

Interim Report for Permit No: 10006285
Small Mammal Surveys Using Motion-sensing Infra-red Cameras
Carried out by members of St Arnaud Field Naturalists Club Inc.
Location: Stuart Mill Nature Conservation Reserve, centred on Rostron Rd.
Period: 30th April 2012- 30th November 2012

Records from 1970s indicated that the threatened Squirrel Glider (*Petaurus norfolcensis*) was still to be found in this area. Subsequent searches by researchers, Dept of Sustainability and Environment, and Parks Victoria staff using spotlighting and hair tubes failed to locate this target species. The target area is the head of Carapooee Creek and its catchment, basically Creekline Grassy Woodland associated with Alluvial Terraces and Yellow Gum Woodland, grading rapidly into Box-Ironbark Forest and with some big areas of Heathy Dry Woodland.

Access to Motion-sensing Infra-red (MS/IR) cameras led us to believe that a thorough and long-running search could be mounted with little human input or interference with target species.

Equipment: 4 Reconyx™ SC 950 MS/IR cameras, approved attractant bait, small bait cages. Centimeter ruler, black marker pen. GPS for recording location.

Methodology: A survey of the target area for signs of mammal activity was carried out in March 2012, looking specifically for scats, scratch marks and bite patches on smooth-barked eucalypts. While no bite patches were found initially, scats and scratch marks were.

Target areas were initially gully and creeklines where more fertile and moister soils result in higher productivity. Some sites were placed on the higher slopes and ridges. A major criterion for selection was the presence of large old trees with hollows, dead standing trees and fallen timber with hollows. The presence of large numbers of wattle species was another major criterion with Golden Wattle (*Acacia pycnantha*) and Silver Wattle (*Acacia dealbata*) being necessary.

2 sites at a time were chosen, separated by 300-500m. Each bait station was placed on a substantial tree or limb, where some signs of glider activity- bite marks on trunks- are found, often produce results. Most baits were placed 2m or more above the ground to provide security for the target species as well as to remove the site, centimeter ruler and camera from human sight lines which are generally below head height.

Bait was a mix of rolled oats, molasses and peanut butter initially.

Small bait cages made of 1cm square plastic covered wire were stocked with cheesecloth bags containing bait. The 1cm sq grid was useful for estimating size of small mammals such as antechinus but did not work for larger animals. Thenceforth a centimeter ruler was inked onto the tree trunk and this proved adequate for estimating size.

1.



Cages were firmly attached with string to branch, approximately 1m from the camera which was set up on an immovable vertical trunk or branch. Whilst the camera has excellent range during daylight hours, it functions better at night if the target area is fairly close, 1-3m from the lens to overcome space myopia.

Some free feeds were placed along the branches to “advertise”.

After a couple of months of no results for gliders with this bait, the mixture was altered to that recommended by Davin Lindenmayer in his book “Gliders of Australia: A Natural History” (UNSW Press, 2002).

Molasses with stiffened with raw sugar until it would not run, then a small amount of Wombaroo Insectivore Mix was added. This was wiped onto the chosen tree trunk. The first night this mixture was trialled resulted in photos of sugar gliders. This mix is also attractive to ants and will run in hot weather- another reason for summer shutdown.

Each camera was pointed south, where possible, to reduce glare from sun. All moving objects such as twigs and leaves were removed from the camera’s line of sight, saplings and regrowth being tied out of the way where necessary.

Each camera was set to fire on the hour, 24 hours a day with 3 photos per firing and a 1 second delay to reset the camera. Initially the cameras were checked every 2 days to make sure the programs were running according to schedule then after 2 weeks or so, the period was lengthened to 1 week for checking unless bad weather was forecast, in which case the cameras were removed entirely.

With the onset of hot, dry weather at the end of November 2012, after a very dry Spring, it was deemed prudent to remove the cameras entirely.

Summary of Results to date.

Bait

Peanut butter, molasses, oatmeal mix is attractive to antechinus, possums and various birds such as Brown Treecreeper, White-plumed Honeyeater, Grey Shrike-thrush.

It failed to attract any glider species in the Stuart Mill NCR.

Molasses, raw sugar, insectivore mix proved an instant hit with gliders. On one occasion they were photographed at a site well away from the creekline (Site 14).



Impact of Cameras on Wildlife

Every mammal and bird photographed was aware of the camera- every one was seen staring intently at the lens, sometimes for an extended period.

The Brush-tailed Possum (*Trichosurus vulpecula*) is unhappy in the presence of the camera; it seems to see it as a threat and on many occasions, was photographed approaching the camera, peering into the lens, sitting on the case and attacking the camera- the bite and gouge marks are still on the camera case in question.

Yellow-footed Antechinus (*Antechinus flavipes*) is certainly aware of the camera but has its eye on the main job, which is eating all the bait. No antechinus was seen approaching the camera although they occasionally looked directly at it and it might be assumed that this species is not particularly put off by the camera's presence.

Ring-tailed Possum (*Pseudocheirus peregrinus*) only one was seen during the seven months of monitoring. It appeared disinterested in both the camera and the bait. Perhaps another bait is needed for this species. A Brush-tailed Possum was also at the bait station prior to the Ring-tailed Possum appearing so it may have been put off by the larger and more aggressive Brush-tail.

Echidna (*Tachyglossus aculeatus*) was oblivious to the camera- or seemed to be. To the human ear there is no detectable noise during the operation of the camera, but there is possibly noise outside our frequency range which has an effect on animals.

Eastern and Western Grey Kangaroo- (*Macropus giganteus* and *fuliginosus*) both were aware of the camera but did not seem unduly alarmed by its presence.

Sugar Glider (*Petaurus breviceps*) whilst being aware of the camera, paid little attention to it.

Fox was certainly aware of the camera as was the one **feral cat** recorded. The Small Mammal Survey was running at the same time an extensive fox baiting program was being run in the area by Parks Victoria and the sightings of these two predators is a reminder of the need for bait stations to be placed well out of reach and moved around frequently in order to reduce risk for the small mammals.

A telescopic ladder would be useful to assist in getting the bait higher, >3m, and may also be necessary to attract Squirrel Gliders, which was the target species.

Using the above methods, we failed to locate any Squirrel Gliders during the seven months of the survey.

This may be due to:

1. the species is now locally extinct
2. the bait is not to their liking



3. the bait is not in the right position to attract ie., it may need to be even higher than for Sugar Glider.
4. they may not like competition (possums)

Other species not seen- **Brush-tailed Phascogale**(Phascogale tapoatafa), **Spotted-tailed Quoll** (Dasyurus maculatus)both of which are reputed to be in the area (anecdotal).

The Sugar Gliders(Petaurus breviceps) were found in only one small area of Creeklane Grassy Woodland although the entire area contains much suitable habitat; large live and dead trees with hollows, much fallen timber with hollows and a rich mix of EVCs - mosaic of Creeklane Grassy Woodland, Yellow Gum Woodland, Alluvial Terraces Herb-rich Woodland immediately adjacent to Box- Ironbark and Heathy Dry Woodland.

The last fifteen years and especially the last six years has seen very little flowering of the eucalypt species in the National Park and adjoining NCRs; this has had serious consequences for other species such as the Swift Parrot which has been unable to use what is normally a high production area and one which is recognised as a core area for their winter feeding on the mainland.

The Silver Wattle appears to be struggling- young plants are being browsed off and older plants have died off due to lack of moisture. Carapooee Creek and its tributaries in the past have carried much more Silver Wattle than exists now.

With the knowledge and experience gained from the last 7 months of surveys, Club members will continue the survey during 2013 in the Carapooee Creek catchment, with modified methods to attempt to find Squirrel Gliders.



Flora Species noted

Plant List for Carapooee Creek, Wattle Flat Track south of Rostron Rd,
Stuart Mill NCR

June 2012

Eucalyptus	camaldulensis	River Redgum	
	leucoxyton	Yellow Gum	
	microcarpa	Grey Box	
	melliodora	Yellow Box	
	goniocalyx	Long-leaf Box	
	polyanthemos	Red Box	
	tricarpa	Red Ironbark	
	macrorhyncha	Red Stringybark	
Acacia	implexa	Lightwood	
	acinacea	Gold-dust Wattle	
	paradoxa	Hedge Wattle	
	pycnantha	Golden Wattle	
	dealbata	Silver Wattle	
Daviesia ulicifolia		Gorse Bitter-pea (narrow leaf form)	
leptophylla		Narrow-leaf Bitter-pea	
Bossiaea prostrata		Creeping Bossiaea	(uncommon)
Hovea linearis		Common Hovea	
Indigofera australis		Austral Indigo	
Bursaria spinosa		Sweet Bursaria	
Brunonia australis		Blue Pincushion	
Clematis microphylla		Small-leaf Clematis	(uncommon)
Acrotriche serrulata		Honeypots	
Lissanthe strigosa		Peach Heath	
Veronica plebeia		Common Veronica	
Lomandra filiformis		Wattle Mat-rush	
multiflora		Many-flowered Mat-rush	
Cassinia arcuata		Drooping Cassinia	
Ozothamnus obcordatus		Grey Everlasting	
Senecio tenuiflorus		Narrow Groundsel	
Vittadenia sp		New Holland Daisy	
Daisy sp			
sp			
Cheiranthra cyanea		Blue Finger flower	
Cheilanthe austrotenuifolius		Rock fern	
Correa reflexa		Common Correa (red form)	Elsewhere on the Range, it is the green form.
Gonocarpus tetragynus		Common Raspwort	
Goodenia geniculata		Bent Goodenia	
Geranium solanderi		Austral Crane's-bill	5.



Helichrysum apiculatum	Common Everlasting	
Xerochrysum viscosum	Sticky Everlasting	
Helichrysum scorpioides	Button Everlasting	(uncommon)
Hydrocotyle laxiflora	Stinking Pennywort	
Pelargonium rodneyanum	Magenta Stork'sbill	
Pimelea humilis	Common Riceflower	
Plantago sp	Plantain sp	
Cymbonotus preissianus	Austral Bear's ears	
Dichondra repens	Kidney-weed	
Drosera whittakeri	Scented Sundew	
Chamaescilla corymbosa	Blue Squill	
Amyema miquelii	Box Mistletoe	

Reeds, Rushes, Sedges

Juncus subsecundus	Finger Rush
Lepidosperma sp	Sword-sedge

Orchids

Pterostylis despectans	Lowly Greenhood	EPBC Act
Pterostylis nana	Dwarf Greenhood	
Caladenia fuscata	Pink Fingers Orchid	
Glossodia major	Waxlip orchid	
Prasophyllum sp	Leek Orchid (as yet unidentified)	most Leek orchids are threatened species

Grasses

Joycea pallida	Red-anther Wallaby Grass
Austrodanthonia sp	Wallaby Grass
Austrostipa sp	Spear Grass

Weeds

Bridal Creeper
Flatweed
Capeweed
Scotch Thistle
Thistles- various
Stinkwort
Cootamundra Wattle
Mullein
Boneseed
Soursob
Kurrajong
Nightshade

This list shows Winter emergent species, no surveys have been done at other times



Bird Species Seen during Survey period- 30th April-30th November 2012

Bird List - head of Carapooee Creek Stuart Mill NCR

Winter 2012

*-present at every visit

*Vic Woodland Bird Community

DSE Advisory List

Crimson Rosella*
 Spotted Pardalote
 Crested Bellbird ** Near Threatened
 Crested Shrike-tit** Near Threatened
 Brown Treecreeper** Near Threatened
 White-throated Treecreeper*
 Sulphur-crested Cockatoo
 Grey Shrike-thrush*
 Restless Flycatcher*
 Black-chinned Honeyeater** Near Threatened
 Brown Quail Near Threatened
 Musk Lorikeet
 Australian Owllet Nightjar
 Scarlet Robin
 Weebill
 Yellow Thornbill
 Yellow-tufted Honeyeater *
 Raptor- unidentifiable

Wattle Flat Track- east side of gully- intersection with Telegraph Track

Spring 2012

Brown-headed Honeyeater*
 Yellow-tufted Honeyeater*
 White-plumed Honeyeater*
 Red Wattle-bird*
 Yellow Thornbill (nesting)
 Weebill
 Spotted Pardalote
 Musk Lorikeet
 Little Lorikeet*
 Crimson Rosella
 Sulphur-crested Cockatoo
 Brown Treecreeper** Near Threatened
 White-throated Treecreeper
 Crested Shrike-tit**
 Crested Bellbird ** Near Threatened
 Dusky Woodswallow*
 White-browed Woodswallow
 Brown Quail Near Threatened
 Painted Button-quail
 Eastern Yellow Robin*
 Jacky Winter*
 Grey Shrike-thrush*
 Common Bronzewing
 Restless Flycatcher*
 Golden Whistler
 Grey Currawong
 White-winged Chough
 Sacred Kingfisher(nesting)
 Raptor- unidentifiable

Both bird surveys have been entered on Birdlife Australia's Atlas of Australian Birds



References

1. Gliders of Australia: A Natural History
David Lindenmayer UNSW Press 2002
2. Complete Book of Australian Mammals
Ed. Ronald Strahan Angus & Robertson 1983
3. Tracks, Scats and Other Traces: A Field Guide to Australian Mammals
Barbara Triggs OUP 2003

