DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

POLICY STATEMENT NO 47

CONTROL OF SIREX WOODWASP IN PINE PLANTATIONS

OCTOBER 1992

1. OPERATIONAL OBJECTIVE

To monitor pine plantations for the presence of Sirex, to adhere to prescribed silvicultural practises so as to disfavour Sirex establishment, and to adopt biocontrol procedures endorsed by the National Sirex Control Strategy should Sirex establish in Western Australia.

2. DEFINITIONS

"Sirex"	*Sirex noctilio* Fabricius (Hymenoptera: Siricidae).
"Trap trees"	pine trees (both radiata and pinaster) selected each November and injected with a low concentration of herbicide, resulting in their slow death but continued attractiveness to adult Sirex. The injected trees are put under stress before surrounding (uninjected) trees are stressed naturally (usually in Autumn).
"Eradication"	deliberate extirpation of Sirex populations.
"Control"	reduction of Sirex populations to low levels (thereby causing little economic damage) through the use of prescribed silvicultural management and introduced biocontrol agents.
"Biocontrol Agents"	a species of nematode and several species of parasitic wasps present in the natural range of Sirex in Europe, now lawfully introduced to Australia, and already used successfully to control Sirex in several eastern states of Australia.

3. BACKGROUND

Introduction of insect

Sirex was accidentally introduced to New Zealand in the 1920's and from there to Tasmania (1952), South Australia and New South Wales. The Cumming Committee recommended in 1952 that quarantine precautions against Sirex should be intensified. Live specimens of Sirex were first intercepted at Fremantle in 1951, in precut houses from Italy on the SS Maria Luisa. An expensive publicity campaign among Forests Department staff in 1953 did not result in any records of Sirex in plantations in south west Western Australia. However, adult wasps were collected in 1953 at Subiaco, having emerged from crates recently unloaded from a ship at Fremantle. All crates were fumigated and no establishment resulted. In 1962 and 1963 Forests Department staff inspected dead and dying trees in pine plantations and conifers growing on private property, but no evidence of Sirex was discovered.

Siricid larvae (not always identifiable to species) in wood are still regularly intercepted at Fremantle, according to records held by Australian Quarantine Inspection Service. However, trap tree monitoring carried out by CALM since 1988 has found no evidence of Sirex presence in Western Australia.

Spread

It is taken Sirex nearly 30 years to disperse overland the 700km distance from near Melbourne north west to the Mount Lofty Range near Adelaide. Although the Nullarbor Plain constitutes a natural barrier, it is necessary to take other precautions to ensure that Sirex does not become established in Western Australia.

Potentially affected areas

CALM is responsible for the management of about 70,000 hectares of pine plantations in south west Western Australia. Sirex infestation is more likely to occur in stands experiencing drought stress caused by shallow soils, or overstocking, or those containing many suppressed or dead trees or from other causes. Droughts are a recurrent feature of the south west. It is the experience of Victoria and South Australia that Sirex under these conditions can cause very high mortality of trees.

Effect of infestation

The female wasp oviposits from November to April in sapwood of physiologically stressed pine. Spores of a wood rotting fungus are introduced at the same time. This fungus spreads through the cambial layer and eventually ringbarks the tree. Timber is also degraded by larval galleries and emergence holes of adults. The larva lives within the heartwood and sapwood usually for up to one year, sometimes two. In South Australia the peak period for emergence of adults is February and March.

Control measures

Biocontrol of Sirex has proved feasible in Victoria and South Australia, but successful biocontrol depends on early detection and prompt action. Wasp infested trees are inoculated with the nematode Deladenus siricidicola. One form of this nematode can invade Sirex larvae and ultimately destroy the egg embryos within their ovaries, thus normally, they introduce nematode-infested non viable eggs and the Sirex fungus into the sapwood. (These females can therefore still kill pine trees). Several species of parasitic wasps deposit their eggs in Sirex larvae and this further helps reduce the population size of Sirex.

Funding

A National Sirex Fund was established at the direction of the Premiers Conference of February 1962. From then until the present the State forest Services have contributed more than $1.15M towards research on developing effective methods of control of Sirex. During this period Western Australia contributed $107,000, 9.3% of the total.

4. POLICIES

The Department will:

4.1 Monitor annually pine plantations for the presence of Sirex.

4.2 Undertake silvicultural management practises to sustain the vigour of pine trees in plantations and thereby disfavour establishment of Sirex.

4.3 Attempt to eradicate Sirex if an infested area is small.

4.4 Should Sirex establish, immediately introduce biocontrol agents to as to reduce Sirex infestations to economically acceptable levels, using the procedures documented in the National Sirex Control Strategy.

5. STRATEGIES

The Department will:

5.1 Organise, through the Softwood Silviculturalist and District Plantation officers in the Swan, Central Forest, Southern Forest and South Coast regions, continued trap tree monitoring and training of staff; publicise means of recognising Sirex to workers at pine mills and in private plantations; and prepare an annual report on Sirex.

5.2 Ensure that first thinning of stands will take place in such a way as to minimise water stress to trees, and that stand basal area thereafter will be kept at a level prescribed by the Softwood Silviculturalist.

5.3 Should the presence of Sirex be confirmed, immediately quarantine the affected plantation thereby preventing movement of pine material from it. If the affected area is small, consideration will be given to a search and destroy operation for eradication of Sirex.

5.4 Contribute annually an agreed financial contribution to the National Sirex Coordination Committee to ensure that stocks of biocontrol agents are maintained by an appropriate Government research facility in the eastern states to be available for use in Western Australia for use in Western Australia if required.

5.5 Implement, through the National Sirex Co-ordination Committee, the introduction of biocontrol agents (inoculation of trees with nematodes, release of parasitic wasps to any affected plantation) and evaluate their ecological impact.

Syd Shea
EXECUTIVE DIRECTOR