gravel and sand grains. 64 plants including the Ilala palm & 27 birds



Welverdiend Communal Rangeland (transformed Savannah):

- ◆ Interesting results from the household interviews and the communities' dependency on the firewood on a regular basis as well as a number of other diet supplements derived from the rangelands. The field surveys had a surprising amount of biodiversity including 93 tree sp.

KNP Terrestrial Wilderness (Savannah):

- ◆ On the night drive definite highlights included sightings of the Ground hornbill with juvenile & wild dogs, both critically endangered species. The diurnal monitoring included sighting 37 bird species, 11 reptiles (including a black mamba) & 17 mammals.

SAWC Campus (transformed Savannah):

- ◆ The insect diversity was interesting. 5 reptiles (including 2 boomslangs) and 25 bird species were noted.

PMC (transformed Savannah):

- ◆ A large variety of animals and plants seen, one definite highlight was the single *Euphorbia* plant with ca. 10 types of insects on it. 45 plants and over 40 bird species. On the night drive 11 mammals and a crocodile.

Vaalhoek – Blyde River (escarpment):

- ◆ Team pleased with results - 6 Fish species (2 indicators of good water quality, 1 endemic minnow *Barbus argenteus*) & SASS score indicating good water quality.

Oaks Bridge – Olifants River (Lowveld):

- ◆ A tricky site because of scouring and proximity to the bridge – only 2 fish species & a low SASS score indicating low – moderate water quality.

Otters Den – Blyde River (Lowveld):

- ◆ A SASS score indicating good quality water, 6 fish species, & *Barbus brevipinnus* a new record for Otter's Den. 85+ plant species

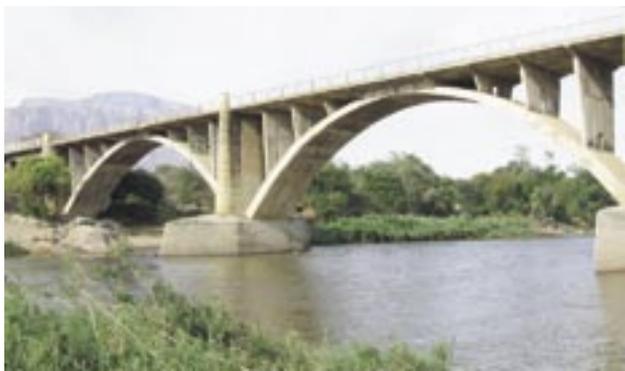
KNP Aquatic - Olifants River(Lowveld):

- ◆ A SASS score indicating good water quality, 13 fish species, and over 60 bird species in the riparian zone.

It was very rewarding to see the enthusiasm amongst all participants, and the excited discussions that pursued on arrival to drop off their data sheets at the Sustainable Living Festival. There was a buzz of sharing ideas and trying to identify different plants and insects.

Concluding remarks:

- ◆ Conservation of biodiversity (and all its associated values and processes) needs to happen beyond the boundaries of our protected areas (in all zones of the Biosphere Region).
- ◆ We as stakeholders of the region are obliged to live more sustainably and make changes that benefit the environment so that the environment can continue to benefit all our needs and us.
- ◆ The future of biodiversity in our region is in our hands.
- ◆ Lets make sure that 2010 is more than the soccer World Cup – and that we meet the Biodiversity targets of the CBD
- ◆ Remember our planet and our region are on loan to us by our children.



Special thanks goes out to everyone ("specialists", co-ordinators and stakeholder representatives) who participated in the biodiversity day activities! Without you this day would never have happened. Thank you! Extra special thanks must go to Marie-Tinka Uys, Mike Peel, Jerry & Hester Theron, Sharon Thomson & Mirjam de Koning.