

The role of legislation and policy in dealing with contentious plants

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Summary Legislation and government policy can provide guidance in dealing with invasive plants. However, plants cannot always be grouped into mutually exclusive ‘useful’ and ‘problematic’ categories. There are contentious plants that have attributes that make them useful or desirable and attributes that make them problematic. Weeds legislation cannot always deal effectively with these plants, many of which may never be declared weeds. We propose ways of countering the negative effects of these species whilst continuing to enable commercial exploitation. These include a range of voluntary and/or regulatory approaches, such as codes of practice, subsidies, compensation, bonds, levies and indemnity insurance.

Keywords Contentious plants, legislation, policy, codes of practice, subsidies, compensation, bonds, levies, insurance.

INTRODUCTION

A usual approach to pest plant problems is to apply weed or pest plant legislation. In Australia the main role of the Commonwealth Government is international border control including formal weed risk assessment processes to determine whether a species not currently in the country should be permitted entry. State-level legislation generally involves allocating individual plant species to a specific class of weed depending on the nature of the problem and the strategic goal to be applied to it (Grice *et al.* 2008). In recent years, and in most states, this has been guided by some formal weed risk assessment (Ferdinands *et al.* 2010). However, in most jurisdictions, these assessments have been used to inform an all-or-nothing approach in which individual species are either permitted entry or not, or declared to be weeds or not. Generally, where entry is permitted or the plant is not declared, there is no subsequent control on how, where or by whom a species is used. However, plants cannot so readily be grouped into useful and problematic categories. Many species, even some declared pest plants, have attributes that make them useful or desirable and attributes that make them problematic. Further complicating this situation is the fact that individuals

and interest groups differ in their perceptions of the values associated with particular species and on what constitutes an appropriate approach to its management (Friedel *et al.* 2010). Contentions inevitably arise.

In this paper we consider legislative and policy tools that facilitate productive commercial exploitation of a species but minimise any negative effects that it might have. In doing so we look beyond what might be considered mainstream weed or pest plant legislation and policy.

LEGISLATION

Weed legislation All states and territories have legislation that aims to prevent the spread of weeds into, within or out of their respective jurisdictions and to ensure that the management of these plants is an integral component of land management. The legislation defines categories of declaration, and describes the requirements and responsibilities of Government and landholders to achieve the objectives of the Acts (Grice *et al.* 2008). Friedel *et al.* (2010) have identified some perceived shortcomings in this area which makes dealing with contentious plants problematic. However there may be practical ways of dealing with contentious plants under such legislation.

In Queensland for example, the Queensland Land Protection (Pest and Stock Route Management) Act 2002 is the primary weed legislation. Under this Act a person must not ‘introduce’, ‘keep’ or ‘release’ a class 1 or class 2 pest. However, there is provision for the keeping of class 2 pests for commercial use under a declared pest permit. A permit, if issued by the chief executive, may impose any reasonable conditions considered necessary to stop the spread of the pest. These conditions can include such things as keeping records and taking steps to prevent spread. This could include the development and implementation of an appropriate containment protocol or procedures to ensure secure transport of product, which might contain propagules, between production sites and processing facilities. Permit holders may also be required to maintain adequate public indemnity insurance.

Environmental protection legislation Solutions guided by other legislation are possible. For example, the Queensland Environmental Protection Act 1994 imposes on persons a ‘general environmental duty’ prohibiting them from carrying out ‘any activity that causes, or is likely to cause, environmental harm unless that person takes all reasonable and practicable measures to prevent or minimise the harm’. The Act defines environmental harm as ‘any adverse effect, or potential adverse effect on an environmental value’. This could include changes in ecosystem health and function and the consequent impacts on populations of native species that accompanies the spread of many alien plants. The Act states that environmental harm ‘may be caused by an activity whether the harm is a direct or indirect result of the activity’. The Act also deals with contaminants being released or allowed to enter the environment defining a contaminant as including ‘an organism (whether alive or dead)’. Clearly a contaminant could be seed or other propagules of a plant grown commercially. Release of a contaminant under the definition adopted by the Act includes allowing it to escape or failing to prevent it from escaping. This could include introducing a plant in the first place or not taking steps to prevent spread once it is planted. However, there is provision in the Act for the Minister to approve codes of practice stating ways of achieving compliance with the general environmental duty. Strict adherence to this code can be used as a defence against prosecution under the Act should the plant subsequently spread and be shown to cause environmental harm. Application of these provisions could encourage proponents of a contentious plant to develop practical and effective containment protocols (Grice *et al.* 2010) as part of the code of practice, then seek the protection of ministerial approval before embarking on what could be a potentially risky venture. It is then of no consequence whether the codes of practice are mandated or voluntary because any environmental harm caused by not adhering to the code of practice could be met with prosecution under the Act.

Environmental protection legislation such as that just described could also be used to allow for the development of new or novel crops of possible but unproven economic value. Examples include species such as physic nut (*Jatropha curcas* L.) and pongamia (*Milletia pinnata* (L.) Panigrahi), which are being promoted as biofuels. Many of these species are not yet widely planted and the risks associated with their cultivation are in dispute. The rigor required to develop a containment protocol and code of practice of sufficient standard to secure ministerial approval would ensure the proponent gives attention to the environmental costs associated with the venture and

not just to the potential benefits. This could lead to a more informed decision about whether to proceed with the venture in the first place.

The Queensland Act was invoked in this way by the Northern Australian Pasture Plant Evaluation Committee when formulating what has come to be known as the Code of Ethics and Good Practice for the Evaluation and Release of Pasture Plants (Cox and Cook 2003). The Code encapsulates a stepwise process for the release of germplasm from the Australian Tropical Crops and Forages Genetic Resource Centre at Biloela, to minimise the risk of releasing nuisance plants into the environment

There have also been moves in Queensland to develop a policy directive that will provide direction to government agencies on the use of any new plant, or the promotion of a new use for an existing plant for any purpose. The goal is to prevent any unacceptable economic, environmental or social impacts that might be caused by weedy characteristics of the plant (Jef Cummings pers. comm.). This too has been underpinned by the notion of duty of care enshrined in the Queensland Environmental Protection Act.

Fair trading legislation Controversial plants can also include new or novel crops of unlikely economic value that are nevertheless periodically promoted by entrepreneurs through the poplar media. Claims made for the productivity or utility of the products from these plants are often overstated and unsubstantiated. The diesel tree (*Copaifera langsdorffii* Desf.) is a good example. This South American tree produces an oleoresin that can be used as a fuel in diesel engines. It is extracted by tapping the trunk of the tree. The proponent claims 1 ha of the trees can produce around 12,000 L of fuel per year sufficient to provide the fuel needs of an average-sized family farm (Glanville 2008). This has been widely promoted on-line, in newspapers (Sydney Morning Herald 2006) and on radio (Glanville 2008). Media reports suggest that over 20,000 trees were sold in one year alone. However, studies have shown that actual yields are far less than anecdotal reports (Plowden 2003). Poteet (2006) suggested there is only slim potential for this species to be an efficient producer of extractable oleoresins – yet it continues to be promoted in Australia. It is probably unlikely that the plant will be declared so the provisions of weed legislation will never be called into play. As the plant may never enter mainstream agriculture, it could evade detailed scrutiny until it appears beyond planted sources. This does not mean that other legislation cannot be called upon at this early stage in ways perhaps unthought-of. If, as the literature suggests, the claims made for the plant are misleading or deceptive, its promotion might be

limited by provisions of fair trading legislation, such as the Queensland Fair Trading Act 1989.

NON-LEGISLATIVE TOOLS

Codes of practice Several tools are available to encourage participation in the effective management of contentious plant species. Codes of practice may be developed and then applied either voluntarily or, if necessary, under legislative control. Voluntary codes of practice would be most effective if instigated by an industry body associated closely with the plant species that is being targeted. Compliance would be by way of encouragement, e.g. by the industry body, or the use of certification measures. A voluntary code of practice has been developed for growers of leucaena (*Leucaena leucocephala* (Lam.) de Wit), a commercially valuable forage shrub that is invasive in northern Australia (Leucaena Network 2010).

Subsidies Subsidies could be applied to off-set the costs borne by those affected by a plant grown commercially by other land-users. Government subsidies are, in effect, already applied to declared plants through government contributions to detection, mapping, control and research. Another form of subsidy could be provided to growers. In this case a selective tender process could be developed to support delivery of specific management targets such as a reduction of a widespread species in a particular location. We know of no cases where subsidies are being used to deal with contentious commercial plants other than Government expenditure on commercially valued plants (e.g. buffel grass (*Pennisetum ciliare* (L.) Link)) that are being controlled on publicly owned conservation reserves.

Compensation Compensation payments could be made directly to land users who are negatively affected by a contentious commercial plant. These payments would differ from subsidies in that there would be no obligation to commit the funds to countering the impact of the plant species.

Bonds Would-be cultivators of particular plant species could be required to pay a one-off bond prior to undertaking any action that imposes a weed risk. Bond conditions would relate to containment and control measures that must be put in place by the enterprise or more directly to the outcomes of application of those measures. Questions that would need to be addressed in developing and applying this approach relate to the size of the bond, monitoring whether the conditions have been met, and deciding on the return of payments at the termination of the bond period. Refund would depend upon the eradication of all plants arising from

the cultivation of the target species or demonstration that risks were infinitesimally small. They represent a 'polluter pays' approach to commercial weeds (Cook and Dias 2006).

Levies Would-be cultivators of a particular plant species could be required to pay a levy during the period they are cultivating the plant. Funds raised through levies would be used to implement management actions against the target species should the need arise. As with bonds, the size of a levy would have to be proportional to the risks associated with the species. In the case of an emerging industry from which major problems developed rapidly, the funds collected through the levy may be insufficient to deal with the problem at a useful scale. Levies could be adjusted over time in line with the risks encountered, a function not available with a one-off bond.

Insurance Finally, growers of contentious species could be required to take out public indemnity insurance to cover the costs of problems that arise from the escape of the target plant species. This is a mechanism that could force consideration of problem plants in the setting of property prices.

Guides from other industries Some of the ideas presented here might appear alien to the proponents of contentious plants. However, the industrial hemp and poppy industries are examples of profitable Australian primary industries that have been developed in a highly regulated environment.

Australia supplies about half of the world's medicinal opiate market. The opiate alkaloids are extracted from dry capsules of mature poppy (*Papaver somniferum* L.) plants. The plant is the source of the illicit drug heroin. Therefore, to fulfil Australia's commitment to the 1961 United Nations Single Convention on Narcotic Drugs, strict controls and supervision are imposed over all aspects of production from growing through to processing. The Australian Federal Government and the Tasmanian State Government share responsibility for control of the industry through the Poppy Advisory and Control Board (Department of Justice 2010). Growers are licensed by the Tasmanian Government and must hold a contract with one of two State-licensed manufacturing companies. There are strict controls on access to fields where the crop is grown and, in order to protect the State's security and management reputation, spread of plants from planted sources is strictly policed.

Similar regulation and strict controls are applied to the cultivation of industrial hemp (*Cannabis sativa* L.) (DEEDI 2010). This species is classified as a

dangerous drug under Australian state drug legislation. In some states, amendments to these Acts have allowed the commercialisation of hemp fibre and grain subject to prescribed conditions. Growers must be licensed and crops can only be planted in approved places. Participation in the industrial hemp industry is based on a user-pays principle and license holders must pay all costs of compliance and monitoring activities.

CONCLUSION

Commercially valued plants that are invasive create particular challenges for governments. There is a role for legislation in the management of these controversial plants although there is a need to move beyond the 'weed' – 'not a weed' dichotomy and be prepared to balance benefits and risks.

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