



Waterberg Nature Conservancy Newsletter

Occasionally issued news of interest to WNC members and others in the Waterberg Number 5, January 2009

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Notes from the Editor

We put together the first four issues of our Newsletter in 2008 and here is Number 5, the first of 2009. This year we are going to expand our distribution list, beyond WNC members, to include others who we think would be interested in our activities and issues.

To those of you who are not WNC members, if you know of other people and institutions that we should send this to or if you'd rather not receive the Newsletters, please let us know,

Near the end of this Newsletter, you'll find a very interesting and informative article by Richard Wadley about Mining in the Waterberg. You'll also see why I've re-titled it Mining in Limpopo Western Bushveld.

We're starting a new feature in this issue – Member Profiles. Take a look at some of our members on the last couple of pages.

Regards for the New Year
John Miller, Chairman, Waterberg Nature Conservancy

Next General Meeting

Date: Thursday 12 February 2009

Time: 2:00 for 2:30 pm

Venue: Waterberg Academy, Vaalwater

Presentation by Andrew Parker: Conservation Development in the National Parks of the Republic of Congo.

Andrew is not only on the Executive Committee of the Conservancy, but he is actually CEO of the Welgevonden Landowners Association. He's been in and out of the Republic of Congo a few times now, serving as a consultant to Leadership for Conservation in Africa. Based on his first hand experience with the Parks, he'll tell us about Odzala National Park and others, flora and fauna, issues and objectives, and more. This is the Republic of Congo (Congo-Brazzaville) we're talking about, not to be confused with the Democratic Republic of the Congo (DRC or Congo-Kinshasa).

RSVP to Carolyn Ingram no later than Tuesday 10 February.

Who We Are

We now have 52 members – a few who own no land or business, but who are just as interested in conservation as the landowners who operate tourism, game ranching, hunting, research, education, and agriculture on a commercial basis and the other member landowners who enjoy their reserves and homes privately.

We own nearly 170,000 hectares and employ nearly 1,000 people. We have set ourselves a growth target for 2009 of 62 members. Take a moment right now to think about a friend or neighbour who would appreciate our activities, and tell us. It shouldn't be too hard for 52 of you to identify ten potential members.

Astronomy Highlights January to March 2009:

For a few months now you will probably have noticed a very bright "star" in the west at sunset. This is Venus, the closest planet to us, and the brightest object in the night sky after the moon. While it has put on a lovely display (including its spectacular triple conjunction with Jupiter and a crescent moon on 1 December 2008), the best is still to come. Venus has come from behind the sun at about 250 million km from us, and is now forming a right angled triangle with us and the sun, with the sun at the right angle. Over the next two months it will get closer and closer to earth, before coming between us and the sun and being lost from view in the sun's glare. It will reach a closest approach of about 40 million km. Venus' movement will be apparent in a number of ways. It will be a little lower in the sky at sunset each evening (it was at its highest on 14 January). It will also get even brighter than it is at present, but, most impressively, it will get much bigger, more than doubling from even its present large size. To see this you will need a good set of binoculars (and somewhere to rest them on), or a small telescope.

When you see Venus through a magnifying device, be prepared for a surprise. Because Venus orbits the sun closer than the earth, it shows phases, like those of the moon. At present only half of the Venus we can see is illuminated, very like a half moon. By 10 March Venus will be a beautiful crescent with only 10 percent of its surface illuminated. If you manage to catch this variation of the phase of Venus then you will be recreating one of the most profound astronomical observations of all time. Galileo's observation of the phases of Venus, after he made his first telescope in 1610, changed our whole view of the universe. Along with his observations of the moons of Jupiter, it put dynamite under the platonic view of the universe, in which the heavens were unchanging (i.e., no phases on Venus) and everything went around the earth (no moons going around Jupiter).

For the interested I will be organising more than one Night Sky Safari between then and now, and the phases of Venus will be on display, along with plenty of other wonders of the Night Sky.

Dr Philip Calcott. nightskysafaris@gmail.com

First Aid Courses?

If you are planning on hosting a first aid course and have space for additional participants, tell us and we can put the word out.

Useful Emergency Contacts

Police, Vaalwater. 014-755-9704/9702

Ambulance, Limpopo provincial service, Emergency Medical Service:

Vaalwater: 014-755-4579

Modimolle: 014-717-4048, 082-967-3570; 082-975-6339

Emergency Police 10 111, national number, answers in Modimolle.

Emergency Rescue 10 177, national number, answers in Polokwane.

TROMAR is a private paramedic company in Bela-Bela with services also dispatched from Modimolle. They provide Advanced Life Support Service, able to treat patients on site and transport to medical facilities. 072-276-2978 or 082-984-1690.

South African National Biodiversity Institute

A new website launched by the South African National Biodiversity Institute provides information on the legal and threatened status of species in South Africa. The database provides basic information pertaining to the relevant species such as descriptions of their habitat, common names and distribution ranges. It provides information on the status of species under the various South African laws as well as IUCN Red List assessments. See www.speciesstatus.sanbi.org and email Jessica Grobler or Smiso Bhengu: speciesstatus@sanbi.org.

Voter Registration

If you intend to vote in South Africa's 2009 elections, and aren't sure if you are registered, call the Independent Electoral Commission in Modimolle or go to <http://www.elections.org.za/AmRegister/amregister.aspx>. With your ID number, you can check on your registration status. If you are not registered, or want to establish your voting residency in the Modimolle Municipality (in Vaalwater and other locations), you can actually do so very easily. Take your ID book to the offices of the Independent Electoral Commission's office in Modimolle's municipal building. Open 7:30 am to 4:15 pm. Phone 014 718 2040.

I. Mining in Limpopo Western Bushveld

The Waterberg Mountains benefit from many features, including the name itself. The very words conjure up all that we appreciate about the region – the bio-diversity, the general state of the environment, the vistas, the game, the watercourses, even the remoteness from urban centres. Those who operate tourist establishments benefit from the natural branding; the rest of us are simply proud.

What, then, is to become of the positive image if the likes of Eskom, the Department of Environmental Affairs and Tourism, the Department of Minerals and Energy, engineering firms, mining companies, and the media identify their projects and programmes as Waterberg This and Waterberg That, Waterberg Coalfields and Waterberg Power Plants.

I can't imagine the name is being used to reap any good will by association (leave that to the tourist establishments near Bela-Bela). Mining and energy project locations should be identified accurately and clearly, and the Waterberg name doesn't even give a good idea of where a project is located. Further, to use the Waterberg name because the project is in the Waterberg District Municipality makes no sense either. The Municipality is a very large area, extending well northeast of Lephalale, well south of Bela-Bela and well east of Modimolle.

The misuse of the Waterberg name already chips away at its positive image and value. Imagine in 20 years time when people hear the word Waterberg, they'll think of mining rather than nature.

I propose that we make a concerted effort to correct the name when we see it wrongly used. Further, we should actively urge the use of some other suitable names. I've started with Limpopo Western Bushveld, but it could be Western Limpopo Bushveld or simply Western Limpopo. If it's near Lephalale, call it the Lephalale Project.

II. Mining in Limpopo Western Bushveld

To introduce Richard Wadley's article about mining in the Western Bushveld of Limpopo, let's see what TV Bulpin wrote in 1956 in *Lost Trails of the Transvaal*.

News of the doings of the gold searchers provided the Republic with endless interest, and the material for stories which are still told in the farmhouses of the backveld. One of the favourite tales of the Waterberg concerned two Jewish prospectors -- Joseph Cohen and Henry Widder.

About 1885, these two men chanced upon a hunter named Carstens, who had picked up a lump of goldbearing rock in the Rankins Pass area, where there were many traces of ancient African mine workings. The prospectors took the sample over and searched out the site. According to rumours, they struck it rich. One of the landowners visited them with a bottle of brandy. Both prospectors drank and both died of poison. The landowner then set out to find their strike, but he never succeeded. Ever since, odd prospectors have combed the area in search of the strike; but although David McKerral struck some gold there in 1931, nothing payable or commensurate with the rich samples left by the prospectors have ever been found.

III. Mining in Limpopo Western Bushveld

or, Mining in the Waterberg, by Richard Wadley

Recently, stories have circulated in Vaalwater about possible mineral discoveries and mining operations in the Waterberg – and I thought it was time to put these rumours - and your concerns (or hopes) to rest.

The problem is that the word “Waterberg” means different things to different people: the Waterberg District Municipality, for example, includes in its area the important mining towns of Lephalale (coal), Mokopane (platinum) and Thabazimbi (iron ore), as well as the old tin mines of Rooiberg (near Bela-Bela), Union (Mookgophong) and Zaaipplaats (Mokopane); and the Buffalo fluorspar mine outside Mookgophong. And since these places effectively surround the plateau that is the heart of the Waterberg, it is not surprising that some assume that it too must be richly endowed in valuable minerals just waiting to be discovered and extracted. However, I hope I can persuade you that this is not so.

The **Waterberg plateau** consists of a mass of sandstone rocks that define an area bounded more or less by the following points, moving in a clockwise direction: *Marken – Masebe – Kloof Pass – Entabeni – Bokpoort Pass – Heuningfontein – Rankin’s Pass – Bakker’s Pass – Matlabas – D’Nyala* (on the new Lephalale road) – and back to *Marken*. This area includes the whole of the Waterberg Biosphere Reserve; all of Welgevonden, Lapalala and the Moepel Farms; most of Marakele; the entire catchments of the Lephalala, Melk, Dwars, Blocklands and Mokolo Rivers; Vaalwater, Twenty-Four Rivers, Bulge Rivier, Mokolo Dam, Melkrivier, Lindani, Emaweni, Tarentaalstraat, etc. In other words, the area that Conservancy members rightly consider to be the *real* Waterberg!

The Waterberg sandstone rocks were laid down by a very long-lived river system that drained from a mountainous region to the north-east, more or less where Tzaneen is today, during the period 1900-1500 million years ago. In the course of their long journey, the sediments carried by these rivers became clean, well-sorted and almost entirely winnowed or leached of any useful minerals that they might have contained when they started their journey. The result is that a huge pile of sandy material – with a few pebble bands but almost no clay – up to 2 km thick in places near Vaalwater, accumulated over a long period of time in a slowly subsiding basin that extended south-westwards towards the present-day Kalahari. It is essentially barren of any economic mineralisation. The Waterberg sediments were formed at a time when the only life on earth consisted of single-celled, carbon-monoxide/dioxide respiring organisms: there were no plants, and no animals – and so there are also no fossils present from which to have formed fossil fuels like coal, oil or gas.

There are, however, a few occurrences of minerals on the Waterberg plateau that have been explored or even mined briefly. The only one of any consequence was the Nooitgedacht Lead Mine, about 16 km NNE of Vaalwater, which was mined for a couple of years in the 1940s and which also contained small amounts of zinc and copper. The mineralisation at Nooitgedacht was contained in a quartz vein, which in turn is associated with one of the many dolerite dykes and sills that have intruded into the Waterberg sandstones during the 1.5 billion years since they were deposited. Occurrences of localised copper mineralisation related to dolerite can also be found for example on Lapalala and near Dorset, none of them having any economic potential. Other minerals known to occur on the plateau, albeit in very small quantities, include surface, or ‘placer’ accumulations of heavy minerals like ilmenite and zircon, which have been eroded out of the sandstones (for example on Boschdraai); and alluvial tin and thorium, which occur towards Alma and are remnants of source rocks that used to exist further south.

Another mineral that *might* occur on the plateau is diamond – although none have been found yet, as far as I know. Diamonds occur in rocks called kimberlites, which are relatively young rocks that intruded volcanically through many different older formations. The location of individual kimberlite pipes or fissures was determined by a combination of deep-seated structural features of the earth’s crust. Among these features are the pronounced regional fractures that criss-cross the Waterberg plateau, which are easily seen on aerial photographs and satellite imagery and which are also important controls for underground water, as was described not long ago in a Conservancy meeting. Examples of economically mineralised kimberlites in the region include the Venetia mine near Alldays and the Klipspringer pipe east of Mokopane (Klipspringer, in its short life, was the richest diamond pipe ever mined anywhere on earth!). Several companies have prospected for kimberlites on the Waterberg plateau over the last 30 years, but there is no evidence that any were found – and anyway, only about 1 in 200 kimberlites contains any diamonds! So I don’t think much too sleep should be lost about this possibility.

OK, so the Waterberg plateau doesn’t have any mineral wealth worth mining. But then, how come it is encircled by mines? Well, the answer is that all these minerals occur in rock formations that are either older or younger than the Waterberg sandstones and have very different characteristics.

The oldest of them are the ironstones of the Thabazimbi area, which were deposited in a shallow marine environment about 2400 million years ago, in a series of linked basins that extended all the

way from Sabie in the east to Prieska in the west. All the limestones that occur in the northern part of South Africa – at Sabie, Mokopane, in the Magaliesberg, around Kuruman and even at Potchefstroom – were laid down as chemical sediments in this huge basin (a sea), immediately beneath the iron (and manganese) formations that gave rise to the mineable deposits at Thabazimbi, Sishen and elsewhere. These were later overlain and buried by shales and sandstones that were deposited in the basin as it filled up.

It *is not impossible* that further, unknown deposits of iron ore occur beneath the southern Waterberg, but they would be far too deep even to discover, let alone to mine, with current technology.

About 2050 million years ago, a most remarkable event occurred: a huge volume of molten material from deep within the earth's crust, called magma, intruded into the thick sediments of the Transvaal Supergroup, as the package described above is known; as it cooled, the magma separated into layers of differing composition, to form the Bushveld Layered Complex. This is the largest formation of its kind in the world and one of the planet's richest depositories of valuable metals: most of the global resources of platinum group metals, chrome and vanadium, as well as a significant amount of nickel occur here. The precise geometry of the Bushveld Complex is still to be understood, but it occurs in at least three distinct 'lobes': one in the west between Brits, Rustenburg and Northam; a second in the east, from Dullstroom to Burgersfort; and a third, from just north of Nylsvlei, past Mokopane almost up to Bochum. All three lobes are being intensively mined for the minerals mentioned.

Of interest here is that there is a fourth lobe too: poorly exposed and not significantly mineralised, but definitely comprised of similar rocks, the so-called Villa Nora lobe of the Bushveld Complex occurs immediately west of Marken, on the road to Lephalale. Its presence certainly introduces the possibility that extensions of the platinum-bearing rocks could occur beneath the younger Waterberg plateau – but again, at depths much too great to be of economic interest.

The tin deposits mined historically at Rooiberg, Union and Zaaiplaats, as well as the numerous fluorite occurrences around Mookgophong and west of Bela-Bela, while occurring in different hosts, had a similar origin at a similar time. The heat caused by the intrusion of the molten magma of the Bushveld Complex caused hot solutions enriched in elements like tin, molybdenum and fluorine to migrate into fractures in surrounding rocks, most of which were granites or Transvaal Supergroup sediments. Some of these were undoubtedly later buried by the early sandstones of the Waterberg Group – but would be very difficult to locate today.

Finally, in the area between Lephalale and the Limpopo River, lies South Africa's richest remaining coalfield, from which Eskom hopes enough coal can be extracted to fuel the country's electricity demand for the rest of this century. Already home to one of the world's biggest collieries – Grooteegeluk – and one of the largest power stations – Matimba – the Waterberg coalfield is expected, within the next decade, to support a *quadrupling* of its current electricity output, as well as the country's first coal liquefaction plant. The westward extension of the field into Botswana is also under intensive evaluation. As we heard at a recent Conservancy meeting, these developments will have several environmental consequences, including pollution from the proliferation of transmission lines.

Now, this coalfield occurs in shales of the Karoo Supergroup, laid down a mere 260 million years ago in a series of vast basins that covered most of sub-equatorial Africa, as well as parts of India, South America, Madagascar, Antarctica and Australia - all these pieces of the earth being at that time, part of a single continent, Gondwana. These youngish sediments (over a billion years younger than the Waterberg sandstones) contained a high concentration of plant material (which formed the coal) and must have been deposited *on top* of the Waterberg sequence, much of which had eroded away during the intervening eons.

Ha! you will be saying, in that case, there should be some coal potential on the Waterberg plateau, not so? Not so. If ever there were Karoo-age sediments on our plateau, they've long been removed by erosion too, for there's no trace of them today.

But, then, what about Lephalale, which is about 700 metres *lower* than the plateau? Why are the coal beds preserved there? Well, there's a simple explanation for this too: along the northern boundary of the Waterberg escarpment is a very large regional fault, called the Melinda Fault, which with its extensions, can be traced from eastern Botswana in a north-easterly direction all the way to Crook's Corner at the top of the Kruger Park. The hot springs at Tshipise owe their







existence to it.



The effect of the fault was to displace all the rocks to the north of it *downwards* relative to the rocks to the south of it – by several kilometres. The result has been that young Karoo rocks, including the coal beds, are preserved to the north of the fault, but not to the south. The line of the fault crosses the main road from Vaalwater to Lephalale (the R33), just about where that road goes over the Mokolo River outside Lephalale. See if you can feel the bump in the road.

A similar, parallel group of faults forms the southern boundary of the Waterberg escarpment too, this time with the downthrow to the south – which is why you'll find Karoo-age sediments from the outskirts of Modimolle to Pienaarsrivier (where there's also coal), but none to the north. This fault zone, called the Thabazimbi-Murchison Lineament, is marked by a series of hot springs that include Die Oog, Loubad, and the old Rondalia resort outside Mookgophong.

So, the net effect is that the Waterberg plateau stands like an island in a sea of younger rocks to the north and south; and older rocks to its east and west. Its thick pile of barren sandstones *may* be underlain, at great depth (too great to detect, let alone mine) by formations that could host platinum, iron and tin mineralisation, but it is not covered with coal-bearing Karoo rocks – and no kimberlites have been reported from it. Prospectors and miners should expend their energies elsewhere; and conservationists can relax!

**Wait, there's more in this Newsletter.
Learn a little about some of our members.
Scroll on.**

Company	Contact	Contact Numbers	Email	Web Address	Brief Description
Ant's Nest and Ant's Hill Bush homes 	Tessa and Ant Baber	014 755 4296 / 014 755 3584 / 083 287 2885	reservations@waterberg.net	www.waterberg.net and www.ridingsouthafrica.com	Ant's Nest and Ant's Hill are private bush homes in the magnificent malaria-free Waterberg. Enjoy fabulous horse riding safaris, guided bush walks or game drives on our privately owned property. Suitable for families, riders, honeymooners or just good friends travelling together
Izintaba Game Farm 	Nikki Eagar	014 755 4335 082 7057708 (limited signal)	izintaba@telkomsa.net	www.izintabalodge.co.za	Luxury fully equipped self catering cottages on a private game farm in the heart of the Waterberg Biosphere Reserve
Jobedi Game Reserve 	Sharin	014 755 3993 / 086 612 9937 / 073 280 8670	game@jobedi.co.za	www.jobedi.co.za	Tucked away deep in the Waterberg Mountains is a private retreat. A purposely well kept secret set in a vast landscape of rocky terrain blessed with lush vegetation and scenic vistas of breathtaking beauty which lends itself to an abundance of peace and tranquility. We offer self catering units and camping and is the only reserve in the area offering self drive game drives.
Kgama Eco-Ranch (Pty) Ltd 	Steven Klagsbrun	012 362 2280 (office) 012 362 5982 (fax) 083 450 7510	steven@kdv.co.za		Conservation – Fauna and Flora – Ecological enhancement. Selected hunting opportunities.
Kololo Game Reserve 	Elize Oosthuizen	014 721 0920 / 014 721 0080 / 014 721 9910	admin@kololo.co.za	www.kololo.co.za	Kololo Game Reserve is situated in the heart of the Waterberg biosphere: A malaria-free area and home to a large variety of game. Kololo is a perfect safari destination. Visit neighbouring reserves and view the Big 5 - lion, leopard, elephant, rhino and buffalo, or enjoy a sneak preview over the fence, from the comfort of your chalet at Kololo.
Kwalata Wilderness CC  Where the real Africa begins!	Reinhard Heuser	014 755 4104 / 014 755 4249 / 082 414 5622	reinhard@kwalata.com ; caroline@kwalata.com ; office@kwalata.com ; werner@kwalata.com	www.kwalata.com	Our company's main activity is hunting. Kwalata consists of 13 000ha. Kwalata boasts 4 of the Big 5 and numerous plains game species and birds.

Company	Contact	Contact Numbers	Email	Web Address	Brief Description
<p>Lapalala Wilderness</p> 	<p>Roger Collinson (General Manager) Wild Revolution; Jessica Babich / Patrick Bonior (Public Relations)</p>	<p>(014) 755-4071 (Lapalala Main Office) 084 404-7800 (Wild Revolution)</p>	<p>roger@lapalala.com info@wildrevolution.co.za</p>	<p>www.lapalala.com</p>	<p>A private reserve that is dedicated to conservation, ecotourism, community upliftment and environmental education</p>
<p>M`solosolo Safari</p>  <p>Relax in the heart of the Waterberg biosphere, private but luxury!!!!!!</p>	<p>Dr. Volker and Marita Neemann</p>	<p>014 755 4106 / 083 450 6535</p>	<p>office@msolosolo.com</p>	<p>www.msolosolo.com</p>	<p>Nestled deep in the Waterberg, you enter a quiet, malaria- and crime-free paradise. Your German hosts have been successfully involved for over 12 years in the hunting and lodging business. Activities include hunting trips with a professional hunter, guided walks to bushman paintings, horse riding, clay target shooting, pistol shooting exercises, bird watching or game drives in an open 4x4 vehicle. We gladly organize elephant back rides, visits to the white lion park or a personal touch with rhinos. Longer trips to the Kruger National Park, Pilanesberg Park or other sightseeing venues or tours to God's window or Tzaneen can be organized.</p>