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Conserving threatened fauna in production forests: the Tasmanian process

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Conserving threatened fauna in production forests: the Tasmanian process

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The Tasmanian Forest Practices Code requires that threatened fauna species likely to be affected by forestry activities are taken into account in Timber Harvesting Plans. To satisfy this requirement a process was developed which ensures that Forest Practices Officers responsible for drawing up timber harvesting plans have access to all known locations of species, simple descriptions of their habitats and recommendations for their conservation. Success of the process depends on providing information in a "user-friendly" format, co-operation between participants, research to enable the development of meaningful management recommendations and monitoring of the outcomes of the process.

INTRODUCTION

REVISION of the Tasmanian Forest Practices Code in 1993 introduced a series of measures to cater for fauna conservation (Taylor 1991a and b), including the requirement that threatened species be taken into account in Timber Harvesting Plans on Crown land, and also on Private land if the species is inadequately reserved on Crown land. Threatened fauna species lists were subsequently developed (Invertebrate Advisory Committee 1994; Vertebrate Advisory Committee 1994; Taylor and Bryant 1997) and included in the schedules of the Tasmanian *Threatened Species Protection Act 1995*. This chapter outlines the process which was implemented to satisfy the intent of the Code in relation to management of the listed threatened species which occur in the production forest matrix. It also discusses ways in which the process is being further developed and formalized to meet the requirement of the Tasmanian Regional Forest Agreement (1997).

THE PROCESS AND ITS USE

The steps involved in the assessment and planning process for Threatened Fauna during the drawing up of Timber Harvesting Plans are based on consideration of range and likely presence of habitat (Fig. 1.) The "Threatened fauna manual for production forests in Tasmania" (Jackson and

Taylor 1995) plays a central role in the process. This manual includes the 79 threatened invertebrate species and nine threatened vertebrate species listed in the Tasmanian *Threatened Species Act 1995* which occur in vegetation types or areas affected by forestry activities. The manual is divided into two parts and is designed to be "user friendly". The first part of the manual contains map based information on the known range of these threatened fauna species and their habitats to enable a determination to be made of the likelihood of the presence of threatened fauna species. Information on the biology, distribution and habitat requirements of each threatened species is presented in the second part of the manual. Selected Forestry Officers from each district and company also undergo training in the identification of threatened species habitat. Site surveys by specialists are undertaken in some cases.

Advice is sought by the Forest Practices Officer if the coupe or area to be harvested is identified as being within the range of a threatened species and contains habitat important for that species. The actions required are formulated by the Forest Practices zoologist in consultation with Parks and Wildlife specialists following the procedure outlined in the Tasmanian Forest Practices Code (Forestry Commission 1993). An example of logging recommendations for the protection of habitat important for two threatened species, the Grey

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Threatened fauna notification process

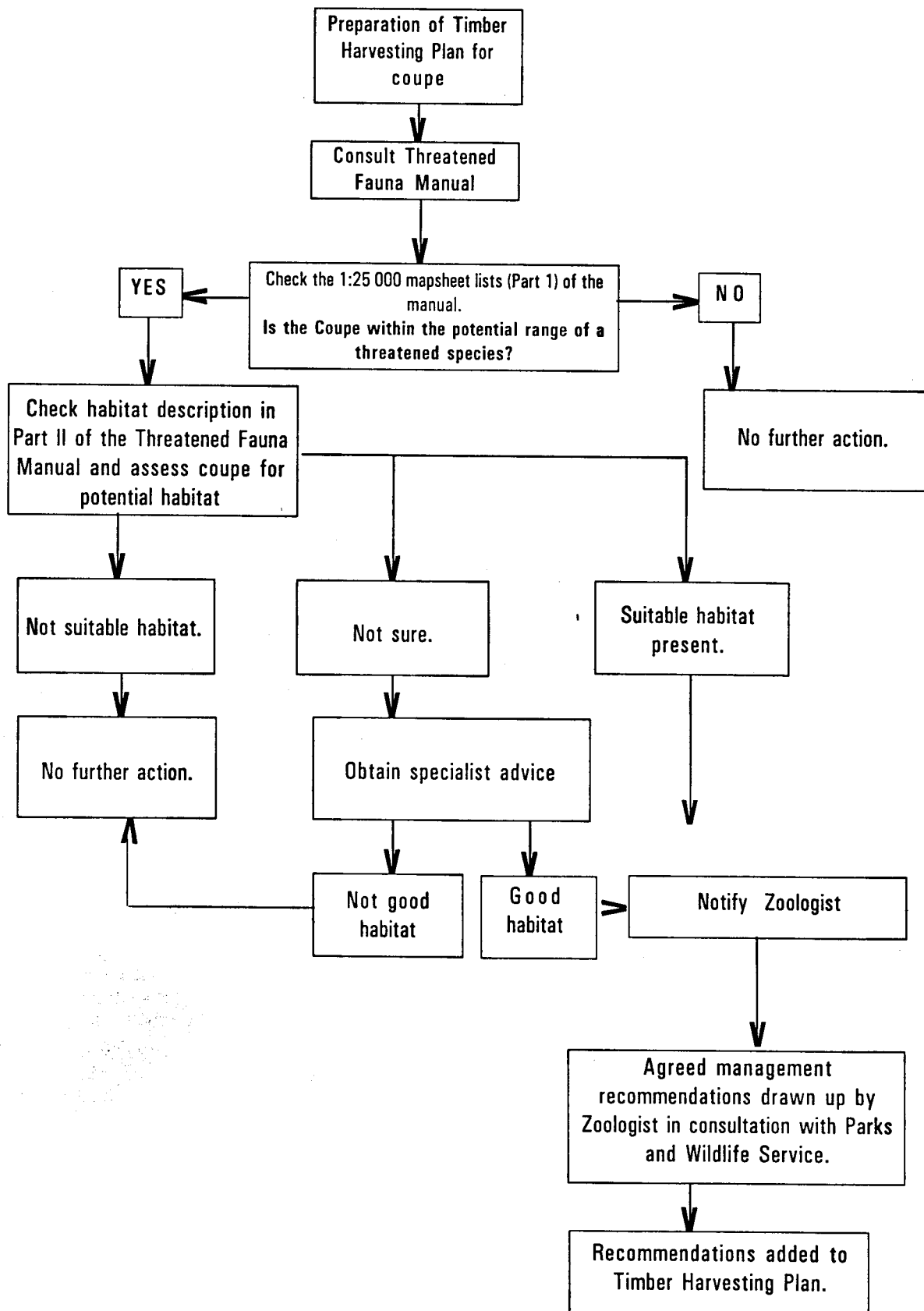


Fig. 1. Flow diagram illustrating stages in "Threatened Fauna Notification Process".



Fig. 2. Coupe map from the north-west of Tasmania illustrating implementation of actions recommended for the giant freshwater crayfish and grey goshawk via the "Threatened Fauna Notification Process". Shaded area = reserved area. Note exclusion of most riparian areas alongside small streams.

Goshawk *Accipiter novaebollandiae* and the Giant Freshwater Crayfish *Astacopsis gouldi* is given in Figure 2. The recommendations for both these species were based on available information on their habitat requirements (Mooney and Holdsworth 1988; Brereton and Mooney 1994; Lynch and Bludorn 1997) and involve additional reservation of riparian areas.

MONITORING

Monitoring of the Threatened Fauna Notification Process and implementation of the resultant recommendations is vital for subsequent refinement and to gauge the effectiveness of the process. There has been a significant increase in notifications between 1995/96 and 1996/97 (Table 1). Requests for advice for all 18 species increased almost four fold (from 116 to 428). This increase is partly due to the increased acceptance and utilization of the Threatened Fauna Notification Process but is also due to a significant increase in forestry activities within the range of certain listed species.

Monitoring of the application of recommendations in the field is undertaken as part of the annual auditing of forest practices carried out by the Forest Practices Board. The results of the 1996/97 audit, with respect to threatened fauna, are illustrated in Table 1. This audit samples at least 15% of the 800–1 000 Timber Harvesting Plans each year. Two of the nine fauna questions assessed by the monitors cover the threatened fauna process. One question aims to assess if the process has been followed correctly and the other checks if the recommended prescriptions have been implemented in the harvest area. The results for 1996/97 suggest that there is still room for improvement with respect to following the process but where it has been followed the prescriptions are generally implemented satisfactorily in the field.

To date, assessment of the success of management for ameliorating the effects of forestry operations on threatened species has only been carried out in detail for the endangered Wedge-Tailed Eagle *Aquila audax fleayi* (Mooney and Taylor 1996). Forestry activities threatening the long-term survival of this species include disturbance and loss of nests during logging operations. Monitoring of the use of protected and unprotected nests in disturbed areas showed that implementation of protection measures for nest sites markedly improved the breeding success of the eagle pair subject to the disturbance. Collection of such information is important to maintain confidence amongst forest managers in the actions recommended via the Threatened Species Notification Process.

DEVELOPING RECOMMENDATIONS — THE IMPORTANCE OF RESEARCH

The ultimate success of the process depends upon a thorough knowledge of the distribution and habitat of a species and a knowledge of the impacts of forestry operations. Since few of the species, particularly the invertebrates, are known well enough to provide such information, research is being undertaken into the requirements of threatened species as funds permit. The results of two recently completed research projects highlight the importance of such research to aid in the development of meaningful recommendations.

The Scottsdale Burrowing Crayfish *Engaeus orramakunna* was listed as Vulnerable in the *Tasmanian Threatened Species Act 1995* due to its restricted distribution (only three known localities in 1995) and presumed sensitivity to habitat disturbance. However, a recent study by Doran and Richards (1996) has extended the distribution of the species from the three known original sites to seventy-nine known sites which include several gazetted reserves. The study also suggests that the species is highly tolerant of disturbance due to forestry activities with healthy, reproductively active individuals found in high numbers in culverts, streams in pine plantations and small drainage areas in cleared and burnt plantations.

Another recent study investigated the distribution and habitat characteristics of a Stag Beetle *Hoplogonus simsoni* (Meggs 1997). This study confirmed the restricted distribution of the beetle and supported its listing as Vulnerable. Generalized linear modelling was used to identify the characteristics of habitat important to the species. The models produced were coupled with spatial information to produce Geographic Information System maps predicting the distribution and abundance of the beetle throughout its range. This information is currently being used to develop management recommendations, in collaboration with relevant experts and forest managers, for areas of importance to the species and the forest industry.

FUTURE DIRECTIONS

The success of the Threatened Fauna Notification Process relies heavily on co-operation between government agencies, forest companies, private forest consultants and private landowners. It also depends on the quality and regular updating of information provided in the Threatened Fauna Manual. The need to supply advice for an increasing number of areas and individuals, the lack of funds for additional zoological trained staff and the costs

Table 1. Outcome of recommended actions given for the conservation of threatened fauna species.

Land tenure	Number of coupes		No changes required to operation		Recommendations given		Part or all of the coupe excluded from logging	
	95/96	96/97	95/96	96/97	95/96	96/97	95/96	96/97
Private	72	150	67%	22%	30%	78%	3%	53%
State Forest	37	106	70%	7%	16%	92%	14%	69%

involved in regularly updating the Threatened Fauna Manual has led to the need to develop a Decision Support System (Expert System). This captures current scientific and expert knowledge with respect to each species and enables the forest manager to arrive at the recommended action for some harvest areas. It is hoped that use of the programme by forest managers in the future will free resources for more pre-logging site assessments of problem areas and scientific monitoring projects.

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