



Lakes Sorell and Crescent Catchment Management Plan

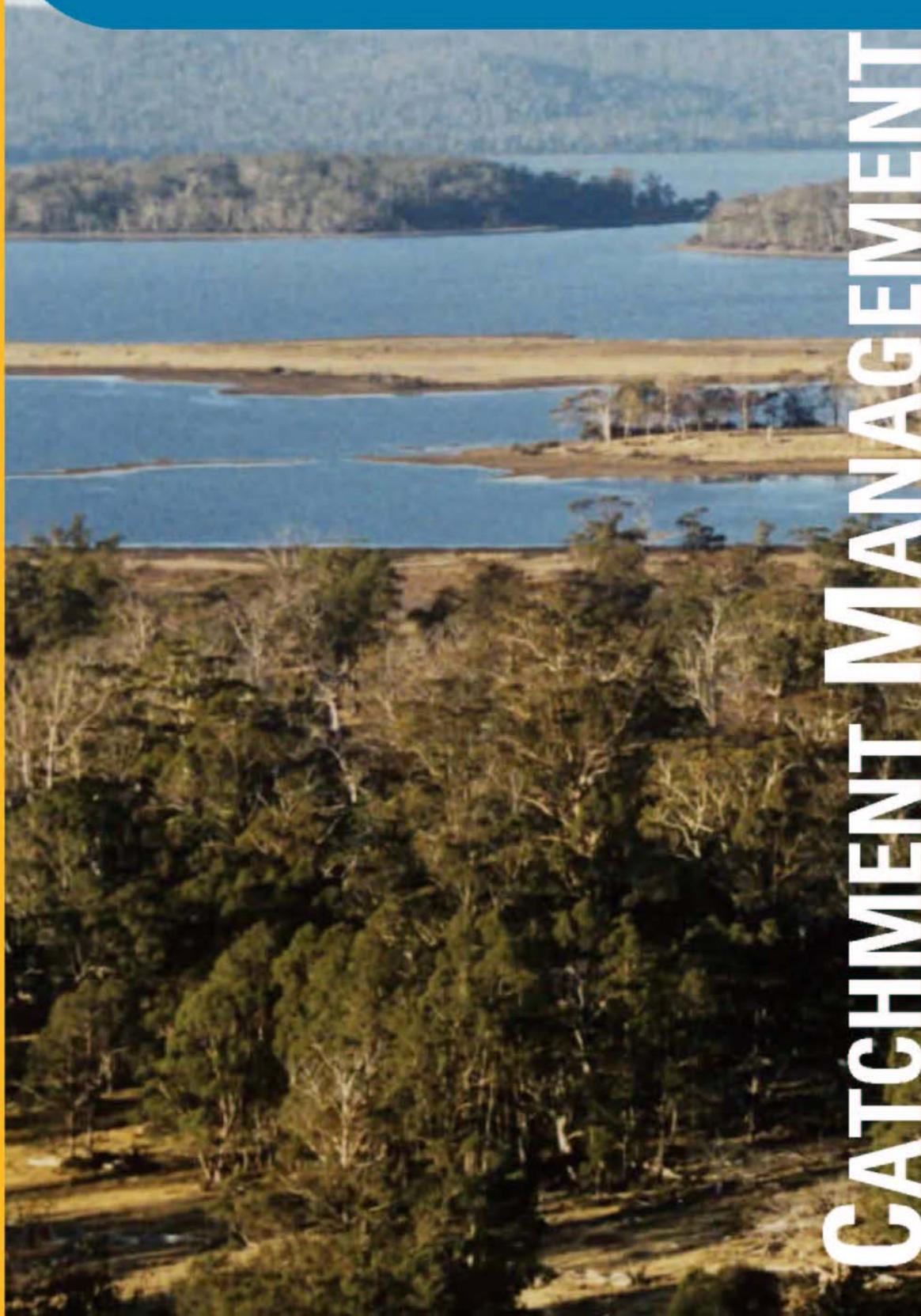
*Rehabilitation
of Lakes Sorell
and Crescent
Report Series*

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Tasmania



CATCHMENT MANAGEMENT

Lakes Sorell and Crescent Catchment Management Plan

**Integrated and multi-disciplinary approach to the
rehabilitation of Lakes Sorell and Crescent**

Jane Gudde

**Inland Fisheries Service
April 2004**



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This report is part of a series of documents, which provide management recommendations for the environmental requirements of lakes Sorell and Crescent as part of the Lakes Sorell and Crescent Rehabilitation Project.

The aim of the rehabilitation project is to obtain an understanding of the systems, identify the needs of the users of the lakes and subsequently provide recommendations for the future management and protection of these important ecosystems.

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Executive Summary

A decline in the trout fishery, water quality and ecological values of Lakes Sorell and Crescent has occurred over the past few years. In light of these problems, the Inland Fisheries Service (IFS) secured State and Commonwealth (Natural Heritage Trust) funding to implement on-ground works and formulate management options to address the recent environmental decline. The key problem associated with the lakes is low water levels due primarily to drought conditions and competition for water by various users. A multi-disciplinary project was adopted to address the situation – the *Lakes Sorell and Crescent Rehabilitation Project*. This project was comprised of ten sub-projects targeting key areas of physical and biological importance to the functioning and management of lakes Crescent and Sorell. The ten sub-projects were:

- Lake Crescent Outflow Screen Duplication
- Mountain Creek Rehabilitation
- Catchment Management Plan
- Water Management Plan
- Water Quality
- Wetlands
- Aquatic Fauna
- Recreational Fisheries
- Carp Management
- Ecosystem Dynamics and Ecological Modelling

This report outlines background information and management recommendations from the *Catchment Management Plan* sub-project.

This project aimed to examine the potential and actual impacts of land use in the lakes' catchment, and to make management recommendations which will protect environmental values and which are acceptable to land owners and managers. The reopening of Lake Crescent and the restoration of the trout fishery in both lakes are likely to increase the use of the catchment over the next few years. It is hoped that the Catchment Management Plan will pre-empt adverse impacts resulting from increased visitation.

The lakes are shallow highly productive water bodies which support diverse aquatic and wetland ecosystems. The total catchment area of 214 km² is relatively small for the size of the lakes, which themselves cover 75 km². The lakes' major tributaries are Mountain Creek and Silver Plains Creek which flow into the north and west of Lake Sorell respectively. Other tributaries of the two lakes drain low-lying marshlands within a few kilometres of the lakes. Extensive areas of wetland are found throughout the catchment, with significant wetlands on the margins of both lakes.

Land tenure in the catchment is largely private freehold. Crown Land includes the Dago Point campground, Interlaken Lakeside Reserve, two blocks adjoining Clyde and Robertsons Marsh, and the Mountain Creek catchment, which is part of the Great Western Tiers Conservation Area. An area of State forest lies along the northern edge of Lake Sorell.

Environmental features of value in the catchment include a number of threatened plant and animal species, various wetland ecosystems, generally high water quality in the lakes' tributaries, rare or underprotected vegetation communities, sites of geomorphological interest and Aboriginal and European cultural sites. Very few of these features are formally reserved for conservation purposes, although the recent inclusion of the Mountain Creek catchment in the Great Western Tiers Conservation Area and the listing of the four Crown-owned wetlands as Conservation Areas in the near future provide some protection.

The catchment is used for both commercial and recreational pursuits. Forestry operations and the grazing of sheep and cattle are widespread, and the area is visited by large numbers of anglers, hunters and campers. There are two camping areas and a small residential subdivision, which cater for the needs of recreational users. Although the current impacts of catchment land use are not great, the projected level of use of the area could cause significant decline. Potential impacts include:

- pollution of the lakes and wetlands by solid waste, wastewater and agricultural run-off,
- further damage to native vegetation communities particularly those around the lakes' shores,
- a decline in the visual integrity of the area,
- increased threats from weeds and fire, and
- soil erosion and subsequent increases in sediment in streams and lakes.

Management recommendations were prepared as a result of community comment and input and discussions with stakeholders, and responsibility for actions was assigned to the relevant individuals or organisations.

Recommended actions are grouped under seven issues – Camping and Recreation, Waste Management, Native Vegetation Management, Weeds, Signage, Fire Management and Future Development.

As this plan is not a statutory or regulatory document, it relies on the voluntary participation of private landowners, public land managers and all users of the catchment. The Inland Fisheries Service is committed to assisting in the implementation of this Plan and encourages other stakeholders to work towards the health of the lakes' catchment, for the benefit of all.

This Plan is a partner document to the Derwent Catchment Natural Resource Management Plan 2002, and acknowledges the objectives and principles in that work.

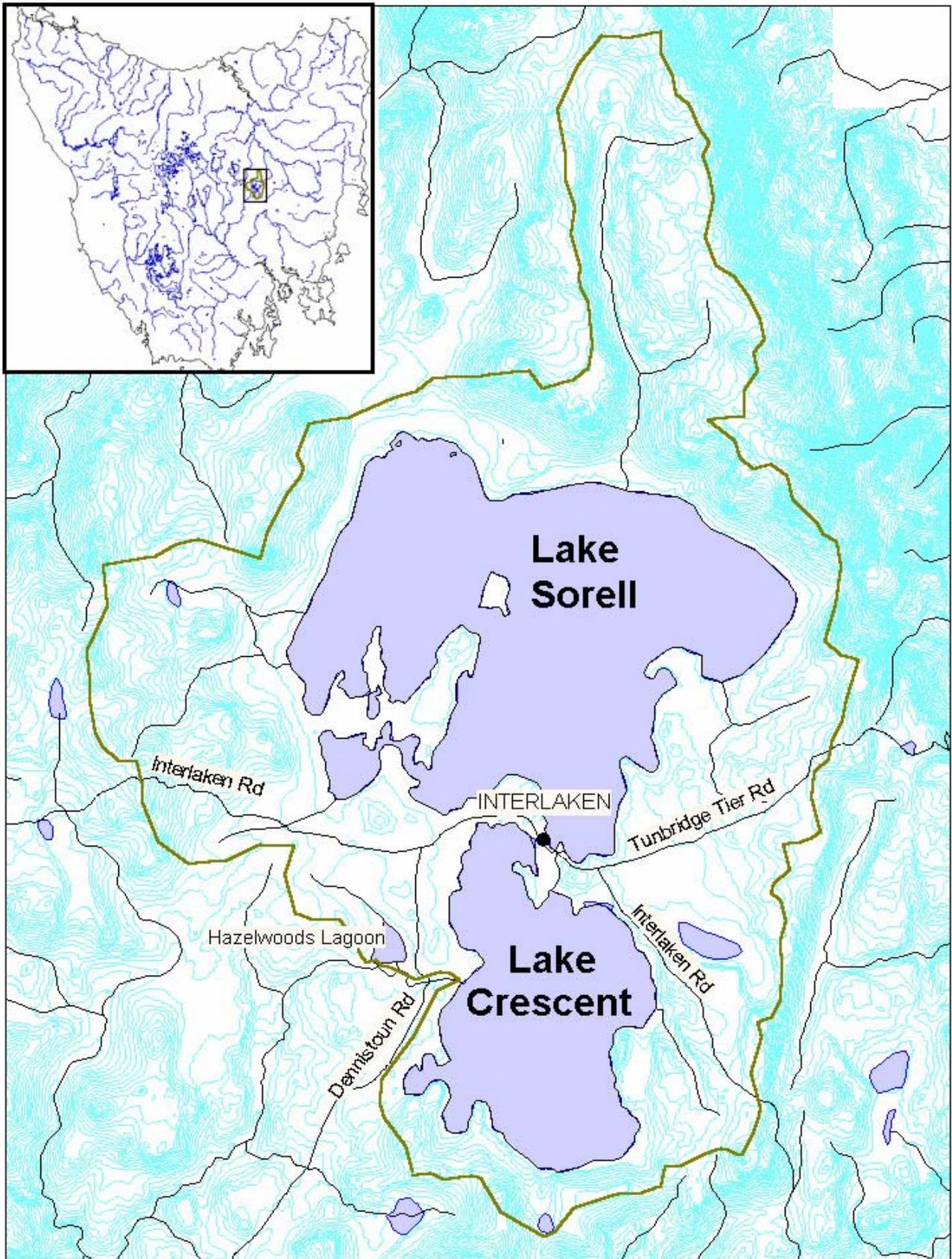
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I would like to thank all those people who responded to the call for public input by reading and commenting on the Plan. I am especially grateful to the Southern Tasmanian Licensed Anglers Association for their interest and involvement.

Table of contents

Catchment map	iv
1. Introduction	1
1.1 Description of catchment	1
1.2 Climate	1
1.3 Land tenure and zoning	1
2. Natural and Cultural Values	3
2.1 Wetlands	3
2.2 Water quality	4
2.3 Threatened species	4
2.4 Native vegetation	4
2.5 Fauna	5
2.6 Significant geomorphology	5
2.7 Cultural heritage	5
3. Land Use and Potential Impacts	6
3.1 Recreational use	6
3.1.1 Angling	6
3.1.2 Shacks and camping	7
3.1.3 Hunting	7
3.2 Agriculture	8
3.3 Forestry	8
3.4 Residential use	9
4. Other management plans	10
5. Recommendations, Actions and Responsibilities	11
Appendices	17



LAKES SORELL AND CRESCENT CATCHMENT BOUNDARY

1. Introduction

1.1 Description of the catchment

Lakes Sorell and Crescent lie on the south-eastern edge of Tasmania's Central Plateau at an altitude of between 800 and 805 m AHD. The lakes are the source of the Clyde River, which provides water for the towns of Bothwell and Hamilton and the agricultural regions surrounding them. Both lakes are shallow and highly ecologically productive and have large areas of wetland on their margins, with many smaller wetlands but few tributary streams in their catchments. Water flows from Lake Sorell into Lake Crescent via a canal of approximately 1 km in length. Historically, flows between the lakes and out of Lake Crescent have been regulated for irrigation purposes, and these will soon be subject to a Water Management Plan under development by the Department of Primary Industries, Water and the Environment (DPIWE). Since 1995 water management has also taken into account the need to ensure the pest fish species European carp is contained within the two lakes and to assist with its eradication.

The total catchment area covered by this plan is 214 km², of which approximately 35% is the surface area of the two lakes. Compared with other Tasmanian lakes this represents a very small catchment area for the size of the lakes. The surface areas of Lakes Sorell and Crescent are 52 km² and 23 km² respectively, with approximately 6% of the area of Lake Sorell and 16.5% of that of Lake Crescent consisting of wetlands around the lakes' perimeter. Other significant wetlands in the catchment which do not directly border the lakes are Kemps Marsh, an unnamed wetland east of Old Man's Head at Lake Crescent, Agnews Marsh, and the main lagoon at Lagoon Plain, which is the source of Mountain Creek. This management plan includes the catchment of another large wetland, Hazelwoods Lagoon, which lies adjacent to the Clyde River below Lake Crescent.

The only major tributaries are Mountain Creek which flows into Lake Sorell from the north and has a catchment area of 26 km², and Silver Plains Creek running into Lake Sorell from the west with a catchment area of 9 km². All other tributaries drain low-lying marshy areas within about 2 km of the perimeters of the lakes.

1.2 Climate

Mean maximum temperatures in the lakes area range from 23°C in February to 10°C in July, with a highest recorded maximum of 37.5°C (Bureau of Meteorology). Mean minimum temperatures lie between -0.2°C in July and 7.6°C in January, with a lowest recorded minimum of -12.5°C.

Median annual rainfall over the last 25 years is 654 mm. Rainfall is highly variable but tends to fall more in late spring and early summer, with October and November usually being the wettest months. Winds are generally westerly to north-westerly and October to December are the windiest months.

1.3 Land tenure and zoning

Figure 1 shows land tenure in the catchment. The majority of land is private freehold, with Conservation Areas, other Crown Land and State Forest making up the remainder. Areas of unallocated Crown Land were designated 'Public Reserve' as

part of the rationalisation of the reserve system following the Regional Forest Agreement (RFA) in 1997. Application has recently been made for Interlaken Lakeside Reserve, Robertsons Marsh, Clyde Marsh and Hazelwoods Lagoon to be listed as Conservation Areas.

The reserve to the north of Lake Sorell (Figure 1) was created as part of the Regional Forest Agreement, by integrating the former Lake Sorell Wildlife Sanctuary at the mouth of Mountain Creek with the rest of the Mountain Creek catchment to form a new reserve. It has been included in the Great Western Tiers Conservation Area and is administered by the Tasmanian Parks and Wildlife Service. A former Forest Reserve along the northern shore of Lake Sorell was removed from formal reserve listing and reverted to State forest, but the strip between the lake shore and the Mountain Creek Road, which is about 100 m wide, is classified as an informal reserve by Forestry Tasmania and is excluded from timber harvesting.

Council zoning is 'Rural' for all freehold land, and 'Water Conservation' for the lakes themselves and the Crown land block at the northern end of Lake Sorell. St Georges Island and the former Wildlife Sanctuary at the mouth of Mountain Creek (both at Lake Sorell) are zoned 'Conservation'. State forest land is zoned 'Forestry Purposes', with the exception of the former Forest Reserve, which is still wrongly zoned 'Conservation'. The delisting of the old Forest Reserve and the creation of the new Conservation Area need to be reflected in the Planning Scheme and the land appropriately rezoned. There are no processes in place by which newly-listed reserves such as Conservation Areas are automatically considered for rezoning.

Under the Central Highlands Planning Scheme 1998 (Part 6 Riverside, Lakeside and Wetland Areas), the use of previously unmodified land lying within 100 m of the full supply level of the lakes is discretionary, requiring Council development approval (with a standing exemption for forest operations in State Forests). Clearing of vegetation, drainage, excavation and land fill are conditional on specified actions for the protection of natural systems.

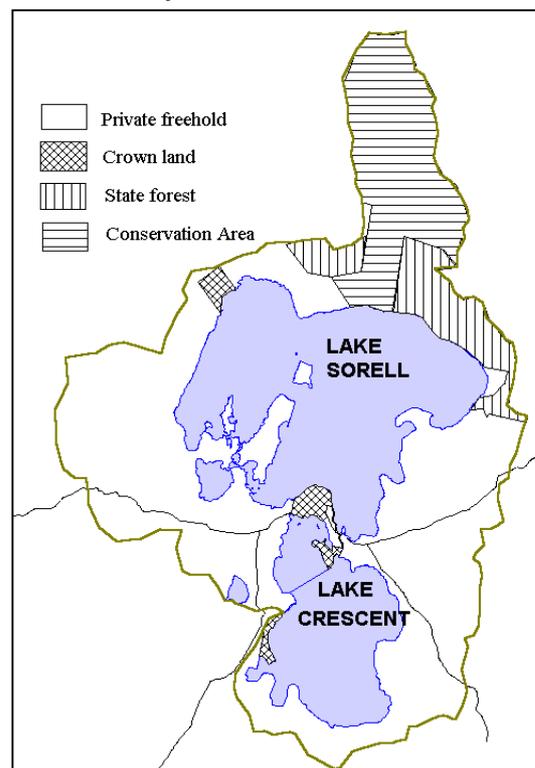


Figure 1
Land tenure

2. Natural and Cultural Values

2.1 Wetlands

The extensive wetlands around the margins of both lakes are an important part of the lakes' aquatic ecosystems. The macrophytes (aquatic plants) cycle nutrients from the water and are thus important in reducing nutrient levels in the lakes. Wetlands also provide habitat and food for fish, aquatic invertebrate and bird species and are essential for the successful reproduction of many species.

The wetland communities of Lakes Sorell and Crescent are distinct – Lake Sorell wetlands are classified as *Baumea arthropphylla* sedgeland and Lake Crescent wetlands are classified as *Triglochin procera* aquatic herbland. They also appear to have somewhat different invertebrate assemblages. All the wetlands have suffered from prolonged dewatering during the recent drought. Many plant species which were previously recorded are not currently present and widespread invasion by terrestrial plants, including exotics, is evident.

Interlaken Lakeside Reserve is an internationally recognised (Ramsar) wetland. Kemps Marsh and Interlaken Lakeside Reserve are listed as nationally important in the Directory of Important Wetlands of Australia 1996 by the then Australian Nature Conservation Agency (now Department of Environment and Heritage). Robertsons Marsh, Kemps Marsh, Interlaken Lakeside Reserve and the marsh at Silver Plains (on Lake Sorell) have been identified as having State significance.

The level of protection for conservation varies among the wetlands. Interlaken Lakeside Reserve is a Public Reserve under the *Crown Lands Act 1976*, managed by the National Parks and Wildlife Service. The grazing lease on this area was voluntarily relinquished in 2002 and the wetland was subsequently fenced off from stock. Hazelwoods Lagoon has also been fenced, as a joint community / Inland Fisheries Service initiative with the agreement of the owner of the surrounding private land. Robertsons and Clyde Marshes (Crown leasehold and private freehold, respectively) remain without any protection. Kemps Marsh and the marsh at Silver Plains are privately owned and managed as part of the Interlaken Estate grazing operation.

At the time of writing the formal reservation of Interlaken Lakeside Reserve, Hazelwoods Lagoon, Robertsons Marsh and Clyde Marsh as Conservation Areas is underway. The controlled use of natural resources may be allowed in Conservation Areas under the *National Parks and Reserves Management Act 2002*, with the Tasmanian Parks and Wildlife Service able to disallow, limit or regulate such use. Indications are that hunting will no longer be allowed in the Interlaken Lakeside Reserve.

Options available to protect Robertsons and Clyde Marshes from the impacts of grazing include a requirement on adjacent landowners to fence property boundaries, fencing at the high water level of the wetlands or in the case of Robertsons Marsh, revocation of the grazing lease on adjacent Crown land.

The following three reports contain detailed ecological analyses of the major wetlands- *Wetlands of Lakes Sorell and Crescent : Conservation and Management ;*

Interlaken Lakeside Reserve : Ramsar Wetland Management Plan and Hazelwoods Lagoon : Aquatic Vegetation Survey (Heffer, D. K. Inland Fisheries Service Report Series Numbers 6/1, 6/2 and 6/3 2003)

2.2 Water quality

Lake Crescent is a turbid, phytoplankton-dominated, extremely productive water body and Lake Sorell is historically relatively clear and dominated by macrophytes. In recent years water quality has deteriorated in both lakes as a result of extremely low water levels caused by drought conditions.

Understanding and improving water quality was one of the major objectives of the Lakes Sorell and Crescent Rehabilitation Project (2000-2003), which found that the recent state represents a major deviation from historical patterns. Sediment resuspension from the lake bottom was identified as the main factor causing poor water quality as well as ecological impacts from low light penetration, high nutrient levels, high turbidity and increased algal biomass (*Water Quality in Lakes Sorell and Crescent : Underlying Processes and Management Options* Uytendaal, A. Inland Fisheries Service Report Series Number 5 2003). Minimum lake levels at which resuspension will not occur were recommended and are being adopted in the lakes' Water Management Plan.

The study found that catchment processes and activities had little impact on water quality in both lakes, with the exception of high nitrogen levels in Agnews Creek. These were found to significantly increase the nitrogen loading in Lake Crescent and are a cause for concern as Lake Crescent has naturally high nutrient concentrations.

2.3 Threatened species

Twelve plants, four birds, one frog and one fish found in the area are listed as vulnerable, endangered or rare in the *Threatened Species Protection Act* 1995. The status of an additional plant species is uncertain as a previously listed species has been split into more than one species (Appendix 1). All except two of the threatened plant species are found in the wetlands and the native fish and frog rely on the wetlands for habitat and food.

2.4 Native vegetation

Most of the catchment is covered by dry sclerophyll forest dominated by *Eucalyptus delegatensis*, which extends to the high water level around much of the lakes. *E. pauciflora* and *E. rodwayi* are also important components of the forested areas. Native grasslands, sedgeland, grassy woodlands and heathlands are found in various areas including Lagoon Plain and behind the sand dunes on Lake Crescent. These are areas with high plant diversity, including both highland and lowland species, and warrant detailed botanical surveys.

Threatened plant communities in the catchment include *E. tenuiramis* inland forest, *E. rodwayi* forest, old-growth *E. pauciflora* forest on dolerite, *Poa* grassland, highland grassy sedgeland and sedgy grassland and non-sedgy enclosed wetlands. (Appendix 2 has a list and maps showing the distribution of the more widespread of these communities).

Tree decline is evident around the shore between Kemps and Kermodes Bays, at Dogs Head and Jacks Point. In some parts there are no live trees left standing. It is widely believed to be related to drought conditions and affects some species more than others. In other affected areas in the wider Derwent catchment the problem has been helped by revegetating and /or fencing out stock to encourage regeneration.

2.5 Fauna

The area is remarkably rich in faunal species, with 97 bird species (of which 4 are introduced), 31 mammals (5 introduced), 9 reptiles, 7 amphibians and 6 fish (4 introduced).

Wedge-tailed eagles are believed to nest in the southern part of the catchment and sea eagles are known to nest in at least two sites close to the lakes, possibly more. The Tasmanian mountain shrimp *Anaspides tasmaniae* has been found in both tributary creeks on the western side of Lake Sorell. Its occurrence here represents one of the lowest altitude and easternmost surface water records of this 'living fossil' species.

A fauna species list can be found in Appendix 3.

2.6 Significant geomorphology

The alluvial fan delta at the mouth of Mountain Creek is listed as a significant site for geoconservation. The sand dunes on the eastern side of both lakes are unusual aeolian deposits, originating relatively recently (within the last 5,000 years). They appear to be moving inland and deepening as a result of the greater exposure of the lake bed when the water levels are low. The Mountain Creek delta is part of the Great Western Tiers Conservation Area and the sand deposits on Lake Sorell are protected as a river reserve.

2.7 Cultural heritage

Previous surveys by Aboriginal cultural heritage consultants have recorded at least 14 significant cultural sites around both lakes and it is likely that more are present (Aboriginal Heritage Office pers.comm.). The southern and eastern shores of Lake Crescent appear to be particularly rich in Aboriginal artefacts and display a number of the indicators of high sensitivity which are used to identify significant sites, such as outcrops overlooking lakes and expanses of grassland surrounded by forest.

Europeans explored the area in the early 1800s and settlers first took up land near the lakes in the 1820s. Early skirmishes with natives and the use of the area by Irish exiles are well-documented. European heritage sites include the ruins of a stone cottage at Dogs Head, stone walls on St Georges Island, fish traps at Dogs Head and Meaghers Bay, the government-run Interlaken Guesthouse (still standing) and the remnants of two sawmills and a trout hatchery at Mountain Creek.

3. Land Use and Potential Impacts

The catchment has significant recreational, agricultural, forestry and residential values. As the climate is less extreme than at other lakes on the Central Plateau the area has somewhat greater potential than most of the highlands for farming, forestry and recreational activities. There is a small commercial eel fishery based at the lakes.

3.1 Recreational use

The vast majority of users of the catchment are recreational users, who enjoy the natural resources and beauty of the area for sport and relaxation. Many recreational users belong to clubs and associations which aim to protect the interests of their members and the resources they use, by adopting and promoting Codes of Ethics which encourage environmental awareness and ecologically sound practices. Examples of these can be found in Appendix 4.

3.1.1 Angling

Until Lake Crescent was closed in 1995, Lakes Sorell and Crescent were considered amongst the best brown and rainbow trout waters in Tasmania, due in large part to the high productivity of the aquatic ecosystems. Lake Crescent was a renowned 'trophy' fishing water, producing small numbers of very large fish, while Lake Sorell consistently provided large numbers of well-conditioned fish. The Inland Fisheries Commission angler survey of the 1992-3 season found that approximately 11,000 anglers visited Lake Sorell, catching a total of about 123,000 fish, and that the average catch rate of about 1.5 fish per day had not changed significantly since the 1950s despite an increase in anglers.

The Lake Sorell fishery declined dramatically from 1997, with fewer and consistently poorer fish being caught since then. European carp, which are regarded as a pest fish in Tasmania, were discovered in Lake Crescent in 1995, causing the immediate closure of both lakes. Lake Sorell was reopened soon afterwards, and Lake Crescent is due to reopen for artificial lure-fishing only in August 2004. The Lakes Sorell and Crescent Rehabilitation Project was initiated in 2000 in an effort to improve all aspects of the lakes' environment and fishery. Despite the current lack of incentive for the angling public to visit these lakes, there is every reason to believe that both waters will recover their popularity with the angling public as environmental conditions improve.

Potential impacts

- The inappropriate use of campfires, littering and occasional trampling of fragile wetland plants are the main potential impacts of anglers.
- In the past, private landowners have expressed concern that some anglers have damaged fences and interfered with stock while gaining access to the lakes.
- It is presumed that one or more anglers are responsible for the introduction of European carp.
- Indiscriminate use of vehicles and launching of boats around the Lake Crescent shore while water levels are low can damage the shoreline ecology.

3.1.2 Shacks and camping

In the past these lakes were popular camping areas, allowing for a highland bush camping experience without the more extreme weather conditions of higher altitude areas. The camping ground at Dago Point provides about 100 sites, with toilet and shower facilities, and is managed by the Tasmanian Parks and Wildlife Service. There are also 11 shacks belonging to various clubs and 3 boat ramps within the area.

By the early 1990s, there were so many visitors using the Dago Point camping ground that it was becoming a health hazard, prompting the Parks and Wildlife Service, with the cooperation of other agencies and private landowners, to open alternative facilities. These were built at Silver Plains in 1993-4 and cater for an extra 70 campers and caravanners. With the decline of the fishery has come a decline in visitor numbers, but again it is likely that the area will recover its popularity once the fisheries become productive again. There has been a recent increase in non-fishing visitors in caravans and campervans using both campgrounds.

There are a number of shacks on private land adjacent to both lakes, including Jacks Point, Boathouse Point, the Point of Chillon, Interlaken and the northern shore of Lake Sorell.

Potential impacts

- The disposal of rubbish, wastewater and other wastes from camps and shacks have the potential to pollute the lakes.
- The use of campfires or any outdoor fire at times of high fire risk is extremely hazardous, especially if there is not a properly established fireplace.
- Vegetation is often damaged in setting up a camp and collecting firewood, and the ground is compacted by continual walking or driving near camps and shacks.

3.1.3 Hunting

Game species include deer, ducks, rabbits and wallabies. Duck shooting was popular on both lakes but is limited to Lake Sorell and outlying wetlands while Lake Crescent is closed to recreational use. Interlaken Lakeside Reserve will remain closed to duck shooting when its reservation as a Conservation Area has been finalised.

Hunting of other species occurs in the more remote parts of the catchment, particularly in the forested areas north of Lake Sorell. However, the recent inclusion of the Mountain Creek catchment in the Great Western Tiers Conservation Area could have implications for recreational hunting in that area.

Potential impacts

Most of the impacts of other recreational users apply equally to hunters. As many hunters go into the more distant parts of the catchment, there are also impacts relating to the use of four wheel drive vehicles. Codes of Ethics for the use of four wheel drive vehicles have been adopted by some clubs, but many users who are not members are unaware of their recommendations.

- The transportation of weed seeds on the vehicles themselves spread weeds from elsewhere around the state.

- The use of vehicles other than on made tracks causes damage to vegetation and soil structure, which can take decades to recover especially in wetter areas. This is apparent in the area around Lagoon Plain.
- Duckshooting can impact on vegetation used for duckhides and on non-target duck species.

3.2 Agriculture

Farming has been carried out in the immediate vicinity of the lakes since the 1820s, but some areas previously used for agriculture have reverted to native forest. Sown pasture, native grasslands, grassy woodlands and wetlands are favoured for grazing, with bush runs also being used. Currently approximately 18% of the catchment is used for cattle and sheep grazing, all on private land with the exception of a pastoral lease on the Crown land block adjacent to Robertsons Marsh.

Potential impacts

Grazing animals can cause damage to fragile ecosystems through

- disturbance or compaction of plants and soil with their hooves,
- consuming native plants,
- increasing nutrient loads in the soil or waterways,
- spreading weed seeds from their fur and manure, and
- the composition of threatened plant communities can be altered by preferential grazing of some species and by soil disturbance favouring some species.

Other agricultural practices such as ploughing, draining of wetlands and fertiliser use can also cause sediment and / or nutrient run-off. The use of fire to destroy weeds or to promote grass growth can be hazardous.

3.3 Forestry

Due to the nature of the forest and terrain, all forestry activities are selective logging or thinning operations, with no clear-felling. These activities occur largely on private land, although some logging has been carried out in the past in the State forest on the northern shore of Lake Sorell. Recent forestry operations have been located to the south, south-east and north-west of Lake Crescent and to the east, west and north-west of Lake Sorell.

The high altitude, low rainfall and generally poor ground make the establishment of plantations unviable in the catchment.

Potential impacts

Environmental impacts such as erosion and watercourse sedimentation are managed under the Forest Practices Code, the Management Decision Classification system and on State Forest the Mersey District Forest Management Plan 1999.

In an area of high recreational usage such as Lakes Sorell and Crescent, the management of the landscape from the visual perspective is of the utmost importance. The Forest Practices Code specifies the use of a Forest Landscape Management system to ensure that visual impacts are minimised in areas of high sensitivity. This system recommends that operations near lakes used for boating and fishing in the Central Highlands should have the highest level of protection of visual resource values – that the landscape character must be fully retained and any alteration should

not be evident. To this end, detailed provisions for buffers around the lakes, skyline management and speedy, effective revegetation of coupes, tracks and landings are necessary in Forest Practices Plans for the catchment.

The spread of weeds from machinery, trucks and roadmaking material is a real problem in some areas of the catchment. Gorse, ragwort and thistles are widespread in some forestry areas where ground disturbance has favoured weeds over native species. Improved weed hygiene would avoid the high cost of weed control in the long term.

3.4 Residential use

A subdivision of part of Interlaken Estate adjacent to Lake Crescent in 1995 resulted in the creation of about seventy private freehold blocks, each approximately half an acre in size. About half of these have been developed as holiday dwellings and one is permanently occupied.

Potential impacts

There have been reports of occasional wastewater pollution from some sites in the Laycock Drive subdivision. A bushfire in 2003 burnt around the settlement and threatened dwellings, highlighting the need for better management of fire risks in the catchment. There have also been problems with solid waste disposal at the Central Highlands Council's Waste Transfer Station on the Dennistoun Rd.

4. Other Relevant Planning Documents

The catchment is subject to the plans listed below, some of which are yet to be finalised (marked *).

Name of plan	Agency responsible
Central Highlands Council Planning Scheme 1998	Central Highlands Council
Central Highlands Council Strategic Plan	Central Highlands Council
Derwent Catchment Natural Resource Management Plan 2002	Derwent Catchment NRM Committee
Central Highlands Weed Management Strategy 2003	Derwent Catchment NRM Committee
Interlaken Lakeside Reserve Ramsar Wetland Management Plan 2003	Tasmanian Parks and Wildlife Service
Lakes Sorell and Crescent Water Management Plan*	DPIWE
Mersey District Forest Management Plan 1999	Forestry Tasmania
Interlaken Estate Game Management Plan	Interlaken Estate, DPIWE
Silver Plains Conservation Area Management Plan*	Tasmanian Parks and Wildlife Service
Tasmanian Reserve Management Code of Practice 2004	Tasmanian Parks and Wildlife Service
Draft Threatened Galaxiidae Recovery Plan 2003-2007*	Inland Fisheries Service, Threatened Species Unit (DPIWE)

5. Objectives, Recommended Actions and Responsibilities

5.1 Camping and recreation

Objectives

- a) To encourage environmentally responsible camping in areas established for that purpose.
- b) To encourage recreational activities which protect the environmental values of the area and the rights of landowners and other users.
- c) To provide appropriate access to the lakes for recreational users, while ensuring that the legitimate activities of land owners and managers are respected.

Actions

- 5.1.1 The public is encouraged to use the camping areas at Silver Plains and Dago Point and the boat ramps at Dago Point, Silver Plains and Tea-Tree Point.
Recreational users.
- 5.1.2 All vehicle use on public land is to be restricted to existing roads and tracks.
All users of public land.
- 5.1.3 Camping on the island lying adjacent to the Lake Crescent Ramsar wetland will not be allowed.
Tasmanian Parks and Wildlife Service, Crown Land Services.
- 5.1.4 Appropriate rezoning in the Central Highlands Council Planning Scheme is to be considered by Council for reserves in the catchment established under the Nature Conservation Act 2002 and the Crown Land Act 1976.
Central Highlands Council, Tasmanian Parks and Wildlife Service, DPIWE
- 5.1.5 Angling, hunting and recreational four-wheel drive users' clubs and associations whose members use the area are to adopt codes of ethics which include information on sustainable land management practices for activities including use of fire, firewood gathering, waste disposal, road and track use and vegetation management. (Appendix 4 – Examples of codes of ethics for angling and recreational four wheel driving.)
Recreational clubs and associations.
- 5.1.6 Recreational users of the catchment who are not members of clubs and associations are encouraged to abide by the relevant codes of ethics. (See 5.1.5 above.)
Individual users, Inland Fisheries Service, Tasmanian Parks and Wildlife Service.
- 5.1.7 Anglers' access to the lakes across Interlaken Estate is to be directed to the access points identified in Appendix 5.
Interlaken Estate, Inland Fisheries Service.

- 5.1.8 Increased boat and angler access to Lake Crescent at Tea-Tree Point will be established if and when pressure on existing facilities causes environmental, infrastructure or access problems.
Inland Fisheries Service, Interlaken Estate (Central Highlands Council for public roads if required).
- 5.1.9 Silver Plains Road will continue to be maintained by Central Highlands Council at the request of the Tasmanian Parks and Wildlife Service. The gate will be opened no later than one week before the start of the fishing season and locked no earlier than one week after the close of the fishing season.
Tasmanian Parks and Wildlife Service, Central Highlands Council, Interlaken Estate.
- 5.1.10 Tasmanian Parks and Wildlife Service will monitor the level of use of camping areas in order to ensure that staff can maintain appropriate standards of services.
Tasmanian Parks and Wildlife Services.

5.2 Waste management

Objective

To ensure that solid and liquid waste do not pose a threat to public or environmental health or to the aesthetic values of the catchment.

Actions

- 5.2.1 Central Highlands Council is to consider means by which the Interlaken waste transfer station can be protected from irresponsible use.
Central Highlands Council
- 5.2.2 Central Highlands Council is to establish signs in main camping and shack areas detailing waste disposal arrangements.
Central Highlands Council.
- 5.2.3 Wastewater disposal systems at all shacks in the catchment are to be examined by Council staff and measures taken to rectify or prevent problems where necessary.
Central Highlands Council, shackowners.
- 5.2.4 Appropriate environmental and effluent water and soil monitoring are to be carried out at the Dago Point and Silver Plains camping grounds, initially to obtain baseline data and then regularly to monitor trends as a function of usage. Action will be taken when necessary to remove potential risks to public or environmental health.
Tasmanian Parks and Wildlife Service.

5.3 Native vegetation management

Objectives :

- a) To protect water quality in the lakes from sediment and nutrient run-off.
- b) To protect rare plant species and communities.
- c) To protect the visual amenity of the lakes for recreational users.

Actions :

- 5.3.1 Public and private landowners and managers are not to remove vegetation within 100 meters of the lakes' high water level, except where necessary for safety purposes or bushfire hazard reduction, or in forestry operations, which are dealt with in 5.3.2.
Private landowners, Tasmanian Parks and Wildlife Service, Crown Land Services, Inland Fisheries Service.
- 5.3.2 Forestry operators agree to leave a buffer of 100 meters from the high water level of the lakes, or in the case of the State Forest, between the Mountain Creek road and the lake, except for safety purposes or bushfire hazard reduction.
Gunns Limited, Forestry Tasmania, other forestry operators.
- 5.3.3 Forestry operators are to take all reasonable measures to ensure that the visual impact of forestry operations is minimised, by implementing landscape management protocol and monitoring regeneration on coupes, tracks and landings, and undertaking reseedling or other revegetation methods where necessary.
Gunns Limited, Forestry Tasmania, other forestry operators.
- 5.3.4 Landowners and land managers are to consider creating formal or informal reserves for plant communities and species which are rare, threatened and poorly reserved, as defined by the Regional Forest Agreement 1997, the Threatened Non-Forest Communities list 2004 and the *Threatened Species Protection Act 1995*. (Appendices 1 and 2)
Assistance and advice on reservation and management of these areas will be made available by relevant State Government departments when requested.
All private and public land managers, Department of Primary Industries, Water and the Environment
- 5.3.5 The Interlaken Lakeside Reserve, Clyde Marsh, Robertsons Marsh and Hazelwoods Lagoon wetlands are to be protected from grazing.
Tasmanian Parks and Wildlife Service, Crown Land Services, Derwent Catchment NRM Committee, anglers groups.
- 5.3.6 A monitoring plan for the flora and fauna of Interlaken Lakeside Reserve, Clyde Marsh, Robertsons Marsh and Hazelwoods Lagoon is to be prepared and implemented.
Department of Primary Industries, Water and the Environment, Inland Fisheries Service.

5.4 Weeds

Objectives :

- a) To protect natural and commercial systems from invasion by weed species.
- b) To coordinate and plan weed management strategically, by involving all land owners and managers.

Actions

- 5.4.1 Machinery to be used in forestry and agricultural activities which has previously been used in areas subject to weed infestations (such as agricultural land), is to be washed down prior to entering the lakes' catchment.
Gunns Limited, Forestry Tasmania, other forestry operators, Central Highlands Council, private and public land managers.
- 5.4.2 Gravel and other road building materials are to be accessed from sites which are weed-free or which have an ongoing effective weed-spraying program.
Gunns Limited, Forestry Tasmania, other forestry operators, Central Highlands Council, private and public land managers.
- 5.4.3 Land owners and managers are to inform their neighbours before undertaking weed control activities in order to coordinate their actions for greater effectiveness. Contact details will be distributed to facilitate communication between all stakeholders.
Crown Land Services, Tasmanian Parks and Wildlife Service, Central Highlands Council, forestry operators, private landowners.
- 5.4.4 Land owners and managers are to inform their neighbours and Central Highlands Council's Weed Inspector if any declared weed species previously unknown in the area are found.
Crown Land Services, Tasmanian Parks and Wildlife Service, Central Highlands Council, forestry operators, private landowners.
- 5.4.5 A coordinated effort by all affected land managers to control the gorse along Interlaken Rd in the vicinity of the lakes will be negotiated.
Derwent Catchment NRM Committee, Interlaken Estate, Tasmanian Parks and Wildlife Service, Central Highlands Council
- 5.4.6 Funding and local assistance will be arranged to remove the willows at the edge of Lake Sorell near Interlaken and revegetate with suitable local native plant species.
Inland Fisheries Service, Derwent Catchment NRM Committee, Southern Tasmanian Licensed Anglers Association.
- 5.4.7 Recreational users are encouraged to wash down vehicles, boats, waders and fishing gear after every outing to prevent the distribution of terrestrial and aquatic weeds. Clubs and associations should encourage these practices amongst their members.
Recreational users, recreational clubs and associations.

5.5 Signage

Objectives

- a) To inform the public of regulations relating to fisheries, hunting, camping, waste disposal, fire management, reserve management and access across private land.
- b) To provide interpretative information about natural, cultural and historic points of interest in the catchment.

Actions

- 5.5.1 Up-to-date signs listing information and regulations relating to boating, fisheries management, camping, waste disposal and fire risk management will be placed at suitable sites near camping facilities, boat ramps and all public access points to the lakes.

Central Highlands Council, Inland Fisheries Service, Tasmanian Parks and Wildlife Service, Marine and Safety Tasmania.

- 5.5.2 Signs informing the public when they enter the catchment will be placed on the Alma Tier, Dennistoun, Tunbridge Tier and Interlaken Roads.

Inland Fisheries Service, Derwent Catchment NRM Committee.

- 5.5.3 Signs will be placed in the camping area near Lagoon Plain outlining an appropriate code of ethics for the recreational use of four wheel drive vehicles (e.g. see Appendix 4).

Tasmanian Parks and Wildlife Service

- 5.5.4 Signs will be placed strategically at former access points to Lakeside Island at Lake Crescent prohibiting camping on the Island.

Tasmanian Parks and Wildlife Service

- 5.5.5 Signs providing information about significant natural, cultural and historic features will be placed appropriately in areas of high visitor usage.

Tasmanian Parks and Wildlife Service

5.6 Fire management

Objectives

- a) To minimise the risk of fire causing injury or damage to people, livestock, wildlife, personal property and areas of cultural, environmental or commercial significance.
- b) To minimise the damage done by firefighting operations in the event of a fire.

Actions

- 5.6.1 Improved awareness of fire hazards is to be encouraged, including knowledge of risks from campfires, highly flammable vegetation, and fuel build-up around shacks, through public education targeting campers, hunters, anglers and shackowners.

Tasmanian Fire Service, Tasmanian Parks and Wildlife Service, Gunns Limited, Forestry Tasmania, Central Highlands Council.

- 5.6.2 Formal passive fire protection is to be agreed, established and maintained at the Laycock Drive subdivision, on private property and public roads.
Private landowners, Central Highlands Council, Tasmania Fire Service.
- 5.6.3 Agreement between neighbouring land owners and managers is to be negotiated on fire management issues, including fuel reduction, fire emergency response and the appropriate use of campfires and agricultural burns.
Landowners and managers, coordinated by the Derwent Catchment NRM Committee.

5.7 Future development

Objective

To ensure that future development does not adversely impact on the existing values and uses of the area.

Actions

- 5.7.1 Before land owners and managers carry out works involving ground disturbance, such as the construction or upgrading of boat ramps, new roads and new buildings, they are encouraged to consult an Aboriginal Heritage Officer for advice on whether Aboriginal cultural heritage sites are present.
All landowners and land managers.
- 5.7.2 Central Highlands Council is encouraged to establish a planning policy under which existing subdivisions in the catchment must be fully utilised before new applications for subdivisions are considered.
Central Highlands Council.
- 5.7.3 The use of existing camping and shack facilities will be encouraged. In future if existing facilities are no longer adequate, they should be extended rather than new facilities created, subject to environmental controls.
Tasmanian Parks and Wildlife Service, Central Highlands Council, landowners
- 5.7.4 Catchment management planning should be undertaken for the entire catchment of Lakes Sorell and Crescent and the Clyde River at some time in the future.
Derwent Catchment NRM Committee.

5.8 Implementation and Review of Plan

- 5.8.1 This Plan is to be implemented jointly by the stakeholders. The Inland Fisheries Service will assist with coordinating the implementation where necessary and the Derwent Catchment NRM Committee is available to provide advice and facilitate the practical aspects of the plan.
- 5.8.2 The Inland Fisheries Service will initiate a review of the Plan to be completed before the end of 2007.

Appendix 1

Threatened species in the lakes Sorell and Crescent catchment

Rare vegetation

Scleranthus brockiei Brock knawel

Aphelia pumilio Dwarf aphelia

Stipa nodosa Spear grass

Viola cunninghamii Cunningham's violet

Corunastylis nuda (formerly *Genoplesium nudum*) Tiny midge orchid

Ranunculus amphitrichus River buttercup

Carex longebrachiata Drooping sedge

Calocephalus lacteus Milky beauty heads

Rumex bidens Mud dock

Epacris acuminata Clasping-leaf heath

Glossostigma elatinooides Small mudmat

Isolepis montivaga Mountain isolepis

Amphibromus neesii Swamp wallaby-grass

Potentially threatened vegetation

Carex gaudichaudiana

Rare fauna

Galaxias auratus Golden galaxias

Litoria raniformis Green and gold frog

Accipiter novaehollandiae Grey goshawk

Aquila audax fleayi Wedge-tail eagle

Podiceps cristatus Great crested grebe

Lathamus discolor Swift parrot

Oreixenica ptunarra roonina Ptunarra brown butterfly

Appendix 2

Threatened vegetation communities

* RFA under-reserved ; # Vegetation Management Strategy for Tasmania, 1998

Banksia serrata woodland*

E. tenuiramis inland forest*

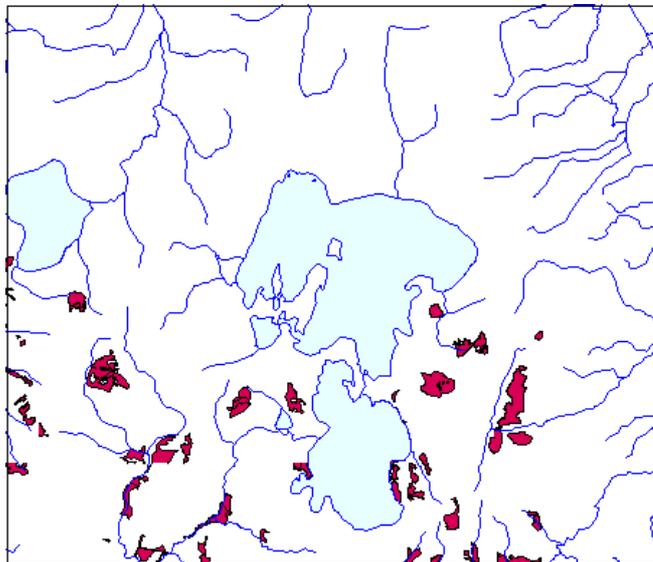
E. rodwayi forest*

old growth *E. pauciflora* forest on dolerite*

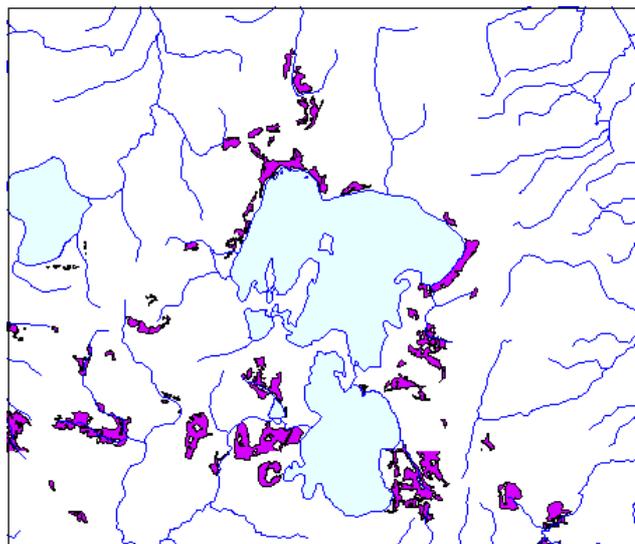
Native river and riverside vegetation#

Alpine vegetation#

Non-sedgey enclosed wetlands#



Eucalyptus pauciflora on dolerite



Eucalyptus rodwayi forest

Appendix 3

Fauna of the Lakes Sorell and Crescent Area - Species List

Source – Wetlands of Lakes Sorell and Crescent : Conservation and Management
(Inland Fisheries Service Report 6/1 2003)

Codes –

i - introduced to Tasmania

t - listed in the schedules of the Threatened Species Protection Act 1995;

v – vulnerable;;

e – endangered;;

r -rare

m- migratory species;

J – listed on the Japan--Australia Migratory Bird Agreement (JAMBA)

C – listed on the China--Australia Migratory Bird Agreement (CAMBA)

Code	Common Name	Scientific Name
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BIRDS

ORDER ANSERIFORMES

	black swan	<i>Cygnus atratus</i>
	Australian shelduck	<i>Tadorna tadornoides</i>
	Pacific black duck	<i>Anas superciliosa</i>
	grey teal	<i>Anas gracilis</i>
	chestnut teal	<i>Anas castanea</i>
	little pied cormorant	<i>Phalacrocorax melanoleucos</i>
	great cormorant	<i>Phalacrocorax carbo</i>
	Australian wood duck	<i>Chenonetta jubata</i>
t (r)	great crested grebe	<i>Podiceps cristatus</i>
	hoary-headed grebe	<i>Poliiocephalus poliocephalus</i>
	musk duck	<i>Biziura lobata</i>

ORDER CICONIIFORMES

	white-faced heron	<i>Egretta novaehollandiae</i>
m (C)	great egret	<i>Ardea alba</i>
m (J/C)	cattle egret	<i>Ardea ibis</i>

	Australasian bittern	<i>Botaurus poicilopyilus</i>
	purple swamphen	<i>Porphyrio porphyrio</i>
	Tasmanian native hen	<i>Gallinula mortierii</i>
m	Eurasian coot	<i>Fulica atra</i>
m (J/C)	Latham 's snipe	<i>Gallinago hardwickii</i>

Code	Common Name	Scientific Name
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ORDER FALCONIFORMES

t (e)	wedge-tailed eagle	<i>Aquila audax fleayi</i>
m?(C)	white-bellied sea eagle	<i>Haliaeetus leucogaster</i>
m	marsh/swamp harrier	<i>Circus approximans</i>
	brown goshawk	<i>Accipiter fasciatus</i>
t (e)	grey goshawk	<i>Accipiter novaehollandiae</i>
	collared sparrowhawk	<i>Accipiter cirrhocephalus</i>
	brown falcon	<i>Falco berigora</i>
	peregrine falcon	<i>Falco peregrinus</i>

ORDER CHARADRIIFORMES

	red-capped plover	<i>Charadrius ruficapillus</i>
	banded lapwing	<i>Vanellus tricolor</i>
	masked lapwing	<i>Vanellus miles</i>
	silver gull	<i>Larus novaehollandiae</i>
m (C)	caspian tern	<i>Sterna caspia</i>

ORDER PSITTACFORMES

	common bronzewing	<i>Phaps chalcoptera</i>
	yellow-tailed black-cockatoo	<i>Calyptorhynchus funereus</i>
	musk lorikeet	<i>Glossopsitta concinna</i>
	eastern rosella	<i>Platycercus eximius</i>
m	swift parrot	<i>Lathamus discolor</i>
m	blue-winged parrot	<i>Neophema chrysostoma</i>
	green rosella	<i>Platycercus caledonicus</i>
	sulphur-crested cockatoo	<i>Cacatua galerita</i>
m	pallid cuckoo	<i>Cuculus pallidus</i>
m	Horsfield 's bronze-cuckoo	<i>Chrysococcyx basalis</i>
m	fan-tailed cuckoo	<i>Cacomantis flabelliformis</i>

	shining bronze-cuckoo	<i>Chrysococcyx lucidus</i>
	southern boobook	<i>Ninox novaeseelandiae</i>
	masked owl	<i>Tyto novaehollandiae</i>
	tawny frogmouth	<i>Podargus strigoides</i>
	Australian owllet-nightjar	<i>Aegtheles cristatus</i>
m	white-throated needletail	<i>Hirundapus caudacutus</i>

Code	Common Name	Scientific Name
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ORDER CORACIIFORMES

i	laughing kookaburra	<i>Dacelo novaeguineae</i>
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ORDER PASSERIFORMES

m	flame robin	<i>Petroica phoenica</i>
	superb fairy-wren	<i>Malurus cyaneus</i>
	spotted pardalote	<i>Pardalotus punctatus</i>
m	striated pardalote	<i>Pardalotus striatus</i>
	Tasmanian scrubwren	<i>Sericornis humilis</i>
	scrubtit	<i>Acanthornis magnus</i>
	brown thornbill	<i>Acanthiza pusilla</i>
	Tasmanian thornbill	<i>Acanthiza ewingii</i>
	yellow-rumped thornbill	<i>Acanthiza chrysorrhoa</i>
	yellow wattlebird	<i>Anthochaera paradoxa</i>
	little wattlebird	<i>Anthochaera chrysoptera</i>
	noisy miner	<i>Manorina melanocephala</i>
	yellow-throated honeyeater	<i>Lichenostomus flavicollis</i>
	strong-billed honeyeater	<i>Melithreptus validirostris</i>
	black-headed honeyeater	<i>Melithreptus affinis</i>
	crescent honeyeater	<i>Phylidonyris pyrrhoptera</i>
	newholland honeyeater	<i>Phylidonyris novaehollandiae</i>
	eastern spinebill	<i>Acanthorhynchus tenuirostris</i>
	white-fronted chat	<i>Epthianura albifrons</i>
	scarlet robin	<i>Petroica multicolor</i>
	pink robin	<i>Petroica rodinogaster</i>
	dusky robin	<i>Melanodryas vittata</i>
	spotted quail-thrush	<i>Cinclosoma punctatum</i>

ORDER PASSERIFORMES

	black currawong	<i>Strepera fuliginosa</i>
	grey currawong	<i>Strepera versicolor</i>
	forest raven	<i>Corvus tasmanicus</i>
	Australian magpie	<i>Gymnorhina tibicen</i>
	richards pipit	<i>Anthus novaeseelandiae</i>
	skylark	<i>Alauda arvensis</i>
	olive whistler	<i>Pachycephala olivacea</i>
	golden whistler	<i>Pachycephala pectoralis</i>
m	satin flycatcher	<i>Myiagra cyanoleuca</i>
m	black-faced cuckoo-shrike	<i>Coracina novaehollandiae</i>
m	dusky woodswallow	<i>Artamus cyanopterus</i>

	Code Common Name	Scientific Name
i	common starling	<i>Sturnus vulgaris</i>
	bassian thrush	<i>Zoothera lunulata</i>
m	silvereve	<i>Zosterops lateralis</i>
	little grassbird	<i>Megalurus gramineus</i>
m	tree martin	<i>Hirundo nigricans</i>
m	welcome swallow	<i>Hirundo neoxena</i>
i	European goldfinch	<i>Carduelis carduelis</i>
i	European greenfinch	<i>Carduelis chloris</i>
	beautiful firetail	<i>Stagonopleura bella</i>
m	grey fantail	<i>Rhipidura fuliginosa</i>
	grey butcherbird	<i>Cracticus torquatus</i>
	grey shrike-thrush	<i>Colluricincla harmonica</i>

MAMMALS

	Platypus	<i>Ornithorhynchus anatinus</i>
	short-beaked echidna	<i>Tachyglossus aculeatus</i>
	common wombat	<i>Vombatus ursinus</i>
	Bennett 's (red-necked)wallaby	<i>Macropus rufogriseus</i>
	Tasmanian pademelon	<i>Thylogale billardierii</i>
	long –nosed potoroo	<i>Potorous tridactylus</i>
	Tasmanian bettong	<i>Bettongia gaimadi</i>
	spotted-tail quoll	<i>Dasyurus maculatus</i>

eastern quoll	<i>Dasyurus viverrinus</i>
Tasmanian devil	<i>Sarcophilis harissi</i>
southern brown bandicoot	<i>Isoodon obesulus</i>
eastern barred bandicoot	<i>Perameles gunnii</i>
common ringtail possum	<i>Pseudocheirus peregrinus</i>
sugar glider	<i>Petaurus breviceps</i>
brushtail possum	<i>Trichosurus vulpecula</i>
little pygmy-possum	<i>Cercartetus lepidus</i>
Tasmanian long-eared bat	<i>Nyctophilus timoriensis sherrini</i>
Tasmanian long-eared bat	<i>Nyctophilus geoffroyi</i>
goulds wattled bat	<i>Chalinolobus gouldii</i>
eastern falsistrelle	<i>Falsistrellus tasmaniensis</i>
little forest bat	<i>Vespadelus vulturnus</i>
southern forest bat	<i>Vespadelus regulus</i>
large forest bat	<i>Vespadelus darlingtoni</i>
chocolate wattled bat	<i>Chalinolobus morio</i>
water rat	<i>Hydromys chrysogaster</i>
swamp (velvet-furred) rat	<i>Rattus lutreolus</i>

Code Common Name**Scientific Name**

i	black rat	<i>Rattus rattus</i>
i	house mouse	<i>Mus musculus</i>
i	brown hare	<i>Lepus capensis</i>
i	rabbit	<i>Oryctolagus cuniculus</i>
i	fallow deer	<i>Dama dama</i>

REPTILES

tiger snake	<i>Notechis scutatus</i>
copperhead snake	<i>Austrelaps superbus</i>
white-lipped whip snake	<i>Drysdalia coronoides</i>
metallic skink	<i>Niveoscincus mettalicus</i>
three lined skink	<i>Atroscincus duperreyi</i>
spotted skink	<i>Niveoscincus ocellatus</i>
she-oak skink	<i>Cyclodomorphis casuarinae</i>
blotched blue-tongued lizard	<i>Tiliqua nigrolutea</i>
mountain dragon	<i>Rankinia diemensis</i>

AMPHIBIANS

	common froglet	<i>Crinia signifera</i>
	eastern banjo frog	<i>Limnodynastes dumerilii</i>
	spotted marsh frog	<i>Limnodynastes tasmaniensis</i>
t (v)	green & gold frog	<i>Litoria raniformis</i>
	brown tree frog	<i>Litoria ewingi</i>
	southern smooth froglet	<i>Geocrinia laevis</i>
	southern toadlet	<i>Pseudophryne semimarmorata</i>

FRESHWATER FISH

	short-finned eel	<i>Anguilla australis</i>
t (r)	golden galaxias	<i>Galaxias auratus</i>
i	brown trout	<i>Salmo trutta</i>
i	European carp	<i>Cyprinus carpio</i>
i	rainbow trout	<i>Oncorhynchus mykiss</i>
i	common jollytail	<i>Galaxias maculatus</i> (native to Tasmania but introduced into lakes Sorell and Crescent)

Appendix 4

Freshwater Anglers Council of Tasmania

Code of Ethics for Tasmanian Freshwater Anglers

Respect for Your Fishery

1. Observe current fishing regulations, they have been developed over many years
2. To help to conserve the fishery take only the fish you can use.
3. When returning excess or unwanted fish, do so with wet hands to avoid damage to skin or scales. Hold the fish upright until it has recovered sufficiently to swim away.
4. When a fish is to be kept, it should be dispatched quickly.
5. Gaffs are not recommended, unless the size of the fish warrants it.
6. Respect fellow anglers. Do not disrupt shore based anglers, or those in stationary boats, by creating undue wash, or by "dropping in".
7. Report illegal fishing activities promptly to the relevant authority.
8. Take care not to foul the environment with fish waste, ie Do not clean fish on ramps or jetties.
9. Do not discard nylon line, plastic etc. They can entrap other aquatic species and damage outboard motors.
10. Boats should be prepared for launching prior to entering ramps to ensure that no frustrating delays occur for other ramp users.
11. Encourage fellow anglers to join recreational fishing bodies, so they may better learn of vital issues concerning the fishery, and hence be in a stronger position to fight for those issues.

Respect for Landowners

1. Obtain landowners permission before entering private land.
2. Leave gates as found.
3. Light no fires without permission. Use recommended fuel stoves where possible.
4. Do not damage fences.
5. Leave no litter.
6. No dogs or firearms without landowners consent.
7. Do not disturb stock or damage crops or pasture, alert landowners of any stock or property damage.
8. Drive only on defined tracks.

Respect for Your Environment

1. When travelling with recreational vehicles, stay to gazetted roads or obvious tracks. Do not proceed through sensitive wet areas, and resist the temptation to create your own track.
2. Use existing campsites where possible, and prevent degradation by not cutting down trees or, damaging native flora.

Australian National Four Wheel Drive Council

Code of Ethics

- 1 Obey the laws and regulations for Recreational Vehicles that apply to public lands.
- 2 Respect the cultural, heritage and environmental values of public/private land by obeying restrictions that may apply.
- 3 Respect our flora and fauna. Stop and look but never disturb.
- 4 Keep to formed vehicle tracks.
- 5 Keep the environment clean. Carry your own and any other rubbish out.
- 6 Keep your vehicle mechanically sound and clean to reduce the environmental impact.
- 7 Adopt minimal impact camping and driving practices.
- 8 Seek permission before driving on private land. Do not disturb livestock or watering points, leave gates as found.
- 9 Take adequate water, food, fuel, basic spares and a first aid kit on trips. In remote areas travel with another vehicle and have Royal Flying Doctor Service, or equivalent, radio contact.
- 10 Enjoy your recreation and respect the rights of others.
- 11 Plan ahead and lodge trip details with a responsible person.
- 12 Support four-wheel drive touring as a responsible and legitimate family recreational activity. Consider joining an affiliated four-wheel drive Club.

Appendix 5

Anglers' access to Lake Sorell from the Interlaken Estate

Access across Interlaken Estate to the Lake Sorell foreshore, is being arranged for anglers at two locations, in the Silver Plains and Kermodes Bay areas.

The sites will contain:

- A fenced, gravelled parking area for 5-10 cars;
- A stile or gate which will provide anglers with easy access onto and from the property;
- A sign detailing rules of the Estate and Inland Fisheries Service information.

Detailed site planning will be undertaken by the Tasmanian Parks and Wildlife Service, the Inland Fisheries Service and the landowner in consultation with user groups. The responsibility for construction and maintenance will rest with the Inland Fisheries Service and the Parks and Wildlife Service.