



Issue 62

May 2011



Keeping Guides on Target

Enviroscope



Malcolm Douglas

Tel: 083 233-5264

Opinions expressed in this newsletter are not necessarily those of Enviroskills or of the editor. Enviroskills is not liable for any errors in information, nor for any actions in reliance thereon.

How “at risk” are ostriches?

On a recent trip into the Kruger National Park I was again amazed when we happened across a small “herd” of ostriches in the Satara area. I have become so used to thinking of them as commercial animals that it never fails to catch me by surprise when I see them walking around in their natural state!

The fact that they have taken on the role of “super chicken” in our society is a dangerous fact that could ultimately lead to their final demise in the wild. When an animal assumes an important commercial role, its genetic ancestors tend to be ignored. After all - what has become of the wild cattle, the goats and the sheep from which our domestic species arose?

Ostriches come in a variety of forms; the Southern, North African, East African, Arabian and Somali Ostrich subspecies typically being recognised. Of these, the Arabian subspecies is already extinct - the last known

individual was found dying in the upper Wadi el-Hasa area north of Petra in 1966.

The biggest of all ostriches is the North African or Saharan Ostrich, which is now regarded as critically endangered (a species whose numbers have decreased, or will decrease, by 80% within three generations) and is only found in a small area of its previous range having disappeared from 12 of the 18 countries in which it was originally found. Recently, the [Sahara Conservation Fund](#) has launched a program to try and encourage breeding of this rare bird in Niger where it is already extinct in the wild and only 100 or fewer birds are left in captivity.

Our subspecies (Southern Ostrich) occurs in only a few locations in its natural genetic and environmental state, the KNP being one of those areas. Elsewhere it has been hybridised with other subspecies and is apparently not suitable for release into its previous range. Of the remaining two subspecies, the East African Ostrich is faring the best while the Somali Ostrich of the Horn of Africa finds itself in some of the most war torn and unruly areas of the planet. Its continued existence depends to a large extent on its own ability to avoid the gun-wielding soldiers that have become the scourge of the region.



Advanced Rifle Handling Course

We are running another course from 30 May - 3 June.

The course fee covers all accommodation, meals, gate entrance fees, 120 rounds of .458 Winchester ammunition, 180 rounds of .22 LR ammunition, all targets and assessment fees. You do not need to bring a rifle.

We start you off with a .22 LR rifle and then upgrade you to a .458 Winchester using downloaded ammunition. This gives you the experience of using the full-sized rifle but without the recoil. As you progress the power of the ammunition is increased until you are using full-house loads. The course culminates with the FGASA ARH assessment.

R4750 per person

Please call or email me to discuss your booking - 083 233 5264 | malcolm.enviroskills@gmail.com

Suburbia is where the developer bulldozes out the trees, then names the streets after them.

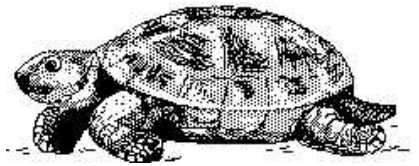
Bill Vaughn

How to forecast weather using natural signs

Keep an eye on animal behaviour

Weather forecasting is far from an exact science, but certain natural signs could help predict the approach of bad (or good) weather. The way that animals behave is one of these natural signs that can be read, although with very uncertain results. The following are some examples of behaviour that is said (by scientists and old wives) to be predictive of changing weather.

Tortoises are able to feel changing barometric pressure and are believed to move about more actively one to two days before the arrival of heavy rains, supposedly looking for higher ground. I have to say that in my experience, I have noticed this, particularly with Speke's hinged tortoises which sometimes become very active before rains. The females of this species have preferred nesting grounds at which they congregate after rains have soaked the ground. This may have something to do with the movement we see. I have never analysed the sex ratio of tortoises crossing roads, but have now added it to my "to do" list for next summer. I have also seen mass movement among leopard tortoises, but what interested me was that the two species seem to move on different occasions and for possibly very different reasons. In the KNP once I must have seen at least thirty leopard tortoises crossing the road in one day - with not a single hinged tortoise among that tally.



The way birds fly can also tell us something (how accurately remains to be seen) about impending weather conditions. Swallows that fly high possibly indicate that weather conditions are good and improving because the insects they feed on are flying high too. The reverse may be true in worsening conditions, with the insects and birds feeding close to the ground. If birds are seen feeding during rainy weather, then it is said that the rain will continue for a long time. If the birds take shelter during the rain, then the storm will be short lived. Birds resting in large numbers on telephone lines or powerlines could indicate rapidly decreasing air pressure and associated poor weather.

Chimp gestures

Chimpanzees are our closest living relatives and are obviously highly intelligent, but the level of that intelligence is difficult to determine since the benchmarks used are all anthropocentric anyway. It should thus not come as a surprise to find that they are capable of communicating using a sophisticated system of gestures and vocalisations.

Recently, a team of researchers at St Andrews University in Scotland, studied 120 hours of filmed chimp behaviour in order to document the gestures they use. Previous studies had suggested that they use about 30 different gestures and the team were interested in checking how accurate this assessment was.

Dr Hobaiter (the chief researcher) and colleagues spent 266 days observing and filming a group of wild chimpanzees in Budongo Conservation Field Station, Uganda before analysing the data. To tell if the gesture was intended to signal an intention to another chimp was not easy, since some of the movements could have been misinterpreted as being purely random. What they looked for were repetitive actions, actions made in association with eye contact and actions repeated if no response was forthcoming. Another criterion was to check that the outcome or effect of the gesture was satisfactory to the signaller. This is important in determining the purpose of the gesture and allowed them to put a specific outcome to a specific gesture.

The result of the research so far is that they could distinguish at least 66 different gestures made by the chimpan-

zees. The really interesting part is that when compared to the behaviour of other great apes, much of the behaviour overlaps - suggesting a possible common origin of the behaviour of apes and humans. The findings are published in the journal *Animal Cognition*.

The Anthropocene - have we left an indelible mark on earth?

For the last 12000 years, humankind has been enjoying the best period of weather ever experienced on earth. This epoch is known scientifically as the Holocene - a time where climate has been remarkably stable. The benefit of this was that humans were able to plan ahead and invent things like agriculture and cities and cultures without worrying that it could all be swept away by rampant climate change. Some scientists are now saying that the Holocene is over and that we have entered a new geological epoch called the Anthropocene.

The term is not a new one, having been coined by Paul Crutzen (Nobel Laureate in chemistry) over a decade ago. It seems impossible that human activity could alter the way the earth functions to such an extent that we have plunged her into a new geological epoch - but this is exactly what scientists are now suggesting. Dr Jan Zalasiewicz of the University of Leicester says, *"Simply put, our planet no longer functions in the way that it once did. Atmosphere, climate, oceans, ecosystems. they're all now operating outside Holocene norms. This strongly suggests we've crossed an epoch boundary."*

So when exactly did the Anthropocene start off? One idea is that it began along with the invention of agriculture thousands of years ago. Others argue that it began around 1800 with the industrial revolution when the human population reached about 1 billion. The last is that it began in earnest around the time of the second world war.

To show up as a distinct geological epoch, human activity will need to be measurable and visible in the layers of mud and soils that may eventually be compressed into rock. If this is the case, then the time beginning 1945 is the probable beginning of the Anthropocene. *"1945 was the dawn of the nuclear age. Sediments deposited worldwide that year contain a tell-tale radioactive signature from the first atom bomb tests in the States"*. That sediment layer will always be a geological marker in times to come.

Anthropocene or not - one thing is clear. The era of human beings is going to write very large on the 4,5 billion year history of earth.

Waste not - want less



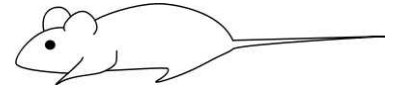
According to a recent study commissioned by the UN Food and Agriculture Organisation (FAO), consumers in rich countries waste as much food (mostly fruits and vegetables) as the whole of sub-Saharan Africa produces - a gigantic 222 million tons per year.

In total, the world loses around 2,3 billion tons of food per year in the form of losses at the production and processing phase, during distribution, at the retail outlet and at the consumer table. (Source: Swedish Institute for Food and Biotechnology.) In developed nations, much of the waste is generated when retailers throw away perfectly healthy food simply because of the way it looks. In another case where the rich get richer (and the poor get children) each consumer in Europe and North America wastes about 100 kg of food per year. By contrast, consumers in Africa and Asia average around 6-11 kg wasted each year.

And Man created the plastic bag and the tin and aluminium can and the cellophane wrapper and the paper plate, and this was good because Man could then take his automobile and buy all his food in one place and He could save that which was good to eat in the refrigerator and throw away that which had no further use. And soon the earth was covered with plastic bags and aluminium cans and paper plates and disposable bottles and there was nowhere to sit down or walk, and Man shook his head and cried: "Look at this Godawful mess."

Art Buchwald, 1970

The Bruce Effect



Last month I wrote about chemically induced abortion in zebra mares, and stated that phenomena like this are common in biological terms. The Bruce Effect (also called pregnancy block) is just one of these phenomena in which female rodents tend to terminate their pregnancies after exposure to the scent of an unfamiliar male. The effect is very well known in house mice and in fact leads to some difficulties with breeding mice in laboratory situations. The following problems are typical of lab bred rodent colonies.

- If a new sexually mature male replaces the old male in a colony it will cause the females to terminate their pregnancies (this can only occur prior to embryo implantation in mice and not later).
- A pregnant female introduced to a new colony will often be killed by the colony male, whereas an immature virgin female introduced to a colony will be accepted in the group.

The effect is also thought to occur in lions, but this has not yet been conclusively proved. The way it works is complicated and involves uptake of hormones (usually from the male's urine) through the vomeronasal organ which in turn alter physiological responses after binding with other chemical receptors.

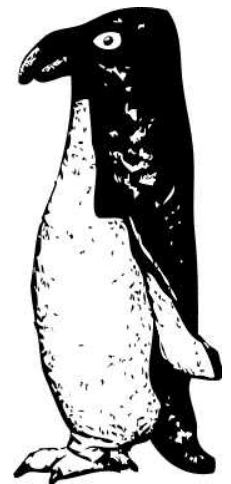
What is most interesting is the (possible) way that it confers an evolutionary advantage on the species and on individuals within the species. A male may direct his urine towards a female who has been impregnated by another male, thereby causing her to terminate the pregnancy and return to oestrus - giving the sabotaging male a chance to impregnate her later. Another benefit could be that dominant males (who scent mark their territories more) are able to suppress pregnancies in females mated by subordinate males. Another advantage may be that females can choose to avoid contact with less dominant males thereby exerting a post-copulatory effect on the population composition - with most offspring having been sired by proven dominant males. The Bruce Effect was first noted in 1959 by Hilda M. Bruce.

Balding birds baffle the boffins

A strange phenomenon has been noted among penguin chicks in the last few years - many of them are losing their feathers for no apparent reason and this is happening on both sides of the Atlantic, with South African and Argentinian populations being involved.

The condition, called feather-loss syndrome was first noted in South Africa in 2006 by the South African Foundation for the Conservation of Coastal Birds ([SANCCOB](#)). In 2006, the centre reported that 59 per cent of chicks in their care lost their feathers, the following year 97 per cent lost feathers and in 2008 20 per cent were affected.

Initially, only birds in rehabilitation centres showed the symptoms but it has now been documented in wild populations. The syndrome has no known cause, but its effects are said to be retarded growth rate and failure to avoid hot and direct sunlight - a factor that causes some chicks to die as a result. Penguins have enough problems without having to suffer this new syndrome - the African penguin was "upgraded" from vulnerable to Endangered last year.



What is it?

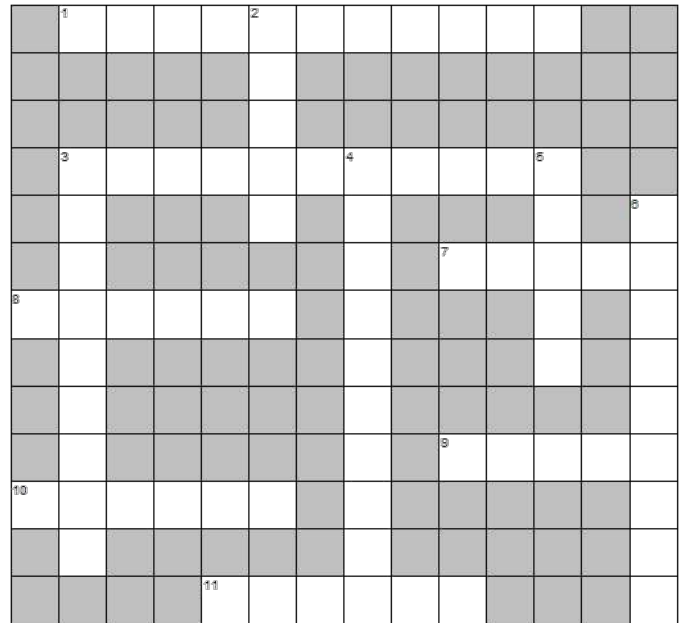
This small outgrowth was found on a spotted eagle owl's back. Do you know what it is and what it does?



Crossword

Across

1. Yellow carotenoid pigment in plants, animal fats and egg yolks. (11)
3. Feeding on fishes. (11)
7. A word describing a backbone, or a kind of "thorn". (5)
8. A cylindrical spike-like inflorescence seen on many trees. (6)
9. Periodic shedding of the outer skin in reptiles and feathers of birds (5)
10. A hole made by an animal, usually for shelter. e. g. kingfishers. (6)
11. A hard glossy mineral consisting of silicon dioxide in crystal form. (6)



EclipseCrossword.com

Down

2. A U-shaped bone at the base of the tongue that supports the tongue muscles. (5)
3. A chemical element (along with Sodium) which is vitally important for conducting nervous impulses. (9)
4. Tubular egg-laying structure at the end of the abdomen in many female insects. (10)
5. The brightest star in the Virgo constellation. (5)
6. A form of igneous rock consisting of extremely coarse granite resulting from the crystallisation of magma rich in rare elements (9)

I only went out for a walk and finally concluded to stay out till sundown, for going out, I found, was really going in.

John Muir, 1913

What is it - Answer

The "growth" depicted in the photograph is the bird's uropygial gland or preen gland, which is used mainly to oil a bird's feathers. The gland is situated on the lower back. All birds have them with the exception of the ratites (ostriches, cassowaries, rheas and emus) and the bustards but not all birds that have them use them (cormorants).

The gland consists of two halves (usually joined) that secrete a waxy oil called uropygiol onto the skin via ducts. The bird typically uses the bill and the head to transfer the wax onto the feathers and the skin, causing the feathers to become water repellent. It is not clear if the oils themselves cause the waterproofing, or if it is the electrostatic charge that the preening action causes which does so.

There may also be antimicrobial and anti-parasitic properties in the oils of at least some species, while others like the hoopoes have bacteria in the preen glands that when transferred onto feathers kill other bacteria which cause feather degradation.

