WASAH

WESTERN AUSTRALIAN SOCIETY of AMATEUR HERPETOLOGISTS (Inc)
(Member of the Australasian Affiliation of Herpetological Societies)

NEWSLETTER

30 June, 1995
(4)

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WASAH Logo

A couple of members have sent in their ideas for a logo. I have included these along with those from Robert Browne-Cooper which appeared in the last newsletter. The head of the "*Pseudonaja*" and death adder above are taken from ideas submitted by Shane Heriot of Geraldton. Further examples were sent in by Bob Wainwright of Perth. Thanks to you all!

I can already foresee a quality dark blue, collared shirt adorned on the front with a logo such as the "*Pseudonaja*" enclosed in a map of WA (see page 6: D). I have a soft spot for *nuchalis,* therefore I may be somewhat bias here. While on the back the WASAH logo with the S portrayed as a snake (see page 6: B). It is all good stuff.

Editor's Note

If you get tired of reading my little anecdotes I take the liberty of including here, you can always send in your own. A couple of members have done just that and these are included in this issue, but first a couple of mine.

"PARASITIC" SNAKE?

A Stoneville woman rang me the other day and asked would I remove a small snake from her lounge room. "No worries!" I replied. On meeting her, and before I went looking for the unwanted guest, she related an unusual story to me. She had arrived home from work that evening and let the cat in. Later on, while cooking tea, she heard the cat making strange sounds in the lounge room. Upon investigation she observed the cat regurgitating a small 30cm snake. A search of the room revealed a Gould's Hooded Snake (*Rhinoplocephalus gouldii*). The amazing thing is, the snake showed no signs of being chewed on by the cat. It was alert and none the worse for coming forth from within the cat's body. I suppose the lady may have made a mistake.

A member, Glynis Owen, related to me an experience she had with one of her cats. It came in one night wearing its collar which was in turn entangled by a Gould's Hooded Snake. The snake becoming entangled when the cat was playing with it. When

Glynis sighted the cat it had lost all interest in the snake.

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A Note From Geraldton

Shane Heriot of Geraldton writes:

To the Editor and the crew at WASAH. I finally put pen to paper and scribbled a few lines. I have also enclosed a cartoon from our local paper you may be able to use. I think it pretty well sums up the incident we had up here a few months ago.

I have also whipped up a few logo ideas. If nothing else it might stir up a bit more interest and get a few more ideas happening.

Remember, if any of you guys are passing through the Mid-West and have a medical emergency, there is always a ready supply of the *amber antivenom* on hand at the Heriot household.

See you soon.

As I am a catcher of problem snakes in the Geraldton area, I have my fair share of amusing incidents. One that occurred just recently was rather memorable.

I received a 'phone call from a very distressed lady. She tried to explain how she had just observed a large snake in the backyard. Several minutes later, after calming and consoling her, I asked for an address. She nervously replied, "Number ?? ***Eve*** Street which runs off Adam Street."

I quickly arrived at the house and was greeted by a very pale face peering from the laundry window. When asked where the snake was seen, she pointed to a large ***fruit tree*** and explained that the last time she looked it was lying under the tree.

By that stage I couldn't help myself and, with a wry smile, asked if the ***serpent*** in question had offered her any fruit. The blank look on the poor lady's face said it all. "Are you for real!" she exclaimed.

Another amusing incident happened several summers ago when Ken Aplin (WAM) came up this way to do a bit of evening herping.

Ken, Anthony Desmond, (another keen Geraldton herp) and myself had just completed several hours headtorching a block of remnant bushland on the outskirts of Gero.

We were on our way back to our cars, although we were still several hundred metres away, when we noticed there was much activity around the area (not just herp activity either). As we loomed out of the bush we realised that there were two police patrol cars and several officers milling around our vehicles. *Obviously they must have seen Ken first!* As they immediately assumed we were fugitives that had just dumped the cars they were checking.

In hindsight we must have looked quite a formidable bunch, crawling from the bush brandishing 'weapons' ie, snake jiggers and big black bags.

I vividly remember the nervous look on a young officer's face as we came out of the darkness. After much questioning, and the procurement of a large Half-girdled Snake (*Vermicella semifasciata*), we were left to our own devices.

As the officers were getting back into their patrol cars I distinctly heard one of them exclaim, "Jeez! You meet all types on night-shirt."

Shane Heriot (member)

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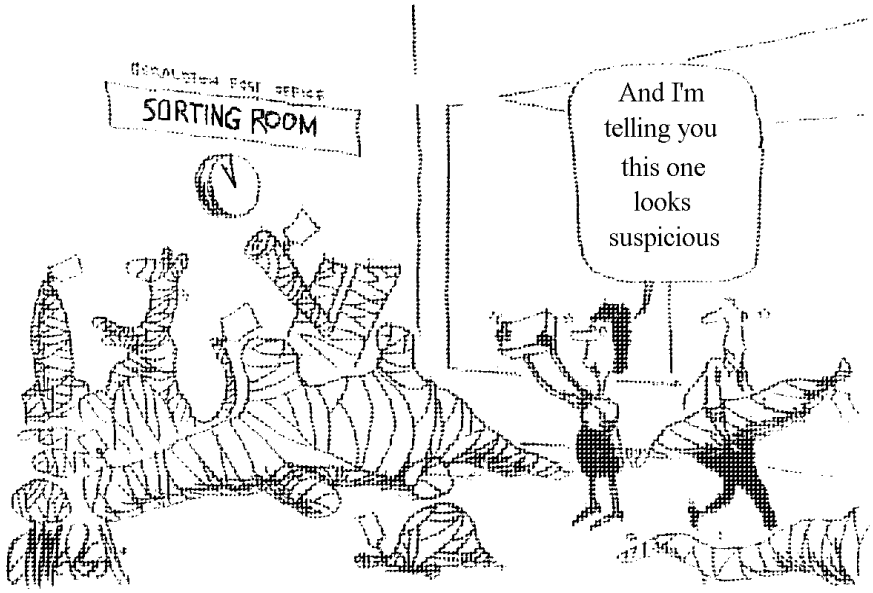
On Dave Barker's book,

Pythons of the World Vol 1 Australia

Those members that brought a copy of this book will agree that it is good stuff! However, it is sad that there is so little data available on WA pythons. No doubt this is a result of *the bad situation* in WA. Enough said. (Ed)



A member sent the following letter in with the title:

Where's the Logic?

I am an amateur herpetologist who has just recently joined WASAH. I am 19 years of age and, because I live in WA, have never been allowed to keep reptiles. Recently a person passed a Rosen's Snake (*Denisonia fasciata*) on to me that had been inadvertently collected near Paynes Find, WA. That person originally believed this small elapid was a "children's python". When it was first determined to be a venomous snake they decided to kill it. After a considerable amount of convincing on my part they instead passed it onto me.

I set about researching all that was available to me on this species. It is a lizard feeder that can not be liberated locally. The Perth area is outside its natural range. In the short term I am going to have to maintain it and feed it lizards until I am able to return it to the Paynes Find area.

I find myself in a 'catch 22' situation. I will be breaking the law if I keep it and breaking the law if I feed it. If I notify the wildlife authorities they will probably take it off me and it will be sacrificed - a fate that I originally saved it from in the first place!

Does this mean I am going to have to move interstate to pursue my herpetological hobby to the stage of keeping legally, or do I go underground?

(Name and address supplied)

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Re: Reg 4 LICENCES

For the holders of Reg 4 licences and others on the *Snake Busters* list not holding current Reg 4 licences. I am at present preparing a report for CALM concerning the snake removal service *Snake Busters'* provide to the public. This report will accompany a submission by CALM to the SGIC concerning insurance cover given to those undertaking snake removal. As this is volunteer work for CALM we may come under their insurance cover. An example of the benefits of this is the recovery of lost wages and other financial expenses following a venomous snake bite experienced while operating under the Reg 4 licence. This is further argument for those involved in this work to become licensed. (Ed)

Alcoa Frog Watch

The WA Museum is calling for people with an interest in their local environment to register for the soon-to-be launched *Alcoa Frog Watch* program. This is a community-based environmental monitoring activity from which current information will be collected on distribution, activity patterns and numbers of frogs surviving in and around Perth.

Alcoa Frog Watch participants can undertake a range of activities from simple interest through to regular monitoring of a local wetland. To learn more about the project and get a free frog information kit send off your expression of interest to:

Alcoa Frog Watch
WA Museum
Francis Street
Perth WA 6000

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WANTED

Information on the Southern Death Adder, *Acanthophis antarcticus*.

Have you sighted this species in the Darling Range or Elsewhere? If you have I would appreciate the information. Please forward any records to **Brad Maryan, 169 Egina Street, Mount Hawthorn WA 6016.**

Python Research

Research on the ecology of WA reptiles is minimal. Far more funds are directed towards the furry and feathered critters. Why this should be is beyond us. Everyone knows God only put the smaller mammals and birds on this earth as mobile meals for snakes! Think about it. The proper place for a numbat, for example, is inside a python's belly. Otherwise they are just running around the forest floor defecating everywhere and making a mess (probably spreading dieback too!).

Four of WA's pythons are listed as threatened and in need of special protection. They are the South-western Carpet, Pilbara Olive, Rough-scaled and Woma. The south-western population of the Woma urgently needs help. Specimens appear few and far between and we know nothing about it.

Recently a more positive move has occurred towards increasing our knowledge on and, therefore, our ability to conserve WA pythons. David Pearson (CALM Wildlife Research Centre) has commenced research into the Carpet Python using radio-transmitters. This species has been considered threatened for some time now and we still know next to nothing about it (it does like fresh numbat though). Dave is studying two populations, one on Garden Island and the other in the Dryandra State Forest (well known for the fat numbats common there). Data on their movements, shelter sites, activity patterns etc are being gathered. Studies of this type are long-term to allow reliable conclusions to be made.

Dave is interested in any information you might have on WA pythons. He also has available **Python Survey Kits** which may be obtained by writing to:

Dr Dave Pearson
PO Box 51
Woodvale WA 6065

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SMUGGLED

Raymond Hoser's book *Smuggled* is still making waves in the east. Raymond is a prolific writer and has another book available now entitled *The Hoser Files*. Anyone who has read *Smuggled* will have an idea of the gist of his latest work. However, he has greatly enlarged his target of scrutiny in his quest to expose official corruption. If you want a copy send a cheque for $19.99 made payable to **Kotabi P/L, PO box 599, Doncaster, Vic 3108**

Smuggled- The Underground Trade in Australian Wildlife is also available at the same address for $20.

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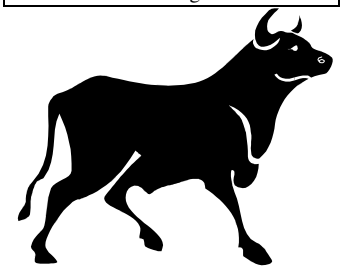
HERPTALES

In this section we propose to include all the information about particular people and goings on that most of us would prefer no one knew. Also, if you wish to submit anything to be included here go ahead. It's "tongue in cheek " and all in good fun.



ABOUT OUR VICE-PRESIDENT

He reckons he can catch Taipans, but most people who know him reckon he tends to exagerate. He is not a bad bloke really, it is just that his feet smell so **BAD!** I mean really **BAD!** Anyone whose feet smell in a pair of thongs has got to be a bit rough.

I reckon also, if he did not have us herps as mates, he would have no mates!

The photo on the left (not the bull!) was taken last week on his return from the north-east. A couple of months in the bush sure made him look younger. The easy going life style of a herp in its natural habitat does that to you. It also can happen if you spend most of your time out there with your eyes shut. Taipans were everywhere but our Vice-President slept when they were active.

Everyone knows he has a problem with his eyes. On field trips the "Old Man Perenty" has to lead him through the bush and point him in the direction of reptiles. However, it is important to mention here, that his colleagues, when accompanying him in the field, only allow him to get close to *Lerista* spp. It is far too dangerous otherwise! I recall a life or death situation arising from our Vice-President being bitten by a Master's Snake, one of the World's smallest venomous snakes. Pinkie mice are unaffected by this snake's venom but no so our VP. It was only through the cool-headedness and rapid action under pressure displayed by our President that saved the VP's life.

Anon

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MEMBERSHIP!

$15 each year. $20 if you wish to have a copy of the Constitution and Rules posted to you. The $15 membership includes annual subscription to *Herpetofauna* each year plus the *WASAH Newsletter*. Please complete the attached membership form and forward to the Secretary, 169 Egina Street, Mount Hawthorn WA 6016

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The NEWSLETTER

For the benefit of all *WASAH* readers we ask you to send in anything you would like included. Articles sent in must be readable. That is in a reasonable hand or typewritten. Your suggestions would also be appreciated, so don't be shy, put pen to paper.

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For Aussies sake, don't kill a Snake!

AGM Meeting

The WASAH annual general meeting will be in September. Probably on a Sunday afternoon.

The venue may be the Harry Warring Marsupial Reserve at Wattleup. WASAH member Bob Cooper, of *Bob Cooper's Outdoor Education*, is the resident caretaker of this facility. This is not confirmed to date. Members will receive notification in writing about a month prior to the date decided on confirming venue.

It will be a "bring your own drink & meat" BBQ. The formalities will be kept to a minimum, as is the nature of the executive committee.

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WASAH EXECUTIVE COMMITTEE

President/Editor: Brian Bush
(09) 295 3007
Vice-President: Brad Maryan
(09) 444 6412
Secretary: Robert Browne-Cooper
(09) 445 2409
Treasurer: Dave Robinson

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The Editor
9 Birch Place
STONEVILLE 6081

Journals & Bulletins

For those on the mailing list who do not wish to join WASAH

HERPETOFAUNA

A worthwhile publication recommended by us for all the readers of this Newsletter. Send a cheque for $15/one year or $40/three years to:

The Editor
PO Box R307
Royal Exchange
SYDNEY 2000

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MONITOR

The journal/newsletter and bulletin of the Victorian Herpetological Society. The VHS is the largest herp society in Australia and *Monitor* reflects that. Send $25 for two issues/year to:

The Secretary
VHS Inc
16 Suspension St
ARDEER, VIC 3022

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Hawkesbury Herpetological Society

The Secretary
PO Box 2
WHALAN, NSW 2770

Cape York Herpetological Society

The Secretary
PO Box 114
PALMCOVE, QLD 4879

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Two new Australian Herp Societies:

Orana Herpetological Society, 841 Ridge Road, COOKS GAP (via MUDGEE) NSW 2850
&
Victorian Association of Amateur Herpetologists, 222 Flinders Avenue, LARA VICTORIA 3212
Membership: $20 per year.

We wish the above societies good luck! They have been included on our mailing list so their members can keep abreast of what is going on in the west.

WASAH is an informal group of people with similar interests - all wishing to keep for private study and "love", frogs, turtles, lizards or snakes!

WASAH joined the Affiliation of Australasian Herpetological Societies in 1994.

1080 and NATIVE FAUNA in WESTERN AUSTRALIA

by

DENNIS KING, Vertebrate Pest Research, APB, Forrestfield, Western Australia

Sodium monofluoroacetate (1080) is highly toxic to most animals. Very small amounts ingested will block the pathway in the body (Krebs cycle) which converts food into energy resulting in death. It is used to poison vertebrate pest species such as rabbits, foxes and dingoes in Australia and rabbits and foxes in New Zealand.

History of 1080

A chemist in Belgium first synthesised 1080 in 1896. Its high level of toxicity to mammals was recognised in the 1940's and trials of its effectiveness as a poison for rabbits in Australia began in the early 1950's.

It had been discovered that 1080 occurred naturally in a South African plant called gifblaar (*Dichapetalum cymosum*) in 1944. It was also found to occur in a number of species of Gastrolobium in Australia in the 1960's. Most of these species are confined to the south-west corner of Western Australia, and include heartleaf poison, box poison, york poison, sandplain poison and cluster poison. They all have a pea-like flower and some contain very high concentrations of 1080, particularly in their flowers, seeds and new leaves. The plants have produced the poison as a way to protect themselves from being eaten by animals.

1080 Studies in Australia

Many species of native animals in WA have been in contact with these plants for thousands of years. Over time they have evolved ways to overcome this means of defence by the plants. Aspects of their biochemistry have altered to enable them to avoid the effects of 1080 by breaking it down into harmless components. Therefore most native species are highly tolerant to 1080. The main pest species (rabbits, foxes, dingoes and feral pigs) have been introduced to Australia from countries which have no plants that produced 1080. They therefore have not evolved tolerances to the poison.

high levels of tolerance as a result of gene flow between eastern and western populations.

Levels of tolerance to 1080 in animals vary considerably for a variety of reasons. Some of the biochemical mechanisms involved are not fully understood however others are. Factors which influence levels of tolerance are the type of food eaten, the 1080 content of the parts of the plants which are eaten, and the length of time the species has been in contact with toxic plants. Mammals are generally more susceptible to 1080 than birds. Reptiles and amphibians are much less susceptible than either of those groups. Most insects are also susceptible to 1080.

Research has been done on a large number of native species of birds, mammals and reptiles in WA by the Agriculture Protection Board (APB) and on eastern states species by the CSIRO in Canberra. No plants in south-eastern Australia produce 1080 therefore no animal from there has evolved a high tolerance to this poison. This causes it to be more difficult to develop 1080-poisoning programs which are safe for native species there than it is in WA. Plants in two species in central and northern Australia produce 1080 and some central Australian animals have elevated tolerances to this poison.

The biochemical mechanisms used to detoxify 1080 in tolerant species are inherited. They are retained for many generations even in animals not exposed to Gastrolobium species and naturally occurring 1080. For example, a number of very tolerant mammals (kangaroos, bandicoots & rodents) occur on several islands off the WA coast where no Gastrolobium grows. Western grey kangaroos, bronzewing pigeons and mallee fowl in the eastern states also retain

Studies of the tolerance of native fauna to 1080 have mainly consisted of laboratory trials to determine the susceptibility of different species, their bait preferences and rates of bait

consumption. Data have been obtained on almost 200 non-target species. This enables assessments to be made on the risks that 1080-baiting campaigns would pose to the species not targeted. The high tolerances to 1080 experienced by native species in WA means that, in almost all cases, baiting programs can be designed which result in control of pest species with no risk to native species.

Birds

The birds which have been studied in WA include several species of parrots, pigeons and ducks, as well as emus, wedgetail eagles and mallee fowl. There is considerable variability in the tolerances of WA parrots which have been studied. This appears to be related to their bill size and the type of food that different species eat. Seeds of Gastrolobium are very small and contain high concentrations of 1080. Some of the smaller parrot species, which are very tolerant of 1080, have been observed feeding on seeds of Gastrolobium species. The larger parrots, such as galahs and black cockatoos, have much larger bills and cannot readily feed on small seeds. Thus the large species have much lower tolerances to 1080.

Particularly high levels of tolerance are found in emus and mallee fowl. The tolerances to 1080 of over 30 species of birds from eastern Australia have been studied by John McIlroy of the CSIRO.

Mammals

Native mammals which have been studied in WA are numerous species of kangaroos, bandicoots, possums, dasyurids and rodents.

The highest levels of tolerance are found in the herbivores (brushtail possum, some kangaroos and wallabies), because they feed directly on plants. The tolerances of native species of carnivores are generally lower than those of herbivores. Apparently they acquire their tolerance indirectly through feeding on animals that have fed on the plants containing 1080, therefore they are ingesting lower concentrations of the toxin than the herbivores. There is, however, a considerable degree of variability in the tolerances of different species of carnivores.

The highest tolerances occur in the dibblers, phascogales and antechinus from southern forest areas, whereas those for desert species are generally lower. Tolerances in most dasyurids in WA are such that the risk from baits used to control dingoes and foxes is marginal. This is particularly so for the larger species such as chuditch (*Dasyurus geoffroii*) and northern quoll (*D. hallucatus*) and precautions may be necessary when designing baiting programs for areas where they occur.

Some native animals (brushtail possums, banded hare wallabies and brush-tailed bettongs) have extremely high tolerances to 1080. Their tolerance is up to 1,000 times as great as that of foxes.

Reptiles & Amphibians

Although there is only limited information available on the tolerances to 1080 in reptiles and amphibians, those that have been tested are very tolerant. This is irrespective of whether or not they have been in contact with Gastolobium during their evolutionary history. Baits containing 1080 generally pose no risk to them. A lizard, for example, large enough to eat whole baits would need to devour a very large number of them to receive a lethal dose. Few reptiles and amphibians are likely to encounter or eat poisoned oats.

Monitor lizards have high levels of tolerance (see Table 1) which are hundreds of times higher than those of dingoes and foxes. Rosenberg's monitor (*Varanus rosenbergi*) from the south-coastal areas of WA, where Gastrolobium is abundant, is much more tolerant to 1080 than the same species from Kangaroo Island in South Australia where Gastolobium is absent.
The omnivorous bobtail skink (*Tiliqua rugosa*) from the south-west of WA has a particularly high tolerance to 1080 of over 5,000 times that of foxes. Being herbivorous they consume large amounts of 1080 in their food. Those from South Australia display high natural tolerances when compared to most other animals.

A small sample of dragon lizards from two species of *Pogona* have been tested. Both have high levels of tolerance (Table 1).

Frogs from eastern Australia, the USA and Africa are all very tolerant to 1080. No WA frogs have been tested to date.

Field Trials

Due to the considerable difficulty involved and very high cost of conducting field trials to assess the risk to non-target species few have been done. Those which have been completed support the conclusions which have been reached during laboratory studies. That is, properly designed baiting programs pose very little risk to non-target native species.

A laboratory study of mammals in the pastoral areas indicated that the northern quoll (*D. hallucatus*) would be at the highest risk of the species studied. A field trial was conducted in the Fortescue River area. Ten quolls were captured and fitted with collars containing small radio transmitters so their locations during the study could be determined. They were observed for two weeks to determine their usual pattern of activity prior to aerial dropping (in standard pattern) 1080 dingo baits onto the area in which they lived. The quolls were tracked for two further weeks to determine if any were killed as a result of taking a bait. All survived! The other species which had been tested in the laboratory were all much smaller than the quoll and, therefore, were unable to carry radio transmitters. Because of this these were not able to be included in this field study. It was assumed that they would also have been unaffected by the baiting as they were at less risk than the quolls.

A similar trial was conducted by CALM in the Batalling area to determine the risk fox baiting may pose to the chuditch (*D. geoffroii*). A standard 1080 baiting program was carried out in an area where they were known to occur. A number were captured prior to the baiting and fitted with radio transmitter collars. They were monitored for several months after the baiting and, despite having ready access to the baits, none died. They also bred successfully several months later.

Degradation of 1080

Unlike many other toxins 1080 does not accumulate in the body or the environment. It is detoxified in the liver or excreted in the urine and faeces within 24-48 hours of ingestion. Some 1080 does persist in the carcasses of animals poisoned but as they decompose it passes into the soil beneath them. There are numerous species of bacteria and fungi living there that degrade the 1080 into harmless substances.

In south-western WA small amounts of 1080 occur in the environment as a consequence of pest control programs ie, in uneaten baits and the carcasses of poisoned animals. However, much larger amounts are present as a result of fallen leaves or other vegetation from naturally occurring plants (Gastrolobium species). Because of the high solubility of 1080 in water, it will be leached from the carcasses or vegetation by substantial rainfall. It then passes into the soil where it is degraded by bacteria and fungi.

Conservation Value

It is possible to use the differences in susceptibility of different species to make control of vertebrate pest species safe for native species. By knowing the level of tolerance of target and non-target species to 1080 and how much bait material will be eaten by non-target species, baits can be designed which will kill pest species but not be harmful to non-target species.

Studies by CALM have shown what a disastrous effect introduced pest species such as foxes, cats and rabbits can have on native fauna and flora. Programs to rid reserves of these pests by baiting with 1080 are underway and are showing splendid results.

Because of the high levels of tolerance in native animals in WA and the low levels of tolerance in introduced pest species, 1080 is a very selective poison. It is the only poison used to control vertebrate pests in flora and fauna reserves in WA because of this disparity. When used in well designed control programs it poses minimal risk to non-target species and it does not accumulate in the environment. It is, however, a very toxic substance and if used improperly it could pose risks to native wildlife, livestock, pets and humans. Therefore, 1080 poisoning programs

can only be planned and implemented by authorised persons trained in its use.

Table 1. Tolerances of some reptiles and amphibians to 1080.

Species	Study Area	LD_{50} (mg/kg^{-1})
Reptilia:		
Pogona barbatus	Brindabella Range, NSW	<110
minor	Yuinmery (Kalgoorlie), WA	>150
Varanus gouldii	Yunta, SA	43.6
gouldii	Yuinmery (Kalgoorlie), WA	~50
varius	Macquarie Marshes, NSW	<119
rosenbergi	Kangaroo Island, SA	38
rosenbergi	Dunsborough, Batalling, WA	200-300
Tiliqua nigrolutea	Brindabella Range, NSW	336
rugosa	Mount Mary, SA	206
rugosa	Boyup Brook, WA (1)	507
rugosa	Boyup Brook, WA (2)	543
Amphibia:		
Limnodynastes tasmaniensis	Macquarie Marshes, NSW	~60
Rana catesbeiana	USA	51
pipiens	USA	150
Xenopus laevis	Africa	>500

REFERENCES

McIlroy, J.C., King, D.R. & Oliver, A.J. 1985. The sensitivity of Australian animals to 1080 poison VIII. Amphibians & Reptiles. *Aust. Wildl. Res.* 12: 113-118.

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Twigg, L.E. & King, D.R. 1991. The impact of fluoroacetate-bearing vegetation on native Australian fauna: a review. *Oikos* 61: 412-430.

Dr Dennis King, Research Officer, Vertebrate Pest Research Section, Agriculture Protection Board, Forrestfield, Western Australia.