

A new subspecies of the endangered Leadbeater's Possum *Gymnobelideus leadbeateri* McCoy, 1867 from the Victorian High Country, with comments about the long-term conservation of the species in view of the recent genocide of the species caused by the Victorian Government, their wildlife and forestry departments and their controlled business enterprises.

RAYMOND T. HOSER

488 Park Road, Park Orchards, Victoria, 3134, Australia.

Phone: +61 3 9812 3322 Fax: 9812 3355 E-mail: snakeman (at) snakeman.com.au

Received 1 June 2017, Accepted 25 Feb 2018, Published 20 June 2018.

ABSTRACT

The Leadbeater's Possum *Gymnobelideus leadbeateri* McCoy 1867, has been subject of considerable scientific attention in recent years due to its legal status as "Endangered" or since 2015 as "Critically endangered". Importantly two regionally disjunct and genetically distinct groups are now well known and generally recognized as separate biological entities.

These mammals are being regulated, killed and controlled by the Victorian State Government and its business entities, namely the "Department of Environment, Land, Water and Planning" (DELWP) also known quite seriously as "The Department of Eco-terrorists and Lawbreakers with Limitless Powers" or "The Department of Frequent Name Changes" (for obvious reasons), The State Government wildlife habitat destruction loss-making business enterprise known as "Vicforests" and their dysfunctional animal display business enterprise "Zoos Victoria".

One of these groups of Leadbeater's Possum remains unnamed at the species or subspecies level and so it is important that it be given taxonomic recognition. Genetic divergence of the two relevant populations indicates that they separated many thousands of years ago (Hansen and Taylor, 2008) and so subspecies level recognition is given herein for the until now unnamed highland population.

Gymnobelideus leadbeateri leadbeateri McCoy 1867 is herein regarded as the type subspecies for the lowland form known to occur in floodplain forests at elevations below 150 m. This form is now quite likely extinct throughout its former range (including the type locality) and as of 2018 remains only in small numbers (less than 100) at Yellingbo, 48 km east from Melbourne's central business district, this being the last known outpost for this genetically distinct group.

Here it is being actively "managed" to extinction by DEWLP, Vicforests, "Parks Victoria" and their DEWLP controlled "Zoos Victoria" business.

The more widespread and numerous form from the old-growth Mountain Ash (*Eucalyptus regnans* Mueller, 1871) forests and adjacent areas in the Central Highlands of Victoria in north-east Victoria, is herein formally named *Gymnobelideus leadbeateri martinekae* subsp. nov. according to the rules of the *International Code of Zoological Nomenclature* (Ride et al. 1999). The urgency of this taxon being formally named cannot be underestimated.

This is because the Victorian Government is also aggressively "managing" this taxon to extinction with a coalition of departments and their owned and controlled business entities involved in the massacre. These include the Department of Environment, Land, Water and Planning (DEWLP), previously known under a variety of names including "Department of Sustainability and Environment" (DSE) and their associated business arms including The Arthur Rylah Institute (ARI), "Zoos Victoria" and other government-owned businesses "VicForests" and "Parks Victoria".

Keywords: Taxonomy; mammal; marsupial; Leadbeater's possum; Victoria; Maryann Martinek; Mountain Ash; genocide; Zoos Victoria; extinction; DEWLP; DSE; corruption; Vicforests; *Eucalyptus regnans*; *Gymnobelideus leadbeateri*; new subspecies; *martinekae*; conservation.

INTRODUCTION

The Leadbeater's Possum *Gymnobelideus leadbeateri* McCoy 1867, was originally described from a specimen caught in a lowland swamp at the Bass River, Victoria.

A small number of specimens (4 others) were found at other widely scattered localities across eastern Victoria in ensuing years to 1909.

Due to significant habitat removal in the relevant areas, as in the forests were totally removed as well as the impact of non-native mammals and the lack of further specimens being found, by 1950 the species was thought to be extinct.

After 50 years without a sighting of the species, a population of *G. leadbeateri* was found near Marysville, Victoria in 1961 in elevated Mountain Ash (*Eucalyptus regnans* Mueller, 1871) forests by Eric Wilkinson. Field surveys by amateurs with the "Field Naturalists Club of Victoria" has since yielded numerous other populations scattered across the high country of Eastern Victoria (now over 100 sites), with evidence of the species also being found in the Macedon Ranges, to the north-west of Melbourne (in owl scats).

In 1986 Ian Smales found a population of *G. leadbeateri* at Yellingbo, 48 km east from Melbourne's central business district.

From 1989 to 2015 numerous studies were conducted on *G. leadbeateri* at Yellingbo and other populations by Virginia Thomas, David Lindenmayer, Dan Harley, Birgita Hansen and others, including work on the genetics of each main population, with the finding that the lowland Yellingbo animals are of a different genetic lineage to the others from the higher elevation areas (usually more than 400 m above sea level versus under 150 m above sea level) (Hansen and Taylor 2008, Hansen *et al.* 2005, 2009).

On the basis of a known divergence measured in the thousands of years and a genetic bottleneck caused by the small number of individuals in the Yellingbo population (now believed to be well under 100 animals), scientists and government departments and business entities (e.g. "Zoos Victoria"), treat the Yellingbo population as a different taxon to the other populations.

The species *G. leadbeateri* has been variously listed by government departments as "extinct", "endangered" and "critically endangered".

There has not been a huge amount of science behind any of these listings and they appear to have been made more on the basis of political expediency and commercial self-interests of the regulating departments, and their "Zoos Victoria" business than on any sound scientific or ethical basis.

While in the past *G. leadbeateri* had been held and bred in private hands (see above), in recent years all have been seized or taken by the Victorian Government business entity "Zoos Victoria" who have aggressively marketed the species as their exclusive commercial domain.

To that end they have charged people to see these animals in cages and charged authors and others for the right to take and use photos of the relevant said animals in their control.

"Zoos Victoria" have regularly poached animals from the wild to top up their collections and yet their care of these animals has been so bad as to be reasonably described as acts of animal abuse and cruelty.

Based in suburban Blackburn in Melbourne, Des Hackett caught and then successfully bred *G. leadbeateri* for 17 years to 1980, by which stage the government owned Melbourne Zoo and branches ("Zoos Victoria") saw a business opportunity in taking control of his ever expanding colony.

Hackett was forced to "surrender" his animals to the State Government wildlife department in 1980, who then passed them on to their "Zoos Victoria" business (in fact they took them directly).

"Zoos Victoria" maintained an iron-clad monopoly on possession the species at all times to maximize the income they could derive from them, although they did transfer specimens to the similarly positioned government-owned Taronga Zoo in Sydney, who maintained a similar monopoly in New South Wales.

The last of a sizeable cohort of animals in the control of "Zoos Victoria" died at "Healesville Zoo" in 2006.

In 2012, "Zoos Victoria" poached more *G. leadbeateri* from the wild for their commercial self-interest, even though their controlling government department had the species listed as "Endangered" at the time meaning that none were supposed to be taken from the wild.

At the time (2012), Yellingbo was estimated to have a total population of about 60 individual animals.

While the claim was made by "Zoos Victoria" that they were poaching animals for a captive breeding program, the fact is that animals have been dying in their care since 2012.

Of course the Zoo has a vested interest in NOT breeding lots of the possums as that would ultimately require dispersal to other facilities, thereby removing their monopoly on the species.

Accordingly, in the following three years (and the entire time for which information has been published to date) no *G. leadbeateri* were bred by the government-owned "Zoos Victoria".

This is significant noting that decades earlier, the private hobbyist Des Hackett of Blackburn, had no trouble breeding large quantities of the species.

This he did without the government funding and largesse that the "Zoos Victoria" business enjoyed.

Simultaneous to the poaching and display of *G. leadbeateri* by "Zoos Victoria" a related business entity also owned by the Victorian Government, called "Vicforests" has been aggressively logging old growth Mountain Ash forests, in breach of so-called wildlife protection laws, in order to make the species rarer and therefore a bigger tourist drawcard at the government-owned Healesville Zoo (one of the three "Zoos Victoria" owned zoos). Healesville Zoo alone has *G. leadbeateri* and uses it as an exclusive trump card to attract paying visitors at the expense of similar sized non-government-owned zoos also on the outer fringe of Melbourne.

On 2 April 2015 *G. leadbeateri* was listed as "critically endangered" by the Federal Government, but this listing was challenged by the State government-owned Vicforests in 2017, after environmentalists won a series of legal battles stopping the wipe-out of habitat for the species in the Victorian highlands.

Meanwhile "Zoos Victoria" have aggressively marketed this endangered species and their exclusive ownership of these animals and the fact that they alone are the place to see them (Smith 2014).

On their website at:

<https://www.zoo.org.au/healesville/animals/leadbeaters-possum> under the heading:

"Want to fight extinction with us? There are many ways you can help save Leadbeater's Possums and other threatened species" They have written:

"Visit one of our three zoos" (Anonymous, 2018a).

For "Zoos Victoria" it is always all about money and their business monopoly on the endangered species *G. leadbeateri* is to make yet more money.

This is even made clear on their own website on a second webpage which under the heading "our objectives" has listed at number one the objective being "To maximise revenue" (Anonymous 2018b).

Elsewhere the "Zoos Victoria" website talks about the need for "Zoos Victoria" to position itself in a monopolistic position in terms of control of wildlife keeping, display and the wildlife business in general.

It is this very same ruthless and anti-wildlife conservation business strategy and government enforced monopoly on the keeping (and deliberate *not breeding* of) endangered species that led to the extinction event for the Thylacine (AKA Tasmanian Tiger) (*Thylacinus cynocephalus* Harris, 1808) in the 1930's.

That species was *banned*, the government using the word "*protected*" as it sounds nicer, with the only entities allowed to own them being the government owned zoos of Melbourne, Hobart, Adelaide and Taronga (at Sydney), all of whom drew large crowds of paying people to see them.

After a virus swept through their facilities, the last living Thylacine (*Thylacinus cynocephalus* Harris, 1808) died at Hobart Zoo in 1937.

Hence it must be noted that in terms of exterminating species, government owned zoos and their associated wildlife departments here in Australia are serial offenders in this space and the situation for *G. leadbeateri* is therefore dire in the long term as a result of this.

While two genetically distinct populations of *G. leadbeateri* are well known and recognized as such, it is clear that only one can be the nominate form.

As the holotype of McCoy matches the form from similar habitat at Yellingbo, it is clear that the so-called "Lowland Leadbeater's Possum" is in fact the nominate form (from a nomenclatural and taxonomic point of view) and that the (as of 2018) more abundant and widespread form from the higher elevations in eastern Victoria is in fact an unnamed taxon at the subspecies level.

Recognition of subspecies in animal groups that have diverged thousands of years prior is not uncommon and in the case where one or other is small in number and therefore likely to evolve at a faster rate than a larger population, such recognition is warranted. This is the case for the two groups of *G. leadbeateri* and why I have no issues at all in terms of formally describing the unnamed population as a new subspecies for the first time according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999).

As mentioned in the abstract, *G. leadbeateri leadbeateri* McCoy 1867 is herein regarded as the type subspecies for the lowland form known to occur in floodplain forests at elevations below 150 m. This form is now quite likely extinct throughout its former range (including the type locality) and remains only in small numbers at Yellingbo, 48 km east from Melbourne's central business district, this being the last known outpost for this genetically distinct group, where it is still being actively "managed" to extinction by "Zoos Victoria", DEWLP and other associated government-owned businesses like Vicforests.

The more widespread and numerous form from the old-growth Mountain Ash (*Eucalyptus regnans* Mueller, 1871) forests and adjacent areas in the Central Highlands of Victoria in north-east Victoria, is herein formally named *Gymnobelideus leadbeateri martinekae* subsp. nov. according to the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999). The urgency of this taxonomic group being formally named cannot be underestimated as the Victorian Government is also aggressively "managing" this taxon to extinction with a coalition of departments and their owned and controlled business entities involved in the massacre. These include the Department of Environment, Land, Water and Planning (DEWLP) and their associated business arms including The Arthur Rylah Institute (ARI), "Zoos Victoria" and other government-owned businesses "VicForests" and "Parks Victoria".

MATERIALS AND METHODS AND RESULTS

From the introduction of this paper, these are all obvious.

G. leadbeateri McCoy 1867 as presently recognized was reviewed including by sighting living and dead specimens as well as a review of the relevant published literature, most of which I should note can be readily found online on the internet.

Individuals in the two different populations, while similar in most respects do have sufficient differentiation morphologically to enable each to be identified and diagnosed as is done in the formal description below.

The molecular evidence cited herein also is confirmation of the correctness of the decision to recognize the newly named subspecies.

I also note that, notwithstanding the theft of relevant materials from this author in an illegal armed raid on 17 August 2011, which were not returned in breach of undertakings to the court (Court of Appeal Victoria 2014 and VCAT 2015), I have made a decision to publish this paper.

This is in view of the conservation significance attached to the formal recognition of unnamed taxa at all levels and on the basis

that further delays may in fact put these presently unnamed or potentially improperly assigned taxa at greater risk of extinction.

This comment is made noting the extensive increase in human population in Australia, with a conservative forecast of a four-fold increase in human population in the next 100 years (from 25 million to 100 million) and the general environmental destruction across the continent as documented by Hoser (1991), including low density areas without a large permanent human population.

I also note the abysmal environmental record of various Australian National, State and Local governments in the relevant Australian region over the past 200 years as detailed by Hoser (1989, 1991, 1993 and 1996).

Literature relevant to *G. leadbeateri* (both forms), the taxonomic and nomenclatural conclusions within this paper and to the long-term conservation of both identified subspecies include: Bilney *et al.* (2010), Borschmann (2017), Brazenor (1946, 1962), Hansen and Taylor (2008), Hansen *et al.* (2005, 2009), Harley, (2002, 2004, 2006a, 2006b, 2015, 2016), Harley and Lill (2007), Harley *et al.* (2004), Hoser (1991), Lindenmayer (2000, 2017), Lindenmayer and Lacy (1995), Lindenmayer and Meggs (1996), Lindenmayer and Ough (2006), Lindenmayer and Possingham (1994, 1995), Lindenmayer *et al.* (1989, 1990, 1991a, 1991b, 1997, 2003, 2011, 2013), Macfarlane and Seebeck (1991), Macfarlane *et al.* (1998, 2003), Smales (1994), Smith (1982, 1984), Smith and Harley (2008), Smith and Lindenmayer (1988, 1992), Smith *et al.* (1985), Threatened Species Scientific Committee (Australia) (2015), Weeks (2011), Wilkinson (1961), Woinarski and Burbidge (2016), Woinarski *et al.* (2014) and sources therein.

GYMNOBELIDEUS LEADBEATERI MARTINEKAE SP. NOV.

Holotype: A preserved male specimen at the National Museum of Victoria, Melbourne, Victoria, Australia specimen number: C18638 collected at Cumberland Road, 9.6 km from Marysville, Victoria Latitude -37.55 S, Longitude 145.85 E.

The National Museum of Victoria, Melbourne, Victoria, Australia allows access to its holdings.

Paratypes: 1/ A preserved specimen at the National Museum of Victoria, Melbourne, Victoria, Australia specimen number: C25036 collected from Lake Mountain Alpine Reserve, Alpine View Lookout, Latitude -37.50 S, Longitude 145.87 E.

2/ A preserved dry mounted specimen at the National Museum of Victoria, Melbourne, Victoria, Australia specimen number: C10234 collected from the Rotunda at Lake Mountain Road, Latitude -37.50 E, Longitude 145.83 S.

3/ A preserved female specimen at the National Museum of Victoria, Melbourne, Victoria, Australia specimen number: C26868, collected from Blue Range, Victoria, Latitude -37.38 S, Longitude 145.82 E.

Diagnosis: *Gymnobelideus leadbeateri martinekae* subsp. nov. is similar in most respects to *G. leadbeateri leadbeateri* McCoy 1867. However *G. leadbeateri martinekae* subsp. nov. is separated from the nominate subspecies by a preponderance of black hairs across the back, versus a very limited number of such hairs in *G. leadbeateri leadbeateri* and an ill defined temporal streak of blackish hair running from the snout to the ear, versus well-defined in *G. leadbeateri leadbeateri*.

The fur in *G. leadbeateri martinekae* subsp. nov. while subject to seasonal variation, is also significantly thicker than that seen in specimens of *G. leadbeateri leadbeateri*.

Lighter markings in adult *G. leadbeateri leadbeateri* have a strong yellowish hue, versus a weak yellowish hue in *G. leadbeateri martinekae* subsp. nov..

The holotype specimen for *G. leadbeateri leadbeateri* as depicted online at <https://collections.museumvictoria.com.au/specimens/138702> (downloaded on 24 Jan 2018) also conforms to the differential diagnosis above, which matches the animals from the Yellingbo population.

Distribution: *G. leadbeateri martinekae* subsp. nov. occurs in Mountain Ash (*Eucalyptus regnans* Mueller, 1871) forests and nearby areas in the eastern highlands of Victoria, at elevations generally over 400 metres above sea level. This is an area

generally bounded by Victoria Range in the north-west, Snobs Creek in the North, Swingler Dam in the east and Blue Range in the South-west.

Populations from relatively low elevations west of the Yarra River valley (Yellingbo) and coastal areas of southern Victoria (the latter now thought to be extinct), are of the nominate form *G. leadbeateri leadbeateri* McCoy 1867.

The taxonomic status of any specimens from the geographically disjunct Macedon Ranges, north-west of Melbourne, assuming they occur there, remains unknown.

Further information (copied verbatim from Hoser 1991):

“SIZE. 295-330 mm, tail; 145-180 mm, 127 gm.

IDENTIFICATION. Grey or greyish brown dorsally, with dark mid-dorsal stripe. Distinguishable from related Sugar Glider *Petaurus breviceps* by the absence of a gliding membrane. Also has a club-shaped tail, broader near the tip than the base.

DISTRIBUTION. Known from over fifty localities over about 1000 square kilometers of mountain ash forest in eastern Victoria, usually in pockets of high population density, (1.5-3 animals per hectare). May also occur in areas of suitable habitat in nearby New South Wales.

HABITAT. Mountain ash forests with an over-storey of mature trees with sufficient hollows for nesting. Also required are an adequate supply of relevant invertebrate food, and Silver or Hickory Wattle trees to provide gum. Found at elevations between 800 and 1340 metres.

NOTES. Known from only five specimens collected around the turn of the century, the Leadbeater's Possum was presumed extinct until re-discovered in 1961 near Marysville, Vic. This shy species is dusk active and nocturnal, is shy and fast moving. Some juveniles have been recorded as descending trees to watch human observers passing through their territories. When active it may be seen moving through the forest canopy at high speed, often making leaps of over a metre from tree to tree.

Colonies of up to eight animals build a communal nest of shredded bark in the hollow centre of a large dead or live Mountain Ash, usually 10-30 metres above ground. The nest is usually at the centre of a 1-2 hectare territory which is actively defended from members of adjacent colonies. Each colony consists of a monogamous breeding pair, offspring that may be of more than one generation and possibly one or more other unrelated males.

Females are more socially aggressive than males, and dispersing females from other colonies will be attacked and bitten by females who encroach on their domain. Outside males are allowed to share the nest. Young female offspring are forced to disperse from the nest at about 10 months of age, whereas males typically stay till about 15 months.

Sexual maturity occurs at about 18 months, but males don't mate until their second year. Breeding apparently occurs all year except during January and February, although most mating occurs from March to May and August to October. Births typically occur in May and June or October and November. Females have four teats and a well-developed pouch. 1-2 young are produced in a litter which leave the pouch at 12 weeks and are weaned at 17 weeks.

Virtually the entire habitat of this species is under threat from logging and proposed clear fell logging activities, which will remove important nesting trees, and cause other environmental damage.

STATUS. Endangered.

CAUSE/S OF CURRENT STATUS. Loss of habitat through clearing of forests and logging within remaining forests.

NUMBER LEFT. Between ten thousand and one hundred thousand.

PRINCIPAL ACTION REQUIRED. Habitat protection in the form of one or more national parks and a severe curtailment of proposed logging activities in areas inhabited by the Leadbeater's Possum.”

Since the above was published in 1991, further populations were discovered by teams of amateur naturalists searching for them and this is including sites outside the elevations quoted.

This includes for the newly described subspecies and of course the remaining population of the nominate subspecies from Yellingbo.

The only major improvement in the situation for the species survival prognosis has been others heeding the call of Hoser (1991) to create a National Park in the relevant areas as well as sensible calls to stop clear fell logging in relevant areas (see <https://www.greatforestnationalpark.com.au/park-plan.html> cited herein as myforests inc. 2017).

Etymology: Named in honour of Maryann Martinek of Bendigo, Victoria in recognition of her stellar contributions to wildlife conservation in Victoria. This includes for her courageous role in terms of exposing the misconduct of the DEWLP (at the time known as DSE) in 2009 for their culpability in relation to causing the Black Saturday Bushfire Holocaust (9 Feb), which besides killing 172 innocent Victorians, destroyed countless other people's lives and properties and wiped out many Leadbeater's Possums by the removal of their habitat.

Martinek played a critical role in exposing the biggest ever “fake news” story created and executed by a criminally culpable State Wildlife Department and their rorting staff, this being the “Sam the Koala” scam, as detailed by Hoser (2010).

Conservation (the big picture): Without doubt the biggest single threat to both subspecies of *G. leadbeateri* is the Victorian State Government and the Australian Federal Government.

In the first instance both have stated policy called “The Big Australia” policy which will increase the population of Australia from 25 million people (which it is approaching in 2018) to over 100 million within 100 years.

With Victoria's population also going up fourfold to in excess of 20 million people, (most to be squeezed into the already over-crowded Melbourne) the pressure on any remaining habitat for *G. leadbeateri* and pretty much any other kinds of wildlife must increase and probably to a degree sufficient to wipe out the species *G. leadbeateri* in the wild state.

Added to that is the monopolistic policies of the government wildlife departments and their owned and controlled Zoo's business, strictly “banning” the species from possession by anyone else capable of breeding and saving the species, there is little if any hope of there ever being decent self-sustaining captive populations.

With government run zoos making a point of not breeding endangered species in order to maintain their monopoly on owning them, enabling them to drag more paying customers through their gates to the exclusion of rival privately run animal businesses, selling photo and filming rights on the species, and so on, it is highly likely that *G. leadbeateri* will eventually go the same way as the Thylacine (*Thylacinus cynocephalus* Harris, 1808), which was actively “managed” to extinction in exactly the same way nearly 100 years earlier.

Significantly, Australian governments (over) regulate every aspect of life in Australia, with the exception of the one thing that seriously does need to be controlled and regulated. This is the nation's human population and the ongoing population growth.

Population (of people) needs to be stabilized as soon as possible and in the longer term reduced.

In terms of the need to stabilize population growth this best effected by a strict one child per person policy (equating in effect to two per couple), with no exceptions, including for second marriages, where children have already been had previously and anything else that may be used to circumvent the intended law.

This could be underpinned by forced relinquishment of any children born beyond those allowed, coupled with forced sterilization of those who conceive and have children beyond the legal amount.

While the policy may seem like a draconian attack on personal freedom, the survival of the Australian ecosystem and for that matter the wider planet, is best effected by such a policy, as a favourable alternative to any other likely outcome from the current situation of rampant human population growth.

Relinquished children could be put up for adoption by couples unable to conceive.

Immigration levels would also be capped at a level below the shortfall of children (beyond replacement level for the population)

achieved by the "one child per person" policy, so that the intended goal of a stable or slowly reducing population is in fact achieved.

Conservation (the smaller picture):

In terms of the specifics of *G. leadbeateri* conservation at the immediate time (end 2017 and 2018), the following key points need to be mentioned.

The Victorian government wildlife department (now called DEWLP) and their associated business entities including "Zoos Victoria" and "Vicforests" have used legislative means to forcibly stop all other Victorians from being able to do anything whatsoever to help preserve in the wild, protect or breed in captivity any *G. leadbeateri*.

People who have protested illegal clearing of the habitat by the government enterprise "Vicforests" have been raided, arrested and criminally charged and harassed in all manner of ways (Courtice 2016, Meacher 2012).

Same applies for those who tried to expose the culpability of the DSE (the predecessor in name of the DEWLP) in terms of the Black Saturday Holocaust of 7 Feb 2009, being a (DSE-made) man-made bushfire disaster which wiped out about 50% of the known habitat of *G. leadbeateri* in the space of a single day! (Hoser 2010, Court of Appeal 2014, VCAT 2015)

Add to this was the forced "forfeiture" to "The Crown" of all privately owned *G. leadbeateri* in the early 1980's, to enable "Zoos Victoria" to maintain a stranglehold on possession of the species as a significant money-making concern.

Those breeding animals and any progeny have long since been exterminated!

As mentioned already, the DEWLP have by control of the legislature, appropriated themselves and their controlled business enterprises full control of all specimens of *G. leadbeateri* in existence since the early 1980's.

At least one of these enterprises "Zoos Victoria" aggressively markets themselves as "Fighting extinction", until recently being a generic term, for which they now own a registered trademark (TM no. 1470848), which they registered on 23 January 2012 and aggressively prevent any other people or wildlife related businesses from claiming to be doing the same thing (fighting extinction in any way, shape or form).

According to the 2017 DEWLP, annual report (posted on the web at: <https://www2.delwp.vic.gov.au/our-department/annual-report>), as of 24 Jan 2018 (State Government of Victoria, 2017), the department has an annual expenditure of just under \$2 billion a year to spend on conservation matters.

So with such vast amounts of funds and resources at their disposal on an annual ongoing basis, one would expect the DEWLP and their business enterprises to have absolutely no problem maintaining and increasing the numbers of this federally listed "critically endangered" species.

This is especially so, noting that as far back as the 1970's an unfunded amateur in suburban Blackburn, named Des Hackett had absolutely no trouble breeding the species in his back yard and ended up with more than he could handle ... until being made to forcibly forfeit them to the State Government!

Of course, it is a matter of public record that so-called captive breeding projects or "recovery programmes" at "Zoos Victoria" have not succeeded (all of Des Hackett's animals and any progeny are all long since dead), and evidently the zoos "recovery programmes" are designed to fail, so as to maintain their commercial monopoly on the possession of the species.

The key habitat, all within State Government controlled land, has also been systematically destroyed by the reckless activities of DEWLP (under various names) as detailed by Hoser (2010) and also the associated government business enterprise "Vicforests" as detailed by Panagiotopoulos (2017).

So as of 2017, the actual score card for the species *G. leadbeateri* was a decline in number by a staggering two thirds! (Borschmann 2017).

By any reasonable assessment, a well-planned 2/3 wipe out of a relatively uncommon species under total government control must

be treated as a government planned and executed genocide!

Not surprisingly, once the extent of this wipe-out entered the public domain, some of the government's own scientists had no choice but to publicly complain about the serious decline in the species (Borschmann 2017), only to find themselves being forcibly censored by a Government Ministerial employee and made to temper their publications and statements as a result (Lindenmayer 2017).

So *G. leadbeateri* has an ongoing serious decline that is now also being deliberately underplayed by senior members of Federal and State governments.

The species also faces hazards including:

1/ Censorship of potentially independent scientists who may wish to disclose facts that contradict statements by members of the government and their departments;

2/ Legislative exclusion of all potential stakeholders who could save the species, either by way of habitat protection or enhancement, or via captive breeding;

3/ The danger of ongoing serious corruption within DEWLP as detailed by the Court of Appeal (2014) and VCAT (2015).

This all means that the long-term prognosis for *G. leadbeateri* is very dire indeed.

If the species ultimately survives for more than a few short decades or centuries, it will be in spite of the preceding and not because of it as detailed in the endnote of this paper.

Now it is also worth mentioning that Wildlife Laws in Victoria specifically exempt "Zoos Victoria" from the need to comply. Furthermore they are effectively immune from prosecution for anything and so are in effect exempt from workplace safety laws, animal welfare laws, fair trading laws and so on. The same applies for the business entity, "Vicforests" also owned by the Victorian Government.

So because of the preceding, one may be fooled into assuming that while these entities are destroying the habitat of and wiping out *G. leadbeateri*, they are at least making money in the process. This is in fact far from the reality. As of 2017, DEWLP spends some \$2 billion of taxpayer's cash a year, of which pretty much all is wasted and squandered, with next to no revenue or public benefit in return.

Employees of the department do very well financially, live in nice homes in posh suburbs, take lots of expensive holidays and so on, but in terms of tangible public benefits, there are none.

As for their controlled business, "Zoos Victoria", which is continually subject of animal abuse and cruelty allegations (Turnbull, 2008), the picture is no better.

In spite of scamming millions of dollars in donations from misled well-meaning members of the public, charging like a wounded bull for questionable take-away food and the like, extorting money out of others in the environmental space for such things such as "permission" to be able to take photos of their animals for "any commercial purpose" and of course having business competitors in the animal display space raided and shut down at gunpoint by their owners at the DEWLP as detailed by Hoser (1993 and 1996), Court of Appeal (2014) and VCAT (2015) "Zoos Victoria" also manages to rack up losses on an annual basis, needing a 10.7 million a year top up from the taxpayer (as of 2011) (Cooper 2011, Ang 2011) and a swag of other hand outs for specific projects they embark on.

The State Government owned business "Vicforests" also loses money and costs millions on an annual basis, which also needs to be topped up by the taxpayer.

In 2017, Vicforests claimed in their annual report and associated media release a 3.2 million dollar loss (Larson 2017).

Panagiotopoulos (2017) on his website Vicforests Exposed wrote: "It can't survive without sponging off tax payers, it breaks laws you and I have to adhere to, it destroys ancient ecosystems and trees hundreds of years old, it stuffs up our water catchments, thumbs its nose at the public's concerns, leaves thousands of hectares of once-was forest as a weed infested mess, it lies, feeds government and communities outrageous spin, is unaccountable,

uneconomic, unprincipled, unlawful.
Its existence is a shameful blight on Victoria.”

REFERENCES CITED

- Ang, A. 2011. Free Admission to Melbourne Zoos for Children. 13 Aug. Posted at:
<https://altonabeauty.blogspot.com.au/2011/08/free-admission-to-melbourne-zoos-for.html>
downloaded on 24 Jan 2018.
- Anonymous 2018a. Zoos Victoria website at url.
<https://www.zoo.org.au/healesville/animals/leadbeaters-possum>
downloaded on 24 January.
- Anonymous 2018b. Zoos Victoria website at url.
<https://www.zoo.org.au/about-us/vision-and-mission/our-objectives>
downloaded on 24 January.
- Bilney, R. J., Cooke, R. and White, J. G. 2010. Underestimated and severe: small mammal decline from the forests of south-eastern Australia since European settlement, as revealed by a top-order predator. *Biological Conservation* 143:52-59.
- Borschmann, G. 2017. Leadbeater's Possum population crashes by two thirds in past 20 years: report. Story posted online at: <http://www.abc.net.au/radionational/programs/breakfast/leadbeaters-possum-population-crashes/9037294>
downloaded on 11 October 2017.
- Brazenor, C. W. 1946. Last chapter to come. A history of Victoria's rarest possum. *Wild Life*, 8:382-384.
- Brazenor, C. W. 1962. Rediscovery of a rare Australian possum. *Proceedings of the Zoological Society of London*, 139:429-431.
- Cooper, M. 2011. Zoos open free to children on holidays. 30 June 2011.
Posted online at: <http://www.smh.com.au/entertainment/about-town/zoos-open-free-to-children-on-holidays-20110630-1g5fb.html>
- Courtice, B. 2016. 'Citizen scientists' force VicForests to halt logging. *Green-left Weekly* 5 May, online at: <https://www.greenleft.org.au/content/citizen-scientists-force-vicforests-halt-logging> downloaded on 24 Jan 2018.
- Court of Appeal Victoria. 2014. Hoser v Department of Sustainability and Environment [2014] VSCA 206 (5 September 2014).
- Hansen, B. D. and Taylor, A. C. 2008. Isolated remnant or recent introduction? Estimating the provenance of Yellingbo Leadbeater's possums by genetic analysis and bottleneck simulation. *Molecular Ecology* (2008) 17:4039-4052.
- Hansen, B. D., Sunnucks, P., Blacket, M. and Taylor, A. C. 2005. A set of microsatellite markers for an endangered arboreal marsupial, Leadbeater's possum. *Molecular Ecology Notes*, 5:796-799.
- Hansen, B., Harley, D., Lindenmayer, D., and Taylor, A. C. 2009. Population genetic analysis reveals a long-term decline of a threatened endemic Australian marsupial. *Molecular Ecology* 18:3346-3362.
- Harley, D. 2002. The discovery of Leadbeater's Possum *Gymnobelideus leadbeateri* along the Woori Yallock Creek, Yellingbo. *Victorian Naturalist*, 119:233-235.
- Harley, D. 2004. A Review of Recent Records of Leadbeater's Possum (*Gymnobelideus leadbeateri*). In: *The Biology of Australian Possums and Gliders* (eds Goldingay, R. L. and Jackson, S. M.), pp. 330-338. Surrey Beatty and Sons, Chipping Norton, NSW, Australia.
- Harley, D. 2006a. A role for nest boxes in the conservation of Leadbeater's Possum (*Gymnobelideus leadbeateri*). *Wildlife Research* 33:385-395.
- Harley, D. 2006b. The Yellingbo population of Leadbeater's Possum – remnant or introduced? *Victorian Naturalist*, 123:170-173.
- Harley, D. 2015. The use of call imitation to establish territory occupancy by Leadbeater's possum (*Gymnobelideus leadbeateri*). *Australian Mammalogy* 37:116-119.
- Harley, D. 2016. An overview of actions to conserve Leadbeater's Possum *Gymnobelideus leadbeateri*. *The Victorian Naturalist* 133(3):85-97.
- Harley, D. and Lill, A. 2007. Reproduction in a population of the endangered Leadbeater's possum inhabiting lowland swamp forest. *Journal of Zoology*, 272:451-457.
- Harley, D., Worley, M. A. and Harley, T. K. 2004. The distribution and abundance of Leadbeater's possum *Gymnobelideus leadbeateri* in lowland swamp forest at Yellingbo Nature Conservation Reserve. *Australian Mammalogy*, 27:7-15.
- Hoser, R. T. 1989. *Australian Reptiles and Frogs*. Pierson and Co., Mosman, NSW, 2088, Australia:238 pp.
- Hoser, R. T. 1991. *Endangered Animals of Australia*. Pierson Publishing, Mosman, NSW, 2088, Australia:240 pp.
- Hoser, R. T. 1993. *Smuggled: The Underground Trade in Australia's Wildlife*. Apollo Publishing, Moss Vale, NSW, Australia:160 pp.
- Hoser, R. T. 1996. *Smuggled-2: Wildlife Trafficking, Crime and Corruption in Australia*. Kotabi Publishing, Doncaster, Victoria, Australia:280 pp.
- Hoser, R. T. 2010. Sam the scam: Sam the koala is an imposter. *Australasian Journal of Herpetology* 8: 1-64.
- Larson, S. 2017. Media Release: VicForests reports positive operating result. 19 October. Posted online at:
<http://www.vicforests.com.au/static/uploads/files/media-release-vicforests-reports-positive-operating-result-wftwjbzmydmdu.pdf>
downloaded on 24 January 2018.
- Lindenmayer, D. B. 2000. Factors at multiple scales affecting distribution patterns and their implication for animal conservation - Leadbeater's Possum as a case study. *Biodiversity and Conservation*, 9:15-35.
- Lindenmayer, D. B. 2017. Grovelling letter of apology to the former Australian Government Threatened Species Commissioner Gregory Andrews, dated 17 December: 1 p.
- Lindenmayer, D. B. and Lacy, R. C. 1995. Metapopulation viability of Leadbeater's possum, *Gymnobelideus leadbeateri*, in fragmented old-growth forests. *Ecological Applications*, 5:164-182.
- Lindenmayer, D. B. and Meggs, R. A. 1996. Use of Den Trees by Leadbeater's Possum (*Gymnobelideus leadbeateri*). *Australian Journal of Zoology*, 44:625-638.
- Lindenmayer, D. B. and Ough, K. 2006. Salvage logging in the montane ash Eucalypt forests of the Central Highlands of Victoria and its potential impacts on biodiversity. *Conservation Biology* 20:1005-1015.
- Lindenmayer, D. B. and Possingham, H. P. 1994. *The risk of extinction: ranking management options for Leadbeater's Possum using population viability analysis*. Centre for Resource and Environmental Studies, the Australian National University, Canberra, Australia.
- Lindenmayer, D. B. and Possingham, H. P. 1995. Modelling the viability of metapopulations of the endangered Leadbeater's possum in south-eastern Australia. *Biodiversity and Conservation*, 4, 984-1018.
- Lindenmayer, D. B., Smith, A. P., Craig, S. A. and Lumsden, L. F. 1989. A survey of the distribution of Leadbeater's Possum, *Gymnobelideus leadbeateri* McCoy in the Central Highlands of Victoria. *Victorian Naturalist*, 106:174-178.
- Lindenmayer, D. B., Cunningham, R. B., Tanton, M. T., and Smith, A. P. 1990. The conservation of arboreal marsupials in the montane ash forests of the Central Highlands of Victoria, south-east Australia. II. The loss of trees with hollows and its implications for the conservation of Leadbeater's possum *Gymnobelideus leadbeateri* McCoy (Marsupials: Petauridae). *Biological Conservation* 54:133-145.
- Lindenmayer, D. B., Nix, H. A., McMahon, J. P., Hutchinson, M. F. and Tanton, M. T. 1991a. The conservation of Leadbeater's possum, *Gymnobelideus leadbeateri* (McCoy): A case study of the use of bioclimatic modelling. *Journal of Biogeography*, 18:371-383.
- Lindenmayer, D. B., Cunningham, R. B., Tanton, M. T. and Smith, A. P. 1991b. The conservation of arboreal marsupials in the

- montane ash forests of the Central Highlands of Victoria, south-east Australia: III. *Biological Conservation* 56:295-315.
- Lindenmayer, D. B., Cunningham, R. B. and Donnelly, C. F. 1997. Decay and collapse of trees with hollows in eastern Australian forests: impacts on arboreal marsupials. *Ecological Applications* 7:625-641.
- Lindenmayer, D. B., Cunningham, R. B., MacGregor, C., Incoll, R. D. and Michael, D. 2003. A survey design for monitoring the abundance of arboreal marsupials in the Central Highlands of Victoria. *Biological Conservation* 110:161-167.
- Lindenmayer, D. B., Wood, J. T., McBurney, L., Michael, D., Crane, M., MacGregor, C., Montague-Drake, R., Gibbons, P. and Banks, S. C. 2011. Cross-sectional versus longitudinal research: a case study of trees with hollows and marsupials in Australian forests. *Ecological Monographs* 81:557-580.
- Lindenmayer, D. B., Blair, D., McBurney, L., Banks, S. C., Stein, J. A. R., Hobbs, R. J., Likens, G. E. and Franklin, J. F. 2013. New restoration forest management prescriptions to conserve Leadbeater's possum and rebuild the cover of ecologically mature forest in the Central Highlands of Victoria. *Australian Zoologist* 36:441-460.
- Macfarlane, M. A. and Seebeck, J. H. 1991. Draft management strategies for the conservation of Leadbeater's Possum, *Gymnobelideus Leadbeateri*, in Victoria. *Arthur Rylah Institute Technical Report Series* no. 111. Department of Conservation and Environment, Melbourne.
- Macfarlane, M. A., Smith, J. and Lowe, K. 1998. *Leadbeater's Possum Recovery Plan 1998-2002*. Department of Natural Resources and Environment, Melbourne.
- Macfarlane, M. A., Lowe, K. and Smith, J. 2003. Flora and Fauna Guarantee Action Statement: Leadbeater's Possum *Gymnobelideus Leadbeateri*. Department of Sustainability and Environment, Victoria. Posted online at <http://www.dse.vic.gov.au>.
- Meacher, S. 2012. Victoria drops charges against forest activists. *Green-Left Weekly* 6 September, online at: <https://www.greenleft.org.au/content/victoria-drops-charges-against-forest-activists> downloaded on 24 January 2018.
- Myforests inc. 2017. The Great Forest National Park, Victoria, Australia: The proposition. Webpage at: <https://www.greatforestnationalpark.com.au/park-plan.html> downloaded on 24 January 2018.
- Panagiotopoulos, P. 2017. A Dead Loss. Blog post dated 9 March. Posted online at: <http://www.vicforests.net/news/dead-loss> downloaded on 24 January 2018.
- Ride, W. D. L. (ed.) et. al. (on behalf of the International Commission on Zoological Nomenclature) 1999. *International code of Zoological Nomenclature*. The Natural History Museum - Cromwell Road, London SW7 5BD, UK (also commonly cited as "ICZN 1999").
- Smales, I. J. 1994. The discovery of Leadbeater's Possum, *Gymnobelideus leadbeateri* McCoy, Resident in a Lowland Swamp Woodland. *Victorian Naturalist*, 111:178-182.
- Smith, A. P. 1982. Leadbeater's Possum and its management. In: Groves, R. H. and Ride, W. D. L. (eds), *Species at Risk: Research in Australia*, pp. 129-145. Australian Academy of Science, Canberra, Australia.
- Smith, A. P. 1984. Diet of Leadbeaters Possum, *Gymnobelideus leadbeateri* (Marsupialia). *Australian Wildlife Research*, 11:265-273.
- Smith, A. P. and Harley, D. K. P. 2008. Leadbeater's Possum, *Gymnobelideus leadbeateri*. In: Van Dyck, S. and Strahan, R. (eds), *The mammals of Australia*. Third Edition, pp. 226-228. Reed New Holland, Sydney, Australia.
- Smith, A. P. and Lindenmayer, D. 1988. Tree Hollow Requirements of Leadbeater's Possum and Other Possums and Gliders in Timber Production Ash Forests of the Victorian Central Highlands. *Australian Wildlife Research*, 15:347-362.
- Smith, A. P. and Lindenmayer, D. B. 1992. Forest succession, timber production and conservation of Leadbeater's Possum (*Gymnobelideus leadbeateri* Marsupialia: Petauridae). *Forest Ecology and Management* 49:311-332.
- Smith, A., Lindenmayer, D. and Suckling, G. 1985. *The Ecology and Management of Leadbeater's Possum*. Research Report to the World Wildlife Fund Australia. Project 51. University of New England.
- Smith, B. 2014. Healesville: Leadbeater's possum death fuels fear. *The Age*. 3 June 2014. Downloaded 13/10/14 from <http://www.theweeklyreviewcity.com.au/story/1805356/healesville-leadbeater-s-possum-death-fuels-fears/events-calendar-city>.
- State Government of Victoria. 2017. DEWLP Annual Report 2017. 21 September 2017, online at: https://www2.delwp.vic.gov.au/_data/assets/pdf_file/0025/83455/DELWP-Annual-Report-2016-17.pdf
- Threatened Species Scientific Committee (Australia). 2015. Approved Conservation Advice *Gymnobelideus leadbeateri* Leadbeater's possum. Available as of 24 January 2018 at: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/273-conservation-advice.pdf>.
- Turnbull, J. 2008. Melbourne Zoo facing cruelty claims. *Sydney Morning Herald*, 19 January. Posted online at: <https://www.smh.com.au/national/melbourne-zoo-facing-cruelty-claims-20080119-1mul.html> downloaded 22 November 2017.
- Victorian Civil and Administrative Tribunal (VCAT). 2015. *Hoser v Department of Environment Land Water and Planning* (Review and Regulation) [2015] VCAT 1147 (30 July 2015, judgment and transcript).
- Weeks, A. 2011. *Effects of the 2009 Black Saturday fire on genetic diversity of the Leadbeater's Possum population at Lake Mountain*. Parks Victoria and Zoos Victoria, Melbourne.
- Wilkinson, H. E. 1961. The Rediscovery of Leadbeater's possum, *Gymnobelideus leadbeateri* McCoy. *Victorian Naturalist*, 78:97-102.
- Woinarski, J. and Burbidge, A. A. 2016. *Gymnobelideus leadbeateri*. The IUCN Red List of Threatened Species 2016: e.T9564A21959976. <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T9564A21959976.en>. Downloaded on 24 January 2018.
- Woinarski, J. C. Z., Burbidge, A. A. and Harrison, P. L. 2014. *The Action Plan for Australian Mammals 2012*. CSIRO Publishing, Collingwood.
- ENDNOTE:**
- If there is to be any hope for the long term survival of the Leadbeater's Possum, it almost certainly will not come from anyone within government or their associated entities, but rather from an uprising by civic minded wildlife conservationists. One such uprising was detailed by Meacher in 2012, which ultimately saved (for a short time at least), some Leadbeater's Possums inside a supposedly protected area, that was about to be exterminated by the Victorian State Government and their various departments and businesses. Rather than paraphrasing his accurate report, it is reproduced in full here for the purposes for fair comment and so that there can be no claims against this author of misrepresentation of anything by omission.
- "Victoria drops charges against forest activists
Steve Meacher, Green-left Weekly
September 6, 2012
- It was standing room only when community members and supporters attended Ringwood Magistrates' Court on September 6 to witness the dropping of all charges against 12 activists, arising from protests to protect the Gun Barrel coupe in Toolangi State Forest from clear-fell logging in July and August last year. The withdrawal of all charges, without explanation or reason, is a significant victory for the accused and their supporters, and every Victorian who cares for the protection of natural heritage. It vindicates the community's ongoing determination to protect this special place that means so much and belongs to all Victorians, from mindless destruction for the short-term profit of a few. For almost six weeks in July and August last year, a large number

of Toolangi residents with friends and supporters from surrounding communities, and others from further afield, united to protect Gun Barrel coupe on Sylvia Creek Road from clear-fell logging by a VicForests appointed contractor.

The coupe is a part of Toolangi State Forest, about a third of its total area, that had escaped destruction during the Black Saturday bushfires. It is therefore of special significance to many and is of critical importance to native wildlife, including the Victorian faunal emblem, the endangered Leadbeater's Possum.

In the coupe, vegetation had been identified as Leadbeater's habitat, as defined by the action statement for the species, which is supposed to guarantee protection under the Flora and Fauna Guarantee Act.

Submissions and letters were written, calls made and meetings held, including public meetings in Healesville and Toolangi halls. Yet VicForests persisted with plans to clear-fell the coupe.

Even when the Department of Sustainability and Environment identified an active nest-site within the coupe, this was played down, denied and eventually ignored as logging continued. As a result, many community members felt they had no option but to engage in peaceful but determined direct action to protect this special place.

The response from VicForests and the Victorian government, through its Departments of Primary Industry and, ironically, Sustainability and the Environment, was to use threats of arrest and laying of charges to try to intimidate the community into acquiescence while the logging was carried out.

In this they were unsuccessful and locals swung into action. Many attended the coupe every working day. It became the longest blockade of logging ever mounted in the Central Highlands, ceasing only when Healesville-based non-profit group MyEnvironment obtained an interim injunction in the Supreme

Court and the logging machinery was removed.

During the blockade, the authorities continued the intimidation. Objectors were threatened, harassed and photographed by government officers. Several were eventually arrested and charged.

At least one woman was tackled to the ground and bundled into a vehicle. There were even threats to release police dogs, accompanied by an ominous warning: "There is a danger of being bitten."

Those charged were given special bail conditions preventing them from returning to the coupe or even entering Toolangi State Forest. The bullying continued, with frequent reminders that to breach bail conditions would be a more serious offence than those that led to the original charges.

Campaigners particularly welcomed the dropping of charges on the eve of Threatened Species Day, which marks the death of the last thylacine (Tasmanian tiger) in 1936. We will not allow Leadbeater's Possum to follow the thylacine into extinction.

These charges have been hanging over us for more than a year and have been used by government officers to intimidate us, try to control our conduct and minimise our ability to oppose logging."

TAX INVOICE
 Kwik Kopy Printing Box Hill
 3/1031 Whitehorse Road
 Box Hill VIC 3128
 t: 039 899 0833 | f: 039 899 0536
 ABN: 65 740 679 782

CONTACT
 Australasian Journal of Herpetology

INVOICE DETAILS
No.26151
 Issue Date: 23/05/2018
 Ship Via:

QUANTITY	DESCRIPTION	VALUE	Ex. GST
50	Australasian Journal of Herpetology Issue 37 - 64 page document printed black and white on 128gsm gloss and 250gsm gloss cover in colour	\$272.27	
50	Australasian Journal of Herpetology Issue 38 - 64 page document printed black and white on 128gsm gloss and 250gsm gloss cover in colour	\$272.27	

RECEIVED BY: _____ **DATE:** _____

Terms: **Please refer to terms & conditions of trade**. You can deposit directly into our bank account. E. & O.E All claims and returned goods are to be accompanied by this invoice, and made within 7 days of receipt of goods.

CUSTOMER: Australasian Journal of Herp
 INVOICE No.: 26151
 INVOICE Tot.: \$598.99

REMITTANCE ADVICE: RETURN WITH PAYMENT
 Suechess Pty Ltd | Bank: Westpac | BSB: 033 172 | Acc: 334 219

Method: VISA MASTERCARD CASH CHEQUE OTHER*

Amount: \$ _____
 Card No.: _____
 Name: _____
 Date: _____
 Expires: _____
 CCV: _____

SUBTOTAL \$544.54
GST \$54.45
TOTAL \$598.99
AMOUNT DUE \$598.99

Something for everyone.

Hoser 2018 - Australasian Journal of Herpetology 37:3-10.