

Permitting landowners to take action on pests

In our last newsletter and a recent press release (<http://www.animalcontrol.com.au/news.htm>) we drew attention to the overly complicated bureaucracy that limits pest management. It seemed remarkable that a total of 17 state and federal acts of parliament had to be complied with in order to control feral pigs in Victoria. The article drew a very big response from many in the field who are sharing the frustrations of battling these impediments to effective pest animal management (see page 3).

Sadly, we had another experience in Victoria recently that illustrates the administrative constraints. The Longwood Plains Conservation Management Network is an active conservation group in central Victoria. They are led by a passionate advocate of the Bush Stone-Curlew (or Bush Thick Knee), an endangered ground nesting bird that is under major threat from foxes. The active group has over 100 members and the coordinator was keen to get wide action on foxes to protect the bird habitat and to improve lambing performance on larger properties. The group asked me to speak about foxes so I gave my usual presentation on fox biology, fox density, methods for monitoring and the role of foxes in disease, wildlife damage and stock losses. I then explained how bait can be used effectively as a control.

All was going well until the coordinator took the floor for the implementation phase. It was quickly revealed that while many members had Agricultural Chemical User Permits for S7 chemicals (ACUPs) only four of the members present had the required 1080 endorsement. With further investigation of members not present, it was determined that very few were qualified to use the 1080 fox baits. So a very large percentage of the wider group could not assist effectively!

It was a depressing fact that I was in the midst of a dynamic and enthusiastic group who wanted to make a contribution to fox management in a critical area (so sorely needed throughout Victoria), but they could not get out of the starting blocks.

To me this is a waste of the critical human resource that is fundamental to Australia tackling its pest issues effectively.

The landowners are the key to effective implantation and they must be helped and not impeded.

The administrative impediment is very real. To get an ACUP permit one must find a TAFE group who can present it, pay the course fee of \$250 to \$312, make two days available at the right time to attend the course and pass. Then one must apply additionally to obtain the ACUP certificate (additional cost of \$47.45). Once this paperwork is done it is necessary to do another on-line course for half a day to get a "1080 endorsement" to the ACUP certificate (the ACUP course itself does not provide any practical guidance on how to control foxes or rabbits!). The 1080 endorsement is a half day at TAFE or can be done by distance learning (posted 2 books, 32 pages of training manual to read, complete 2 forms, 40 min test either in a local centre or at home). The additional cost is \$200.

For a hobby farmer with say a 50 acre block wanting to put out 10 baits costing roughly \$12 to contribute the group effort, the paperwork costs is about \$550. The time lost is huge if they also work full time! Then there are more forms to fill in when the approved person wants to buy some baits from the approved supplier.

Even after all of this, the courses focus mostly on regulations and restrictions and on penalties for errors of process. The so called "training" does not give best practice guidance on how to do the baiting program effectively!

The mind boggles at how it could have deteriorated to this end in Victoria. Many years ago the training was provided by experienced local DFL, DCNR, DNRA, DCE, DEPI staff who were practically focussed on getting on with the best way to control the foxes and who gave some sensible information on precautions to prevent errors. Then we had widespread fox control and we had hobby farmers joining in.

We have moved a long way from what is really needed and it is time to look again at whether the current risk-averse approach is really addressing the true problem.

Getting better management of the pests?

Prof. Linton Staples

Adjunct Prof Animal Science UQ



FOXOFF®
Fox Bait



RABBAIT®
Pindone Oat Bait



MOUSEOFF®
Bromadiolone



RATTOFF®
Rat Bait



DENCOFUME®
Fumigation Cartridges



RABBAIT®
1080 Oat Bait



PIGOUT®
Feral Pig Bait



MOUSEOFF®
Zinc Phosphide Bait



DOGGONE®
Wild Dog Bait



SLUGGOFF®
Slug & Snail Bait



RODEMISE®
Bromadiolone Rodent Block

Spatial distribution of baits is important!

In 2009, as part of the field testing of FOXECUTE® PAPP baits, ACTA, the IA-CRC and the field staff of the then Dubbo LHPA led by Lisa Thomas and Rhett Robinson, conducted a major baiting program to protect Mallee Fowl habitat around and in the Goonoo State Forest. This program covers about 150,000 Ha and has run successfully for many years using FOXOFF® 1080 baits, with excellent fox knockdown. In 2009 a switch was made to FOXECUTE® PAPP baits to confirm efficacy of the new bait.

Space does not permit recounting the whole trial, but one diagram generated by Simon Humphrys at the IA-CRC gives unexpected insight into the spatial nature of bait distribution.

The trial involved about 140 landholders who were experienced in baiting and who provided a buffer zone around the park Goonoo Forest. Baiting was also done within the park. Baits were GPS plotted and replaced, as taken, over a few weeks.

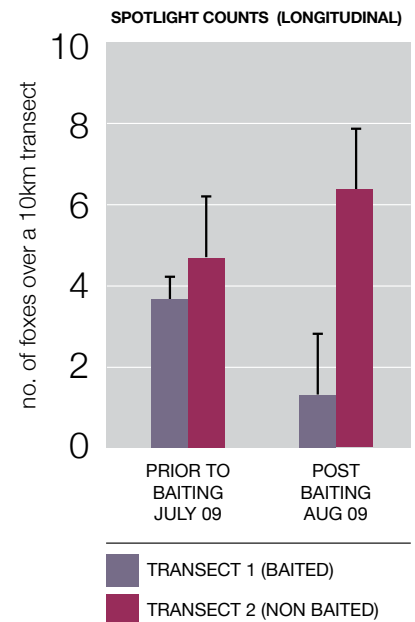
Direct (spotlight surveys) and indirect (cameras and sand plots) measures of fox abundance were recorded. Fox numbers were also assessed in a non-baited reference area 50km from the treated site. In the baited area thousands of baits were placed and, as for 1080 baits previously, the fox numbers fell by 72.8% compared to pre-baiting levels. Fox numbers rose in the unbaited reference site.

Analysis of dead foxes found confirmed the presence of scat marker beads in their stomachs. This confirmed the cause of death as the FOXECUTE® PAPP baits.

But, why is such a well-run program did fox numbers fall by ONLY 72.8%



Lessons from Goonoo.



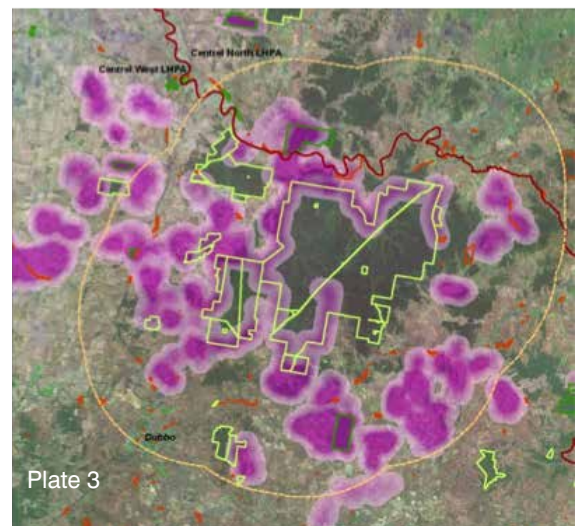
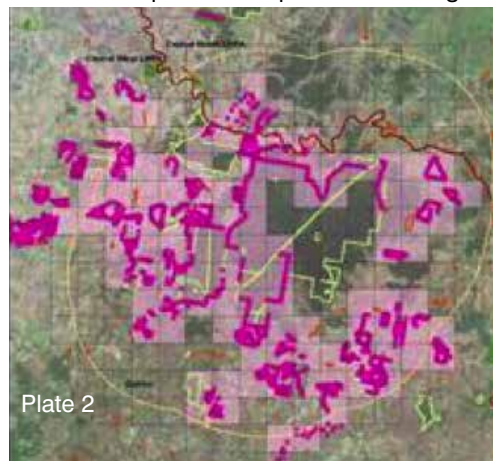
Fox carcass after FOXECUTE® PAPP Baiting with scat markers in stomach conforming bait up take

The answer may be seen when one considers the true intensity of baiting in the area.

Individual property owners/managers provided hardcopy bait station maps of their own properties that were transcribed into digital maps (Plate 1). These digital maps were compiled into a regional scale map (Plate 2) that could be used

to generate a regional scale bait density map (Plate 3) that designates areas of high and low bait density. The third map shows the true intensity of baiting, even with 140 landholders participating. It is a 'patchwork quilt' with still large areas that

were not baited within the control areas. While some foxes will have been killed after wandering into baited areas, the unbaited or lightly baited sites could also provide refuge and a population of foxes to reinfiltate.



The message here is to not underestimate the gaps in even well run intensive programs. We simply MUST get more landowners involved and we must move towards a grid baiting at 1 bait station per 5 or 10 hectares. Even then, bait replacement over several weeks is required. The ACTA team did this for the army at Puckapunyal in 1994 to achieve 96% knockdown over 6 weeks in an area of 440,000 Ha. It can be done but *ad hoc* approaches, where a small number of baits are laid to get the "five old rogue foxes that are eating the lambs", have always and will always be only a partial success.

Over regulation impedes progress



Our recent ACTA newsletters (see animalcontrol.com.au) have highlighted the administrative impediments to effective application of any technology for pest management. **We contend that the pests pose greater threats than the methods to control them.** Yet, despite this, it is the control methods that are being impeded rather than the pests.

We have called for a paradigm shift in focus and approach. This has struck a chord with the following sample comments received following our last media release concerning the fact that 17 State and Federal Acts had to be adhered to before controlling a feral pig in Victoria!

From an international pest journal:

"I have read with interest several news pieces on the state of feral animal control in Australia which I believe stems from your original article. I would like to reproduce your on-line article in our next issue of International Pest Control."

From a Landcare coordinator:

"Great article via ACTA on pest animal regulations regarding Feral Pigs! Similarly, we have found controlling rabbits in an urban environment (90% of our rabbit problem) is a tremendous challenge...."

From a farmer and pest manager:

"Well said guys!"

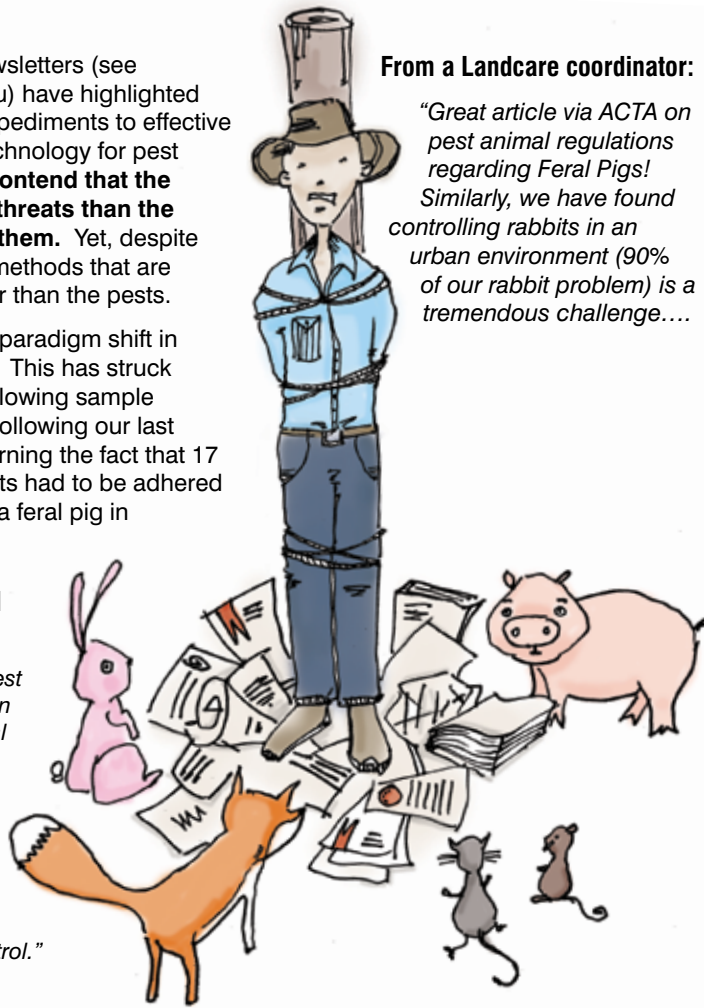
From a professional contractor:

".... I do agree that there is far too much red tape stifling the efforts of pest controllers in general. Whilst we are busy trying to wade through a mass of bureaucratic blackberries, pest animals continue to multiply, spread into new areas and wreak havoc on the environment. The potential for them to act as vectors of disease is frightening.Too much emphasis is placed on the bleatings of a few squeaky wheels."

I know many people in this industry and Government Departments who are thoroughly frustrated with their inability to deal with pest problems efficiently. A simple trapping program in a State or National Park may take months to come to fruition. How long would it take us to respond to a real threat such as the spread of rabies or foot and mouth disease? I congratulate you on your stance and am willing to support you in any way I can - I can see the pickle we are in and face it every day"

From a critic:

We also had one respondent who thought our release was "a joke", until a follow-up call indicated that he had mis-interpreted that we were criticising practitioners - which we were not doing at all.



FOXECUTE®
Fox Bait



DOGABATE
Wild Dog Bait

Progress towards registration of PAPP baits.

This is an on-going 10 year investment and research saga but, after a year from when the submissions were made for both the active and the product separately to the APVMA, we are starting to get feedback. An initial administrative delay arose from some overlap in claims for data protection that were not immediately clear. These are resolved now. Despite a consultative approach being adopted at meetings with the APVMA and advice that we could commence review of the active (PAPP chemical) while finalising the product dossiers due to late arrival of field data, it seems that the APVMA now

wants the dossiers reconsolidated. Both cross reference each other but the APVMA has now asked that the whole dossier is resubmitted as one piece.

This all takes time but we are slowly getting there.

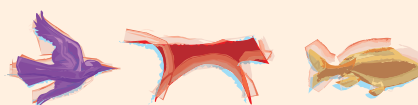
Our next task is to prepare MSDS documents and also a comprehensive label but this is made difficult by not yet having substantial feedback as to the final poisons scheduling that will apply to PAPP (assuming it is registered).

This affects the restrictions on use and access and also the signal headings so we

need this before we can finalise the best advice to users.

Rather than give false and premature hope we just want our readers to know that the project is still progressing. With the present restrictions being placed on access to 1080 in some States, an additional bait type is urgently needed - especially in the peri-urban fringe where 1080 use is so encumbered.

We will advise as soon as substantive feedback is available from the APVMA.



Invasive Animals CRC

ACTA has been working closely with both the IA-CRC and AWI

Fox diets vary with season



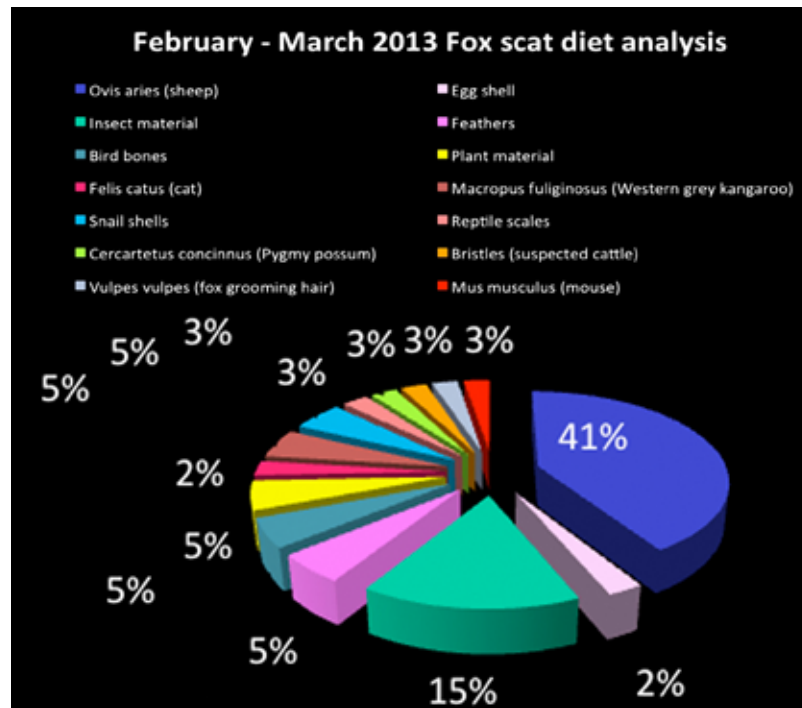
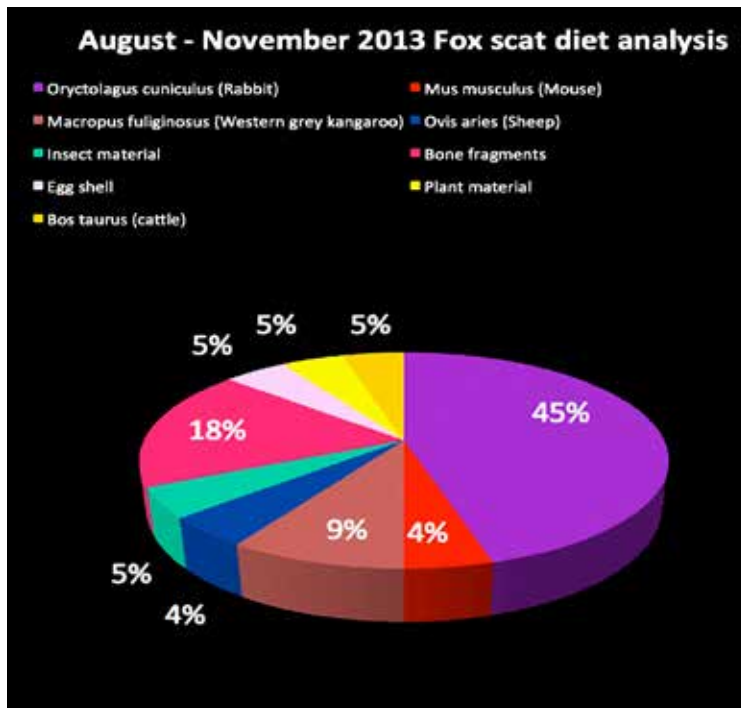
Many years ago a survey of fox stomach contents revealed that about 30% of food eaten was sheep or lamb, 30% native wildlife 30% rabbits, mice, insects and berries. This was confirmed recently in a survey of the contents of fox scats collected on the lower Yorke Peninsula of SA by DEWNR Authorised Officer Ken Rudd, working around Kadina.

Ken's analysis, shown below, illustrates the opportunistic nature of the diet. Lamb is predominant during lambing in February, but rabbits are a more common prey item in September. Ken expects mice to be the big ticket item in April 2014. Ken used this in farmer meetings to stress the importance of lamb in the foxes diet at critical times.

It is important to recognise that foxes in forests live largely on wild life, whereas foxes around lambing paddocks at lambing time take the lambs, so the site of collection

and seasonal timing is also important.

It was once noted that sheep meat was often maggotty when eaten by a fox. This was falsely assumed to indicate that the foxes just cleaned up carrion – but any fox biologist will tell you that they kill then bury the prey for later consumption. Just because it is maggotty does not mean it was not killed!



Seasonal diet comparison according to contents of fox scats using Diet analysis of scats collected in 2013

Feral pigs on facebook

There is a need for an improved recognition of the feral pig problem in Australia.

As a technology provider, we are increasingly frustrated by the inability of landowners to adopt the excellent tools

that we develop. (http://www.animalcontrol.com.au/pdf/ACTA_Newsletter_32-2013.pdf). Landholders are also frustrated and is it any wonder when a scene like that below is posted on facebook as follows: "This mob of pigs and feral goats was seen near Cobar in NSW. The farmer put

out grain to feed his sheep, but ended up feeding more pigs and goats, poor bloke. We're told there were over 300 pigs!..... All they could do was watch. In all our years of hunting we have never seen anything like it. Unbelievable."



The black ones are pigs, the white ones are sheep being grain fed!

Have we yet seen the true potential of rising fox populations?

No-one knows for sure what the final stable density of foxes will be in Australia if controls are not successful. However, our view is that the present situation in Australia is not static.

Foxes may be slowly increasing in density in established areas and are still extending their range northwards. Until the native animals, lambs and rabbits run out they will continue to build populations. Numbers are rising even in dog areas, so the meso predator hypothesis must be questioned* as a mean for suppression. The jury seems out on the current status of foxes in Tasmania, but perhaps the intensive baiting efforts there over recent years have nipped a disaster in the bud.

Foxes are still extending in to the sub tropics where they put turtle eggs at risk and they were recently found breeding in the Pilbara of WA. Perhaps when they meet the cane toads coming southwards there will be a clash of titans!

Though not directly relevant to Australia, the photo shows what can happen. This is a trophy shot from an experienced trapper in the USA. Trapper Phil Brown, working in the Pennsylvania area collected 1202 foxes in 90 days in 2006, from just over 9000 trap checks. For those with time to count, 'only' 1185 are shown in the photo as some were scavenged .



History Repeats

We came across some quotes from Winston Churchill recently that may have some relevance to our approach to pest control [perhaps not re pest control, but who cares!] when he said:

“Some see private enterprise as a predatory target to be shot, others as a cow to be milked, but few are those who see it as a sturdy horse pulling the wagon.”

Or perhaps:

“An appeaser is one who feeds a crocodile—hoping it will eat him last.”

Or:

“If you have ten thousand regulations, you destroy all respect for the law.”

Or, with respect to Lady Astor, who regarded Churchill as a pest of sorts:

Astor: “Sir, if you were my husband, I would give you poison.”

Churchill: “Madam If I were your husband I would take it.”

But the quote we like the best relates to the economy more generally:

“We contend that for a nation to tax itself into prosperity is like a man standing in a bucket and trying to lift himself up by the handle”.



** For those interested in the data about meso-predators or a means for pest management, the following articles raise some important questions.*

Allen BL, Fleming PJS, Allen LR, Engeman RM, Ballard G, et al. (2013) As clear as mud: a critical review of evidence for the ecological roles of Australian dingoes. Biological Conservation 159: 158-174.

Allen BL, Allen LR, Engeman RM, Leung LK-P (2013) Intraguild relationships between sympatric predators exposed to lethal control: predator manipulation experiments. Frontiers in Zoology 10: 39.

ACTA produces perishable meat and liver baits to order.

Many presume that we specialise only in shelf stable baits like DOGGONE®, and FOXOFF®, but predator baits take many forms and we are here to serve the market. Following requests from farmers to have better access to perishable baits we registered, along with several other manufacturers, to set up a bait production facility for perishable baits under the permit guidelines issued by DPI in Vic.

The baits are of very high quality and are cooked, exactly dosed, then cryovac packed into bags then pails for fast and clean delivery. This adds to cost compared to FOXOFF® and DOGGONE® but achieves a high standard of quality for the short-life bait.

While demand has not been high these baits provide another option on the methods for fox and wild dog management.



ACTA has been appointed by PEST-IT, to distribute a range of high quality cage traps under the MAGNET TRAP brand. These competitively priced traps have been added to the ACTA Catalogue from mid 2014.

The Magnet Trap System is a range of Australian designed heavy-duty traps for domestic and professional trapping programs. All traps in the range are collapsible for easy transport and storage and they are set up in minutes

The Pigeon Magnet

Dimensions: 900 x 700 x 700mm



A heavy duty trap designed for commercial pigeon trapping. Inclusions:
Entry doors on two sides
Sliding doors for bird removal on two sides
Gassing bag for humane treatment
Mesh bar heavy duty cage construction
Shelter/roof
Mesh base for easy cleaning
Optional carry / storage bag

The MiniMyna Magnet

Dimensions: 700 x 400 x 800mm



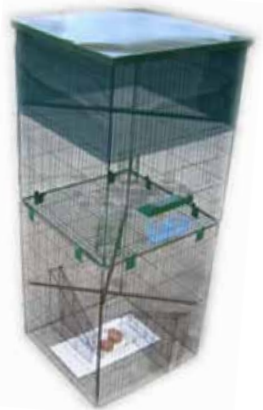
This popular university designed Indian myna trap includes many features. The MiniMyna Magnet is suited to domestic, commercial and council trapping programs. Also suited for trapping European starlings.



MynaMagnet.com.au

The Myna Magnet

Dimensions: 1800 x 700 x 700mm



The original and still the best Magnet Trap for large scale commercial trapping programs.

Why are trapping programs the ideal way to reduce pest bird populations?

- Programs can be conducted at regular intervals – monthly, quarterly, annually
- Trapping is targeted, therefore any protected species caught can be released
- Trapping is discreet (no birds falling from the sky after poisoning)
- Birds are provided shelter, food, water, roosting perches and care in the trap

New for Spring

2014 sees the launch of a variety of collapsible vertebrate traps to offer a new dimension in trapping for professionals, landholders, farmers, homeowners and government agencies alike.

The Magnet Trap vision is to preserve Australia's rich biodiversity, preserve animal welfare and assist clients with the best available professional trapping systems. All Magnet Traps are designed in Australia

The Possum and Cat Magnet

Dimensions: 600 x 300 x 300mm

A collapsible multi-purpose trap for the live capture of possums (multiple species), bandicoots, feral cats (small) and other small vertebrates.

THE Fox Magnet

Dimensions: 1050 x 450 x 370mm

A collapsible multi-purpose trap for the live capture of foxes and small wild dogs.



Bio-control possibility for foxes?

We continually get asked about a project to make foxes infertile by trying to immunise them against their own eggs and sperm.

The project required a species specific sperm or egg antigen sequence (difficult although not impossible) then back cloned DNA and the incorporation of this DNA into a transmitting virus that was target specific (we don't want a sterility conferring virus that is non-specific!). It was difficult to find target animals that were susceptible, rather than already immune to this virus. It was also difficult to get this genetically modified virus to transmit to a sufficient proportion of the target population to make a meaningful difference to population fertility (partly infertile populations may compensate). It was also difficult to get an antibody response at the right time (during the breeding phase), and at the right titre and of an antibody type (eg IgG or IgA) that could access the target tissues.

All up we heard that this project was a **"high risk project"**. Millions were spent before this project was abandoned. Even if it had worked, the hurdles for getting approval to release a self-disseminating sterility virus that had been genetically modified were insurmountable (people in other countries do not want us to sterilise their wildlife). Unfortunately, the sterilised foxes would still damage lambs and wildlife for several years until the population died out (sterilised foxes still eat but dead foxes are infertile etc). But of course, then there is the issue of maintaining transmission rates in declining population densities..... Perhaps in future projects that are so **"high risk"** should not even be started, so that landowner and industry funds are available for projects that are more likely to achieve something tangible.

The amazing photo to the right, from the internet and source unknown, shows an alternate bio-control for foxes. This approach does not control populations but it was effective on at least one fox!



While on the subject of bio-control the photos above were kindly sent to ACTA by our friends at the Texas Parks and Wildlife Centre. If this alligator-based control method fails, the Americans have another way to seriously address the feral pig problems that they are facing.

FOXSHIELD NOW AVAILABLE

For many years bait users have grappled with the notion that some foxes require a different bait to others. We have seldom seen bait rejection by foxes except for their propensity to leave chicken heads on the ground after discovering them and lower uptake of hard sausage baits such as the Yathong sausage. We have found uptake of FOXOFF® and liver or meat to be similarly high and uniform at all locations and at all times and regardless of what alternative feed is available.



FOXSHIELD®

Fox Bait

Fish based bait for fox control

However, especially in coastal areas, foxes scavenge along the beach so we have added a fish based bait to our range. This was also requested some years back by MLA who did not want to rely only on meat based baits.

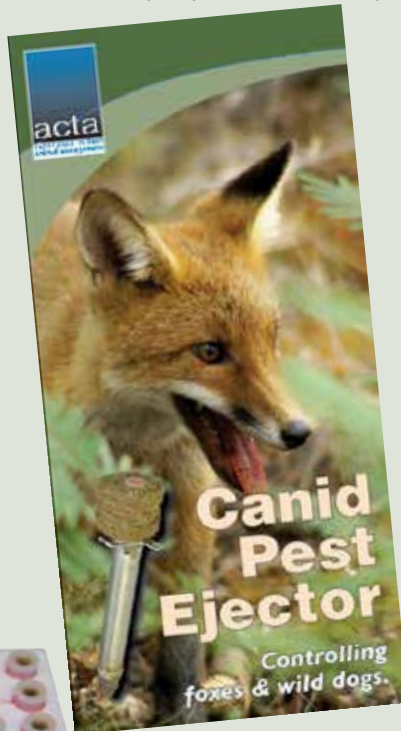
The new fish based bait for foxes is called FOXSHIELD®.

This shelf stable pre-packaged bait is only available to order. It is more expensive than the traditional baits but it is ready to be used for those who believe that a variety of baits will add to program effectiveness.

Canid Pest Ejector

Controlling foxes & wild dogs

Canid Pest Ejectors (CPEs) were first developed in the USA in the 1930's as a spring triggered device that fired a dose of sodium cyanide into the mouth of pest coyotes that pull hard and upwards at a bait lure. Over many years they have been adapted and improved. The Ejector device is not classified as a firearm by any State or Territory within Australia.



ACTA is pleased to have been able to supply Canid Pest Ejectors (CPE's, known in the USA as "M-44" devices) under permit to NSW Parks and Wildlife Service over recent months. Following requests and support from most states we are now seeking registration in all States so the CPE's can be made available generally to all those with appropriate permits to use

1080 based products. We are also working on a disposable bait head for the devices to make them even more convenient to use. We will advise as soon as the APVMA approves registration for the loaded 1080 capsules. If PAPP and PAPP baits are approved, ACTA will also seek to provide PAPP loaded capsules.

ACTA progresses scat markers in all fox baits

For many years we have successfully used scat markers in bait for research purposes. We have used a variety of things but the highest quality approach is to use small inert plastic beads. The LHPA at Armidale requested ACTA to introduce beads in commercial baits about a decade ago (sorry for the delay guys!) but the hold-up has been the cost and requirement to revisit old registrations and seek formulation change approvals from APVMA.

We have now finally progressed this and have already included scat marker beads into the FOXECUTE® PAPP bait registration.

A big advantage here is with safety as it will be important in the future for vets to confirm what type of bait a working dog may have taken in order to optimise treatment. Agencies can also use the presence or absence of beads in guts of poisoned animals to confirm, or refute, that a bait is involved.

We are proud to announce that for FOXOFF® 1080 bait the loaded baits will have **RED** scat marker beads. The FOXECUTE® PAPP based baits will have bright **YELLOW** marker beads.



The beads will provide a permanent marker in the carcass as a confirmation of the cause of death. We hope users will appreciate this simple product innovation that will be introduced in FOXOFF® as old stocks are consumed and in PAPP baits, if registration is approved.

ACTA updates the monoxide den fumigator

Carbon monoxide is regarded as perhaps the most humane method to kill an unwanted pest animal. Though not suitable for large-scale operations, it is ideal for the urban fringe or for individual animals or animals in dens such as foxes.

Over the years it has become apparent that many contractors and councils and even some Vets have difficulties complying with the laws that require trapped animals to be shot within a day of capture. It is difficult to get permits to discharge a firearm in a populous place, so contractors have had big problems complying with the restrictions on the urban fringe – which is where the need is greatest.

We have now proven a new method, using smaller version of the tried and proven DEN-CO-FUME® cartridge, to very humanely kill captured animals, without the need to handle an angry or injured animal outside the trap.



Carbon monoxide levels need to be high to get a quick unconsciousness and death.

US Veterinary Medicine Association:

“Carbon monoxide produces insidious hypoxaemia leading to unconsciousness without appreciable discomfort, resulting in rapid and painless death”

Typical CO concentrations

| SOURCE | [CO] % |
|--------------------|---------|
| Country air | 0.00001 |
| City air | 0.0001 |
| Busy street corner | 0.005 |
| Cigarette smoke | 2.0 + |
| Vehicle exhaust | 3.0 + |
| DEN-CO-FUME smoke | >50%!! |

What does CO do?

CO binds to haemoglobin 200+ times > than O₂ to form carboxy-haemoglobin
Carboxy-haemoglobin carries very little oxygen
So the animal dies from lack of oxygen
This is a metabolic effect, NOT choking
First sign is unconsciousness

Our technique involves placing the cage into a sealable bag that is fed with carbon monoxide from the new ACTA fumigator to achieve >5% carbon monoxide. This causes unconsciousness within seconds and death within a minute or two. The smoke generated does not irritate. Carbon monoxide quickly renders the captured pest unconscious anyway. Consultation with Animals Australia, RSPCA and the Bureau of Animal Welfare (Vic) has demonstrated wide support for this new innovation. We still need to amend the existing DEN-CO-FUME® registration to allow the new use but we hope this can be processed for registration by the APVMA.



also quite bulky and heavy to handle. It is not well suited to the humane destruction of caged animals so ACTA has also developed a lower cost and more convenient approach that would deliver high concentration carbon monoxide with minimal dead space.

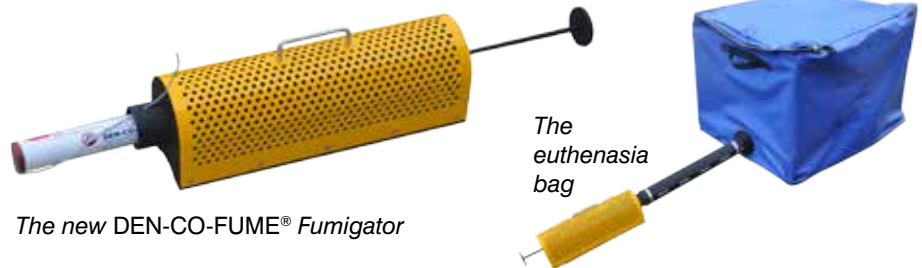
Working with engineers in SA we have completely revised the old unit (pictured insert) to achieve a unit that is 25% cheaper, that is lighter, easier to use. The new unit also enables the use of ½ and

¼ sized cartridges, in addition to the standard large cartridge that is used for fox den fumigation. Removal of spent cartridge residues is also easier with the new unit.

Fumigator Revision

The original DEN-CO-FUME® fumigator has served the nation well for some 15 years but on a low scale they have been expensive to produce and they are

The new fumigators now available for use for fox den fumigation and hopefully soon also in conjunction with the ACTA humane destruction bag for the humane destruction of captured pest animals.



The new DEN-CO-FUME® Fumigator

The euthanasia bag



OH&S Important when using CO

CO is colourless & odourless
Minor exposure causes headache, dizziness,
Over exposure nausea, unconsciousness & DEATH! So never use the device indoors and never expose operators to the CO rich smoke.
Get to fresh air, rest & keep warm
Clearance from haemoglobin can take hours

Effects of CO on dogs

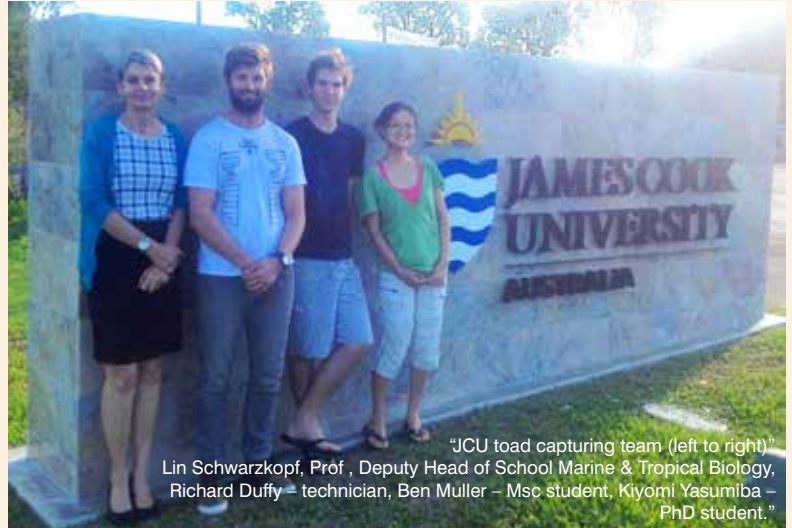
| % CO | minutes to unconscious | minutes to death | reference |
|------|------------------------|------------------|--------------------|
| 3% | 5.5 | 14.5 | Carding (1968) |
| 4% | 2.3 | 9.0 | Moreland (1974) |
| 4-6% | 2.0 | 7.5 | Moreland (1974) |
| 4% | 2.0 | 2.5 | Blood et al (1968) |
| 6% | 0.5 | 1.0 | Blood et al (1968) |



New smaller cartridges to be available pending APVMA approval

Traditional DEN-CO-FUME® cartridges

ACTA & JCU tackle the cane toad



"JCU toad capturing team (left to right)"
Lin Schwarzkopf, Prof, Deputy Head of School Marine & Tropical Biology,
Richard Duffy – technician, Ben Muller – Misc student, Kiyomi Yasumiba –
PhD student."

The cane toad (*Rhinella marina*) (formerly *Bufo marinus*) is an invasive species in Australia. Adult toads can reach nearly 2kg and be up to 23 cm long with a warty skin. They kill predators that bite them by releasing a milky toxic secretion from their parotid glands, and consume the food of many other ground-dwelling native animals. Cane toads were introduced to Australia from Hawaii in June 1935 by the Sugar Industry in an attempt to control cane beetles which are pests to sugar cane in north Queensland. However, the toads have now spread widely throughout Queensland and into the NT & NSW. It is estimated that the geographic range of cane toads increases at 40 kilometres per year.

Toads produce a potent toxin in the their parotid glands behind the head that may cause fatal cardiac arrest within 15 minutes if ingested. The poison is absorbed through mucous membranes such as the mouth lining, eyes, and nose, and may cause pain, temporary blindness and inflammation, or mortality.

Though their main food is insects, toads also prey on smaller frogs and lizards. Some Australian native species can consume toads, their offspring and eggs without harm. However, populations of Northern Quolls, vireonids, snakes, and even crocodiles and freshwater turtles (75 species at risk!) have fallen dramatically when toads invade, as the predators mistake the poison-loaded toads as easy prey. Pets are also at risk.

Female toads lay tens of thousands of eggs and may produce two clutches a year. The eggs hatch to tadpoles within

24-72 hours and the tadpole stage may last from three to twenty weeks. The tadpoles metamorphose into toadlets 1-1.5 cm in length that leave the water and congregate in large numbers to reach maturity in 1 to 2 years. Toads have an adult lifespan of at least five years, but only about 0.5% of the cane toads that hatch from eggs survive to reach sexual maturity and reproduce. Even so, populations exceed 200 million in the NE of Australia. Toads are a major nuisance in parks and gardens, and a "key threatening process" for native species.

Having pioneered methods to control foxes, then rabbits, wild dogs, plague mice, canefield rats, feral pigs and invasive tramp ant species, it was perhaps inevitable that ACTA would try to make a contribution to overcoming the cane toad menace.

To this end we have used funds from fox and mouse bait sales to sponsor a research project at James Cook University (JCU) at Townsville to develop a high technology cane toad trap.

The trap will be marketed shortly as the ACTATRAP (or perhaps it should be known as the "Toadinator").

The ACTATRAP has several design innovations. Firstly, it has ACTA-

designed clear swing finger doors that allow toads of all sizes to get into, but not out of the trap. Secondly, arising from ACTA industry sponsored R&D at JCU, led by Prof Lin Schwarzkopf and her team, a "sound and light show" is incorporated. This provides the mating calls and communication signals to attract toads, and also ultraviolet lights to attract insects to the area of the trap. This encourages toads to enter, and feeds those that are captured until disposal. The trap can thus operate autonomously for extended periods.

When coupled with "HopStop"® lethal spray, recently developed by Pestat Pty Ltd, there is now a means to collect and humanely dispose of the toads. Hopstop® is simply sprayed onto the captured toads and first anaesthetises and then kills them. (See insert)

The ACTATRAP is flat-packed and easy to assemble to keep costs as low as possible. It also features an access door so that desired frogs can be removed, has shaded areas for toads to avoid direct



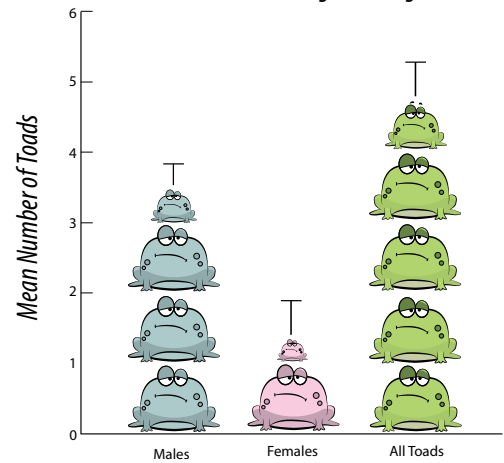


sunlight, and has an automatic solar charge function via a robust solar panel so the unit runs at night. In a way, it can be described a “carbon neutral” trap device! We have even included a volume control so that the “croak” can be adjusted to minimise any noise complaints in sensitive areas, and there is provision for changing the attraction calls so that the trap can be used for other desired or pest toad or frog species.

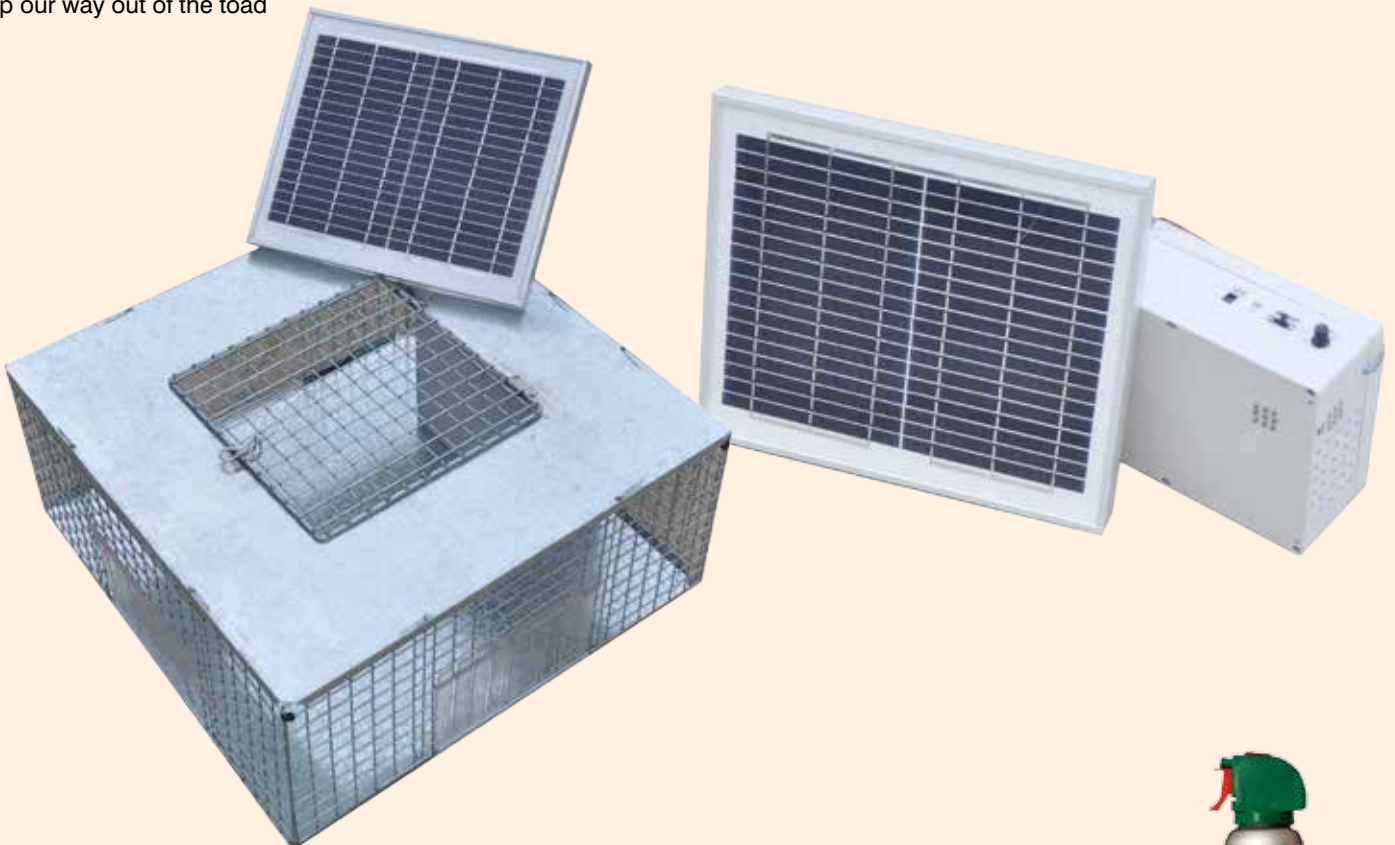
While we do not suggest that we can trap our way out of the toad

problem, and we know that some biocontrol or lethal agent is still needed, we do believe that this new trap technology will at least provide another low maintenance tool to locally reduce toad density. **We hope this will enable better depletion of toads where they are encroaking (sic) into native animal habitat with disastrous results.**

Mean Toads Caught Per Night



“The graph shows the mean number of toads we are catching per night (males vs. females) in pen tests at JCU out of 5, overall it works out to be about 70% males and 30% females in the region of the trap. We have also been conducting distance experiments. Toads appear to be reacting to the trap from AT LEAST 30m away, however this number could be much larger as trials continue.



HopStop® controls spray kills cane toads safely and humanely. It anaesthetises even large toads within seconds, and kills them humanely in 30-60 minutes. As all the chemical components of HopStop® are in common household use in Australia, it is safe for humans and domestic animals.

HopStop® is registered by the Australian Pesticides & Veterinary Medicines Authority (APVMA), and is recommended by RSPCA Qld for household toad control (http://kb.rspca.org.au/What-is-the-most-humane-way-to-kill-a-cane-toad_299.html)

Available in Bunnings and other leading hardware stores everywhere in Australia where there are canetoads.

Hopstop® is a product of Pestat Ltd.



It is not just vertebrate

Animal Control Technologies has worked for several years to develop a new type of ant bait that is extremely potent against protein feeding species. Many ants are predominantly sugar feeders, but the baits commonly used to treat these ants do not work on protein feeders, (and often also vice versa). Some ants require both food sources and others change diet seasonally.

Invasive ants are a significant problem for Australia. Many will have heard of the **Fire Ants** (*Solenopsis invicta*) into Queensland in recent years. To date over \$200M has been spent in containing them before they could spread too widely.

If such ants were to spread unchecked they will pose significant threats to agriculture, to the environment and to people.

Another serious tramp ant invader is the **Yellow Crazy Ant** (*Anoplolepis gracilipes*) but we also have **Electric Ants** (*Wasmannia auropunctata*) and the **African Big Headed Ant** (*Pheidole megacephala*). Many of these species are the subject of eradication programs by government authorities. A wide range of nuisance species also cause problems inside homes and establishments or in agricultural crops.

The **Yellow Crazy Ant (YCA)** is a highly invasive species listed by the IUCN in the top 100 invasive organisms of the world.

This ant has established itself in North Queensland around Cairns and also in Arnhem Land in the Northern Territory, but internationally they caused environmental

damage in a wide range of locations including Hawaii, the Seychelles and Zanzibar. It is also the most significant pest issue on Christmas Island, where the ants can form super colonies several hectares in size. Such colonies contain tens of millions of ants and pose a significant threat to the Christmas Island red crab (*Gecarcoidea natalis*) whose annual mass migrations to the sea for spawning make the Island famous. Crab populations crash from millions to near zero in ant-affected areas.

Yellow Crazy Ants disable crabs by spraying formic acid into their eyes. Crazy ants also prey on, or interfere in, the reproduction of a variety of arthropods, reptiles, birds and mammals on the forest floor and canopy. The ants also farm and protect sap-sucking scale insects, which damage the forest canopy on Christmas Island. The ant may threaten endangered birds such as the Abbott's Booby (*Sula abbotti*), which nests nowhere else in the world.

Like any other invasive species, ants have the potential to cause massive damage to Australian ecosystems.

The ACTA ant bait products have been shown to reliably deliver a wide range of active ingredients including growth regulators such as S-methoprene, and pyriproxyfen or metabolic poisons such as hydromethylnon and fipronil. ACTA has enjoyed excellent collaboration with active suppliers including Bayer, BASF and Sumitomo Chemical and are pleased to have their matrix technology adopted into their leading edge products. Users will be familiar with the ACTA product under the product names of ANTOFF®, PRESTO®, DISTANCE P®, Engage P and most recently Synergy®. Until recently the baits have been used under APVMA permits.



Access to the bait technology is now about to expand since in Feb. 2014 Sumitomo Chemical achieved Australian registration of their latest ant product called SYNERGY® Ant Bait. This will allow much wider adoption of the new technology.



Synergy® is a unique and innovative blend of two active ingredients carried on two very different granules that are combined into a single product. The combination of an insect growth regulator (Pyriproxyfen) and a metabolic inhibitor (Hydramethylnon) provides two modes of action.



Yellow crazy ants farming plant parasites

pests that affect Australia



Red crabs during their mass migration to spawn at Christmas Island



Yellow crazy ants attacking the new high tech Synergy® ant bait



Aerial application of ANTOFF and Synergy® baits

Pyriproxyfen is slow acting and targets the reproductive cycle of the queen and the development of juvenile ants in the nest. Ultimately the queen is sterilised and stops producing eggs so there are no new workers to replace the aging workers as they die.

Hydramethylnon works by inhibiting the production of energy so existing workers become lethargic and die. This reduces the food supply to the nest.

Synergy® Ant Bait has been tested on a large number of species with success and is currently being used in the eradication program for yellow crazy ant in Arnhem Land in the Northern Territory.

SYNERGY® addresses the diet preference of BOTH protein and sugar feeding ants by using a combination of carriers (including the ACTA matrix) and two synergistic active ingredients. We see this high technology product as a major

breakthrough in ant management that could provide a universal solution to many of the world's domestic, industrial and environmental ant problems.

We congratulate Garry Webb and the team at Sumitomo Chemical Australia for achieving this breakthrough and we are proud to have contributed significantly to this project.



SUMITOMO CHEMICAL

HOGGONE® project continues at pace



We have previously outlined our joint work, commenced initially with Steven Lapidge and Jason Wishart at the IA-CRC to apply sodium nitrite to the control of feral pigs. The technology has been patented in several countries and is being tested in a collaboration between the US Department of Agriculture, Texas Parks & Wildlife, ACTA and the IA-CRC to see if we can collectively control the American feral hog problem.

Sodium nitrite produces a hormone both by affecting oxygen transport in blood. The difficulty with this sodium nitrite is that the chemical is unstable and the highly unpalatable breakdown products can react with baits and this reduces uptake by sensitive pigs. Added to this a large quantity of the poison must be delivered quickly to push methaemoglobin levels in the target above critical thresholds for a lethal outcome. Pigs that are just put down for snooze can quickly recover due to the short biological half-life of sodium nitrite. This is despite the fact that pigs have a limited capacity to overcome a methaemoglobin, based toxaemia due to their relative deficiency in the protective enzyme *methaemoglobin reductase*.

Despite these features, getting reliable bait uptake and bait stability is proving to be a major challenge.

The demand for success remains high in both the USA and in Australia, so this common need has spawned a productive collaboration towards a solving a common problem.

In the USA feral hogs are now one of the most serious agricultural pest problems being faced. Unlike in Australia where we tend to try to control pigs with 17 Acts of Parliament (see ACTA press release <http://www.animalcontrol.com.au/news.htm>), the Americans have just budgeted US\$20million p.a. to tackle the problem front on. Since their problem is the same in numeracy and geographical spread as ours, one wonders if the token approach in Australia will achieve the impact to address this dangerous pest problem.

The ACTA role as commercial partner is to produce and distribute effective baits.

These are considered the game changing technology as shooting and trapping, though valuable in many situations, has not prevented the situation becoming much worse in recent years. Moreover, the lowest cost shooting operations, even in high density areas, are costing more than US\$30/pig. Baiting should reduce the cost substantially to give bigger returns on available budgets.

ACTA has the HOGGONE® baits than can be delivered in a target specific way in the Hog Hopper™ device and we are also proud to be collaborating with IA-CRC partner Connovation in NZ to market their paste formulation as an additional tool. The later has required the development of a new "pig-specific" delivery system so that non-target impacts are minimised in all countries.

The USA situation is best summarised in their own press release (shortened for this newsletter) but this also illustrates that Australia needs a much more decisive approach given the disaster scenario that is developing here.

"Washington, April 2, 2014 — Undersecretary for USDA's Marketing and Regulatory Programs Edward Avalos announced today that USDA is kicking off a national effort to reduce the devastating damage caused by feral, or free ranging, swine. The \$20 million program aims to help states deal with a rapidly expanding population of invasive wild swine that causes \$1.5 billion in annual damage and control costs.

"Feral swine are one of the most destructive invaders a state can have," said Undersecretary Avalos. "They have expanded their range from 17 to 39 states in the last 30 years and cause damage to crops, kill young livestock, destroy property, harm natural resources, and carry diseases that threaten other animals as well as people and water supplies. It's critical that we act now to begin appropriate management of this costly problem."

Feral swine have become a serious problem in 78% of all states in the country, carrying diseases that can affect people, domestic animals, livestock and wildlife, as well as local water supplies. They also cause damage to field and high-value crops of all kinds from Midwestern corn and soybeans to sugar cane, peanuts, spinach and pumpkins. They kill young animals and their characteristic rooting and wallowing damages natural resources, including resources used by native waterfowl, as well as archeological and recreational lands. Feral swine compete for food with native wildlife, such as deer, and consume the eggs of ground-nesting birds and endangered species, such as sea turtles. Feral pigs also transmit up to 30 diseases and 37 different parasites to livestock, people, pets and wildlife.

As part of the national program, APHIS will test feral swine for diseases of concern for U.S. pork producers, such as classical swine fever, which does not exist in the United States, as well as swine brucellosis, porcine reproductive and respiratory syndrome, swine influenza, and pseudorabies. Ensuring that domestic swine are not threatened by disease from feral swine helps ensure that U.S. export markets remain open.



Hoggone® baits under development



ACTA coolers reward our best trading partners



Like everything else we do we have a high quality approach to market needs.

Since many of our customers have had difficulty keeping their drinks cool (lemonade and water of course), we have solved the crisis with the ACTA Cooler. Now our preferred resellers can run longer and harder as we keep them cool.

Cheeky fox

Jason Wishart, field research Officer with the IA-CRC and co-developer of the IA-CRC Hog Hopper for targeted delivery of bait to feral pigs, kindly sent us this photo of a greedy fox with two 200 gram PIGOUT® baits (non-toxic in this case) in his mouth. His comment is that it is wise to get rid of foxes before attempting feral pig baiting. We agree and think the same applies to use of meat based baits for wild dog control also.



SLUGGOFF® is effective for slug & snail control in all situations



Early winter season means greater slug and snail risk

Slugs and snails undergo a hibernation or dormant phase in summer, called aestivation, to avoid dehydration. Once temperatures drop and rains arrive in Autumn they reactivate. This is the best time to bait as they are active and they are on the ground. Later they can climb into crops so it is harder to bait effectively.

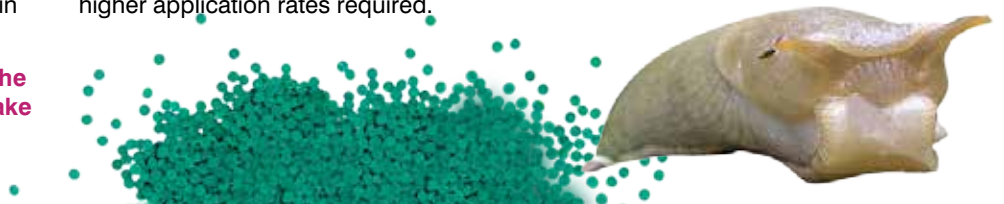
All snails are hermaphrodites so each snail can lay up to about 1000 eggs per season. Populations can rise rapidly in wet seasons.

The earlier the rains the greater the risk and the greater the need to take decisive action.

The rains have come early in 2014 so early slug and snail treatment is needed.

Delicia SLUGGOFF® Lentil bait is one of the world's finest products for this situation. In wet years it is vital to use a water-fast product so you get protection for days and weeks after application, as new slugs emerge to get killed. Cheap pellet products degrade quickly in moist conditions so do not provide the protection needed, even at the much higher application rates required.

Killing small snails is also important and the disc shaped lentils are ideal for this. The unique shape of SLUGGOFF® also provides a large number of bait stations (approx. 100,000) per kg of bait. This is why the application rate is so much lower than for the so called cheap products. After adjustment for lower application rates SLUGGOFF® provides amongst the lowest cost per hectare of all products.



Contact Us: Phone: 03 9308 9688 Fax: 03 9308 9622

| | | | |
|------------------------------|------------------|--------------------------------|--------------|
| General Enquiries | Ubie Zdravkovska | enquiries@animalcontrol.com.au | 03 9308 9688 |
| Managing Director | Linton Staples | lstaples@animalcontrol.com.au | 0411 079 333 |
| Finance & Operations Manager | Ian Senior | isenior@animalcontrol.com.au | 0430 355 581 |
| Sales & Customer Relations | Jamie Dennison | jdennison@animalcontrol.com.au | 0408 952 731 |
| Sales: NSW & WA | Chris Roach | croach@animalcontrol.com.au | 0404 366 117 |
| Production | Ben Hall | bhall@animalcontrol.com.au | 0419 841 989 |
| Logistics, Customer Support | Toula Larosa | tlarosa@animalcontrol.com.au | 03 9308 9688 |
| Accounts | Maria Pironti | mpironti@animalcontrol.com.au | 03 9308 9688 |

www.animalcontrol.com.au

ACTA and the IA-CRC out and about



Example combined IA-CRC and ACTA display at a pest meeting.

MOZP Stockpile



A selection of the stockpiled MOZP protecting Australian crops.

Beware that some copies of ACTA products are not all they claim to be.

Counterfeiting can be a tricky business and is not always successful. The example on the right is a poor copy of the original!

Likewise we know that some who claim to have an equivalent copy of an ACTA developed product definitely do not have all the features that we add to the originals. Subtle changes in composition can have a big impact on uptake so beware the unwary – cheap is not always good!



Additional weapons in the fight against pests!

Trust the proven performers



FOXOFF®
Fox Bait



RABBAIT®
Pindone Oat Bait



MOUSEOFF®
Bromadiolone



RATTOFF®
Rat Bait



DENCOFUME®
Fumigation Cartridges



SLUGGOFF®
Slug & Snail Bait



RABBAIT®
1080 Oat Bait



PIGOÛT®
Feral Pig Bait



MOUSEOFF®
Zinc Phosphide Bait



DOGGONE®
Wild Dog Bait



HOGHOPPER®
Feral Pig Bait Dispenser



RODEMISE®
Bromadiolone Rodent Block

Delivering world's best technology to Australia

Animal Control Technologies Australia Pty Ltd

Phone: 03 9308 9688 Fax: 03 9308 9622 Email: enquiries@animalcontrol.com.au

Further information at www.animalcontrol.com.au



Excellence in Pest Animal Management