MATOBO CONSERVATION SOCIETY
'Gcina Imvelo'

PO Box FM 648, Famona. Bulawayo, Zimbabwe Welfare No: W/0 30/94

NEWSLETTER 57 / MAY 2007

1 – WINTER SETS IN

At the time of writing a fierce cold front has plunged the old hills into the grip of winter. But for many, winter has its own special attraction as the hills change from green to dry orange, with mostly clear blue skies! Warm days are followed by chilly nights! So sitting by the fire, I am planning my activities for the next few months – regardless of the weather, and hope to see you all participating in our various activities.

2 - NATIONAL PARKS FEES

National Park fees increased on 1 April and rates will increase again on 1st June. We detail the new charges below -(as advised to us on 29th May 2007, but note that entry and car fees may change from those indicated)

Entry	$30,000	Resident, non-Zimbabwean $40,000		Non resident US$15 ($12 regional)
Car	$5,000			
Eagle	$500,000	Regional US$64	Tourist US$128	per lodge per night (4 persons)
Lodge	$400,000	Regional US$55	Tourist US$110	per lodge per night (Standard)
Chalet	$150,000	Regional US$37	Tourist US$73	per lodge per night (1 room)
Camping	$50,000	Regional US$10	Tourist US$5	per person per night

All figures quoted above are Inclusive of VAT

The National Museums and Monuments have also increased their entry charges to the Natural History Museum, Kame Ruins and Old Bulawayo to $16 000. The entry fee to Rhodes Grave and the painted caves is $20 000. Non-resident fees remain at US$10 or R70

3 – RAINFALL

Climate experts in Southern Africa have declared 2007 an "El Nino" year after the phenomenon changed from being weak into a significant complex in January, causing erratic rains in Zimbabwe. The El Nino effect has, as a result, kept the Inter-Tropical Convergence Zone north of Zimbabwe in Zambia, the Department of Meteorological Services said, adding the ITCZ was not very active in some parts of South Africa, the whole of Botswana and some parts of Zimbabwe this year – *Herald*, Wednesday March 14, 2007

However, after a particularly dry January and February, rainfall improved in March, and going by the rainfall records the season has ended up slightly below average. However, the collapse of rainfall in January and February, our wettest months, has had a negative impact on river flow and the filling of dams. As at the end of the 2007 season, the eastern Matopos had received 721 mm of rain, and the western Matopos an amount of 470mm.

4 – MATOPOS CLEAN UP – Saturday 16th June 2007

In conjunction with National Parks and Rotary Club, we will be holding a Matopos Clean Up day on Saturday 16th June 2007. You will note that this is the day before our next field trip - so why not make a weekend of it in the Park - cleaning up on the Saturday, relaxing on the Sunday! Members participating in the clean up will be given free entry to the Park - and it won't all be work! This is a chance to turn our good intentions into some tangible work that benefits the Park. Please bring your own drinks and meals - and implements (gloves, spades). Bin bags will be provided. The Society last did a clean-up exercise 3 years ago, and it was very beneficial to the Park.

Meet at Churchill Arms at 10:00 on Saturday 16th June. Contact Bobbie Hogan for details 09 250 022 / 0912 330 679. Please advise Bobby if you are attending - this is to clear the free entry permits in advance.

5 – SUBSCRIPTIONS 2007/8

Yes, it is indeed that time of the year again, when subscriptions fall due. The subscriptions are due by 31 July 2008, and a supplementary fee will be collected in January 2008 - have you paid the January 2007 supplementary fees? Please check your records to ensure that these have been paid. Your Committee has increased the subscriptions as follows:

FAMILY / INDIVIDUAL	$ 50,000
SPECIAL / PENSION	$ 5,000
CORPORATE	$500,000

If any member needs to discuss a payment programme for these fees, please approach the Chairman.

6 - NEXT EVENT

Date	17th June 2007
Venue	The World's View
Meet	8:15am to leave by 8:30am, Churchill Arms
Travel	All vehicles
Details	Provide own chairs, tables, meals and drinks. Don't forget your hat!

Please note that both Park's and Museum Fees are required. The MCS has arranged that these fees can be collected in advance of the field trip.

We will be visiting Rhodes Grave, the Lower Outspan and other places of interest. We hope that local tour guide Ian Harmer will accompany us. The Society has visited a number of places of interest in the Hills, and have assumed that every-one has visited World's View, and know the stories related thereto. However, we may be wrong – so this trip has been arranged to ensure that our membership has indeed had an opportunity to visit "their own back-yard"!

7 – REPORT BACK

(With appreciation to Judy Ross who submitted this report)

Something to be said for Plastic!

Sunday 4th March dawned glorious and clear- we were off to see the Cave of the Mottled Swift. The road was its usual teeth rattling, bone jarring self but once off it the views made one forget its misery. Travelling along the edge of Sotcha (which is the single longest dwala in Matopos), we saw odd spherical holes on the side, which were filled with grass and shrubs. Then a little dam sparkling in the light over a quaint stone arched bridge and onto a spot where we parked and started to ascend the hill. The last rains had managed to collect in the resurrection clumps and the seepage trickled into streams down the rock face. As Gavin stated the decline into the cave was not for the feint hearted – part of the group stayed topside to enjoy the view down the Mazhowe valley whilst the rest of us slowly attempted the downward slope. My Jack-Russell, Pickle joined us and being quite astute, kept behind me between my hands and my sit-upon as I did most of the way down, upon it. About half way down disaster struck – my camera became airborne and bounced twice, missing patches of grass and looking like it was about to become a permanent fixture 150ft down into the valley. My only thought was "there goes my record of my year's handiwork!" But never fear the gods smiled on it and me came to rest and a sure-footed local kindly retrieved it for me. Expecting to find it totally smashed I was happy to find that it only sustained a couple of scratches and I tested it on the gentleman who retrieved it – it clicked!!

The cave is large and has unusual features – the first being the ledge in the upper overhang, which houses the nests of the mottled swift. These are constructed from the swifts own saliva and is the only place where they nest in the area. The inside of the cavern has a distinct line where pink dust is blown up the walls and where the overhang meets; the upper half is pristine granite. The grain bins were spherical cavities closed with mud and granite slabs – this is also an unusual feature. The paintings were faded and hard to discern but the view from the caves mouth was incredible. The ascent back up to the top was easier than the descent and Pickle did twice the distance as the owner was taking so long! The group reassembled and made our way to Camp Dwala where under the shade of the trees we ate our lunch. Gavin roused a number of walkers and did the usual "short" walk all returning flushed and gasping for liquid refreshment. Then homeward bound along "that" road. I wonder if my photos will come out as they should!

8 – MATOPOS ADVENTURE RACE

The Matobo Adventure Race was postponed, but a cycle race was held in its place in the Eastern Matopos on 1 April 2007. However, as seems to occur with these events, the weather turned the day before and the route was wet and muddy. Despite this participation was fair and all had a good time.

9 – CALENDAR 2007

Please find below our calendar of events for 2007. Whilst we will endeavour to keep to this schedule, the Committee reserves the right to make amendments should the need arise.

26 August TBA (This may coincide with a Music festival in the Hills)
25 November Annual General Meeting, Gordon Park

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10 – SUBSCRIPTIONS 2007/8

Due by 31 July 2007. Changed Address? Please update our records

NAME	ADDRESS
MEMBERSHIP CATEGORY	
AMOUNT Cheque / Cash	
EMAIL	

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11 – BULAWAYO LECTURE SERIES

Mr Paul Hubbard has arranged a series of Lectures at the Newman Hall, Natural History Museum. They are held at 5pm, every second Thursday of the Month. A generator is available should ZESA fail, and entrance is free. The series has been running for two months already, and the next two topics are as follows:

14th June	Mr Paul Hubbard	Later Stone Age in the Matopos
12th July	Mr Leslie Machiridza	Relationship between National Museums and Monuments of Zimbabwe and the Zimbabwe National Parks and Wildlife Management Authority

12– FIVE YEARS OF SMALL ANTELOPE RESEARCH IN THE MATOBO HILLS

(With appreciation to Nicky Lunt, Researcher, Marwell Zimbabwe Trust Antelope Project)

Background

Considering that they are widely distributed, inhabit most African ecosystems, and constitute almost half of the total number of African antelope species, small antelope (Cephalophini - duikers, and Neotragini - steenbok , klipspringer and allies) have historically received surprisingly little attention. This is possibly due to their secretive natures and their selection of relatively thick vegetation making them difficult to study, compounded by their small size. However, as many people are aware, Mr VJ Wilson carried out extensive surveys of African duikers, especially in the 1980s and 1990s, and provided invaluable information on distributions and abundances of many poorly studied species. In recent years, duikers in West and Central Africa have received more attention, especially after it was discovered that it was them - and not primates - that constituted the majority of the illegal bushmeat trade in forest ecosystems. Furthermore, it's been recognised that although they don't provide as much meat or generate as much revenue from tourism as their larger cousins, small antelope carry out vital roles in forest and savanna ecosystems, and their loss may well result in dramatic habitat alterations.

The Marwell Zimbabwe Trust antelope research project in the Matobo Hills commenced in 2001, and aims to improve our understanding of the ecology of indigenous, savanna-dwelling small antelope - the grey or common duiker (*Sylvicapra grimmia*), steenbok (*Raphicerus campestris*) and klipspringer (*Oreotragus oreotragus*). This study is unique in that it is investigating the community ecology of these

antelope - that is, observing the species' interactions with each other as well as with their environment. Few other places in Africa have habitats in which duiker, steenbok and klipspringer occur in such close proximity to each other and utilise some of the same resources.

Investigations over the past five years have yielded information on home range sizes and territoriality in grey duikers, habitat preferences of all three species, and we have established a monitoring protocol in the study site. The current thrust of the research is to determine what role small antelope play in the functioning of the ecosystem, in terms of shaping vegetation communities, recycling nutrients and dispersing seeds. In 2006, we constructed twelve exclusion plots in the study area. At each of three sites that have similar vegetation communities, four different designs of exclusion plot (each 30 m by 30 m) were constructed. Type I is unfenced, so allows animals free movement, Type II is fenced from the ground to 1.5 m (designed to exclude small antelope), Type III is fenced from 1 m to 2.2 m (designed to exclude large antelope such as bushbuck and kudu) and Type IV is fenced from the ground to 2.4 m above the ground and should exclude all antelope. In each plot, I'm tracking growth of selected tree and shrub species, measuring several aspects of the herbaceous layer, measuring plant biomass and counting the number of tree seedlings that get established. At the end of 2007, these measurements will be compared between the different plot types to determine how antelope grazing and browsing impacts on the vegetation. *To be continued.*

Social organisation and habitat preferences of grey duiker, klipspringer and steenbok
All three species are regarded as being territorial – that is, individuals or pairs reside in the same home range over an extended period, and actively defend part of their home ranges (the territory) against intruders of the same species. Defence can be quite aggressive, with residents chasing, butting and biting intruders. Territory sizes of animals are not fixed, but tend to be linked to the availability of resources such as food, shelter and mates. Therefore, in resource-rich areas, defended territories are smaller than in resource-poor regions, as there is little advantage in risking injury and wasting energy defending a larger plot of land than is necessary! Territories are marked with scent marks from preorbital glands (the glands on the muzzle in front of the eye), glands on the feet, and often with dung.

Klipspringers are monogamous and have a strong pair bond: they are rarely out of visual or auditory contact of each other. Both sexes defend the territory against individuals of the same sex, and a male will indicate that his mate is "taken" to other males by marking over the scent marks that she deposits. In the Ethiopian Highlands, researchers found that klipspringer densities were closely linked with the availability of food in the herbaceous layer. The development of the Matobo herbaceous layer fits into the intermediate range of the Ethiopian study, and the estimated density is similar: based on known individuals and family groups, I have conservatively estimated that there are ten to twelve pairs of klipspringers per square kilometre in their preferred kopje habitat in the study site. Although klipspringers are usually strongly associated with kopjes – they only deposit dung on or near rocky outcrops, for example – they do use valley vegetation as well. This is especially evident in the late dry season when food in the kopjes is limited and when there's new growth in vleis and recently burnt areas. However, they limit their excursions to within a couple of hundred metres of rocky outcrops, to which they flee at the first sign of danger.

Although grey duikers are often monogamous, they do not necessarily form a strong pair bond and usually only associate when the female is in oestrus. In the Matobo hills, grey duikers are tolerant of a wide variety of habitat types, preferring low- to medium density woodland (such as *Terminalia* and *Burkea* woodland), but they strongly avoid dwalas and steep kopje sides to which they are poorly adapted. As an average across the entire study site, I've estimated between nine and 12 grey duikers per square kilometre, but they probably occur at higher densities in preferred habitats. In the 2001-2003 period, several animals were radio-collared, and it was found that home ranges were between 14 and 120 hectares in size. Male animals maintained exclusive territories, but their ranges overlapped substantially with those of females.

Steenbok are less common than grey duikers and klipspringers in the study area, primarily because of the limited quantity of their preferred open woodland habitat. In terms of social organisation, the steenbok lies somewhere between the grey duiker and the klipspringer in that pairs do not necessarily spend all their time together, but they associate with their mates more frequently than do grey duikers. It is presumed that territories are marked primarily through use of dung, since the preorbital glands are

not as well developed as the other two species, but investigating territoriality in the wild is a difficult undertaking. In the study site, there are an estimated three animals per square kilometre, which is at the lower end of the range reported in published reports from elsewhere in Africa (one to 22 animals per square kilometre). However, in preferred habitat, densities may be substantially higher than the average.

Feeding behaviour and small antelopes' impacts on vegetation

One of the characteristics of smaller mammals is that they have faster metabolic rates (energy needs per kilogram of body mass) than larger mammals. This is largely because the ratio between the body's surface area and the volume of the body is high so heat loss is more rapid, but is also linked to other factors such as locomotion costs. In order to meet high energy requirements, animals can either eat more or select foods that have a higher energy value. Small mammals can't always eat more, since their digestive tract is of limited size and they need to digest what they eat, but they can select more energy-rich foods. The small antelope in Matobo follow this rule well – they are very selective feeders and consume new leaves (that are rich in sugars and protein), fruits, seeds and roots, and they tend to avoid mature grasses that have low digestibility. Animals that appear to be grazing are usually eating small herbs in the grass layer, or are selecting juicy new grass growth.

It is because of this selective feeding that small antelope are potentially very important members of the ecosystem. Firstly, by feeding on new plant growth, they can alter the growth form of woody plant seedlings – especially if they eat the growing tip of the main stem. What results is a plant that grows outwards instead of upwards, producing a bush rather than a tree. This bushy arrangement may keep a plant within browsing range of antelope and other terrestrial browsers, and a greater browsing fauna may be supported. Secondly, if very young seedlings are browsed and die as a result of leaf loss, the future structure and stem density of the plant community may be altered. Thirdly, by eating fruits, small antelope may be important seed dispersers, provided that the seeds are not destroyed during chewing or in the intestinal tract. Moving plant seeds away from the parent plant may improve future gene flow (if cross-pollination occurs), and may also assist early growth if the dispersed seeds germinate out of the parent plant's shade.

Another important aspect of small antelope presence is the effect they have on recycling nutrients that are used by plants. Nutrient cycling is vital for high plant productivity. At the end of a growing season, many plants lose their leaves or may die off completely, but the nutrients in the dead matter are not in a form that can be absorbed by plant roots; essentially, the nutrients are locked up in larger compounds such as proteins and structural materials. The plant matter does eventually break down, but it takes a long time, so it may be years before those nutrients are available to plants again. However, when an herbivorous animal eats live or dead plant matter, the dung and urine produced break down relatively quickly (weeks or months rather than years!), and the nutrients are often already in a form that is suitable for uptake by plants. This more rapid turnover of nutrients, coupled with continuous use of the same home range (and often the same dung deposition sites) over months or years can result in local soil enrichment and may promote plant growth.

Contact us

If you would like more information about the Marwell Zimbabwe Trust Antelope Project, please contact Nicky Lunt at dambari@mweb.co.zw or Box 3863, Bulawayo.