Feral Herald

Newsletter of the Invasive Species Council, Australia
working to stop further invasions

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Biofuels in the Spotlight

ISC has previously raised concerns about the weed risk posed by certain biofuels (see the Feral Herald 13 and 16), and the Greenhouse 2007 climate change conference in Sydney in October proved an ideal forum at which to promote this message to the nation. ISC released a 40 page report, The Weedy Truth about Biofuels, written by Tim Low and Carol Booth, which was handed out at the conference and made available on the ISC website (for URL, see below).

The report makes the point that many plants chosen as biofuels have as their main attribute a capacity to quickly produce biomass with minimal inputs, and for this very reason they are likely to be weedy. Giant reed (Arundo donax) is a perfect example. According to a researcher in the South Australian government, giant reed yields the highest biomass of any crop from Mediterranean to subtropical areas. But it is also a very serious weed, appearing on the IUCN list of 100 of the World's Worst Invaders. The ISC investigation found that most of the new crops proposed as biofuels have a history of weediness.

The ISC report and associated press release attracted wide interest, resulting in articles in the Sydney Morning Herald, Canberra Times and Weekly Times, and radio interviews on ABC Radio National's Breakfast Show and ABC Sydney's 702, and later on Radio National's PM and Bush Telegraph. Tim was also invited to write an editorial about biofuels which appeared in the Independent Weekly in South Australia.

At the Greenhouse 2007 Conference, in the stall shared by ISC and the Weeds CRC (from left to right), weed scientist Darren Kriticos, ISC project officer Tim Low, biologist and author Tim Flannery, and Weed CRC CEO Rachel McFadyen.

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The biofuel plants posing a weed risk are listed in this report. Many of these plants are undergoing trials overseas, and some have been proposed for cultivation here, but in most cases no plantings in Australia have been undertaken. By drawing attention to such plants we hope they will not be considered further. The two species of greatest concern are jatropha (see article page 4) and giant reed. The Queensland government is under intense pressure to allow trials of jatropha, and the South Australian government is trialing giant reed. The publicity generated by ISC has alerted authorities throughout Australia to the risk these plants pose. We have been approached by state and federal departments from almost every jurisdiction. The giant reed trials in South Australia are now under intense government scrutiny, and in Queensland ISC was invited to attend a jatropha workshop.

"Governments and industry should work together to ensure that any emerging biofuels industry operates sustainably, which will mean, in part, that Australia's weed problems are not made worse. To date there is almost no evidence of governments and industry recognising that any weed issue exists. With the publication of this report, ignorance no longer remains an option."

- from the ISC report, **The Weedy Truth about Biofuels**

Internationally, biofuels are subject to intense criticism for several major shortcomings including the pressure they put on food prices when crops such as corn and wheat are converted to biofuels; the destruction of tropical rainforests to expand plantings of palm oil, sugar cane and soy beans; and the limited or negative value of biofuels in reducing greenhouse gas emissions when all their inputs (energy, fertiliser and water) are considered. The weed risk has not received adequate attention and ISC is playing a major role in drawing attention to this downside of biofuel production.

ISC shared a stall at the Greenhouse conference at the Sydney Hilton with the Cooperative Centre for Weeds Research (the Weeds CRC). The Weeds CRC contributed generously to ISC's costs and we are grateful for that. It is a concern of both organisations that the risk of weeds becoming much worse under climate change has not been properly recognised in Australia, and the stall gave us an opportunity to broadcast this message.

Weedy Biofuels described in the Report

Jatropha (*Jatropha curcas*) – A prohibited weed in WA & the NT but not elsewhere

Giant Reed (*Arundo donax*) – Listed by the IUCN as one of the world's worst invaders

Chinese Tallow Tree (*Triadica sebifera*) – A major weed in North America

Reed Canary Grass (*Phalaris arundinacea*) – A serious weed in Australia

Neem Tree (*Azadirachta indica*) – A serious weed in northern Australia

Switchgrass (*Panicum virgatum*) – A recognised weed in the US

Miscanthus (*Miscanthus species*) – A significant weed

Spartina (*Spartina species*) – Listed by the IUCN as one of the world's worst invaders

Olive (*Olea europaea*) – A major weed in South Australia

Castor Oil Plant (*Ricinis communis*) – A major world weed

Chinee Apple (*Zizyphus mauritiana*) – A major weed in the tropics

Willows (*Salix species*) – Among Australia's worst weeds (a Weed of National Significance)

Poplars (*Populus species*) – Weedy in southern Australia

Moringa (*Moringa pterygosperma*) – A weed in tropical countries

Calotrope (*Calotropis procera*) – A serious weed in northern Australia

Giant Milkweed (*Calotropis gigantea*) – Weedy in northern Australia and Asia

Caper Spurge (*Euphorbia lathyris*) – A weed in many countries

The ISC report can be found at: http://www.invasives.org.au/issues/biofuels.html

The PM interview: http://www.abc.net.au/pm/indexes/2007/pm_20071203.htm

The Breakfast Show: http://www.abc.net.au/rn/breakfast/stories/2007/2056509.htm

An extract from the ISC report on weedy biofuels

Include Risk Assessment in New Industry Promotion and Support

Many pest problems in Australia are created by landholders trialing alternative agricultural enterprises such as deer farming, emu farming, neem tree cultivation and olives. The Rural Industries Research and Development Coorporation produces reports promoting such enterprises, and also aquarium fish culture, big game park development and biofuels, but almost never mentions the pest risks they pose. Organisations that promote new industries should also assess and explain the environmental risks. As it stands today, Australia has some government departments promoting weedy plants, while other departments spend public funds removing them. Weed risks associated with emerging industries such as biofuels should be assessed at an early stage, prior to government support for them.

President's note

Greetings ISCers – just a short note to update you on ISC affairs. Firstly, a few changes in personnel – The first year of Tim's contract has expired, and Tim has renegotiated his conditions to allow him more time to carry out his other important writing and research work. Tim will continue to work with ISC on a variety of research, writing and campaign issues, but will be joined in a job share with Carol Booth. Carol is an excellent researcher with a long and highly effective track record in the environmental movement in Queensland, with two PhD's to her credit. Tim and Carol will split the workload between them as they see best, having worked together well on the preparation of the Biofuels report. This is a real addition to our capacity and we warmly welcome Carol to the job. Thanks again Tim for your excellent, tireless , and committed work on behalf of ISC over the last year – we have really had some really terrific outcomes from your campaigning, letterwriting, researching, media storming, and minister/department persuading! We look forward with much anticipation to your continued and Carol's new involvement with ISC in this coming year.

We have had a great response from the Biofuels report, written and researched by Carol and Tim, and promoted and disseminated by Tim. This is a really good example of how effective we can be in researching an issue, and using the report to raise awareness of a problem. We were able to send copies of the study to bureaucrats and other key decision-makers around the country electronically, as well as to media. We hope to try this approach again, when other appropriate issues arise.

This year, we will continue to focus on preventing the introduction of new potential weed and feral threats to Australia, and will also keep an eye out for opportunities to engage key issues as opportunities arise. Biofuels and climate change are two of the big ones here. Other issues of increasing concern are the use of weedy pasture species for management of salt-affected land, and the impact of increased populations of feral deer on native vegetation. We are interested wherever possible in working in with other organisations with similar objectives, where we can provide mutual support of benefit to both. We have enjoyed great cooperative relations with the Weed CRC, and Victoria Naturally Alliance, and hope that these fruitful associations continue this year. We have also met with the Weed Society of Victoria to discuss possible collaborations, and hope to work together with them in the future on issues of mutual interest. Hopefully, we can establish associations with Weed Societies and similar organisations in other states as well.

Finding ongoing funding continues to be an issue for us. We have some ongoing funding for the next couple of years, but continue to rely on membership for our core activities. A strong membership base also helps us argue our case with funding organisations. Please don't forget to keep your membership current, and sign up new members whenever you can. Thanks to all who continue to support ISC, and make it possible for Tim (and now Carol too!) to continue their great work on behalf of Australia's biodiversity.

Steve Mathews

Invading Vines

Australia now has 179 species of exotic vines running wild, according to a new article by Carla Harris and colleagues at the University of Technology in Sydney. The number of invasive vines in each state was found to reflect the human population size, with the most species (141) in NSW and the least in the NT (21).

The article, 'Introduction History and Invasions Success in exotic Vines introduced to Australia', appears in Diversity and Distributions, 2007,13: 467-475.

Jatropha Plans Revealed

Tim Low

Jatropha companies unveiled their grand plans for Australia at a December meeting in Brisbane run by the Queensland Department of Tourism, Regional Development and Industry.

The biodiesel plant called jatropha (Jatropha curcas) has no future as a crop in Australia unless Biosecurity Australia lifts its import ban on the seeds, which it instituted because jatropha is a prohibited weed in Western Australia and the Northern Territory. Jatropha can legally be grown elsewhere in Australia, but the seed stocks available within Australia are unsuitable for biofuel production. Queensland is the only state climatically suitable for jatropha where it can legally be grown, hence the meeting in Brisbane.

There was much debate on the day about the weed status of jatropha, with two proponents insisting that although jatropha will naturalise, it does not qualify as a weed or invasive plant. Their comments were flatly rejected by myself, representing ISC, and by Dr Rachel McFadyen, the CEO of the Weeds CRC.

Evidence was presented that jatropha has spread at least 80 kilometres down one catchment in north Queensland (in a region where growers want to plant it), having formed a series of thickets along a stream, one of them 100 metres long and 50 metres wide. On this evidence Rachel and I pointed out that jatropha clearly qualifies as an invasive plant.

One jatropha proponent, who seemed very sincere, insisted that jatropha was no more invasive than any popular foodplant. I told him that apple, pear and peach trees do not form wild thickets a hundred metres long, but he found this difficult to believe and said that he would investigate further to see if I was telling the truth. I told the meeting that olives and coffee are probably the only common food tree crops in Australia that pose more of a weed threat than jatropha. (Date palms are a third possibility.) In truth, all of the woody weeds I can think of that form large thickets are major weeds, for example gorse, mimosa, mesquite, prickly acacia and honey locust.

Some jatropha proponents clearly do not understand what 'invasive' means, and think jatropha has been demonised because it is closely related to bellyache bush (J. gossypifolia), a major weed. Because they have seen jatropha growing overseas where it was not highly invasive they believe that reports of its weediness are mistaken. One of them presented an amusing argument that went like this: "A weed is a plant that is not wanted. Before, jatropha was a plant that was not wanted, so it was a weed. Now it is wanted, so it is not a weed."

Much has been made of the fact that in the Northern Territory, one infestation that was recently eradicated had remained very limited – covering less than a hectare – after many decades, as discussed at the workshop by Ian Miller. But when I spoke to Ian during a break he said that jatropha could not spread at this site because of very steep hills and a series of tailings dams that blocked seed movement downstream.

Ron Schwartz of Biosecurity Australia said that jatropha had been assessed as posing a significant weed risk both in Western Australia and in Hawaii. 'Based on our information at present it definitely has weed potential.' He said that any federal government reassessment of jatropha's status would require public consultation, and could be very time consuming.

At the prompting of ISC, which wrote to the Queensland government back in June 2006, Biosecurity Queensland has prepared a draft weed risk assessment of jatropha. It is still finalising this. More information is needed about the level of jatropha infestation in north Queensland and overseas. Jatropha is listed as a major weed in a couple of overseas reports but these lack a high level of detail. I said to the meeting that jatropha proponents could facilitate the assessment process by helping fund field work in Queensland and overseas, but no one showed any interest, one proponent saying instead that jatropha growers should be allowed to provide the weed assessment on which the government made its decision.

I questioned the failure of the Queensland draft assessment to consider what weed scientists call 'propagule pressure'. There is talk in Queensland of having massive jatropha plantings exceeding 100 000 hectares. The present infestation along Emu Creek in north Queensland, which includes the hundred metre long thicket, has resulted from one small planting of jatropha at a mining township. If 100 000 hectares were grown, and seeds escaped into catchments, the propagule pressure would be so immense that massive weed infestations would be likely, within ecologically sensitive riparian habitats. Biosecurity Queensland has assured ISC it will consider this issue and other comments that were raised.

Three regions have been identified as suitable for jatropha cultivation (if bans are lifted): north Queensland in a region extending inland from Townsville to Cairns, the plains extending south from Darwin, and the Ord River region of Western Australia. Proponents are promising that jatropha will only be grown under high security within wide buffer zones, to prevent seeds escaping into catchments. Jatropha will not be grown in flood-prone areas or near rivers. Cropping areas will be closely monitored by personnel trained in risk assessment, following emergency plans that require staff to report any incidents to competent authorities.

While I could not doubt the sincerity of the speaker who said all this, I could only be sceptical about the prospect of 100 000 hectares remaining under such strict conditions, year after year. I suspect that the primary industry officials at the meeting were equally sceptical. The regions proposed for jatropha are all susceptible to cyclones, which would soon spread seeds beyond any buffer zone. Under climate change, more severe cyclones are predicted. And if the industry turns out to be uneconomic, who will pay to remove the plantings and ensure that adjoining areas remain weed free?

Aside from the issue of security, one has to be sceptical about the future of jatropha as a crop, given all the questions being raised about biofuels and the hype that jatropha, in particular, receives. Many businesses around the world are excited about the prospects of making big profits from climate change, and jatropha is attracting high levels of speculative investment, despite a lack of any proven track record as a crop. The hype is very reminiscent of that associated with deer farming twenty years ago, and which proved unfounded. Jatropha is often touted as the best of all biofuels because it can be grown on marginal land without the need to destroy rainforest or use good quality farmland. But one speaker at the meeting said that rainforest in Brazil and Malaysia had recently been destroyed to grow it. And as the ISC biofuels report points out, crop yields from marginal lands will inevitably be low.

At the recent United Nations Climate Change Conference in Bali, comparisons were freely drawn between today's business excitement about likely climate change profits, and the dotcom bubble of a decade ago.

Many investors who poured cash into speculative internet companies lost badly when the inevitable crash came in 2001. My concern is that when the biofuels crash comes, as seems increasingly likely judging from recent articles and reports, vast acreages of jatropha will go unharvested, resulting in massive seed spread down catchments.

By the end of the day I was feeling a little hopeful that this will not happen. Most of the business representatives seemed to be sitting on the fence to see how the day would unfold. They could hardly have been impressed by all the evidence of weediness, by the need for governments to move slowly and carefully to assess the weed risk, and by uncertainty about jatropha's profitability in Australia.

When the leading jatropha proponent was asked if it was definitely a viable crop for Australia, he admitted he wasn't sure. 'We believe so,' he said. 'Until we run trials, we cannot be sure.' Rachel McFadyen suggested that growers be required to post a bond to pay for any weed problems that might ensue, but one participant said this might ruin the viability of any jatropha venture. My guess is that most of the business heads will find something else to invest in, leaving the two main proponents to slog it out with state and federal authorities. Any bureaucrat who allowed the cultivation of jatropha could face severe condemnation in future for having made the wrong call, and that is a consideration that will weigh heavily upon decision-makers in government.

Gamba Grass Update

ISC was invited to a meeting held in Brisbane to help determine the Queensland government's policy towards gamba grass (Andropogon gayanus) (see Feral Herald 16). Other attendees included Agforce (a peak agricultural organisation), the Queensland Fire Service, Queensland EPA, a grazier, the seed merchant who sells gamba grass seed, and other conservation groups. Strong support for some kind of weed declaration came from all of those who do not stand to benefit financially from gamba grass. The strong support from the Queensland Fire Service, which has learned about the dangers posed by gamba grass fires from colleagues in the Northern Territory, was most welcome.

In December, conservation groups met with the Minister for Primary Industries, Mr Tim Mulherin, to seek a gamba grass declaration. Mr Mulherin said he was still considering the issue but he proved very willing to listen to the concerns raised by the five conservation groups (including ISC). We hope he will quickly reach the right decision and declare this dangerous grass.

On 17 January, gamba grass was added to the declared plant list in Western Australia, which means it cannot be grown there, and all plantings and infestations will be removed. The Northern Territory is also considering a declaration of gamba grass, although eradication from the Territory is now impossible due to the extent of plantings and advanced spread along roadsides.

On 20 January the CEO of the Weeds CRC, Dr Rachel McFadyen, lambasted the Queensland Government for not having declared this grass a weed. In an article in The Courier Mail she accused the government of lacking the courage to ban it 'because of pressure from graziers'. Noting that gamba grass can reach 4 metres in height, too high for cows to crop, she said: 'We're turning out cattle, not giraffes.'

Horses for Courses

Feral horses became a divisive issue in Queensland late last year when The Courier Mail Assistant editor Des Houghton wrote two inflammatory articles damning the culling of horses in Carnarvon National Park, where they are causing severe degradation.

Labelled 'The Killing Fields', one article began with a blatant appeal to nationalism: 'We all love horses, don't we? Of course we do. They are the stuff of Aussie legend.'

Houghton went on to invoke Banjo Paterson, the Melbourne Cup, and the Australian 4th Light Horse brigade charge against the Turks in Palestine before turning his vitriol on to the Queensland Government for its decision to cull several thousand brumbies in the national park.

Houghton acknowledged concerns about the severe damage that horses and other feral animals are doing to national parks, but nonetheless railed against the cull, using words like 'gruesome' and 'slaughter' and claiming that the operation represented 'one of the world's largest animal culls.' In truth, it is not a large cull even by Australian standards. It was endorsed by the RSPCA, which monitored the operation.

Wrote Houghton: 'The State Government seems to be more concerned with the media reaction to horse cullings than the plight of the animals themselves.' In light of his emotive response, this concern appears to have been well founded.

After the articles appeared, ISC project officer Tim Low approached The Courier Mail and wrote an opinion piece about the culling from a conservation perspective. Here is part of what Tim wrote, as it appeared on 22 December:

"What I am saying is that those who object to the culling of feral horses should rethink their position. They do not acknowledge the harm those horses do to wildlife, nor the massive suffering if the horses outstrip their food supply and starve. To suggest the horses in this remote region can be rounded up and turned into pets is naive. The national parks report talks of horses licking and eating Aboriginal cave art because they like the salt in ochre. It also mentions horses stripping 12,400 tonnes of vegetation from the park each year.

It includes gruesome pictures of erosion gullies and once-pristine wetlands sullied by hoofs and dung.
National parks are places set aside for native animals and plants.

The State Government is legally and morally bound to ensure they get real protection. That's why a cull is supported by conservation groups.

The humane culling of horses today is much kinder than seeing thousands die of starvation in the years to come."

We are pleased to report that the Queensland Government has held firm against the attacks, saying the culling will continue. This contrasts with the situation in New South Wales, where the state government halted horse culls in national parks following one-sided criticism by media shock jocks.

Crazy Ant Hopes Rise

During the recent meeting between conservationists and the Queensland Department of Primary Industries Minister, Tim Mulherin (see gamba grass article), the minister assured conservationists that he did not rate economic pests more highly than environmental pests. This comment provided ISC spokesman Tim Low with an opportunity to raise the issue of inadequate funding for crazy ant eradication (see Feral Herald 15). Queensland is running major operations, involving large numbers of staff and extensive publicity, to eradicate red imported fire ants and electric ants, while they also run a threadbare crazy ant eradication, employing just two people. Tim stressed the inadequacy of this operation to the minister, and he has promised to look into it. We are confident that Mr Mulherin, who was promoted to the DPI ministry less than a year ago, will agree that the crazy ant eradication work is inadequate, and that an increase in funding will be forthcoming.

In recent months ISC has held informal discussions about this issue with the federal Department of Environment, and with Biosecurity Queensland. The ISC concerns have been sympathetically received at all levels but finding the funding remains an issue. The fire ant and electric ant eradications receive some federal funding because they are both rated economic pests, whereas crazy ants are mainly an environmental pest. ISC will approach Minister Mulherin again soon about this issue.

At the meeting with Minister Tim Mulherin, Tim Low also raised the on-going issue of inadequate resources allocated to assessment of new weeds (see Feral Herald 11-12, page 7). The minister offered to investigate this as well. Funding levels were raised over a year ago, after ISC criticised this problem in The Courier Mail, but not to an adequate level.

Weeds CRC Future

We have previously criticised the failure of the former federal government to continue funding for the Weeds CRC (Feral Herald 14), but the election of a different government raises hopes that a new weed body will soon replace it. The Labor Party promised $15 million over four years for a national research program, although no details have been given to show how this will be administered. Last year, after the Weed CRC's bid for further funding was rejected, the chairman, John Kerin, expressed his dismay in the CRC's annual report:

"I write these few words with a sense of disappointment and anger. I am disappointed, because at this time it seems certain that the Weeds CRC will cease to exist after 30 June next year. I am angry because, following consideration of our preliminary application, we were requested to prepare a Full Business Case for consideration by the relevant interviewing panel. The case we presented was for an Invasive Plants CRC, which varied substantially from the existing CRC but built on the work that had been done. After the expenditure of much time and money on the preparation of the Full Business Case, we were not even granted an interview.

It has subsequently been discovered that our case was severely misunderstood, perhaps because we were relying too much on trying to follow the new rules. We had gone commercial to the extent possible, but we deal with sectors that cannot finance their own research at the enterprise level. Given that the two dominant challenges for Australian agriculture are biosecurity and natural resource management, we thought the issues we were focussing on were important. We are not dealing with sectors that can easily replace core public funding. It seems not to be understood that Australia's cropping and livestock farmers are the ones that commercialise our research in conjunction with agri-industry firms.

The Commonwealth Government as an act of policy has decided that, for the most part, Cooperative Research Centres that focus on the public good, on dispersed private good and on the environment will not be funded. In this same round the Wheat Quality, Dairy and Tropical Savannas CRC's also failed."

We hope the new government moves swiftly to create a new weed research program. This is something Australia cannot do without. The CRC's annual report is posted at: www.weeds.crc.org.au/documents/ar0607_fullversion.pdf

Arowana Rejected

Early in 2007 ISC wrote to the federal government opposing an application to include the predatory fish, arowana (Scleropages formosus), on the list of species suitable for importation into Australia. In September that year the Department rejected the application after considering several submissions, including ours. Here is part of what ISC wrote:

"Arowana are large predatory fish growing nearly a metre long (90 centimetres). The proponent admits that they cannot be kept with smaller fish because they eat them. A fish owner who bought one and did not know this might regret the decision when other fish kept with it were eaten. If the owner wanted to maintain a mixed tank of fish the arowana would become a problem, and the owner might choose to solve that problem by releasing it into a stream."

We commend the department for this decision. As we pointed out in our submission, arowana are closely related to native Australia saratoga (S. jardini, S. leichardti), which are very similar in appearance and can be kept in aquaria as a much safer alternative.

Climate Change & Weeds

The Weeds CRC has produced a briefing note on weeds and Climate Change, at http://www.weeds.crc.org.au/documents/bn_climate_change_2007.pdf,
which spells out a scenario of worsening weed problems under climate change. Some of the points made are:

- 'There is a high risk that some weed species not presently considered high priorities and which are currently limited by temperature and rainfall may show increased spread with temperature and rainfall change.'

- Increased extremes, eg long dry or drought periods interspersed with occasional very wet years, will worsen weed invasion because established vegetation, both native and crop, will be weakened, leaving areas for invasion.

- More severe cyclones will both disperse weed seeds through wind and floods, and also open up gaps for weed invasion in areas of pristine native vegetation, especially in the wet tropics. This happened after severe cyclone Larry in north Queensland in 2006.

- There is a strong need to modify existing weed risk assessment systems to take into account possible sleeper weeds that may be favoured by a changing climate.

Cane Toads Will Keep Hopping

Cane toads are proving unstoppable as they continue their advance westwards towards the Kimberley region of Western Australia. It has been obvious to anyone with foresight that cane toads would one day colonise north-western Australia; the only question was when. What is less obvious is their potential to invade southern Australia, especially in the wake of global warming.

From a recent study of the cane toad's current range in northern and eastern Australia, a team of biologists led by Mark Urban at Yale University has reached the appalling conclusion that cane toads could colonise large areas of southern Australia - even before taking climate change into account.

The researchers looked at the climatic envelope occupied by toads in Australia today and found it is much broader than the range occupied by cane toads in Latin America. This is a common finding in invasive species research – that animals introduced to a new region can spread outside their known climatic range, the implication being that they are limited in their native range by interactions with other species rather than by climate extremes.

In the case of the cane toad, Urban's team concluded: "Results demonstrate that Australian cane toads may already have the ability to spread across an area that almost doubles their current range and that triples projections based on their native distribution."

New regions deemed suitable for cane toads include Melbourne, north-western Victoria, most of southern South Australia including the Adelaide region, and all of south-western Australia, as far north as North-West Cape (see map).

Urban's team concluded that "an evolutionary", in addition to an ecological, explanation may be necessary to account for the changing distribution of Australian toads."

Communities in southern Australia should be very watchful for any toads that turn up when landscaping supplies, potplants or produce are brought south.

The scientific name of the cane toad has recently changed. What was once called Bufo marinus is now Chaunus marinus.

For the full report see Urban, M.C., Phillips, B.L., Skelly, D.K. and Shine, R. (2007) The cane toad's (Chaunus [Bufo] marinus) increasing ability to invade Australia is revealed by a dynamically updated range model. Proceedings of the Royal Society, series B. 274:1413-1419.

Ant Nomination

The Victorian government's Scientific Advisory Committee has recommended that the Argentine ant (Linepithema humile) be listed as a potentially threatening process under the Flora and Fauna Guarantee. Argentine ants are one of several species found in Australia that form vast supercolonies capable of transforming ecosystem function. By displacing native ants they can disrupt ant dispersal of native seeds, ant pollination of flowers, and ant relationships with butterfly larvae.

The recommendation can be viewed at: http://www.dse.vic.gov.au

Deer Threat Listing

Sambar deer have been listed by the Victorian government as a threat to biodiversity. The Environment Minister, Gavin Jennings, has accepted a recommendation from his advisory committee to list the deer under the Flora and Fauna Guarantee. The nomination recognises the harm that deer are doing to native vegetation.

ISC is very concerned by the growing numbers of feral deer in Australia, and the lack of a coherent response from governments, and we welcome this nomination. But Victoria, like other states, needs to do far more to address the rapidly growing feral deer problem.

Threatening our Trees

One of the worst threats facing Australia is Eucalyptus rust (caused by the fungus Puccinia psidii), a disease with the potential to profoundly alter ecological processes in eucalypt forests, rainforests, paperbark forests and heathlands. Earlier this year a review of eucalyptus rust was published by Morag Glen and four co-authors, and their findings are summarised here.

Eucalyptus rust, also called guava rust, naturally afflicts rainforest trees in family Myrtaceae in central and South America. In Brazil it has become the most damaging disease of eucalypt plantations, killing seedlings and coppice growth. Highly susceptible species include the flooded gum (Eucalyptus grandis) and blue gum (E. globulus). The plantation industry has responded by breeding resistant eucalypt varieties.

A wide range of plants in the eucalypt family are susceptible, including the Australian paperbark (Melaleuca quinquenervia), bottlebrush (Callistemon viminalis) and lillypillies (Syzygium species), as well as South American guavas (Psidium guajava). Australia has more than 1640 plants in family Myrtaceae, and of 83 species tested thus far, 73 proved susceptible. But the rust has different biotypes, and plants that proved resistant in one test may nonetheless be susceptible to other biotypes. Seedling eucalypts often die, but adult plants are unaffected unless they are producing new coppice growth after injury, which is susceptible. Paperbarks, by contrast, are affected at all ages.

Eucalyptus rust is a fungus on the move. In 1977 it appeared in Florida, and in 2005 it was found on nursery plants in Hawaii. It has since caused 'severe dieback' on Australian paperbarks (Melaleuca quinqueneria) which grow in Hawaii as garden trees and as weeds. According to Glen's review: "Its introduction in recent years to new areas such as Florida and Hawaii suggest that it is also a pathogen on the move. All indications are that it is likely to move to new areas of the world and these could very easily include Australia."

This rust could profoundly alter ecosystem functioning. According to Glen's study: "If P. psidii becomes established in Australia, it is unlikely to kill mature trees, though seeding death may result in a reduced state of regeneration of dominant species in natural forests, thus altering the biodiversity and ecology."

Australia has many rare and threatened species whose survival could be jeopardised. Glen et al note: "Although it is unlikely that entire species would be eliminated due to infection by P. psidii, unless they are already critically endangered, genetic diversity in highly susceptible species could be greatly reduced."

If and when it arrives, eucalyptus rust will become a sporadic problem, only becoming infective after long periods of leaf wetness. It is unlikely to infect Outback woodlands. The Glen paper provides a map of risk, which shows that eastern Australia, as far south as Sydney, is the region of highest risk, with a lesser level of risk for damp coastal regions elsewhere. As for regions further inland, they "may also be likely to suffer rust epidemics, although perhaps less frequently." The many unique eucalypts and other Myrtaceae in south-western Australia face much less risk than all the rainforest Myrtaceae in Queensland.

The authors do not hold out much hope of eradication when the disease arrives, because its spores blow freely on the wind. "Once established in a particular area of Australia, P.psidii would most likely spread very rapidly over the climatically suitable regions," they warn. A strain of the disease that reached Jamaica in 1935 spread over 5,000 square kilometres in one year. "Eradication of rust diseases have often failed…" The authors nonetheless recommend that Australia be prepared to attempt eradication if an outbreak is detected at an early stage. The risk to Australia will increase greatly if the rust becomes established in Indonesia, New Guinea or South Africa. The authors recommend offshore surveillance of high risk sites as one of the best strategies to protect Australia.

What the study does not consider is the implications of eucalyptus rust under the scenario of climate change. If Australia becomes drier the rust will be disadvantaged, but if heavy rainfall events increase it may well benefit. If carbon dioxide fertilisation increases canopy cover, as expected, the rust should benefit. Most significantly, if climate change causes mass tree deaths during droughts, eucalyptus rust will reduce seedling recruitment. And if climate change results in more bushfires, as expected, the rust may kill off new foliage.

Glen, M., Alfenas, A.C., Zauza, E.A.V., Wingfield, M.J., Mohammed, C. (2007) Puccinia psidii: a threat to the Australian environment and economy – a review. Australasian Plant Pathology 36: 1-16.

Are You Viable?

ISC is only as strong as its membership. Have you renewed your membership? Or are you someone who dips into our newsletter without ever having joined up? Now is the time to act if you care about the issues we represent. Fill in the form on page 11 and stop feeling guilty about not doing enough. Help us to secure Australia from the next round of pests.

Climate Change & Allergenic Weeds

One aspect of climate change receiving attention is the potential for allergy-inducing weeds to multiply and produce more allergenic pollen. Studies in Europe have detected rising levels of pollen in the air, and chamber experiments show that allergenic weeds fed more CO2 produce more pollen. Pollen production by common ragweed (Ambrosia artemisifolia) rose 61% when CO2 levels were raised from 350 to 700 parts per million.

Australian researchers Paul Beggs and Jane Bambrick have proposed that climate may be contributing to the global rise in asthma incidence observed in recent decades. In an article in Environmental Health Perspectives, appearing in 2005, they wrote:

“It is feasible that faster plant growth, earlier plant maturity, and longer growing season, plus earlier pollen season, increased season duration, and increases in both pollen quantity and allergenicity have already had an impact on asthma, reflected in the global rise in asthma prevalence and increased severity of episodes.”

Paul Beggs spoke about this topic at the recent Greenhouse 2007 climate change conference in Sydney.

References

Beggs, P. (2004) Impacts of climate change on aeroallergens: past and future. Clin. Exp. Allergy. 34: 1507-1513.

Beggs, P.J. and Bambrick, H.J. (2005) Is the global rise of asthma an early impact of anthropogenic climate change? Environmental Health Perspectives. 113(8): 915-919.

Ziska, L.H., and Caulfield, F.A. (2000) Rising C02 and pollen production of common ragweed (Ambrosia artemisifolia), a known allergy-inducing species: implications for public health. Australian Journal of Plant Physiology. 27: 893-898.

Victoria Naturally

As members of the Victoria Naturally Alliance, ISC has contributed pages to the new Victoria Naturally Alliance website. As we go to press the pages are still in final preparation, but they may be ready by the time you read these words. We have four pages: on ISC, deer, salinity grasses, and new pest threats to Victoria. We thank John Sampson of the VNA for his ongoing assistance and support.

ISC in the Print Media

The latest issue of The Monthly has an article about Australia's pest problems by Kate Rossmanith that quotes from the ISC website. It begins with Tim Low describing the amazing hold that exotic species have obtained over this land, then later mentions ISC's concerns about gamba grass.

And the Weed CRC's latest newsletter, Weedwatch, talks about the
combined Weed CRC and ISC stall at the Greenhouse 2007 conference, and
discusses the ISC report on weedy biofuels. It can be accessed at;
http://www.weeds.crc.org.au/documents/
weed_watch_vol2_no16.pdf

Speaking in Melbourne

Tim delivered a public lecture about Invasive Species and Climate Change in Melbourne, following the ISC AGM on 26 September. Organised in conjunction with the Victoria Naturally Alliance, the talk was well attended. It was later broadcast over Community Radio 3CR.

Tim spoke about the ways in which changing temperatures and rainfall, and worsening droughts, floods, fires and cyclones can benefit pests, and also discussed the ISC campaigns against weedy biofuels and gamba grass.

Thankyou

ISC acknowledges the generous support of Perpetual and the Mullum Trust. Without their support we could not achieve so much.

The opinions expressed in this newsletter are not necessarily those of the Invasive Species Council.

Invasive Species Council Membership application form

ABN 27101522829

Name _____

Address _____

_____ Postcode _____

Phone (h) _____ (w) _____

email _____

Work or voluntary position(s) (if relevant) _____

_____

Affiliations _____

Membership rates:

(all prices are GST inclusive)

❑ Regular	$22
❑ Concession	$11
❑ Group/Institution	$55

I would also like to make a donation [1] _____
(does not include GST)

Total: _$_____

Is this a ❑ new membership or a ❑ renewal?

* Donations of $2.00 or more are tax deductible.

[1] Representing a donation to the Invasive Species Council Fund - a public fund listed on the Register Of Environmental Organisations under item 6.1.1 of subsection 30-55(1) of the *Income Tax Assessment Act 1997*.

Thank you for joining us. Please send this form and a cheque to:

Invasive Species Council
PO Box 166, Fairfield, Vic. 3078.

Cheques and Money Orders should be made out to the 'Invasive Species Council Inc'.
Sorry we do not have credit card facilities at this stage.

The Invasive Species Council

Invasive species are a growing problem all over the world, and Australia, an isolated island state with a unique fauna and flora, is especially vulnerable. Over the years incredible harm has been done by such pests as foxes, rabbits, toads, carp, prickly pear, blackberries, rubber vine and the tree-killing disease phytophthora. At last count, Australia had 2,700 weed species and more than 200 marine invaders.

Even though the impacts are immense and ongoing, invasive species aren't being tackled seriously. An alarming number of invasive species are still coming in, staying, and spreading in Australia.

The Invasive Species Council is an independent, non-government organisation set up to campaign and advocate to stop further invasions, and to contain invading species already present. If you care about the threat posed to Australia by exotic invaders, please join the ISC. We believe we are the first group in the world created *solely* to lobby against invasive species of all kinds.

We want stronger laws on invasives, tighter quarantine controls, regular monitoring of harbours for marine invaders, and Rapid Response Teams to eliminate new invaders. Join us to help make these a reality.

campaigning **raising awareness** **convincing our governments to act**