Future scientific research directions – pests and diseases

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The sustainable management of tuart forest and woodland should rely on a cross-disciplinary, co-ordinated, and integrated approach. *Ad hoc* surveys and general collecting of fungi, bacteria, viruses and invertebrates in the existing forest and woodland are unlikely to contribute to the resolution of how to care for the tuart community on a long-term basis.

A more pro-active focus on establishing a variety of relevant treatments, including thinning of tuart, thinning of wonil, and more frequent low intensity burning, should provide a useful arena for study. In determining knowledge goals, clear thinking is essential in order to avoid producing knowledge that is intellectually gratifying but tangential to understanding mechanisms and patterns of decline. We need to be mindful of causation chains and attempt to distinguish factors that are not relevant from those that are indirect/secondary/contributing or direct/primary/inciting. Cross-linkages have to be worked out. An appropriate first hypothesis is that pest insects and diseases are secondary, not primary, factors in the current decline of tuart.

Major research gaps include the apparent unavailability of basic information on groundwater levels (both current and before the decline became evident) and soil fertility gradients, together with uncertainty about the appropriate scale at which to apply the treatments listed previously (perhaps several hundreds of hectares). Highest priority research should investigate the effect of these treatments on activity/population size of potential insect pests and disease-causing organisms. Tuart should be included in a more comprehensive sampling program for the Mundulla Yellows virus/viroid.

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Ian Abbott is Science Adviser to the Director of Science Division and a Senior Principal Research Scientist in the Department of Conservation and Land Management. He holds degrees from 3 universities – Sydney (B Sc), Monash (Ph D) and UWA (D Sc) – and has conducted field research in New South Wales, Victoria, Tasmania, Galápagos (Ecuador) and Western Australia. Ian has developed expertise in island, forest, fire and historical ecology, biogeography, and with trees, birds and invertebrates.

In 1984 he commenced research in forest entomology in jarrah forest, particularly the pest Gondwanan insect species known as jarrah leafminer. Currently he leads a team of three officers active in studying the ecology of invertebrates in relation to logging, fire and environmental gradients. Ian has published more than 20 papers about earthworms and arthropods in jarrah and karri forests and bluegum plantations.

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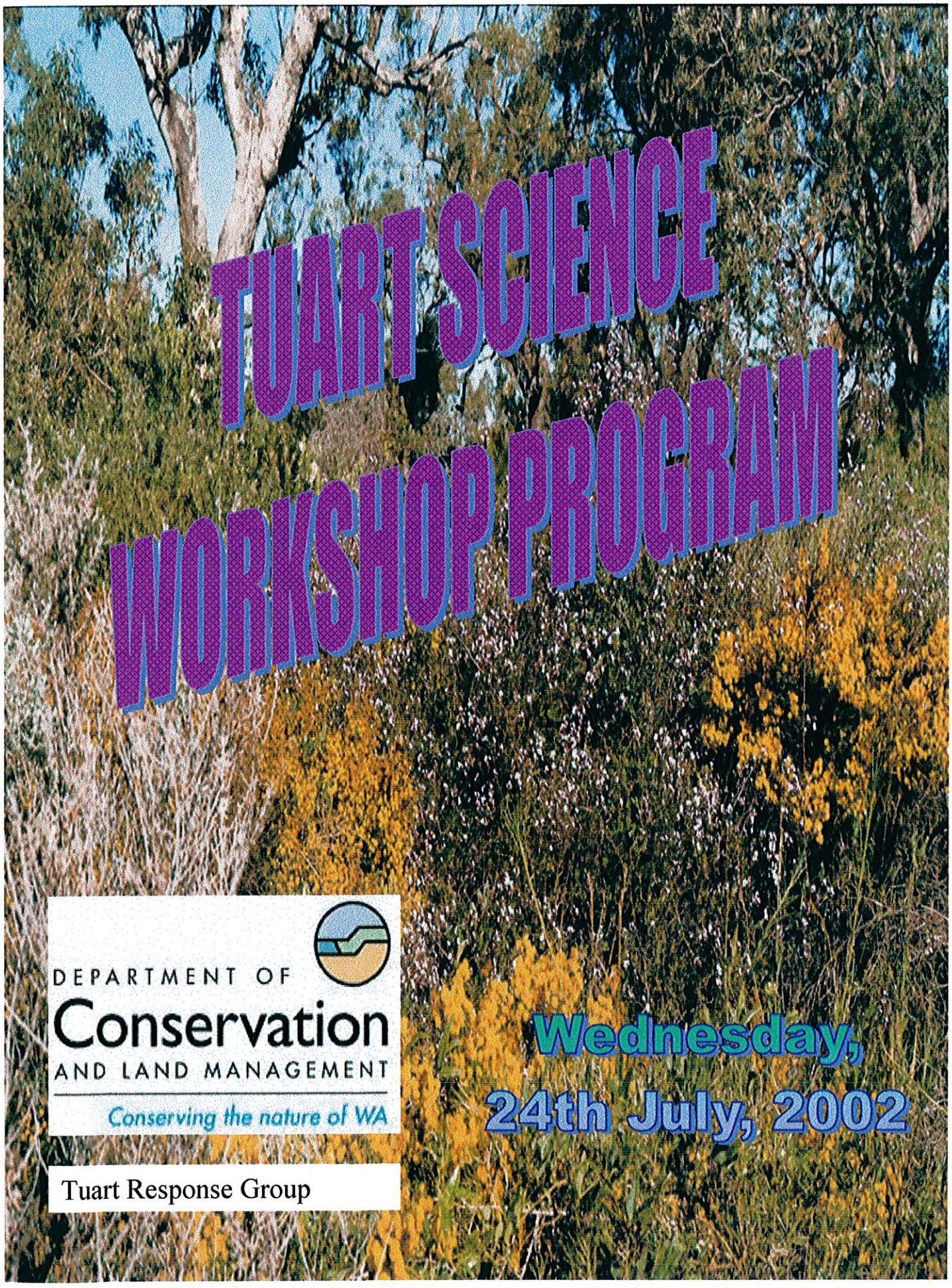

TUART SCIENCE WORKSHOP PROGRAM

DEPARTMENT OF
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Conserving the nature of WA

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Tuart Response Group