INQUIRY INTO THE IMPACT ON AGRICULTURE OF PEST ANIMALS

Submission by Forestry Tasmania

Forestry is one of Tasmania's most significant industries and generates 1.3 billion dollars annually for the State. Together, forestry and conservation are the two principal land-uses in Tasmania.

Status of pest animals in Tasmanian forests

Unlike in agricultural crops, the main biological threats to the health and productivity of Tasmanian forests (including plantations) and conservation areas are several native mammal and insect species. Browsing of young seedlings by predominantly native mammals is currently the most significant biological threat to the successful establishment of new plantations and native forests in Tasmania. Past experience has shown that establishing plantations on very high-risk sites (up to 20-25% of plantations) without managing browsing mammals can result in almost complete loss of transplants within the first month of planting. A suite of native insects, particularly leaf beetles of the genus *Chrysophtharta*, also cause considerable defoliation of native forests and *Eucalyptus* plantations. Without management, damage from leaf beetles would threaten the economic viability of a significant proportion of the eucalypt plantation estate in Tasmania.

Defoliation by native insects and the brushtail possum, coupled with drought, has also had a severe adverse impact on the health of native forests on rural land and in conservation areas of across extensive areas of central Tasmania. This has resulted in the development or intensification of crown dieback in recent years in those areas. Browsing by native mammals has also hampered efforts to implement recovery plans for threatened species. For example, prolific regeneration of the Nationally endangered plant species *Tetratheca gunnii* was heavily browsed by native mammals after a planned high intensity burn.

Spotlight census data collected over two decades by the Nature Conservation Branch (Department of Primary Industries, Water and Environment) has shown a steady rise the populations of several native mammals that have achieved pest status on forest, agricultural and conservation land in the State. Land management has undoubtedly contributed to this increase in populations. The "edge-effect" provided by a mosaic of cleared agricultural land, young forests and regrowth / mature forests provide ideal habitat for mammalian herbivores. Changes is forest practices have also increased this "edge effect" through the progressive reduction in harvest areas and the greater retention of narrow strips to protect riparian systems. Possible moves towards in variable retention harvesting systems in mature forests would further add to browsing risk.

While native animal pests are currently the major biological threat to the health and productivity of forests (production and conservation), a number of exotic species (mainly insects) significantly affect the health and productivity of forests in Tasmania.

The sirex wood wasp posed a significant threat to Tasmania's fledgling radiata pine estate in the 1960's. The development of an effective biological control has largely contained the pest although ongoing vigilance (anneal surveillance and monitoring) is required to prevent damaging outbreaks like occurred in South Australia in the late 1980's when several million trees were killed. The establishment of the European wasp (*Vespula germanica* and more recently *V. vulgaris*) in Tasmania has had significant biodiversity impacts within forest areas. Monitoring of native insect populations at the Warra Long Term Ecological Research site recorded an almost complete elimination of populations of some native flies soon after the establishment of *V. germanica* in the area. As well, the European wasp poses an ongoing OH&S issue to forest workers and increasingly to tourists visiting Tasmanian forests.

Management of pest animals in Tasmanian forests

a. Established pests

Forestry Tasmania conducts annual surveillance of it's entire plantation estate to detect significant damage caused by pests (insects and mammals) and diseases. This program is the basis for identifying areas requiring remedial treatment and is also the basis upon which data is gathered for national reporting (eg. State of the Forests). The cost of this program is in the vicinity of $300,000.

The annual cost for managing browsing mammals in eucalypt plantations on State Forest has been estimated to be about $150,000. The amount spent on State Forests in managing browsing in native forest regeneration areas is in the vicinity of $75,000 annually. Traditionally, management to protect new plantations and native forests from mammal browsing has relied on reducing browser populations, when necessary, by poisoning with compound 1080. However, this method of control is controversial and generates considerable public debate in Tasmania and is currently under the spotlight of government regulatory authorities (including APVMA). The forest industry in Tasmania has been actively supporting research and development into alternative methods of managing mammalian pests. Forestry Tasmania and the Co-operative Research Centre for Sustainable Production Forestry have largely been responsible for conducting this research into alternatives, spending in excess of $0.5 million dollars annually over the past few years. Forestry Tasmania has reduced the amount of 1080 used during the past three consecutive years.

Forestry Tasmania spends about $120,000 annually in managing outbreaks of insect pests in eucalypt plantations. The management of outbreaks of native defoliating insects in plantations is not as controversial as the management of browsing mammals. However, Forestry Tasmania has an objective of reducing chemical use and has developed a sophisticated integrated pest management (IPM) program to prevent serious damage from leaf beetles in eucalypt plantations. Until recently this relied on the use of a synthetic pyrethroid insecticide that killed not only the target insect pest but also a wide range of non-target insects, including beneficial insects. The development of the leaf beetle IPM and the testing necessary to enable the registration of more environmentally-friendly insecticides is the result of more than two decades of research. Over recent years there has been similar level of expenditure on research to develop management for controlling outbreaks of native insect pests in

eucalypt plantations as that reported previously for managing browsing mammals. Outbreaks of indigenous defoliating insects in native forests (multiple use and reserves) are not managed.

For the past two years Forestry Tasmania has been involved in research to develop a management strategy for reducing high European wasps populations in advance of silvicultural operations such as pruning. Similar controls are also being developed for forest-based tourist facilities experiencing problems with high populations of European wasps.

b) Exotic pests (yet to establish)

A number of exotic insects have been identified as posing a significant threat were they to establish in Tasmania (and Australia). While quarantine provisions are relatively effective they do not eliminate the risk of entry of alien species and regular interceptions of exotic insects are made. Current systems for post-barrier protection against the establishment of exotic pest species of forest species are limited, and target only Asian Gypsy Moth. While this species poses a considerable threat to trees in production, conservation and amenity situations it is by no means the only exotic threat. Enhancement of post-barrier inspection to detect breaches of the quarantine barrier would greatly strengthen our capacity to prevent the further establishment. Forestry Tasmania has been collaborating with the Office of the Chief Plant Protection Officer (OCCPO) to refine and test static trapping techniques to target a broad spectrum of exotic insect pest threats. The system developed is similar to, but with enhanced trapping capabilities, to that recently installed in New Zealand for interception of forest (and horticultural) insect pest threats.

Barriers and impediments for the effective management of pest animals

Forestry Tasmania, has been the Australian leader in the development of operational controls for insect pests that substitute the use of broad-spectrum insecticides with more environmentally-friendly insecticides. Compared with agriculture, forestry is a very small market for agricultural chemicals. This has caused some reticence among the agrochemical companies to proceed with registration for use on of their environmentally-friendly chemicals in forestry situations. This is because the cost (of registration) relative to the size of the market is very high. Although

One impediment to the rapid response following detection of exotic pest animal (invertebrates and vertebrates) incursions is the lack of agreement on equitable cost-sharing arrangements between government and industry. This has yet to result in the avoidable (eradicable) establishment of a significant pest. However, it is a risk if that lack of cost-sharing agreement results in delays in mounting an eradication campaign following the detection of an exotic pest incursion.

The establishment of broad-spectrum post-barrier surveillance system in Australia is dependent upon agreement upon equitable cost-sharing provisions among beneficiaries. Tasmania, through it's Forest Health Advisory Committee (a State-based committee linked to the Forest Health Committee) and OCCPO are attempting to develop a model for post-barrier surveillance and cost-sharing provisions for exotic forest pests that might be adopted Nationally.

A particular difficulty with cost-sharing for the forestry sector is that the beneficiaries are much more diverse than in the agricultural sector. Beneficiaries for the exclusion of exotic pests that threaten native species that are also commercially important (eg. *Eucalyptus*) are so diffuse that it may be more efficient to fund through government as a public benefit (this is what is done in New Zealand for forestry pests generally). Even exotic commercial forestry species such as *Pinus* are more difficult to identify the beneficiaries than most agricultural crops. This is because of the widespread planting of the genus as an amenity tree in urban situations. Incursions, when they occur are more likely to be in urban situations near ports and the cost of eradication is very high because trees are much more expensive to remove and destroy in urban situations than in forest settings. It is unreasonable to use the agricultural model for cost-sharing under this setting because the non-industrial beneficiaries (private landowners and municipal councils in metropolitan areas) also impose very high eradication costs (relative to forestry) when incursions occur in their domain.

Forestry Tasmania would welcome the opportunity to further participate in the inquiry during its public meeting phase.

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