



Mammal Survey Group of Victoria NEWSLETTER

June 2008

Working Bee - Sunday July 13th

This will be a general equipment/nest box construction working bee at the Oldens from 10:30 am

Next Meeting – August 12th

This will be our AGM.

Last Camps

April 25th -27th – Kings Flat Flora and Fauna reserve

Trapping in this reserve north of Cape Liptrap near Bald Hills resulted in several Bush Rats and House Mice but no Antechinus. Bat trapping resulted in 17 Lesser Long-eared Bats.

Spotlighting and day sightings saw Swamp Wallaby, Wombats and large numbers of Grey Roos but no possums. This patch of bush was in good condition but its isolation has probably reduced its fauna.



Working out the equipment

We checked 50 nest boxes in the flora and fauna reserve and adjacent Bush Heritage reserves using a wireless camera on a pole. Although no animals were seen, at least 2 boxes in Yellow Gum areas had signs of being used by Brushtail Possums with enlarged entrances while several in the box-ironbark area had sugar glider

June 7th -9th – Nest boxes at Wychitella



Kings Flat Reserve

nests in them. None in the mallee areas appeared to have been utilized.



Wychitella fauna – by Paul Sparks

Next Camp – August 16th-17th Aireys Inlet

This will be on private bushland contiguous with the Otways National Park where we camped in December 06.

Dec 26th - Jan 1st possibly
Mallacoota

Future camps

September 17th -18th Tallarook
October 4th - 5th Mt Disappointment
November 1st - 4th Mt Elizabeth Flora and Fauna Reserve



Wychitella fauna – by Max Campbell

Social Circle

Congratulations to June and Phil who married on June 14th (see over)

According to a study at the University of Melbourne leaf-eating mammals like possums, especially greater gliders and koalas could face starvation or death by poisoning, should greenhouse gases continue to rise. A team at the School of Botany conducted an experiment over the last two years, based on the estimate of carbon dioxide doubling by 2030. It showed which eucalypt seedlings grown amid the sort of atmosphere in carbon dioxide would be like in 2030. The seedlings grew faster and produced leaves with lower nutrient levels and greater amounts of protective toxins, such as phenols and tannins. They assumed that mature trees are likely to react in much the same way. The results showed a 30 percent fall in nutrients contained in the leaves, so if these greenhouses gasses dramatically change the balance of oils in the leaves, this would suggest an impending disaster for many arboreal creatures, especially the koala, as its dietary specialization fundamentally determines the distribution of the species.

To make up for lower levels of nutrients, leaf-eaters would have to consume a third more foliage while at the same time deal with much higher levels of poison. The greenhouse atmospheric changes would certainly have the potential to create havoc across the food chain. If insects begin to decline because of a shortage of edible leaves, insect eating animals like birds and reptiles could also suffer. If that is not enough, the fall in insect numbers may result in even less fertile soils, as insects play a vital role in the leaf litter decomposition needed to help return nutrients to the ground. In the case of forests on poor soils with leaves of already low quality, the level of nutrients in the leaves may well drop below the threshold required to maintain the populations of animals, and this could spell doom for the specialized feeder like the koala. They only feed in areas of relatively high soil fertility. As trees on richer soil have access to more nutrients and consequently are able to grow leaves faster, chemical analysis of gum-leaves has shown that some young eucalypt leaves may at certain times through the year contain volatile poison, (prussic acid) which the koala does not detect and the cumulative affect often proves fatal. Hence trees on infertile soils make unacceptable food for koalas. They dedicate less energy towards the production of defensive toxins designed to deter leaf-eaters.

The relatively lethargic lifestyle and adaptation of koalas to life in the treetops, and their remarkable ability to survive exclusively on a diet of eucalypt foliage, sets this animal apart from other mammals. With all the hundreds of eucalypt species around the country, out of all these only a select handful is their preferred diet high in fibre, low in protein and rich in various toxins. Their slow lifestyle means that their protein requirements is almost half that needed by other mammals of similar size. Young leaves are always chosen, and when these tips are not available throughout the year, great care is taken in the selecting of mature leaves. The strong preference they show for certain eucalypt trees are allied with the required tolerance of chemical content. This tolerance is one of several ways the koala has become adapted to eucalypt foliage. An adult koala has to consume at least a kilogram or more of eucalypt leaves a day to obtain the necessary nutrients for survival. The leaves contain considerable fibre high in lignin that is difficult to digest, so the koala has evolved with a very slow rate of passage of digested material, allowing the microbes (gut flora) in the stomach maximum opportunity to attack the fibre. Their acute sense of smell is used to recognize the leaves they wish to eat. Digestion begins in the koala's mouth, and the gum-leaves are taken in on an oblique angle via the gap between the incisors and the premolars. The molars then grind and pulverize the leaves to allow the saliva containing enzymes to break down the starch before the chewed mass moves down into the stomach where more acids and enzymes continue the digestive process.

Because of the greenhouse gases effect of lowering the nutrient levels on the food trees the koalas would have to consume a third more foliage above the already required kilogram it takes to survive, this may well cause death with an overloaded stomach. Because of the precarious nature of the koala's energy budget it is further emphasized by the phenomenon known as "wasting disease". In times of drought they become drowsy and die with a full stomach, the major factor is a nitrogen deficiency. During drought eucalypts grow fewer leaves or none, those remaining leaves are comparatively old and contain less nitrogen. The koala's response to such a change in quality of available leaves is to eat more leaves. If the quality of the available leaves deteriorates, then the quality needed and even the capacity of the koala's digestive system can become limiting factors, as it becomes physically impossible for it to satisfy its nutritional requirements so it develops this "wasting disease".

ARTHUR HOWARD

