

Further records of mammal and reptile fauna from the Black Range, near Stawell and the Grampians National Park, Western Victoria

Peter Homan and Nevil Schultz

School of Life and Physical Sciences
RMIT University

GPO Box 2476V, Melbourne 3001

Corresponding author: peter.homan@rmit.edu.au

Abstract

The Field Naturalists Club of Victoria conducted surveys of vertebrate fauna in the Black Range near Stawell and in the Grampians National Park in western Victoria, between 2000 and 2007. Further surveys were conducted at both locations by RMIT University between 2003 and 2010, resulting in additional records of mammals and reptiles including several rare and threatened species. These included Southern Brown Bandicoot *Isodon obesulus*, Heath Mouse *Pseudomys shortridgei*, Swamp Skink *Lissolepis coventryi*, Mountain Dragon *Rankinia diemensis* and Fat-tailed Dunnart *Sminthopsis crassicaudata*. Significant numbers of Southern Brown Bandicoot were captured at one study site in the Grampians that had been subjected to fox-baiting. Several new locality records were obtained for reptiles including Ragged Snake-eyed Skink *Cryptoblepharus pannosus*, Southern Grass Skink *Pseudemoia entrecasteauxii*, Eastern Three-lined Skink *Bassiana duperreyi*, Coventry's Skink *Niveoscincus coventryi* and the plain-back colour morph of White's Skink *Liopholis whitii*. (*The Victorian Naturalist* 129(2), 2012, 36-45)

Keywords: Black Range, Grampians National Park, threatened species, mammals, reptiles

Introduction

The Black Range is located approximately 205 km west of Melbourne near the township of Stawell. The range covers approximately 40 square kilometres and contains areas of mostly private land with two areas of crown land. The topography is mostly hilly, with deep valleys and steep ridges. The vegetation is generally dry woodland amongst massive granite tors with many exposed slabs and boulders. Between April 2000 and March 2002, the Fauna Survey Group (FSG) of the Field Naturalists Club of Victoria (FNCV) conducted a survey of vertebrate fauna in the Black Range (Homan 2005).

The Grampians National Park is located approximately 225 km west of Melbourne. The park covers 167,000 hectares and is one of the most important conservation reserves in Victoria. Between December 2003 and March 2007, the FSG conducted surveys of vertebrate fauna in the Grampians National Park (Homan 2008).

Staff and students from the School of Life and Physical Sciences, RMIT University visited several areas within the Grampians National Park each Spring between 2003 and 2005 and between 2007 and 2010. During these visits surveys of vertebrate fauna were conducted as part

of the course of study for the Diploma of Conservation and Land Management. The purpose of the surveys was to provide base-line data for the land manager, Parks Victoria, for the planning of ecological burning, threatened species conservation programs and to assess the effectiveness of fox-baiting programs. An area of private land on the western slopes of the Black Range, approximately eight kilometres south of Stawell, was also visited in October 2008, 2009 and 2010. During the surveys in the Grampians and visits to the Black Range, additional records of mammals and reptiles including several rare and threatened species and new locality records for other species were obtained.

Survey sites

Survey sites within the Grampians National Park contained seven Ecological Vegetation Classes (DSE 2004). Survey dates, locations, map co-ordinates and EVCs were as follows:

- September 2003: Round Swamp, Northern Victoria Valley, Natmap 7323, MGA 180843, Red Gum Swamp;
- September 2004: Wannon Crossing, Wannon Valley, Natmap 7323, MGA 305553, Heathy Woodland;

- September 2005: Silverband Falls, Natmap 7423, MGA 347826, Damp Forest and Lowland Forest;
- October 2007: Southern Wannon Valley, Natmap 7322, MGA 249459, Heathy Woodland; Mt William, Natmap 7423, MGA 414710, Montane Rocky Shrubland;
- October 2008 and October 2009: Lower western slopes, Mt Difficult Range, Natmap 7323, MGA 300002, Plains Sedgy Woodland and Plains Woodland; Natmap 7323, MGA 308967, Lowland Forest; Mt William, Natmap 7423, MGA 414710, Montane Rocky Shrubland;
- October 2010: Wannon Crossing, Central Wannon Valley, Natmap 7323, MGA 308548, Heathy Woodland; Mt William, Natmap 7423, MGA 414710, Montane Rocky Shrubland.

The Ecological Vegetation Class for the survey site in the Black Range was Granite Hills Woodland, Natmap 7423, MGA 540903.

Methods

Survey methods used in the Grampians National Park comprised Elliott trapping, Type A (Elliott Scientific Equipment, Upwey, Victoria), cage trapping, standard bandicoot traps (Wiretainers Pty Ltd, Preston, Victoria and RE Walters 1899 Pty Ltd, Sunshine, Victoria), harp trapping (Ecological Consulting Services, Newport, Victoria and Faunatech, Bairnsdale, Victoria), remote surveillance cameras (Scoutguard, China), spotlighting on foot, active herpetofauna searching (rock and log turning), owl pellet analysis and general observation. The majority of active herpetofauna searching in the Grampians took place on the upper western

slopes of Mt William, the highest point in the national park. Active herpetofauna searching under rocks and discarded galvanized iron was the only survey method employed at the site in the Black Range.

An extensive wildfire burnt a substantial part of the Grampians National Park in December 2005 and January 2006. No fauna survey trapping methods were undertaken by RMIT University in any areas affected by this wildfire. Active herpetofauna searching was conducted at two sites that were moderately burnt by this wildfire: a small area on Mount William and a small area below Silverband Falls.

Trapping grids were established at each survey site. Transects and trap sites were spaced at twenty-five metres within each grid and transects contained between seven and ten trap sites. In most cases, grids contained either Elliott traps or cage traps; however, in 2008 and 2009, these trap types were set alternately along each transect. Baits consisted of a mixture of quick oats, smooth peanut butter, honey, raw linseed oil, vanilla essence and sardines. Honey was replaced with golden syrup in 2010.

A total of 2766 trap-nights were completed in the Grampians National Park (Table 1). These comprised 1684 Elliott trap-nights, 1068 cage trap-nights and fourteen harp trap-nights. Remote cameras were used for a total of twenty-four camera nights. Spotlighting on foot was conducted on one occasion only for three spotlight hours at Silverband Falls in 2005. Active herpetofauna searching at the Black Range site was conducted for a total of approximately four hours.

Table 1. Effort (trap-nights, active herpetofauna search hours and remote camera nights) completed in Grampians National Park, 2003-2005, 2007-2010.

	Elliott Trap-nights	Cage Trap-nights	Harp Trap-nights	Active Herp Search Hrs	Remote Camera Nights
2003:	30		2		
2004:	270	120	4		
2005:	300			1	
2007:	300	200		2	
2008:	392	224	4	2	
2009:	392	224	4	2	12
2010:		300		2	12
Total:	1684	1068	14	9	24

Results

Seventeen species of mammals, ten marsupial and seven eutherian, were recorded (Table 2). Fifteen species were native and two were introduced. Common and scientific names and taxonomy of mammals follow Menkhorst (1995), except for Agile Antechinus *Antechinus agilis*, which follows Van Dyck and Strahan (2008). Details of species recorded are as follows:

Yellow-footed Antechinus *Antechinus flavipes*
Two captured in Heathy Woodland in southern Wannon Valley (one survey only in October 2007).

Agile Antechinus *Antechinus agilis*
Three captured in Plains Woodland on the lower western slopes of Mt Difficult Range (October 2008 and October 2009).

Dusky Antechinus *Antechinus swainsonii insularis*
Four captured and one photographed by surveillance camera at night in Plains Sedgy Woodland on the lower western slopes of the Mt Difficult Range (October 2008 and October 2009).

Fat-tailed Dunnart *Sminthopsis crassicaudata*
One found under discarded galvanized iron in Granite Hills Woodland in the Black Range (October 2008).

Southern Brown Bandicoot *Isoodon obesulus*
Ten captured in Heathy Woodland near Wannon Crossing in the Wannon Valley (one survey only in October 2010).

Koala *Phascolarctos cinereus*
One seen in Cherry Ballart *Exocarpos cupressiformis* in Lowland Forest near Silverband Falls (September 2005).

Common Brushtail Possum *Trichosurus vulpecula*
Five captured in cage traps set on ground in Heathy Woodland in southern Wannon Valley (October 2007) and seven captured in cage traps set on ground in Heathy Woodland near Wannon Crossing (October 2010).

Sugar Glider *Petaurus breviceps*
Bones of this species found in pellets of Powerful Owl *Ninox strenua* in Damp Forest near Silverband Falls (September 2005).

Table 2. List of mammals and numbers recorded in Grampians National Park (GNP) and Black Range (BR), 2003 – 2010. * indicates introduced species; E =estimated number; T = threatened species.

Common Name	Scientific Name	Number	
		GNP	BR
Yellow-footed Antechinus	<i>Antechinus flavipes</i>	2	
Agile Antechinus	<i>Antechinus agilis</i>	3	
Dusky Antechinus	<i>Antechinus swainsonii insularis</i>	5	
Fat-tailed Dunnart	<i>Sminthopsis crassicaudata</i>		1
Southern Brown Bandicoot	<i>Isoodon obesulus</i> ,(T)	10	
Koala	<i>Phascolarctos cinereus</i>	1	
Common Brushtail Possum	<i>Trichosurus vulpecula</i>	12	
Sugar Glider	<i>Petaurus breviceps</i>	1	
Common Ringtail Possum	<i>Pseudocheirus peregrinus</i>	2	
Eastern Grey Kangaroo	<i>Macropus giganteus</i>	100E	
Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1	
Red-necked Wallaby	<i>Macropus rufogriseus</i>	50E	
Black Wallaby	<i>Wallabia bicolor</i>	30E	
Chocolate Wattleed Bat	<i>Chalinolobus morio</i>	1	
Little Forest Bat	<i>Vespadelus vulturinus</i>	2	
Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>	5	
House Mouse	<i>Mus musculus</i> *	4	
Heath Mouse	<i>Pseudomys shortridgei</i> (T)	6	
Swamp Rat	<i>Rattus lutreolus</i>	6	
House Cat (Feral)	<i>Felis catus</i> *	1	

Common Ringtail Possum *Pseudocheirus peregrinus*

One seen whilst spotlighting in Damp Forest near Silverband Falls (September 2005). Bones of this species also found in pellets of Powerful Owl at this site (September 2005).

Eastern Grey Kangaroo *Macropus giganteus*

Chance sightings of approximately 100 near roads and tracks in all parts of the national park, including areas burnt by wildfire.

Western Grey Kangaroo *Macropus fuliginosus*

One specimen seen crossing road in an area of the central Wannon Valley burnt by wildfire (October 2010).

Red-necked Wallaby *Macropus rufogriseus*

Chance sightings of approximately 50 near roads and tracks in all parts of the national park, including areas burnt by wildfire.

Black Wallaby *Wallabia bicolor*

Chance sightings of approximately 30 near roads and tracks in all parts of the national park, including areas burnt by wildfire. One photographed by surveillance camera at night in Plains Woodland on the lower western slopes of the Mt Difficult Range (October 2009).

Chocolate Wattled Bat *Chalinolobus morio*

One specimen captured in Heathy Woodland near Wannon Crossing (September 2004).

Little Forest Bat *Vespadelus vulturinus*

One specimen captured in Plains Woodland on the western slopes of the Mt Difficult Range (October 2008) and one in Lowland Forest on the western slopes of the Mt Difficult Range (October 2009).

Lesser Long-eared Bat *Nyctophilus geoffroyi*

Five specimens (Fig. 1) captured in Heathy Woodland near Wannon Crossing (September 2004).

House Mouse *Mus musculus*

Three captured and one photographed by surveillance camera at night in Plains Sedgy Woodland on the lower western slopes of the Mt Difficult Range (October 2008 and October 2009).



Fig. 1. Lesser Long-eared Bat. Photo by Iris Curran.

Heath Mouse *Pseudomys shortridgei*

Three captured in Heathy Woodland in the southern Wannon Valley (October 2007) and three captured in Heathy Woodland near Wannon Crossing (October 2010).

Swamp Rat *Rattus lutreolus*

Five captured and one photographed by surveillance camera during the day in Plains Sedgy Woodland on the lower western slopes of Mt Difficult Range (October 2008 and October 2009).

House Cat (Feral) *Felis catus*

One road-killed specimen found in the Wannon Valley (October 2010).

Twenty-two species of reptiles, two geckos, sixteen skinks, one dragon and three elapid snakes were recorded (Table 3). Common and scientific names and taxonomy of reptiles follow the Victorian Biodiversity Atlas, except for Ragged Snake-eyed Skink *Cryptoblepharus pannosus*, White's Skink *Liopholis whitii* and Swamp Skink *Lissolepis coventryi*, which follow Wilson and Swan (2010). Details of species recorded are as follows:

Marbled Gecko *Christinus marmoratus*

Five specimens found under rocks in Granite Hills Woodland in the Black Range (October 2008-2010).

Thick-tailed Gecko *Underwoodisaurus milii*

Ten specimens found under rocks and galvanized iron in Granite Hills Woodland in the Black Range (October 2008-2010).

Eastern Three-lined Skink *Bassiana duperreyi*
Two specimens found under rocks in rocky outcrop in Lowland Forest on the lower western slopes of the Mt Difficult Range (October 2008) and one specimen found under rock in Montane Rocky Shrubland on Mt William (October 2010).

Ragged Snake-eyed Skink *Cryptoblepharus pannosus*
One specimen (Fig. 2) seen amongst rocks in Granite Hills Woodland in the Black Range (October 2010).

Large Striped Skink *Ctenotus robustus*
Four specimens found under galvanized iron in Granite Hills Woodland in the Black Range (October 2008-2010).

Black Rock Skink *Egernia saxatilis*:
Two specimens seen basking in Montane Rocky Shrubland on Mt William (October 2007 and October 2010).

Southern Water Skink *Eulamprus tympanum*
Approximately 40 seen basking in Montane Rocky Shrubland on Mt William (October 2007-2010). A further ten found under logs and

seen basking in Damp Forest near Silverband Falls (September 2005 and October 2010).

Delicate Skink *Lampropholis delicata*
One specimen found under rock in rocky outcrop in Lowland Forest on the lower western slopes of Mt Difficult Range (October 2008).

Garden Skink *Lampropholis guichenoti*
One specimen found under rock in rocky outcrop in Lowland Forest on the lower western slopes of Mt Difficult Range (October 2008).

Bougainville's Skink *Lerista bougainvillii*
One specimen found under log in Plains Sedgy Woodland on the lower western slopes of Mt Difficult Range and four found under rocks in rocky outcrop in nearby Lowland Forest (October 2008). Six specimens found under rocks and galvanized iron in Granite Hills Woodland in the Black Range (October 2008-2010).

White's Skink *Liopholis whitii*
One specimen (Front cover) of the plain-backed colour morph of this species found under rock in Montane Rocky Shrubland on Mt William (October 2010).

Table 3. List of reptiles and numbers recorded in the Grampians National Park (GNP) and Black Range (BR), 2003-2010. E = estimated number; T = threatened species.

Common Name	Scientific Name	Number	
		GNP	BR
Marbled Gecko	<i>Christinus marmoratus</i>		5
Thick-tailed Gecko	<i>Underwoodisaurus milii</i>		10
Eastern Three-lined Skink	<i>Bassiana duperreyi</i>	3	
Ragged Snake-eyed Skink	<i>Cryptoblepharus pannosus</i>		1
Large Striped Skink	<i>Ctenotus robustus</i>		4
Black Rock Skink	<i>Egernia saxatilis</i>	2	
Southern Water Skink	<i>Eulamprus tympanum</i>	50E	
Delicate Skink	<i>Lampropholis delicata</i>	1	
Garden Skink	<i>Lampropholis guichenoti</i>	1	
Bougainville's Skink	<i>Lerista bougainvillii</i>	5	6
White's Skink	<i>Liopholis whitii</i>	1	
Swamp Skink	<i>Lissolepis coventryi</i> (T)	3	
Boulenger's Skink	<i>Morethia boulengeri</i>		2
McCoy's Skink	<i>Nannoscincus maccoyi</i>	2	
Coventry's Skink	<i>Niveoscincus coventryi</i>	2	
Southern Grass Skink	<i>Pseudemoia entrecasteauxii</i>	1	
Blotched Blue-tongued Lizard	<i>Tiliqua nigrolutea</i>	1	
Stumpy-tailed Lizard	<i>Tiliqua rugosa</i>	5	8
Mountain Dragon	<i>Rankinia diemensis</i>	1	
Lowland Copperhead	<i>Austrelaps superbus</i>	2	
Tiger Snake	<i>Notechis scutatus</i>	2	
Little Whip Snake	<i>Parasuta flagellum</i>		4



Fig. 2. Ragged Snake-eyed Skink. Photo by Peter Spark.



Fig. 3. Swamp Skink. Photo by Mirinda Thorpe.

Swamp Skink *Lissolepis coventryi*

Three specimens of this species (Fig. 3) captured in Elliott traps left open for daylight sampling in Plains Sedgy Woodland adjacent to the MacKenzie River, on the lower western slopes of the Mt Difficult Range (October 2008). The snout-vent length, tail length and weight of each specimen was recorded (Table 4).

Boulenger's Skink *Morethia boulengeri*

Two specimens found under galvanized iron in Granite Hills Woodland in Black Range (October 2008 and October 2009).

McCoy's Skink *Nannoscincus maccoyi*

Two specimens found under rocks in Damp Forest near Silverband Falls (September 2005).

Coventry's Skink *Niveoscincus coventryi*

One specimen found under rock in Damp Forest near Silverband Falls (September 2005) and one under rock in Montane Rocky Shrubland on Mt William (October 2010).

Southern Grass Skink *Pseudemoia entrecasteauxii*

One specimen found under rock in Montane Rocky Shrubland on Mt William (October 2009).

Blotched Blue-tongued Lizard *Tiliqua nigrolutea*

One juvenile captured in an Elliott trap left open for daylight sampling in Lowland Forest on the lower western slopes of the Mt Difficult Range (October 2008).

Stumpy-tailed Lizard *Tiliqua rugosa*

One specimen caught by hand in Heathy Woodland near Wannan Crossing (September 2004) and several road-killed specimens were found in the Wannan Valley. Eight found under galvanized iron in Granite Hills Woodland in the Black Range (October 2008-2010).

Mountain Dragon *Rankinia diemensis*

One specimen seen basking in Montane Rocky Shrubland on Mt William (October 2007).

Lowland Copperhead *Austrelaps superbus*

Two seen basking in Montane Rocky Shrubland on Mt William (October 2007 and October 2010).

Tiger Snake *Notechis scutatus*

Two specimens seen basking in Montane Rocky Shrubland on Mt William (October 2007 and October 2008).

Little Whip Snake *Parasuta flagellum*

Four specimens found under galvanized iron in Granite Hills Woodland in the Black Range (October 2008-2010).

Discussion

The Southern Brown Bandicoot is listed as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and as threatened under the Victorian *Flora and Fauna Guarantee Act 1988* (DSE 2010). In Victoria the species has a mostly fragmented, coastal distribution (Conole and Baverstock 1983; Rees and Paull 2000; Coates *et al.* 2008); however, populations also

Table 4. Details of Swamp Skinks *Lissolepis coventryi* captured in Grampians National Park, October 2008.

Specimen Number	Date	Snout-vent length (mm)	Taillength (mm)	Weight (g)
1.	7 Oct. 2008	83	120	13
2.	8 Oct. 2008	90	110	16
3.	8 Oct. 2008	80	130	12

exist in some inland regions, including in the Grampians range and nearby areas (Seebeck 1976; Homan 2005; Homan 2008; De Bondi *et al.* 2010). Several threatening processes affect populations of Southern Brown Bandicoot, including predation by the introduced Red Fox *Vulpes vulpes* (Menkhorst 1995; Coates and Wright 2003). Three major programs exist within Victoria, where permanent fox-baiting is conducted to protect native species, including the Southern Brown Bandicoot. These comprise Southern Ark in East Gippsland, Glenelg Ark in south-western Victoria and Grampians Ark. Each program includes a monitoring component to evaluate the effectiveness of fox-baiting. Results of extensive monitoring using live trapping with cage traps in areas covered by the Southern Ark, showed that fox-baiting had a positive effect on populations of the Southern Brown Bandicoot (Dexter and Murray 2009). Monitoring with the use of hair-tubes in areas covered by the Glenelg Ark, showed that Southern Brown Bandicoot responded positively to fox control at two major sites (Robley *et al.* 2009). In the Grampians monitoring has involved the use of cage traps and, more recently, the use of remote surveillance cameras (De Bondi *et al.* 2010).

Results from live trapping surveys in the Grampians in June 2010, at two sites in Heathy Woodland in the Wannon Valley subject to fox-baiting, showed a high relative abundance of Southern Brown Bandicoot with capture rates of 11% at both sites (Frankham unpubl. data). Previously, trapping rates for the species have been low in the Grampians. In 2003, 1050 cage trap-nights were completed in the Victoria Valley resulting in a capture rate of 0.3% (Parks Victoria unpubl. data). During the surveys by the FSG an overall capture rate of 0.4% was achieved from 754 cage trap-nights, all completed in habitat considered typical for Southern Brown Bandicoot (Homan 2008).

In October 2010, RMIT University conducted trapping surveys at the two sites subject to fox-baiting in the Wannon Valley mentioned above and one additional site also subject to fox-baiting. At one site near Wannon Crossing, a capture rate of 10% was achieved for Southern Brown Bandicoot; however, no captures of the species occurred at the two remaining sites, despite fox-baiting. During surveys by RMIT University the species was not recorded prior to 2010. In 2004, and between 2007 and 2009, 768 cage trap-nights were completed in habitat considered typical for Southern Brown Bandicoot; however, no captures occurred. Overall, the capture rate for Southern Brown Bandicoot during all surveys in the Grampians National Park by RMIT University was 0.9%.

Fox-baiting has been beneficial to Southern Brown Bandicoot populations in other parts of Victoria. In Heathy Woodland near Anglesea in the Eastern Otway Ranges, fox-baiting was carried out on a voluntary basis over two years from April 2004 to March 2006 (Carmichael unpubl. data). Capture rates for Southern Brown Bandicoot rose from 3.3% in March 2004, to 4.6% in March 2005 and to 8.3% in February 2006. The capture rate declined to 2.1% in March 2007, following the cessation of fox-baiting, and remained low during surveys in March and October of 2008, 2009 and 2010, a period of severe drought (RMIT University unpubl. data; Holmesglen unpubl. data); however, in March 2011, the capture rate for Southern Brown Bandicoot unexpectedly rose to 10%. This was at a time when no fox-baiting occurred, but did follow higher than normal rainfall in the preceding spring and early summer. The results from the March 2011 survey at Anglesea may suggest that, in large areas of high quality habitat and in times of good rainfall, Southern Brown Bandicoot populations may persist in good numbers, despite the presence of the Red Fox.

The Heath Mouse is found in south-west Western Australia, on Kangaroo Island, in the southern Wannon region in south-west Victoria and in the Grampians (Menkhorst and Knight 2011). The Heath Mouse is listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* and as threatened under the *Flora and Fauna Guarantee Act 1988* (DSE 2010). The species has been recorded at numerous sites throughout the Grampians National Park (Seebeck 1976; Emison *et al.* 1978; Meulman and Klomp 1999; Stevens 2008; Menkhorst and Homan unpubl. data). During the surveys by the FSG, Heath Mouse was found at four sites in Sand Heathland and Heathy Woodland, the preferred habitat for the species (Menkhorst 1995). Capture rates at these sites varied from 1% to 7.5%. During surveys by RMIT University, Heath Mouse was recorded on two occasions. In October 2007 the species was recorded in Heathy Woodland in the southern Wannon Valley at a capture rate of 1%. In October 2010, the species was also recorded in Heathy Woodland in the central Wannon Valley at a capture rate of 4%. This site had been subjected to fox-baiting.

The Fat-tailed Dunnart occurs over a wide area of open habitats in much of central and southern Australia (Menkhorst and Knight 2011). In Victoria many records for the Fat-tailed Dunnart are from private land and there is some concern for the future of the species in these areas as modern farming practices alter habitat (Menkhorst 1995). Consequently the species is recognised as near-threatened in Victoria (DSE 2007). During the FSG survey of the Black Range, Fat-tailed Dunnart was recorded on one occasion only when an adult female was found by chance under a small section of log in grassland on the south-eastern slopes of the range. During visits to the Black Range by RMIT University, the species was recorded on one occasion in October 2008 when an adult female was found under discarded galvanized iron in an open section of Granite Hills Woodland.

The Mountain Dragon is found throughout the Great Dividing Range and coastal ranges from central New South Wales to the Grampians. The species is also found in northern and eastern Tasmania (Wilson and Swan 2010). In Victoria, two forms of the species exist as

isolated populations: an Anglesea form which inhabits Heathy Woodland in the eastern section of the Great Otway National Park and the Grampians form. More information is required on the abundance and distribution of these two populations and therefore both are recognised as data deficient (DSE 2007). During the visit to Mt William in October 2007 one Mountain Dragon was seen basking and was photographed in an area of Montane Rocky Shrubland that was only lightly burnt by the wildfire of 2005/2006 (Homan and Schultz 2008). This was the first confirmed record for the species on Mt William for twenty years (P Robertson pers. comm, Nov. 2007). No further specimens were detected during subsequent visits to Mt William in 2008, 2009 and 2010 and the species was not recorded during FSG surveys at the site.

The Swamp Skink is usually found in coastal areas, amongst swampy and sedge-tussock vegetation (Wilson and Swan 2010); however, several records exist from inland areas (Clemann and Beardsell 1999; Homan 2009). The species is listed as threatened under the *Flora and Fauna Guarantee Act 1988* (DSE 2010). Three Swamp Skinks were captured in Elliott traps that were left open for daylight sampling during October 2008. The traps were set amongst tall clumps of Red-fruit Saw-sedge *Gahnia sieberiana*, habitat that is considered typical for this secretive species (Cogger 2000). These were the first available confirmed records for the species in the Grampians National Park since 1985 (N Clemann pers.comm, Oct. 2008). The survey site was visited again in October 2009; however, much cooler weather during the spring of 2009 made detection of reptiles more difficult than in the previous year.

The Ragged Snake-eyed Skink is a common, small lizard found throughout most of inland eastern Australia, with its range extending from Cape York in Queensland to northern Victoria (Wilson and Swan 2010). Until recently the Ragged Snake-eyed Skink was known as Carnaby's Wall Skink *Cryptoblepharus carnabyi* (Wilson and Swan 2008; Victorian Biodiversity Atlas). The species is partly arboreal and has been observed amongst human habitation in the Victorian townships of Echuca and Rainbow on the walls of houses, on garden structures and on old fences (Homan pers. obs). One specimen was

seen basking and was photographed during the visit to the Black Range by a group from RMIT University in October 2010. No other records are available for this species in the Black Range or any nearby areas (Victorian Biodiversity Atlas). This record from the Black Range is also the most southerly record for the species in Australia. During the FSG survey of the Black Range considerable time and effort was spent surveying for the presence of reptiles; however, Ragged Snake-eyed Skink was not detected.

White's Skink is a common, moderate-sized skink found over a wide area of south-eastern Australia. The species usually inhabits heathlands, dry forests and heathy woodland (Cogger 2000; Wilson and Swan 2010). Three colour morphs are recognised: patterned morph, plain-backed morph and patternless morph (Chappell *et al.* 2008). During the FSG surveys in the Grampians numerous specimens of the patterned morph of the species were recorded from Heathy Dry Forest in the Victoria Valley. In March 2002, White's Skink (patterned morph) was captured in Elliott traps and found under fallen logs in Lowland Forest near Silverband Falls (Menkhorst and Homan unpubl. data). During the RMIT visit to Mt William in October 2010, one specimen of the plain-backed morph of White's Skink was found under a rock during active herpetofauna searching. Several records exist throughout Victoria for the plain-backed morph of this species; however, there are no other records of this colour morph of White's Skink in any part of the Grampians National Park (Victorian Biodiversity Atlas).

Other species recorded at Mt William during visits by groups from RMIT University included Southern Grass Skink, Eastern Three-lined Skink and Coventry's Skink. There are no other records of these species at Mt William in the Grampians National Park (Victorian Biodiversity Atlas). The FSG conducted fauna surveys on Mt William on one occasion over three days and two nights in March 2005 and recorded several species of reptiles during limited active herpetofauna searching. These were: Southern Water Skink, Black Rock Skink and Spencer's Skink *Pseudemoia spenceri*. Active herpetofauna searching during visits to Mt William by groups from RMIT University failed to detect any further specimens of Spencer's Skink.

RMIT University conducted fauna surveys at a site above Silverband Falls in September 2005. Three skink species were detected during active herpetofauna searching: Southern Water Skink, Coventry's Skink and McCoy's Skink. The area above the falls was severely impacted by the wildfire of 2005/2006; however, a section of Damp Forest below the falls was only moderately burnt. In October 2010, RMIT University visited this area below Silverband Falls briefly. During this visit several specimens of Southern Water Skink were seen basking on fallen logs. Limited rock and log turning failed to detect any specimens of Coventry's Skink or McCoy's Skink. Other evidence exists of small reptiles surviving wildfire. In October 2008, one Coventry's Skink was captured in a funnel trap during a vertebrate survey near Kinglake, Victoria (Northern Melbourne Institute of TAFE unpubl. data). Wildfire burnt through the survey site in February 2009 and when the area was visited briefly in October 2009, one Coventry's Skink was located under a section of burnt log in an area that was only moderately burnt (Homan pers. obs). A post-fire vertebrate survey was conducted over four days at this site in early April 2011. During this survey 51 Coventry's Skinks were captured in funnel traps (Northern Melbourne Institute of TAFE unpubl. data).

Acknowledgements

The surveys were conducted under the terms of research permits no. 10002492, 10004852 and 10005041 issued by the Department of Sustainability and Environment and approval of the Animal Ethics Committee of RMIT University. Mike Stevens and staff from Parks Victoria, Halls Gap, provided guidance and equipment for several surveys. Bruce Partland, Helen Corney and Rhys Jones of RMIT University, and Detlef Rohr and Edward Tsyrlin, previously of RMIT University, assisted in the organising of field work and supervising students. Maryrose Morgan of Carlton provided field assistance on several occasions. Special thanks to the many RMIT University students who participated in the surveys.

References

- Chapple D G, Hutchinson M N, Maryan B, Plivelich M, Moore J A and Keogh J S (2008) Evolution and maintenance of colour pattern polymorphism in *Liopholis* (Squamata: Scincidae). *Australian Journal of Zoology* **56**, 103–115.
- Clemann N and Beardsell C (1999) A new inland record of the Swamp Skink *Egernia coventryi* Storr, 1978. *The Victorian Naturalist* **116**, 127–128.
- Coates T D and Wright C J (2003) Predation of southern brown bandicoots *Isodon obesulus* by the European red

- fox *Vulpes vulpes* in south-east Victoria. *Australian Mammalogy* **25**, 107–110.
- Coates T, Nicholls D and Willig R (2008) The distribution of the Southern Brown Bandicoot *Isodon obesulus* in south central Victoria. *The Victorian Naturalist* **125**, 128–139.
- Cogger H (2000) *Reptiles and Amphibians of Australia*. 6 edn. (Reed Books: Chatswood, NSW)
- Conole I E and Baverstock G A (1983) Mammals of the Angahook-Lorne Forest Park, Victoria. *The Victorian Naturalist* **100**, 224–231.
- De Bondi N, White J G, Stevens M and Cooke R (2010) A comparison of the effectiveness of camera trapping and live trapping for sampling terrestrial small-mammal communities. *Wildlife Research* **37**, 456–465.
- Dexter N and Murray A (2009) The impact of fox control on the relative abundance of forest mammals in East Gippsland, Victoria. *Wildlife Research* **36**, 252–261.
- DSE (2004) EVC Benchmarks – Greater Grampians bioregion. (Department of Sustainability and Environment: Melbourne)
- DSE (2007) Advisory list of threatened fauna in Victoria. (Department of Sustainability and Environment: Melbourne)
- DSE (2010) Flora and Fauna Guarantee Act 1988: Threatened List, May 2010. (Department of Sustainability and Environment: Melbourne)
- Emison W B, Porter J W, Norris K C and Apps G J (1978) Survey of the vertebrate fauna of the Grampians-Edenhope area of southwestern Victoria. *Memoirs of the National Museum of Victoria* **39**, 281–363.
- Homan P (2005) A survey of the vertebrate fauna of the Black Range, near Stawell. *The Victorian Naturalist* **122**, 94–102.
- Homan P (2008) Surveys of vertebrate fauna in the Grampians National Park, 2003–2007. *The Victorian Naturalist* **125**, 47–55.
- Homan P (2009) Survival of vertebrate fauna in remnant vegetation patches and colonisation of revegetation areas in the La Trobe Valley, Victoria. *The Victorian Naturalist* **126**, 135–150.
- Homan P and Schultz N (2008) Survival and Biodiversity on Mt William, Grampians National Park. *The Victorian Naturalist* **125**, 181–183.
- Menkhorst P W (ed) (1995) *Mammals of Victoria: Distribution, Ecology and Conservation*. (Oxford University Press: South Melbourne)
- Menkhorst P W and Knight F (2011) *A Field Guide to the Mammals of Australia*, 3 edn. (Oxford University Press: South Melbourne)
- Meulman E P and Klomp N I (1999) Is the home range of the Heath Mouse *Pseudomys shortridgei* an anomaly in the *Pseudomys* Genus? *The Victorian Naturalist* **116**, 196–201.
- Rees M and Paul D (2000) Distribution of the southern brown bandicoot (*Isodon obesulus*) in the Portland region of south-western Victoria. *Wildlife Research* **27**, 539–545.
- Robley A, Gormley A, Albert R, Bowd M, Smith A and Scroggie M (2009) Monitoring and Evaluation of Glenelg Ark – 2005 to 2008. Arthur Rylah Institute for Environmental Research, Technical Report Series No. 183. Department of Sustainability and Environment, Heidelberg, Victoria.
- Seebeck J H (1976) Mammals in the Pomonal area, the Grampians. *The Victorian Naturalist* **93**, 138–147.
- Stevens M (2008) The impact of severe, landscape-scale wildfire on small mammals: Grampians National Park case study. Unpublished thesis for Degree of Bachelor of Environmental Science (Honours) Deakin University, Melbourne.
- Van Dyck S and Strahan R (eds) (2008) *The Mammals of Australia*, 3 edn. (Reed New Holland: Sydney)
- Wilson S and Swan G (2008) *A Complete Guide to Reptiles of Australia*, 2nd Ed. (New Holland Publishers: Sydney)
- Wilson S and Swan G (2010) *A Complete Guide to Reptiles of Australia*, 3rd Ed. (New Holland Publishers: Sydney)

Received 14 April 2011; Accepted 14 July 2011

One hundred and Three Years Ago

THE FOX AND ITS VICTIMS: A SERIOUS SITUATION

A favourite occupation of the fox is to stalk ducks and swans around the margin of a lake or creek. One moonlit night not long ago a duck-shooter, who was camped at the side of a lake waiting for the ducks to come in, suddenly noticed a fox stealing cautiously down to the water. The fox kept low in the grass and crept very slowly along. His eyes were all the while on the water, and the reeds that fringed it. When he got to the margin of the lake he crept cautiously along. As this happened to bring him within easy range of the sportsman, a charge of shot settled one poacher. The sportsman then found the mangled remains of three ducks along the lake shore. Judging from the remains found at the earths of foxes in the Western lake country, the menu of the fox consists chiefly of hare and swan. Both the swan and the hare are very plentiful, but it is certain that large numbers are killed by foxes. The Cape Barren goose, which visits these plains every summer, is another of the fox's victims. This goose does not go out into deep water, like the ducks and swans, but stays in the shallows, so that it often falls an easy prey to the fox. It is said that it sleeps standing on one leg, in the water, and that the fox thus cannot scent it. But I am prepared to back the fox to either see or smell this large bird, especially on moonlit nights. It happens, however, that the Cape Barren goose is a very shy and wary bird, so that it is one thing to see it and quite another to catch it. This fact probably protects it to some extent against the fox.

From *The Victorian Naturalist* XXVI, p. 59, September 9, 1909