

**Submission to Inquiry into the impacts of  
invasive plants (weeds) and their control in  
Queensland**

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**Invasive Species Council**

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## Introduction

The Invasive Species Council (ISC) welcomes the inquiry and the opportunity to make this submission. The ISC is a national community-based organisation that seeks to reduce the environmental impact from invasive plants, animals, diseases and other invaders.

The foremost point to be made about invasive plants is that prevention of weed invasions is the most effective approach. The more widespread and established a weed becomes, the harder it becomes to eradicate, contain or control. The three weeds chosen as case studies for this inquiry demonstrate that point, as they are proving very difficult to control even with significant effort and investment. Preventing their entry into Queensland would have been far more cost-effective.

We therefore urge that the case studies for the inquiry be expanded to also encompass some weeds that are newly arrived or emerging, and so might provide insights into matters of prevention and early intervention (including eradication and containment).

Over the years much emphasis has been placed on control of weeds that effect agricultural production and pastoral areas (again, the weeds chosen as case studies exemplify this). There has been less effort and investment in addressing invasive weeds that may impact on the natural environment. Although agricultural and environmental weeds are not mutually exclusive categories, we urge that the inquiry pays close attention to the impact of weeds on the natural environment, including weeds such as Buffel grass and Neem that are not necessarily viewed as weeds by, or may have initially been introduced or spread by, the agricultural sector.

One of the most effective ways to prevent new weeds and to make decisions about management of weeds is to consistently apply science-based risk assessment to all plants proposed for introduction and to all potentially invasive plants. Risk assessments must be conducted in a transparent way and in light of the precautionary principle. By consistently applying transparent, precautionary, science-based risk assessment to all species, the likelihood of new weeds becoming established in Queensland can be reduced, management priorities can be properly decided, and the cost-effectiveness of invasive plant control can be greatly improved.

We acknowledge the trend in Australia towards describing a general biosecurity obligation. We agree that all Australians share some responsibility for protecting the environment from invasive species. However we note that government retains a very significant responsibility for protecting the environment on behalf of the community.

We also make the point that adequate investment must be made by government in community education and engagement, and in supporting the community and stakeholders to fulfil their biosecurity obligation. Only with adequate investment in education, engagement support (and compliance) can the general biosecurity obligation become an effective tool for improving the control of invasive plants in Queensland.

We urge that the committee examine the recent Intergovernmental Agreement on Biosecurity (IGAB) Review Draft Report, which contains several good recommendations aimed at improving cooperation on biosecurity (including invasive plant control) in Australia. In particular we point to section 4 of that report, on the pressing need to strengthen environmental biosecurity.

## Responses to the Inquiry's specific questions

**[Are] the responsibilities of local governments in relation to the control of prohibited, restricted and invasive plants imposed under s.48 of the Biosecurity Act 2014 ... reasonable, and [are] local governments ... meeting those obligations?**

The responsibilities of local government under s.48 seem reasonable in the context of shared responsibility for biosecurity. We note that the responsibilities specified in that section are not comprehensive, as local government also share responsibility for other aspects of biosecurity, for example:

- Prevention of establishment in Queensland of new invasive plant species beyond those listed under the Act (e.g. surveillance, early intervention);
- Keeping a watching brief on plants that are already in Queensland which have invasive potential but may not yet have become invasive (e.g. many species traded as nursery plants).
- Managing the environmental impacts of invasive plants that are established in the State but that are not listed as prohibited or restricted (e.g. Buffel grass *Cenchrus ciliaris*).

Given that the responsibilities of local governments are shared, questions arise about cooperation with other responsible parties, about accountability for delivering effective actions, and about the allocation of resources to ensure local governments have adequate capacity to fulfil their roles. (We note here that it is beyond the scope of this submission to analyse the complexities of cost-sharing between local, state and national governments)

Our overall impression is that most local governments do not have sufficient resources to meet their obligations. Any given local government area has a host of prohibited, restricted and other invasive plant species to deal with. Local governments have to tackle such plants as land managers, controlling prohibited and restricted plants on land and water for which they have direct land management responsibility (for example municipal roads parks and gardens). They also act as regulatory authorities- providing inspection, education, and enforcement services for lands and waters that are within their local government area but that are not directly their own land management responsibility (including private lands).

Very large local governments like Brisbane are more likely to have the resources needed to meet their various specific and general obligations on their own land and that of others within their administrative area. But even these better resourced governments struggle to commit sufficient resources to comprehensively manage all environmentally invasive plants on all relevant lands and waters.

Regional local governments with smaller populations and larger land areas generally have much greater difficulty meeting all of their obligations. Although a strategic application of limited resources should maximise outcomes, local governments' management of invasive plants is often not strategic. For example:

- Failing to set risk-based priorities for tackling invasive plants
- Failing to take into account the precautionary principle where environmentally invasive plants are concerned

- Focussing only on listed weeds and ignoring emerging weed threats that may become the listed weeds of the future
- Focussing on more visible weeds that are a local political priority, while weeds less well recognised by local people go unaddressed
- Using ineffective methods of invasive plant management (for example once-off or periodic herbicide use without adequate planning or follow-up)
- Eschewing regulation or enforcement due to local socio-political pressures (e.g. where there is perceived to be a lack of support from elected councillors)

Without strategic prioritisation of invasive plant management, local weed managers are overwhelmed by the large and increasing number of invasive plant species. Alignment of state and national precautionary risk-based priority lists for environmental weeds would help local government to set their own priorities in a well-informed and transparent way.

Without authoritative risk-based priorities, local governments may feel that they must maintain constant and similar management of all listed plants, but that they have no ability to array their limited resources more strategically to maximise environmental outcomes (for example by increasing the emphasis on prevention of new incursions).

The wet tropics area is particularly vulnerable to invasive plants due to high growth rates and many exotic species having been, and being, grown moved and traded in the area by plant collectors, nurseries and hobby farms. Local governments in the wet tropics are therefore overwhelmed by rampant existing weeds and the constant emergence of new weeds. A significant increase in state and national government resourcing is needed to help wet tropics local governments tackle environmental weeds strategically.

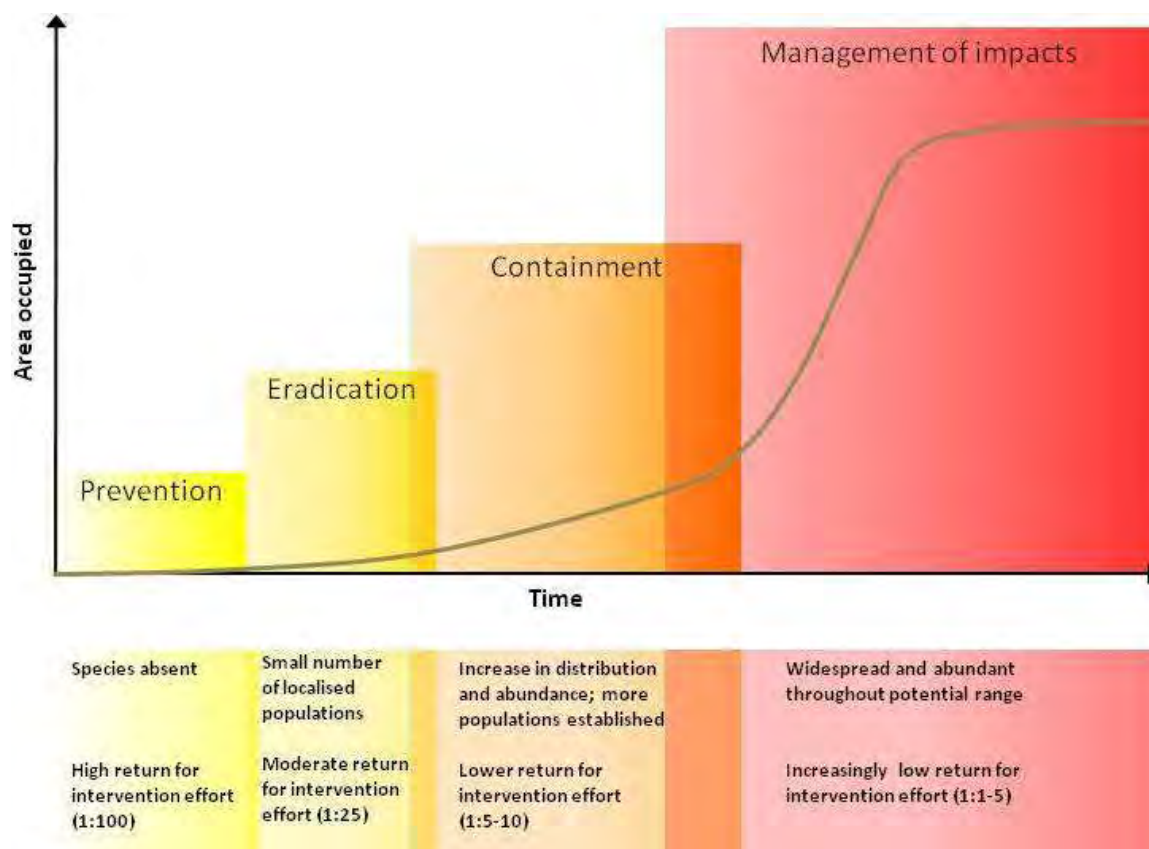
In the Sunshine Coast area, weed vines like morning glory, Dutchman's pipe, cat's claw vine and Madeira vine are a great challenge. Local government in the area work hard and well with limited resources at community education and engagement, and at protection of vulnerable sites and assets. But there is a constant need for surveillance, reassessment and adjustment of programs and investment to tackle these weeds as they afflict different environmental assets, and inadequate funding is a perennial issue.

Collaborations between local governments and community groups, including bushcare groups, can be effective in increasing the human and financial resources available to tackle weeds. While community groups tackling weeds should be supported strongly, it is important to ensure that adequate strategic weed management also occurs in places where no relevant community group exists.

**[Are] programs for the control of weeds on Crown land administered by the Department of Natural Resources and Mines ... effective?**

Good systems for management of invasive species centre on the generalised invasion curve (portrayed in figure one). The invasion curve describes long experience showing that the greatest return for effort is to be gained by addressing invasive species earlier rather than later- ideally by preventing their initial invasion of an area.

Figure one: Generalised invasion curve



Because so many weeds have previously been allowed to reach the wrong end of the invasion curve (evading prevention to become established in Queensland), DNRM faces some big challenges.

Most State land is allocated under lease and responsibility is with the lessee, as the land manager, to meet legislative weed responsibilities. Other State land is unallocated, and weed management in these unallocated lands is the direct responsibility of DNRM.

Until recent decades, the Department conducted little if any control of weeds on unallocated lands. Weed control programs have since been developed for these areas, roughly over the last 20 years. We are not able in this submission to assess the specific effectiveness of each past and present DNRM program. Instead we offer the following general comments.

Effectively controlling all invasive plants across all DNRM lands and waters is a huge and arguably impossible task, just as it is for many private land managers and other public land managers and regulators on the lands and waters for which they in turn are responsible. A strategic approach is therefore critically important: heavy emphasis must be placed on preventing new invasions, on identifying new incursions, and on rapid response to these with the aim of eradicating them or at the very least containing their spread.

Evidence-based risk assessments of invasive plants must be the basis of decisions about priorities, and these assessments must take a precautionary approach *vis-a-vis* a plant's

potential to harm the environment. Basing decisions on risk will help to avoid quixotic dispersal of effort across too wide an array of invasive plants.

With regard to allocated (leasehold) lands, there is potential to improve invasive plant management through property planning and monitoring requirements linked to lease renewals, and through increased support for strategic invasive plant control by leaseholders. We recognise however that some (if not many) weeds have not been effectively controlled despite considerable research, investment and management planning and effort, sometimes over many years. This again underlines the importance of focussing effort on the earlier stages of the invasion curve: prevention and early action to eradicate or contain weeds. Once an invasive plant is established in the wild on a widespread basis it can be very, very difficult to tackle that weed through management practices.

The recently released draft report on the review of the Intergovernmental Agreement on Biosecurity noted that jurisdictions have tended to spend most of their biosecurity budgets on the latter, management, end of the invasion curve, rather than on the earlier, more cost-effective areas of prevention, eradication and containment (Intergovernmental Agreement on Biosecurity Review Draft Report, p. 79).

We urge the Committee to determine the degree to which Queensland departments and agencies are investing in the earlier, rather than the less cost-effective later stages of the invasion curve.

**[Are] Biosecurity Queensland's weeds programs, including biological controls and new technologies, adequately funded and effective at controlling weeds?**

Our understanding is that Biosecurity Queensland's weeds programs are not adequately funded and that this is impacting on their effectiveness.

Research effort has been reduced in recent times including research into biocontrol techniques. BQ's support for State-based invasive plant eradication programs is also likely to have been affected by recent reductions in funding. These eradication programs are critically important as they focus on the earlier stages of the invasion curve so can be very cost-effective.

Under the Newman Government, staff redundancies drastically reduced Queensland's research capacity. For example, we estimate that about 35% of Queensland invasive plant and animal research staff were lost. A critical mass of research capacity is needed to improve taxonomic and diagnostic ability and understanding of current and potential pest species, establish and improve effective management options, develop supporting technologies such as mapping and surveillance methods and to identify biological controls for established pests and diseases.

The 2015 Senate inquiry into environmental biosecurity found a worrying decline in biosecurity science capability, concluding that:

“7.54 The committee received concerning evidence regarding the state of scientific expertise of relevance to biosecurity in general and to environmental biosecurity more specifically. There appears to be an overall lack of funding to support scientific work in this area, a situation that is exacerbated by the way this funding is delivered.

7.55 The committee notes recent CSIRO warnings that Australia's biosecurity science capability has declined across the board and that the fields of taxonomy, epidemiology and entomology will all lose significant numbers of experienced staff in coming years.<sup>15</sup> The committee believes that the provision of adequate support for scientific research in this area is” (p. 140)

Funding for strategic programs is at times diverted (reduced) in order to deal with biosecurity emergencies (such as Panama disease). This further reduces BQ's ability to sustain adequate strategic programs. Such diversion of funds for emergency use could lead to a reactive rather than a strategic approach to biosecurity. If funding for biosecurity emergencies comes at the expense of BQ's strategic biosecurity programs, the biosecurity system will ultimately be weakened and impacts on the environment and economy will increase. The 2015 review of Queensland's biosecurity capacity confirmed this saying:

"The most urgent and pressing need is to build Biosecurity Queensland's capacity to respond to incursions - the frequency of responses and the current approach to resourcing them is likely to see the organisation's capacity exceeded, with potentially serious results. Investment is needed in people, frameworks and systems as well as better defined arrangement for funding responses." (Brooks *et al* 2015, p. 3)

The Intergovernmental Agreement on Biosecurity Review Draft Report noted that:

"... core biosecurity activities are facing ongoing funding pressures and governments and industry partners are facing significant increases in associated management costs. Recent reports have identified that reductions to core government biosecurity resourcing—overall financial and staffing levels—across all levels of government is placing further pressures on the national biosecurity system to manage biosecurity risks."

Adequate investment must certainly be made by government in community education and engagement, and in supporting the community and stakeholders to fulfil their biosecurity obligation. Only with adequate investment in strategic community education, engagement and support can the general biosecurity obligation become an effective tool for improving the control of invasive plants in Queensland. Therefore adequate funding for these strategic functions of Biosecurity Queensland must be achieved and maintained.

On biological control programs, we note that these entail significant investment and have long lead times. Investment in them can be a cost-effective way of promoting public good environmental outcomes, albeit the number of weeds that can be managed through biocontrol is limited.

Most biocontrols can only go part way towards weed control and so must be complemented with mechanical and/or chemical control methods. Therefore to effectively deliver a biocontrol program adequate investment must also be made in relevant complementary control methods.

All three of the weeds chosen as case studies for this current inquiry are difficult targets for biocontrol because they are closely related to native species. Once again, this underlines the importance of prevention and early intervention as cost-effective means of addressing invasive plants.

Some good biocontrols are being developed for some Queensland weeds but funding is needed to ensure adequate "propagation" of these biocontrols across these plants' geographic range. For example funds may be needed for community groups to establish biocontrol facilities, and broad distribution of these agents to private and public landholders.



**[Are] environmental programs administered by the Department of Environment and Heritage Protection impact[ing] favourably on weed control programs administered by the Department of Agriculture and Fisheries and local governments?**

We do not have specific information relevant to this question.

We note that the Queensland Parks and Wildlife Service (QPWS) is housed in the Department of National Parks, Sport and Racing, not DEHP. The Committee might consider also inquiring about invasive plant programs run by QPWS. We note that QPWS has very little funding for invasive plant management, as evidenced by the need for community groups to step in and help with weed management in parks (as well as in other public lands outside of the QPWS purview).

Whether within parks or outside of them, Government land managers must fulfil their statutory invasive plant management responsibilities, including their general biosecurity obligation, and so must be afforded adequate budgetary resources to achieve that. The administrative responsibilities for managing invasive species must be clear, and must clearly include responsibilities for managing environmentally invasive plants throughout Queensland, on a tenure-neutral basis.

**[Are] federal, state and local government weeds programs ... coordinated to maximise their achievements and to have a whole of government approach?**

There is a need for better strategic coordination of weed control programs across all levels of government, and also in collaboration with non-government organisations and community groups who are leading players in many programs relating to environmentally invasive plants. This includes Landcare groups and other environmental organisations, like Hinterland Bush Links who recognise that strategic environmental weed management is second only to reducing habitat clearing as a nature conservation measure.

The role of community groups is particularly important in surveillance, as exemplified through the Weed Spotters program. To meaningfully involve the community and to create genuine partnerships, early involvement in processes and decision-making coupled with improved transparency are essential. These build trust and confidence in the biosecurity system.

Broader community awareness, engagement and capacity help with weed prevention and are related to the need to improve culture and practices as part of the general biosecurity obligation. For example, the community could be actively encouraged to practise vehicle clean-downs, to avoid planting species with weed potential and to not dump plant material in bushland.

The invasion curve is a useful tool that could help to ensure strategic coordination of programs. Different agencies and levels of government could adopt similar control methods and emphases in use of financial and human resources appropriate to the invasion trajectory of the species in question. An overall emphasis on species at the earlier stages of invasion should be maintained through appropriate prevention, eradication and containment methods. Where widespread weeds are being addressed, resources and effort should be focussed on protection of the highest conservation value environmental assets to ensure that environmental outcomes are maximised.

We draw the attention of the Committee again to the recent draft report on the review of the Intergovernmental Agreement on Biosecurity, especially the sections on setting national priorities (section 5.1), on putting funding emphasis on the early stages of the invasion curve (p. 79) and noting that the greatest residual biosecurity risk is to the natural environment (p. 81).



### **Comments on the case study weeds: Prickly acacia, Giant rat's tailgrass and Fireweed.**

All of the chosen case study weeds are established in the wild in Queensland, widespread (at least on a regional basis) and increasingly widespread and abundant (despite considerable control effort). All are weeds that affect agricultural or pastoral interests, albeit prickly acacia is also invading and having an impact on the natural environment.

We urge the Committee to widen the case studies being examined, to include some invasive plants whose principle impacts are on the natural environment and not on agricultural or pastoral interests. This would help the Committee to better understand the breadth of issues and challenges in invasive plant control across the State. Madiera vine and Cat's claw vine might make suitable additional case studies, being major threats to native vegetation and biodiversity. These weeds smother native vegetation, particularly the Critically Endangered Lowland Subtropical Rainforest, in riparian systems in the Mary River and surrounding catchments. The result is tree collapse and subsequent stream bank collapse, destroying threatened fauna habitat including the water quality required by in-stream species.

We also urge that some case studies be chosen that illustrate ways of preventing initial plant invasions and of rapidly addressing invasions at the early stages (whether of new weed invasions, or of emerging weeds that while established in the State have not yet become widespread, despite a capacity to become so). An example of such a weed is Koster's curse.

## **Conclusion**

Invasive plants have significant impacts on the natural environment, as well as on agriculture, amenity and the economy. The environmental impacts of invasive species have been noted in the review of the Intergovernmental Agreement on Biosecurity, along with the current lack of attention being paid to reducing these environmental impacts.

In Queensland all land managers face big challenges in invasive plant management. Regulatory authorities and public land managers must meet their statutory responsibilities including meeting, and supporting others in meeting, their general biosecurity obligation. Funding for this is currently inadequate.

While more funding must be applied to invasive plant management, a more strategic approach must also be taken to that management. Emphasis must be placed on the early stages of the invasion curve: prevention, eradication and containment. Decisions must be centred on evidence-based precautionary risk assessments of plants, done transparently and consistently with environmental impacts in mind. And environmental biosecurity must be given greater weight in decision-making.

In line with this, and to conclude, we offer the following principles for best-practice biosecurity that may help to guide the Committee's deliberations through the inquiry:

- **Protecting the natural environment is core business:** The protection of biodiversity and ecosystem function is core business for any biosecurity or invasive species management system.
- **Prevention is smarter than cure:** Preventing new invasive species and new incursions is more effective and cheaper than attempting to address species at later stages of invasion.

- **Timely action is crucial:** The likelihood of success reduces, and the costs rise, the further a species gets along the “invasion curve”. It is therefore crucial to make legislative, policy and budgetary provision for timely allocation of human and financial resources, especially for prevention, eradication and containment work.
- **A precautionary approach is required:** Invasive species law, policy and practice must reflect the principle that a lack of full scientific certainty should not be allowed to delay action where there is a risk of harm to biodiversity.
- **Science-based risk assessment:** Risk assessments must form the foundation of decision-making. Risk assessments must be science-based, independent, transparent and precautionary.
- **All taxonomic groups are included:** All classifications of organism must be assessed and treated consistently, including all species, sub-species, cultivars and variants.
- **A tenure-neutral approach** should be taken to the management of invasive species’ impacts on the natural environment.
- **Effectiveness rules:** Best-practice invasive species law and policy must drive towards clear, measureable outcomes (including biophysical outcomes) and must include means of evaluating and reporting on the effective and timely achievement of those outcomes in the near-term.
- **Future generations matter:** Subsequent generations of Australians should not inherit impacts or costs of avoidable failures in today’s environmental biosecurity.

Thank you for the opportunity to make this submission. Please note that we would be willing to make an oral submission to the Committee if that would be helpful to you. Should you wish to discuss this submission please contact our CEO Andrew Cox on [REDACTED]  
[REDACTED]

## References/Bibliography

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