WHC Nomination Documentation

File name: 181.pdf UNESCO Region ASIA AND THE PACIFIC

SITE NAME ("TITLE") Tasmanian Wilderness

DATE OF INSCRIPTION ("SUBJECT") 17/12/1982 – 15/12/1989

STATE PARTY ("AUTHOR") AUSTRALIA

CRITERIA ("KEY WORDS") N (i)(ii)(iii)(iv) C (iii)(iv)(vi)

DECISION OF THE WORLD HERITAGE COMMITTEE:
6th Session
The Committee is seriously concerned at the likely effect of dam construction in the area on those natural and cultural characteristics which make the property of outstanding universal value. In particular, it considers that flooding of parts of the river valleys would destroy a number of cultural and natural features of great significance, as identified in the ICOMOS and IUCN reports. The Committee therefore recommends that the Australian authorities take all possible measures to protect the integrity of the property. The Committee suggests that the Australian authorities should ask the Committee to place the property on the List of World Heritage in Danger until the question of dam construction is resolved.
13th Session
The Committee approved the nomination of the extension to the Western Tasmanian Wilderness National Parks World Heritage site which corresponded to an additional area of 604,645 ha, i.e., a 78% increase, thereby serving to consolidate and greatly enhance the existing World Heritage site. The Committee noted that there were some small enclaves of publicly-owned land with World Heritage values currently excluded from the nomination and expressed the hope that these could be added in the future. The Committee noted with satisfaction the statement by the Australian observer that legislation has been passed to revoke all mining rights within the World Heritage site.
As concerns the cultural values of this extension, the Committee noted that research on the archaeological sites within the area had only just begun but seemed to present considerable interest and potential. The Committee agreed that this property should henceforth be called "Tasmanian Wilderness".

BRIEF DESCRIPTION:
In a region that has been subjected to severe glaciation, these parks and reserves, with their steep gorges, covering an area of over 1,000,000 hectares, constitute one of the last expanses of temperate rainforest in the world. Remains found in limestone caves attest to the occupation of the area for more than 20,000 years.

1.b. State, province or region: State of Tasmania

1.d Exact location: Long. 145°25’-146°55’ E ; Lat. 41°35’-43°40’ S

1st Nomination
1982

CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE

1. Specific Location

a. Country	Australia
b. State, Province or Region	State of Tasmania
c. Name of Property	WESTERN TASMANIA WILDERNESS NATIONAL PARKS.
d. Exact location on map and indication of geographical co-ordinates	145^{o} 25'E to 146^{o} 48'E LONGITUDE 41^{o} 35'S to 43^{o} 50'S LATITUDE (See Map 1)

2. Juridical data

a. Owner	STATE OF TASMANIA, HOBART, TASMANIA.
b. Legal Status	PUBLIC OWNERSHIP - NATIONAL PARK The area is legally reserved as State Reserve under the National Parks and Wildlife Act (1970).
c. Responsible administration	National Parks and Wildlife Service P.O. Box 210, Sandy Bay, Tasmania 7005

3. Identification

a. Description and inventory	The areas described as the Southwest National Park, the Franklin - Lower Gordon Wild Rivers National Park and the Cradle Mountain - Lake St. Clair National Park are each shown on Map 1. The total area is approximately 769,355 hectares in extent and is one of the last remaining temperate wilderness areas in the world. The nominated region consists of a wide range of geological, landform and vegetation characteristics.

(i) Geology - The core of the region comprises a broad belt of folded Pre-Cambrian metamorphic rocks striking generally north-south. These form the spectacular quartzite ranges of the Southwest. They are separated by often broad flat valleys of limestone, conglomerates and Tertiary sediments. In the far north east of the region, the Cradle Mountain - Lake St. Clair National Park occupies some of the western most portion of the flat dolerite capped Central Plateau. Throughout most of this park only erosional remnants of the dolerite plateau occur as caps on some mountains such as the Du Cane Range, Mt. Olympus, Mt. Ossa (the highest mountain in Tasmania at 1617 metres), Mt. Pelion West and Mt. Emmett.

(ii) Landforms - Landforms include a diversity of glacial, fluvial, karst and coastal features.

The mountain ranges were subject to cirque and valley glaciation during the Pleistocene. Glacial landform features such as cirques, horns, aretes, moraines, overdeepened lakes, moraine dammed lakes, and "U" shaped valleys occur.

The Central Plateau is scattered with thousands of tarns their basins having been eroded by a Pleistocene ice sheet.

With the highest rainfall in Australia apart from Cape York in Queensland, the region has some impressive wild river systems, running swiftly on steep

gradient beds and often carrying greater volumes of water for their length than most other Australian rivers. The larger rivers have cut across mountain ranges creating some awesome gorges, particularly in the Franklin - Lower Gordon Wild Rivers National Park. The gorges include the Great Ravine, the Irenabyss and Propsting Gorge on the Franklin River, the Humbaba and Gilgamesh gorges on the Jane River, and the Sunshine Falls Gorge on the Gordon River. There is also an impressive gorge on the lower Davey River.

Countless waterfalls, ravines, rapids, placid reaches, and river terraces occur throughout the region. Some of the streams in the limestone belts run underground or beneath natural arches.

The rugged southwest coast comprises a spectacular diversity of features. Sandy beaches alternate with precipitous rocky headlands. Steep boulder beaches, lagoons, plunging cliffs, blowholes, stacks, sea caves, gulches and marine terraces reflect differing wave conditions and rock types, and a varied geomorphic history. Port Davey and Bathurst Harbour is a classic example of a ria or drowned valley.

Large belts of cavernous limestone exist, particularly along the Lower Franklin and Lower Gordon Rivers but significant outcrops of both limestone and dolomite occur throughout the region, for example at Precipitous Bluff, Maxwell River, Algonkian Rivulet, Erebus Rivulet, Jane River, Mt. Ronald Cross,

Andrew River, Mt. Anne, Forest Hills, and the Cheyne Range.
Numerous karst features occur throughout these areas and include caves, natural arches, clints and grikes, dolines, karren, sinkholes, pinnacles, blind valleys and effluxes. Many caves have been explored, including Bingham Arch, Fraser Cave, Whitlam Cave, Lowe Cave, and Hayden Cave on the Franklin River; Damper Cave, Quetzelcoatl Conduit, The Knadgery and Reece Cave at Precipitous Bluff; Aquarius Swallet, Virgo Cave, Capricorn Cave, Scorpio Cave and Taurus Cave at Mt. Ronald Cross.

There is a wide variety of morphology and speleothem diversity among these caves.

(iii) Vegetation - The major structural vegetation formations are -

Closed-Forests : Mostly dominated by *Nothofagus cunninghamii* (myrtle), sometimes co-dominant with *Atherosperma moschatum* (sassafras) or *Phyllocladus asplenifolius* (celery top pine) and *Dacrydium franklinii* (Huon pine) in riverine habitats. On infertile soils the alliances include *Anodopetalum biglandosum* (horizontal), *Eucryphia lucida* (Leatherwood), *Leptospermum glaucescens* (tea tree), *Leptospermum scoparium* and *Melaleuca squarrosa* (paperbark). In fire protected sites *Athrotaxis selaginoides* (King Billy Pine) sometimes forms pure stands and sometimes is co-dominant with *Nothofagus cunninghamii* or *Phyllocladus asplenifolius*. On exposed alpine sites the formation comprises

Nothofagus cunninghamii, Nothofagus gunni (deciduous beech), *Diselma archeri, Microstrobus niphophilus, Microcachrys tetragona* and *Athrotaxis selaginoides.*

Open forests : *Eucalyptus nitida* is the most widespread dominant of these forests. Other eucalypts include *E. ovata* on lowland sites, *E. delegatensis, E. dalrympleana* and *E. subcrenulata* on lower subalpine sites and *E. coccifera, E. subcrenulata, E. vernicosa* are to be found on highland areas.

Scrub and Shrubland : The alliances include *Anodopetalum biglandosum, Bauera rubioides, Leptospermum glaucescens, Acacia mucronata, Banksia marginata* and *Eucalyptus nitida* on lowland sites. At intermediate altitudes the dominant plants include *Telopea truncata* (waratah), *Lomatia polymorpha, Nothofagus cunninghamii* and *Richea pandanifolia* (pandani). In highland communities the alliances are *Diselma archeri, Microstrobos niphophilus, Richea scoparia, Orites acicularis, O. revoluta, Nothofagus gunnii, Eucalyptus vernicosa* and *Leptospermum rupestre.*

Heaths : In the alpine heath communities, many of the dominant plants are unique to Tasmania. These include *Eucalyptus vernicosa, Leptospermum rupestre, Richea scoparia, R. acerosa, Epacris gunnii* and various alpine conifers. Cushion plants are also included in heath formations and are well developed on many of the mountain plateaux.

In heaths at lower altitudes *Sprengelia incarnata, Leptospermum glaucescens, Melaleuca squarrosa, Casuarina monilifera, Banksia marginata, Boronia citriodora, Agastachys odorata, Baeckea leptocaulis, Cyathodes spp.* and *Leptospermum nitida* occur.

Herblands and Sedgelands : The communities include grasses, sedges, ferns, and mosses. The most extensive community is sedgeland which is comprised of a number of alliances including the following species : *Gymoschoenus sphaerocephalus* (button-grass), *Restio australis, Empodisma minus, Restio monocephalus, Restio complanatus, Restio tetraphyllus, Leptocarpus tenax, Xyris spp.* and *Lepidosperma filiforme.*

PRESENT USES The Southwest National Park, Franklin - Lower Gordon Wild Rivers National Park and the Cradle Mountain - Lake St. Clair National Park are managed by the Tasmanian National Parks and Wildlife Service for their natural and cultural values.

A wide range of activities related to these values is pursued. Large numbers of car and bus visitors travel to Cradle Mountain, Lake St. Clair and along the Lyell Highway and Strathgordon road. Large numbers travel by motor launch on the Gordon River out of Strahan and aerial sightseeing over the nominated area enables many to observe the wilderness.

Increasing numbers of people are going to the region for more active recreation, for example : mountaineering, bushwalking, caving, rock and ice climbing, rafting, canoeing and cross-country skiing. The

region includes some of the best views for these activities in Australia.

b. Maps and/or plans.

A detailed map showing the boundaries of the area covered by this nomination is shown in Map 2.

c. Photographic and/or cinematographic documentation

A number of books and films have been made. The principal books and films are listed in the bibliography.

d. History

Aboriginal Occupation

So far no comprehensive archaeological survey of the region has been made but some important archaeological sites are already known.

Aboriginal occupation of the coast based on hunting of marine resources created numerous middens on the south coast as well as the west coast outside the study area.

During the early years of European contact, Aborigines frequented the coast but were not observed in the Franklin or Gordon Rivers area or the inland South West. However, in 1832 Sharland noted signs of a recent burn on the Loddon Plain as well as native huts in the St. Clair region and in 1840 James Calder found recently occupied huts near Frenchmans Cap.

Aborigines of the Big River tribe included the Central Plateau and Lake St. Clair area in their territorial range. A probable Aboriginal stone quarry site occurs on Mt. Rufus at 1280 m above sea level, and, at Cradle Mountain, artefacts have been found during excavations for a hut near the present "Blandfordia Lodge".

Rich archaeological deposits are known from caves on the Lower Franklin River, and a basal date from an excavation in Fraser Cave indicates human occupation of the Franklin and Gordon Rivers area at least during the last Ice Age at 21,000 years ago.

The aboriginal population had been removed from the region by the early 1830's by the missionary zealot G.A. Robinson.

European History

Southwest National Park

European exploration commenced in the early 1800's particularly by sea. The main attractions of the area became pining and whaling. Whaling ceased before the turn of the century but pining, although ceasing last century around Port Davey, continued more or less up to recent times in the Franklin Lower Gordon Wild Rivers National Park, prior to the dedication of the park.

Most of the Southwest has been explored for minerals, though current mining activity is restricted to small scale tin mining at Melaleuca on the edge of the nominated area.

Franklin Lower Gordon Wild Rivers National Park

After the establishment of the Sarah Island convict settlement in 1821, convicts and their overseers worked much of the lower Gordon and lower Franklin Rivers to obtain the prized Huon pine.

A number of convicts escaped from Sarah Island and perished in the rugged hinterland. Only Alexander Pierce in 1822 and James Goodwin and a companion in 1828 managed to reach the settled districts near the Derwent River.

In 1832, Sharland criss-crossed the upper Franklin River in an attempt to climb Frenchmans Cap.

Surveyor Calder in 1840 cut a track from Lake St. Clair to the lower reaches of the Gordon in preparation for a trip to the area by Governor Sir John Franklin and Lady Jane Franklin, who travelled the route in May 1842.

The region was visited by a series of explorers, fossickers, and adventurers in later decades including geologist Charles Gould who crossed overland from the Gordon River to the Franklin River near Glen Calder and in 1859 ascending the Franklin until his party were under Frenchmans Cap. Gould's party were the first to negotiate the Great Ravine and other gorges west of Frenchmans Cap.

In the 1880's T.B. Moore crossed the Franklin twice, making ascents of Frenchmans Cap from the west. By this time the west coast mining boom had brought a surge of activity to the area and the early decades of this century brought renewed interest in the Huon Pine and the tourist potential of the Gordon River. The first regular tourist cruises began in 1915.

During this century, the piners made extensive forays into all reaches of the rivers with the Morrison brothers of Strahan retracing Gould's boat trip upriver through the Great Ravine in 1940.

Cradle Mountain Lake St. Clair National Park

The first recorded visit to the Cradle Mountain area by Europeans may be that of Joseph Fossey and Henry Hellyer of the Van Diemens Land Company in 1828. Likewise the first recorded visit to Lake St. Clair was in 1835 by the then Surveyor-General George Frankland.

Before the end of the century a number of Europeans including artists, prospectors and timber cutters had visited the area and some settlers began using the central highlands for summer grazing of sheep.

The beauty of the area was recognised as early as 1885. In this year the Tasmanian Government instructed that all Crown land within half a mile of Lake St. Clair and Lake Petrarch be withdrawn from selection and reserved.

In 1862 there was some cutting of native conifers in the Dove valley and this was the beginning of logging which only ceased in the last decade.

There was no logging in the vicinity of Lake St. Clair at this early stage since there were no adequate tracks.

There was a good deal of prospecting in the area of the future park at the end of the nineteenth and beginning of the twentieth century. Coal, copper, silver-lead, tungsten, tin and molybdenum were all found, but only a limited amount of copper mining occurred as a result.

Parts of tracks constructed at that time for prospecting and mining purposes have been incorporated into the walking tracks in use today.

Hunters and trappers used the area up until the early decades of this century to obtain the furs of wallaby and possums.

4. State of Preservation/ conservation

The area remains largely in its natural state apart from some hydro-electric development at Scotts Peak (on the edge of the nominated area) and hydro-electric investigation camps on the Lower Gordon River and at Mt. McCall. Some timber getting is still carried out in the Alma River catchment of the Franklin - Lower Gordon Wild Rivers National Park. An existing agreement for the extraction of sawlogs expires in 2001. Small scale mining and mining exploration occurs at various places on the periphery of the nominated area.

a. Diagnosis

The wilderness values on the perimeter of the region are endangered by proposed and threatened activities in adjacent "buffer zone" areas.

Such activities include for example planned forestry in the Hartz, Weld, Denison and Forth valleys; hydroelectric dambuilding on the Gordon River above the Olga River, and on the Mackintosh River. Current mining just outside the region at Melaleuca Inlet (tin) and Oakleigh Creek (wolframite) has minimal impact.

Mineral exploration has been carried out in the following areas peripheral to the nominated region: Weld River, D'Aguilar Range, South Cape Bay, Mt. Mueller and Cox Bight. Existing mining leases occur at Joe Page Bay in Port Davey and at the Jane River.

The major human modification of the region has been the construction in the early 1970's of the Middle Gordon hydro-electric power scheme which involved the damming of a magnificent section of the Gordon River outside the nominated area and the inundation of the unique Lake Pedder, to form two large impoundments. As part of this scheme a major road was constructed into the heart of the Southwest wilderness and a small town, Strathgordon, was constructed just outside Southwest National Park.

The only permanent residents in the nominated area are ranger staff at Lake St. Clair and Cradle Valley.

b. Agent responsible for preservation/conservation

The Tasmanian Government, through the National Parks and Wildlife Service.

c. History of preservation/ conservation

For a history of reservations, see the attached Tables 1, 2 and 3.

d. Means for preservation/ conservation

The National Parks and Wildlife Act (1970) and Regulations, The Aboriginal Relics Act (1975) and Regulations (1978).

e. Management plans

Management plans for reserves are a statutory requirement of the National Parks and Wildlife Act (1970). A draft plan for the Southwest National Park has been prepared and is to be reviewed.

A management plan exists for the former Lyell Highway State Reserve, which is now incorporated within the Franklin - Lower Gordon Wild Rivers National Park.

A management plan for the Cradle Mountain - Lake St. Clair National Park is presently being prepared.

5. Justification for inclusion in the World Heritage List.

a. Cultural property

The region contains significant Aboriginal archaeological sites.

Fraser Cave on the Lower Franklin River is one of the six archaeologically richest limestone cave sites in the Western Pacific. A radiocarbon date from the base of part of the cave deposit indicates human occupation in the area about 21,000 years ago. This is now one of the oldest dates in Tasmania, for human occupation.

This area is dense forest, but at the peak of the last glacial maximum when the cave was first occupied, the environment almost certainly was open. Further research is proposed into the archaeology, palynology and fauna of this complex and well preserved cave deposit. It may be claimed already, that an antiquity of 21,000 years establishes southern Tasmania as the most southerly known penetration of the earth's land surface during ice age times.

The earliest date for Tierra del Fuego is some 11,000 years later. This rich archaeological site therefore offers significant testimony to human adaptability. At that time this bare region must have been windswept and cold, with glaciers on the adjacent mountains and the Antarctic pack ice extending to within 1000 kms of Tasmania.

Extensive undisturbed midden deposits occur on the south and south west coast. Studies of aspects of these are likely to significantly increase the knowledge of Tasmanian prehistory.

b. Natural property

The Region comprises most of the last great temperate wilderness remaining in Australia and one of the last remaining in the world.

The three National Parks form a large primitive area with its land and waters and its native plant and animal communities substantially unmodified by humans and their works. It is large enough to survive as wilderness and to maintain genetic diversity despite influences from surrounding areas and to permit the experience of solitude.

The region satisfies all four criteria required

for nomination to the World Heritage List.

(i) It is a representative of a major stage of the earth's evolutionary history and contains the most glaciated area in Australia. During the last glacial period, the coast of the south west was cut deeply by drainage from the high central plateau, and in the post-glacial sea rise produced by the melting of the polar ice, thiscoast was subsequently flooded. Port Davey and Bathurst Harbour with their complex of inlets and islands are perfect examples of drowned river valleys.

To the east of this Western coastal platform rise the Western Ranges, a series of ridge-like mountain ranges running parallel to the west coast. As a result of the high rainfall the base of folded Precambrian rock has been exposed and the river systems have excavated valleys along the strike of soft rock, leaving the hard rocks such as white quartzites, quartz, schists and conglomerates to form ridges. The streams in consequence run parallel to the ranges with only major rivers cutting through to the sea. In a sense, this backbone of folded and contorted quartzite is the essence of the South West, bearing the scars of glaciation, abounding in cirques, horn peaks, glacial lakes (often with white sandy beaches) and forming moraines and outwash plains in many of the valleys.

Glacial ice has contributed to spectacular landform features in the Cradle Mountain - Lake St. Clair National Park and on Frenchmans Cap in the Franklin - Lower Gordon Wild Rivers National Park. Hundreds of lakes and tarns

on the west of the Central Plateau are the legacy of a glacial ice cap. The mountains and peaks of Frenchmans Cap and the Cradle Mountain - Lake St. Clair National Park were partly sculpted during Pleistocene glaciations. Depositional landforms in the Cradle Mountain - Lake St. Clair National Park include extensive moraine deposits particularly in the valley above Lake St. Clair. Many of the lower lakes in this National Park have been formed by damming moraines.

There are many geological sites of local, State, national and international significance. A meteorite impact crater with silicate glass fields and 100 m of lacustrine sediments occurs in the upper Andrew River valley and is of international significance. Karst is a scarce resource in Australia and therefore the limestone and dolomite karsts of the Franklin - Lower Gordon Wild Rivers National Park and the Southwest National Park can be seen as nationally important. What is known of the region's geological structure and lithology includes features of importance in the interpretation of the geology of Tasmania and South eastern Australia. For example the only Tasmanian occurrence of eclogite, a rock rare in Australia, is near Bills Creek within the Franklin - Lower Gordon Wild Rivers National Park. The occurrence is important within the framework of Tasmanian geological history. Rare and unusual rocks within the metamorphosed Precambrian sequences include a quartz-muscovite - epidote schist from Wilson Bight, a calcite-chlorite-phengite quartzite from the Gordon River,

an actinolite-epidote-sphene schist, from the Gordon River and a hornblende-plagioclase schist from Bond Bay while a Precambrian meta-dolerite dyke occurs at Kathleen Island. Metamorphic relationships in Precambrian rocks opposite Trumpeter Island are important in establishing the sequence of geological events.

(ii) The nominated region is an outstanding example of one of the few remaining temperate areas which is of sufficient size for natural processes to continue. The geology and climate of the three Parks have resulted in a unique environment which contains 83% of Tasmania's wilderness area.

The principal vegetation types in the region include temperate rainforests, sedgelands, and alpine heaths which are the Australian strongholds of Gondwana land elements of the flora.

The *Nothofagus* rainforests constitute a primeval vegetation type in Australia which is being gradually replaced by the "Australian element" type of flora.

The temperate rainforests, dominated by *Nothofagus cunninghamii* extend from sea level to over 1000 metres altitude, but occur principally along river valleys, and fire protected slopes.

An impressive tract of *Nothofagus cunninghamii* lowland rainforest occurs along the Lower Franklin and Lower Gordon Rivers. These forests require fire intervals of no less than 300 years to reach maturity but such closed-forests have been in retreat since the middle Holocene probably due to increasing fire frequency as well as climatic change and decreasing

soil fertility. Human activites in remote areas and the use of intense fires to promote commercial eucalypt regeneration have hastened the trend.

Tasmania has custodial responsibility for maintaining Australia's last remaining large areas of cool temperate rainforest.

The sedgeland consists predominatly of buttongrass, a tussock sedge with distinct round "buttons" of seeds on the ends of long stalks. The buttongrass plains cover a large area of poorly drained peaty soils and have replaced the forest in some areas which have a history of recurrent fires.

The alpine heath or montane moorland consists mainly of dwarf shrubbery comprising many plants unique to Tasmania such as *Eucalyptus vernicosa* (the smallest species of the genus), *Leptospermum rupestre, Richea scoparia, R. acerosa,* and *Epacris gunnii*. Patches of coniferous forest occur sporadically throughout the higher altitude areas.

(iii) The region contains unique, rare and superb natural features and areas of exceptional natural beauty. Virtually all other areas in the temperate zone have been so substantially modified by man that their pristine wilderness characteristics have been destroyed.

The geology is varied in terms of age, lithology and structure but tectonic, geochemical and geomorphic processes have worked on the structural geology to produce a variety of scientifically interesting and aesthetically stimulating landforms and landscape types. In a region so diverse,

wild, distinctive and spectacular it would be an arbitrary exercise to list particular landscapes as outstanding.

(iv) The region contains a diversity of habitats where populations of rare and endangered species of plants and animals still survive.

Lakes, lagoons and tarns are one of the regions habitat types. For example, three meromictic lakes on the Lower Gordon River, which have been studied in detail, are the only ones reported in Tasmania, and two of them are thought to be the shallowest meromictic lakes in the world. Such waterbodies possess biological and limnological importance.

FLORA Approximately 165 plant species endemic to Tasmania have been reported in the area and 29 of these are only to be found in the Southwest. A further 19 species are considered endemic to the Central Plateau, part of which is included in the Cradle Mountain - Lake St. Clair National Park.

Some of these endemic plants are rare and endangered.

Some of these plants include :

Lomatia tasmanica : a tall shrub known only from dense rainforests on the ranges between Port Davey and the southern coast.

Isophysis tasmanica : an attractive small plant with deep purple delicate flowers which grows only in the most exposed and infertile mountain soils.

Acradenia frankliniae and *Dacrydium franklinii* : These 2 trees are mainly confined to riverine habitats and their population

strongholds occur in the Franklin - Lower Gordon Wild Rivers National Park.

Leptospermum riparium
Colobanthus affinis
Epilobium perpusillum
Lindsaea trichamanoides
Oreomyrrhis sp.

Other Species known only from the West and South-West include:

Aciphylla procumbens
Dichosciadium ranunculaceum, var. tasmanicum
Diplaspis cordifolia
Oschatzia saxifraga
Nothopanax gunnii
Anodopetalum biglandulosum
Archeria eriocarpa
Archeria hirtella
Epacris corymbiflora
Epacris mucronulata
Leucopogon milliganii
Prionotes cerinthoides
Sprengelia distichophylla
Eucalyptus vernicosa
Microlaena tasmanica
Orites milliganii
Anemone crassifolia
Geum talbotianum
Phebalium oldfieldii
Euphrasia hookeri
Pimelea milliganii
Gaimardia fitzgeraldii
Haemodorum distichophyllum
Blandfordia punicea
Milligania longifolia
Microlaena tasmanica

Endemic plants from the highlands of the Central Plateau, West and South-West are :

Diselma archeri
Microcachrys tetragona
Microstrobos niphophilus
Athrotaxis cupressoides
A. selaginoides
A. laxifolia
Actinotus moorei
Ewartia catipes
Archeria serpyllifolia
Dracophyllum minimum
Richea acerosa
Trochocarpa cunninghamii
T. gunnii
Permettya lanceolata
Mitrasacme archeri
Plantago gunnii
Cenarrhenes nitida
Pimelea pygmaea
Centrolepis monogyna

FAUNA Only one systematic survey the Lower Gordon River Scientific Survey, has been conducted in a part of this region. Nevertheless, knowledge of the vertebrate fauna at least is reasonably complete and is sufficient to stamp this area as of great importance for the conservation of Australian fauna.

21 species of native mammals have so far been recorded in the region, representing some two-thirds of the 32 species known in Tasmania.

The rare Broadtoothed rat *(Mastacomys fuscus)* is confined to the button-grass sedgeland and adjacent ecotonal communities. This region is the species' Tasmanian and Australian stronghold. The endangered White-footed Dunnart has been recorded in the region but little is known of its population or habitat.

Endemic species occurring in the area include the Tasmanian Devil *(Sarcophilus harrisii)* and Long-tailed Rat *(Pseudomys higginsi)*. Other species of note include the Pademelon Wallaby *(Thylogale billardierii)*, Bettong *(Bettongia gaimardii)* and Barred Bandicoot *(Peremeles gunnii)* which are all rare or endangered on the Mainland Australia. The lizard species *Pseudenoia palfreymani* occurs only on Pedra Branca.

The Orange-bellied Parrot *(Neophema chrysogaster)* is an endangered species which breeds only in Southwest Tasmania. This bird is one of the rarest parrots in the world with a known population in the vicinity of 200 birds.

Two other species, the Ground Parrot and Azure Kingfisher utilise habitats which are restricted to western Tasmania.

The Azure Kingfisher frequents undisturbed riverine habitats now restricted to the Franklin - Lower Gordon Wild Rivers and Southwest National Parks. The Ground Parrot is a bird of the buttongrass sedgelands and its stronghold is Southwest Tasmania.

BOOKS

c. Bibliography

ANGUS, M. The World of Olegas Truchanas, O.B.M. Pty.Ltd. 1975.

Australian Conservation Foundation, The Wonderful Southwest, Habitat Special Issue, 1975.

BELL, C. and SANDERS, N. A Time to Care. Chris Bell, Blackmans Bay, 1980.

BERGMAN, G.F.J. Gustav Weindorfer. The Hermit of Cradle Mountain. Typescript N.P.W.S. Library.

BOSS-WALKER, Ian. Peaks and High Places: Cradle Mountain - Lake St. Clair. National Park Tasmania. Scenery Preservation.

DOMBROVSKIS, P. and MILLER, E. The Quiet Land. Peter Deombroskis Pty. Ltd. Sandy Bay, Tasmania.

GEE, H., and FENTON, J. The Southwest Book: A Tasmanian Wilderness, Australian Conservation Foundation, 1978.

GOWLAND, R. and K. Trampled Wilderness: The History of South West Tasmania. (2nd Edition), Richmond and Son Pty.Ltd., Devonport, Tasmania. 1976.

Hydro Electric Commission, Lower Gordon River Scientific Survey (24 reports). 1978.

International Union for Conservation of Nature and Natural Resources, United Nations List of National Parks and Equivalent Reserves, IUCN. 1975.

Lake Pedder Committee of Inquiry, The Flooding of Lake Pedder, Final Report of the Lake Pedder Committee of Inquiry.

McKELVEY, M. Cradle Country: A Tasmanian Wilderness, Rigby 1976

NIELSON, D. South West Tasmania - A Land of the Wild. Rigby, 1975.

South West Tasmania Resources Survey, Resource Inventory, Volumes 1 and 2, (Ed. P. Waterman) 1981 : S.W.T.R.S. Also : 25 Discussion Papers, 22 Working Papers, 20 Occasional Papers.

SPECHT, R.L. et al, Conservation of Major Plant Communities in Australia and Papua New Guinea, Australian Journal of Botany, Supplement No. 7 1974.

FILMS

"Franklin River Journey" Tasmanian Film Corporation colour - 30 minutes

"The Last Wild River". Paul Smith, 1978 colour - 28 minutes

"Climbing Frenchman's Cap", Tasmanian State Film Unit, 1969, colour - 6 minutes

"Tasmanian Wilderness", Sims. 1973. Colour 102 minutes (Parts 1 and 2).

"Walk into Wilderness", Impala Films 1973, Colour 24 minutes.

"The Franklin - Wild River", Mike Cordell, colour, 46 minutes.

"A Wilderness in Question", Damon Smith colour 46 minutes.

TABLE 1

PROGRESS OF RESERVATION

SOUTHWEST NATIONAL PARK

Lake Pedder National Park	23 March, 1955	23,880	
Lake Pedder National Park			
Extension (subsequently known as Southwest National Park)	16 October 1968	191,625. Remaining area 191,589 ha	
Partial Revocation	February, 1969	36	
Southwest National Park			
Reproclamation and extension	3 November 1976	372,300	
Extension	17 November 1976	27,140	
Extension	1 December,1976	3,800	
Extension	13 May, 1981	442,240 ha	TOTAL AREA

TABLE 2

PROGRESS OF RESERVATION

FRANKLIN LOWER GORDON WILD RIVERS NATIONAL PARK

Gordon River State Reserve	3 May, 1939	4,822	ha
Frenchmans Cap National Park	14 June, 1941	13,000	ha
Lyell Highway State Reserve	3 May, 1939	7,284	ha

The above reserves incorporated in the proclamation of the Franklin-Lower Gordon Wild Rivers National Park.

Franklin - Lower Gordon Wild Rivers National Park	13th May, 1981	195,200 ha TOTAL AREA

TABLE 3 PROGRESS OF RESERVATION OF CRADLE MOUNTAIN LAKE ST. CLAIR NATIONAL PARK

SANCTUARY AND CONSERVATION AREA STATUS

Animals and Birds Protection Act 1919

31 May 1927	+63 943	63 943
11 September 1934	+38 851	102 794
23 June 1936	+21 854	124 648
20 December 1939	+12 626	137 274

Note: Proclamations under the Scenery Preservation Act since 1940 and the National Parks and Wildlife Act since 1970 have also covered the protection of fauna.

SCENIC AND STATE RESERVE STATUS

Under Scenery Preservation Act 1915

	Hectares	
Date of gazettal	Changes	Total
16 May 1922	+63 943	63 943
3 May 1936	+60 705	124 648
3 May 1939 - wolfram mine	- 1 295	123 353
3 July 1940	+12 626	135 979
4 September 1940 - St. Clair Lagoon	- 255	135 724
21 April 1948 - Pencil Pine	+ 2 191	137 915
15 October 1952 - Dove River	+ 367	138 282
12 August 1970 - private property acquired, Cradle Valley	+ 184	138 466
18 August 1971 - Re-proclaimed as		124 850

Under National Parks and Wildlife Act 1970

Area re-calculated		124 848
17 April 1974	+ 1 214	126 062
28 December 1977	+ 107.2	126 169
22 February 1978	- 1 214	124 955
22 February 1978	+ 1 250	126 205
24 June 1981	+ 5 710	131 915 ha TOTAL AREA.

ORGANISATION DES NATIONS UNIES
POUR L'EDUCATION, LA SCIENCE
ET LA CULTURE

Date de réception : 13.11.81
N° d'identification : 181
Original : Anglais

CONVENTION CONCERNANT LA PROTECTION DU PATRIMOINE MONDIAL, CULTUREL ET NATUREL

LISTE DU PATRIMOINE MONDIAL

Proposition d'inscription présentée par l'Australie

Parcs nationaux des étendues sauvages de Tasmanie occidentale

1. LOCALISATION PRECISE

a) Pays

Australie

b) Etat, province ou région

Etat de Tasmanie

c) Nom du bien

Parcs nationaux des étendues sauvages de Tasmanie occidentale

d) Localisation exacte sur les cartes avec indication des coordonnées géographiques

Longitude : 145°25' - 146°48' E
Latitude : 41°35' - 43°50' S

2. DONNEES JURIDIQUES

a) Propriétaire

Etat de Tasmanie, Hobart, Tasmanie.

b) Statut juridique

Propriété publique. Parc national. La zone a été déclarée Réserve d'Etat par la Loi sur la faune et les parcs nationaux de 1970 (National Parks and Wildlife Act).

c) Administration responsable

National Parks and Wildlife Service
PO Box 210, Sandy Bay, Tasmania 7005

3. IDENTIFICATION

a) Description et inventaire

Les zones dénommées Parc national du Sud-Ouest, Parc national de Franklin-Lower Gordon Wild Rivers et Parc national du Mont Cradle-Lac St. Clair couvrent une superficie totale d'environ 769.355 ha. C'est l'une des dernières étendues sauvages existant dans le monde tempéré.

La région proposée comporte une large gamme de caractéristiques géologiques, géomorphologiques et végétales.

(i) Géologie : Le coeur de la région comprend une large ceinture de roches métamorphiques pré-cambriennes plissées, orientée nord-sud dans son ensemble. Elles forment les spectaculaires chaînes de quartzite du Sud-Ouest. Ces dernières sont séparées par des vallées plates et souvent larges, composées de calcaire, de conglomérats et de sédiments de l'époque tertiaire. A l'extrémité nord-est de la région, le Parc national du Mont Cradle-Lac St. Clair occupe la partie la plus occidentale du Plateau Central couvert de dolérite.

(ii) Géomorphologie : Il existe une diversité de caractéristiques glaciaires, karstiques et côtières.

Les chaînes de montagne furent façonnées à l'époque du Pléistocène par une glaciation qui a laissé des cirques et des vallées glacières. On trouve des caractéristiques de morphologie glaciaire telles que les cirques, les sommets de type Matterhorn, les arêtes, les moraines, les lacs surcreusés, les lacs formés par un barrage de moraine et les vallées en U.

Le Plateau Central est parsemé de milliers de petits lacs dont les bassins ont été érodés par une couche de glace du Pléistocène.

Cette région reçoit les plus fortes précipitations d'Australie, si l'on excepte le Cap York au Queensland, et en conséquence il existe un système impressionnant de torrents qui dévalent leurs lits pentus et débitent souvent de plus grands volumes d'eau, comparativement à leur longueur, que la plupart des rivières australiennes.

On remarque dans la région d'innombrables chutes d'eau, ravines, rapides, zones calmes et terrasses fluviales. Certaines des rivières dans les parties calcaires coulent sous terre ou sous des arches naturelles.

La côte sud-ouest est accidentée et comprend une spectaculaire diversité de caractéristiques : des plages sableuses alternent avec des promontoires rocheux escarpés. Des plages abruptes formées de blocs rocheux, des lagunes, des falaises plongeantes, des souffleurs, des orgues, des grottes marines, des ravins et des terrasses marines reflètent une variété dans le travail des vagues et dans la dureté des types de rocher, et une histoire géomorphologique variée. Port Davey et Bathurst Harbour sont un exemple classique de ria ou de vallée submergée. Il existe de larges ceintures de calcaire à grottes, particulièrement le long des rivières Lower Franklin et Lower Gordon, mais des affleurements importants de calcaire et de dolomite apparaissent dans toute la région.

On peut noter également de nombreux traits karstiques dans ces régions : cavernes, arches naturelles, lapiés, dolines, entonnoirs de déversion, pics, vallées sèches et résurgences.

(iii) Végétation : Les principales formations structurelles de végétation sont :

- les forêts fermées, surtout dominées par le Nothofagus cunninghamii (myrte), parfois co-dominées par l'Atherosperma moschatum (sassafras) ou le Phyllocladus aspleniifolius et le Dacrydium franklinii (pin 'Huon')dans les habitats riverains.

- les forêts claires : l'Eucalyptus nitida est l'élément dominant de ces forêts.

- Fourrés et broussailles : cette association comprend l'Anodopetalum biglandosum, le Bauera rubioides, le Leptospermum glaucescens, l'Acacia mucronata, le Banksia marginata et l'Eucalyptus nitida sur les sites de plaine.

- les landes : dans les communautés des landes alpines, la plupart des espèces dominantes sont uniques à la Tasmanie. Elles comprennent l'Eucalyptus vernicosa, le Leptospermum rupestre, le Richea scoparia, le R. Acerosa, l'Epacris gunnii et divers résineux alpins.

- les prairies et landes à Carex : les communautés comprennent des graminées, des laîches, des ptéridophytes et des muscinées.

Utilisations actuelles : le Parc national du Sud-Ouest, le Parc national Franklin-Lower Gordon Wild Rivers et le Parc national du Mont Cradle-Lac St. Clair sont gérés par le Tasmanian National Parks and Wildlife Service (Service tasmanien de la Faune et des Parcs nationaux) pour leurs valeurs naturelles et culturelles.

Une vaste gammes d'activités étroitement liées à ces valeurs sont pratiquées. Un grand nombre de visiteurs voyagent en voiture et en autocar jusqu'au Mont Cradle, au Lac St. Clair et sur le Lyell Highway et la route de Strathgordon. Nombreux également sont ceux qui naviguent en canot à moteur sur la rivière Gordon près de Strahan et des promenades aériennes au dessus des zones précédemment dénommées permettent à beaucoup d'observer la nature.

De plus en plus de gens se rendent dans cette région pour pratiquer des activités récréatives plus actives comme par exemple l'alpinisme, la randonnée, la spéléologie, l'escalade sur roc ou sur glace, la descente en radeau, le canoe et le ski de fond. La région offre les meilleurs endroits d'Australie pour pratiquer ce genre d'activités.

b) Cartes et/ou plans

Voir annexe

c) Documentation photographique et/ou cinématographique

"Franklin River Journey" Tasmanian Film Corporation - couleur - 30 minutes.

"The Last Wild River ", Paul Smith, 1978 - couleur - 28 minutes.

" Climbing Frenchman's Cap", Tasmanian State Film Unit, 1969 - couleur - 6 minutes.

"Tasmanian Wilderness", Sims. 1973 - couleur - 102 minutes (1re et 2ème parties).

"Walk into Wilderness", Impala Films, 1973 - couleur - 24 minutes.

" The Franklin - Wild River", Mike Cordell - couleur - 46 minutes.

"A Wilderness in Question", Damon Smith - couleur - 46 minutes.

d) Historique

L'occupation aborigène : Au cours des premières années durant lesquelles s'effectuèrent les premiers contacts avec les Européens, les Aborigènes fréquentaient la côte mais ils ne furent pas observés dans la région des rivières Gordon ou Franklin ou dans le Sud-Ouest, à l'intérieur des terres. Cependant, en 1832, Sharland nota des traces de feu récentes sur la Plaine de Loddon ainsi que des huttes indigènes dans la région de St. Clair et en 1840, James Calder découvrit des huttes portant des traces d'occupation récente près de Frenchmans Cap.

De riches vestiges archéologiques ont été découverts dans des grottes situées sur la partie aval de la rivière Franklin, et une première datation effectuée sur le site de la Grotte Fraser prouve une occupation humaine dans la zone des rivières Gordon et Franklin au moins pendant la dernière période de glaciation, il y a 21.000 ans.

La population Aborigène a été chassée de cette région par un missionnaire zélé, G.A. Robinson.

Histoire européenne : L'exploration européenne a débuté dans les années 1800, surtout à partir de la mer. Les premières activités qui ont attiré les occupants dans cette zone ont été l'abattage des pins et la chasse à la baleine. Après l'établissement du pénitencier de l'Ile Sarah en 1821, les forçats et leurs gardiens ont travaillé sur la majeure partie des bassins inférieurs des rivières Gordon et Franklin pour en extraire le pin Huon, tellement convoité.

La région a été visitée par une série d'explorateurs, de prospecteurs et d'aventuriers dans les années qui suivirent, y compris le géologue Charles Gould qui traversa la zone située entre la rivière Gordon et la rivière Franklin près de Glen Calder et en 1859, il remonta avec son équipe la rivière Franklin jusqu'à Frenchmans Cap. Gould fut le premier à négocier le passage de la Grande Ravine et d'autres gorges à l'Ouest de Frenchmans Cap.

Il se peut que la première visite d'Européens enregistrée au Mont Cradle soit celle de Joseph Fossey et Henry Hellyer de la Compagnie Diemens Land en 1828. De même, la première visite enregistrée au Lac St. Clair en 1835 pourrait être celle de George Frankland, alors Inspecteur-général.

Dans les années 1880, T.B. Moore traversa deux fois la Franklin et fit des ascencions de Frenchmans Cap par l'Ouest. A ce moment, l'essor de la recherche des minéraux sur la côte ouest avait amené une vague d'activités dans la région et les premières décennies de ce siècle virent un renouveau d'intérêt pour le pin Huon et l'activité touristique potentielle sur la rivière Gordon.

Avant la fin du siècle, un certain nombre d'Européens, y compris des artistes, des prospecteurs, des chasseurs et des bûcherons avaient parcouru la région et quelques colons commencèrent à utiliser les hautes terres du centre comme pâturages d'été pour leurs moutons.

La beauté de la région du Mont Cradle fut reconnue dès 1885. Cette année-là, le Gouvernement de Tasmanie décréta que toutes les terres de la Couronne à un demi mile des lacs St. Clair et Petrarch seraient instaurées en réserve.

Les premières excursions touristiques régulières commencèrent en 1915.

Une partie des chemins tracés à la fin du 19ème siècle pour la prospection et la recherche minière est maintenant comprise dans les sentiers de randonnée actuels.

e) Bibliographie

Angus, M. The World of Olegas Truchanas, O.B.M. Pty. Ltd. 1975.

Australian Conservation Foundation, The Wonderful Southwest, Habitat, Edition spéciale, 1975.

Bell, C. and Sanders, N. A Time to Care. Chris Bell, Blackmans Bay, 1980.

Bergman, G.F.J. Gustav Weindorfer. The Hermit of Cradle Mountain Typescript N.P.W.S. Library.

Boss-Walker, Ian. Peaks and High Places : Cradle Mountain-Lake St. Clair National Park Tasmania. Préservation des paysages.

Dombrovskis, P. and Miller, E. The Quiet Land. Peter Deombroskis Pty. Ltd. Sandy Bay, Tasmania.

Gee, H. and Fenton, J. The Southwest Book : A Tasmanian Wilderness, Australian Conservation Foundation, 1978.

Gowland, R. and K. Trampled Wilderness : The History of South West Tasmania. (2ème édition) , Richmond and Son Pty. Ltd. , Devonport, Tasmania, 1976.

Hydro Electric Commission, Lower Gordon River Scientific Survey (24 rapports). 1978.

Lake Pedder Committee of Inquiry, The Flooding of Lake Pedder, Rapport final de la Commission d'enquête du lac Pedder.

Union internationale pour la Conservation de la nature et de ses ressources, United Nations List of National Parks and Equivalent Reserves, UICN. 1975.

4. ETAT DE PRESERVATION OU DE CONSERVATION

a) Diagnostic

La région a largement conservé son aspect naturel si l'on excepte quelques équipements hydro-électriques à Scotts Peak (à la limite de la zone proposée) et des stations de recherche hydro-électrique sur la basse rivière Gordon et au Mont McCall. L'abattage du bois est encore pratiqué près du bassin de la rivière Alma, dans le Parc national des rivières Franklin-Lower Gordon. Un accord existant pour l'exploitation forestière expire en 2001. Une prospection et une extraction minières sont en cours dans divers endroits à la périphérie de la zone proposée.

Les valeurs naturelles sur le périmètre de la région sont menacées par des activités envisagées dans les "zones tampons" adjacentes.

Ces activités comprennent par exemple une exploitation forestière des vallées Hartz, Weld, Denison et Forth, la construction de barrages hydro-électriques sur la rivière Gordon en amont de la rivière Olga et sur la rivière Mackintosh. L'exploitation minière actuelle, juste en bordure de la région, à Melaleuca Inlet (étain) et à Oakleigh Creek (wolframite), a un impact minime.

La principale modification humaine dans la région a été la construction, au début des années 1970, du complexe hydro-électrique de Middle Gordon, qui a impliqué le barrage d'une partie magnifique de la zone de la rivière Gordon située en dehors de la zone proposée et l'inondation du lac Pedder, site unique, pour former deux grands réservoirs.

Dans le cadre de ce même projet, une route a été construite au coeur de l'étendue sauvage du Sud-Ouest et une petite ville, Strathgordon, a été construite juste en dehors du Parc national du Sud-Ouest.

Les seuls résidents permanents à l'intérieur du site proposé sont les gardiens du parc au lac St. Clair et à la vallée de Cradle.

b) Agent responsable de la préservation ou de la conservation

Le Gouvernement de Tasmanie, par l'intermédiaire du Service de la Faune et des Parcs nationaux.

c) Historique de la préservation ou de la conservation

- Le Parc national du Sud-Ouest a été tout d'abord protégé, sous le nom de Parc national du Lac Pedder, à partir du 23 mars 1955, et diverses augmentations de superficie l'ont amené à la surface actuelle de 442.240 ha.

- Les trois zones qui constituent le Parc national Franklin-Lower Gordon Wild Rivers ont été protégées respectivement depuis 1939 et 1941. Le parc actuel a été établi en 1981. Il a une superficie de 195.200 ha.

- Le Parc national du Lac St. Clair comprend une série d'aires protégées qui ont été rassemblées pour former le parc national en 1971. Diverses extensions depuis cette date l'ont amené à sa présente superficie de 131.915 ha.

d) Moyens de préservation ou de conservation

Loi (1970) et Prescriptions sur la Faune et les Parcs nationaux (National Parks and Wildlife Act) ; Loi sur les Vestiges Aborigènes, 1975 (Aboriginal Relics Act) et Prescriptions (1978).

e) Plans de gestion

Les plans de gestion des réserves sont une nécessité statutaire prévue par la Loi sur la Nature et les Parcs nationaux de 1970 (National Parks and Wildlife Act). Un projet de plan de gestion pour le Parc national du Sud-Ouest a été préparé et doit être examiné.

Un plan de gestion existe pour l'ancienne Réserve d'Etat de Lyell Highway, qui est maintenant incorporée dans le Parc national Franklin-Lower Gordon Wild Rivers.

Un plan de gestion pour le Parc national du Mont Cradle-Lac St. Clair est actuellement en cours d'élaboration.

5. JUSTIFICATION DE L'INSCRIPTION SUR LA LISTE DU PATRIMOINE MONDIAL

a) Bien culturel

La région renferme d'importants sites archéologiques Aborigènes. La Grotte Fraser, à côté de la rivière Franklin, est l'une des six grottes calcaires les plus riches en matériel archéologique du Pacifique Occidental. Une datation au radiocarbone d'une partie des vestiges trouvés dans la grotte apporte la preuve d'une occupation humaine dans cette zone, il y a environ 20.000 ans. C'est l'une des plus anciennes tràces d'occupation en Tasmanie.

Cette zone est couverte de forêt dense, mais à la période maximale de la dernière glaciation, quand la grotte a été occupée pour la première fois, la végétation était presque certainement ouverte. Des recherches plus approfondies sont envisagées dans les domaines de l'archéologie, de la palynologie et de la faune de ces vestiges complexes et bien préservés. On peut déjà affirmer que le Sud de la Tasmanie, avec un passé de 21.000 ans, est l'endroit le plus méridional que nous connaissions où une avancée des terres s'est produite à l'époque des glaciations. Pour la Terre de Feu, cette date remonte à 11.000 ans. Ce riche site archéologique offre par conséquent un témoignage important de l'adaptabilité humaine. Dans ce temps-là, cette région dénudée devait être froide et balayée par les vents, et comporter des glaciers sur les montagnes avoisinantes, la calotte glacière antarctique s'étendant jusqu'à moins de 1.000 km de la Tasmanie.

D'importants dépôts de kjoekkenmoedding (déchets domestiques préhistoriques) apparaissent, intacts, sur la côte du Sud et du Sud-Ouest. Des études sur leur aspect vont vraisemblablement accroître d'une façon considérable la connaissance que nous possédons sur la préhistoire de la Tasmanie.

b) Bien naturel

La région comprend la plupart des grandes étendues sauvages tempérées qui subsistent en Australie et c'est l'une de ces dernières étendues restant au monde.

Les trois parcs nationaux forment une grande zone à l'état naturel avec des terres, des rivières, une flore et une faune d'origine, et n'ont pas été considérablement modifiés par l'impact de l'homme. Cette zone est de dimension suffisante pour lui permettre de garder son état naturel d'origine, de maintenir une diversité génétique en dépit des influences provenant des aires périphériques et de laisser l'homme faire connaissance avec la solitude.

La région répond aux quatre critères de sélection des biens naturels pour l'inscription sur la liste du Patrimoine mondial.

(i) C'est un exemple de stade important de l'histoire de l'évolution de la terre et c'est la région d'Australie qui a le plus subi la glaciation. Pendant le dernière période glaciaire, la côte sud-ouest a été profondément entaillée par l'écoulement des eaux provenant du haut plateau central, et au moment de la montée des eaux post-glaciaire résultant de la fonte de la glace polaire, cette côte a été en conséquence submergée. Port Davey et Bathurst Harbour, avec leur système de criques et d'îles, sont des exemples parfaits de vallée fluviale inondée.

La glaciation a façonné le terrain d'une façon spectaculaire dans le Parc national du Mont Cradle-Lac St. Clair et sur le Frenchmans Cap, dans le Parc national Franklin-Lower Gordon Wild Rivers.

Il existe beaucoup de sites géologiques d'intérêt local, national et international. Il y a dans la vallée supérieure de la rivière Andrew un cratère à silice de verre né de l'impact d'une météorite, une couche de 100 m de sédiments lacustres et ceci revêt une importance internationale. Le karst est un élément rare en Australie et par conséquent, les karsts calcaires et dolomitiques du Parc national Franklin-Lower Gordon Wild Rivers et du Parc national du Sud-Ouest ont une importance nationale. Ce qui est connu de la structure géologique et de la lithologie de la région présente des caractéristiques importantes pour l'interprétation de la géologie de la Tasmanie et du Sud-Est de l'Australie.

(ii) Le site proposé est un exemple exceptionnel et rare de région tempérée dont la superficie est suffisante pour permettre aux processus naturels de se poursuivre. La géologie et le climat de ces trois parcs forment un milieu unique qui renferme 83 % des étendues sauvages de Tasmanie.

Les principaux types de végétation de la région comprennent la forêt pluviale tempérée, les landes à Carex, les landes alpines qui sont les bastions australiens des éléments de la flore provenant du continent de Gondvana.

Les forêts pluviales de Nothofagus constituent un type de végétation primitive qui est progressivement remplacé par un type de flore caractéristique de l'Australie.

Les forêts pluviales tempérées, dominées par le Nothofagus cunninghamii, s'étendent du niveau de la mer jusqu'à plus de 1.000 m d'altitude, mais apparaissent plus particulièrement le long des fleuves et sur les pentes qui sont à l'abri du feu. Ces forêts doivent connaître des intervalles d'au moins trois cents ans sans incendies pour pouvoir atteindre leur maturité, mais ce type de forêts fermées est en régression depuis le milieu de l'ère de l'Holocène, probablement en raison d'un accroissement de la fréquence des incendies ainsi que des changements climatiques et de la perte de fertilité des sols. Cette tendance a été renforcée par les activités humaines dans des zones retirées et par la pratique de feux prescrits à température élevée pour encourager la régénérescence de l'eucalyptus dans un but commercial.

La Tasmanie a la responsabilité de veiller à la protection des dernières grandes zones de forêt pluviale tempérée en Australie.

(iii) La région possède des phénomènes naturels rares, uniques et superbes et des zones d'une beauté naturelle exceptionnelle. Presque tous les autres endroits de la zone tempérée ont été modifiés par l'homme et ne possèdent plus leurs caractéristiques naturelles d'origine.

La géologie est très variée en termes d'âge, de lithologie et de structure mais les processus tectoniques, géochimiques et géomorphologiques ont modifié la structure géologique et ont produit une topographie variée et des types de paysages intéressants d'un point de vue scientifique et stimulants d'un point de vue esthétique.

(iv) La région comprend une diversité d'habitats où des populations d'espèces animales et végétales rares et menacées survivent encore.

Environ 165 espèces végétales, endémiques en Tasmanie, ont été répertoriées dans cette zone et 29 d'entre elles n'existent que dans le Sud-Ouest. 19 autres espèces sont considérées comme endémiques sur le Plateau Central, dont une partie est incluse dans le Parc national du Mont Cradle-Lac St. Clair. Quelques-unes de ces plantes endémiques sont rares et menacées.

Une seule étude systématique sur la faune de la région, l'Etude Scientifique sur la rivière Lower Gordon (Lower Gordon River Scientific Survey), a été effectuée dans une partie de la région. Néanmoins, notre connaissance des vertébrés est relativement complète et suffisamment approfondie pour reconnaître à ce site une grande importance dans la conservation de la faune australienne. 21 espèces indigènes de mammifères ont été jusqu'à présent identifiées dans la région, ce qui représente deux-tiers des 32 espèces connues en Tasmanie.

Signature_____

Nom et prénom : J.M.C. Watson

Titre : Chargé d'Affaires, Délégué permanent p.i.
Délégation permanente d'Australie auprès de l'Unesco

Date : 11 novembre 1981

Annexe

Documentation soumise à l'appui de la proposition d'inscription des Parcs nationaux des étendues sauvages de Tasmanie occidentale sur la Liste du Patrimoine mondial.

Le Secrétariat a reçu de l'Australie, à l'appui de la présente proposition d'inscription, les documents dont la liste figure ci-dessous. Ces documents peuvent être consultés à la Division des Sciences écologiques de l'Unesco. Ils seront mis à la disposition des participants lors des réunions du Bureau du Comité du Patrimoine mondial et du Comité lui-même.

Photographies (n/b)

1) Frenchmans Cap

2) Forêt pluviale sur la rivière Lower Gordon

Cartes

1. La Tasmanie, indiquant la zone proposée. 1:1.800.000

2. Carte détaillée de la zone proposée. 1:250.000

Extension
1989

NOMINATION

1 SPECIFIC LOCATION

1(a) Country

Give full name of State Party on whose territory property is located.

Australia.

1(b) State, province or region

Give full name of State, Province or Region where property is located. If property overlaps State, Provincial or Regional boundaries, provide names of all overlapped States, Provinces and/or Regions.

State of Tasmania.

1(c) Name of property

Local name of property and other names by which property is known, to be provided. In case a change of name has occurred, provide name(s) by which property was previously known.

The area is to be known as the **Tasmanian Wilderness World Heritage Area.** The nominated area includes the area already inscribed on the World Heritage List as the Western Tasmania Wilderness National Parks World Heritage Area, with the addition of the Walls of Jerusalem and the Hartz Mountains National Parks; Devil's Gullet, part of Liffey Falls, Port Davey, Exit Cave and Marakoopa Cave State Reserves; Central Plateau Conservation Area, Central Plateau Protected Area; Oakleigh Creek Conservation Area; Drys Bluff, Liffey and Meander Forest Reserves; the Broken Hills area, Eldon Range area, Governor headwaters, Lower Gordon River – Macquarie Harbour area, part of the Southern Forests and Denison-Spires areas in and adjacent to the Southwest Conservation Area; Sarah Island Historic Site and Maatsuyker Island; the Campbell River, Little Fisher Valley and Lemonthyme regions of Tasmania.

1(d) Exact location on map and indication of geographical co–ordinates

Maps and plans showing exact location and boundaries of property are essential (see 3b below). Please provide latitude and longitude co–ordinates and/or a grid reference. For grid references, the type of grid should also be given.

For properties in urban areas, the name of the town or city, and the street and number, should be added.

If an area surrounding nominated property is considered essential for the protection of the property, e.g. a buffer zone, indications should also be provided on the boundaries of this area.

The nominated area is located in the central and south–west regions of the island of Tasmania between the longitudes 145° 25' E and 146° 55' E and the latitudes 41° 35' S and 43° 40' S (see Map 1).

A full boundary description and maps on a scale of 1:25,000 and 1:100,00 will be provided separately.

The boundaries of the nominated area have been selected to ensure adequate protection of the integrity of the area.

2. JURIDICAL DATA

2(a) Owner

Specify the name and address of the current owner(s) of property.

The current owners –

The State of Tasmania, Hobart, Tasmania.
The Commonwealth of Australia, Canberra, Australia.
Private citizens.

2(b) Legal status

Indicate the category of ownership (public or private) and in the case of privately owned property, whether public acquisition is in process or being considered. Provide details of protective, legal and administrative measures envisaged or already taken for the conservation of the property (eg. creation of national park). Give details on the state of occupancy of the property and its accessibility to the general public.

In public ownership as–

. **National Park or State Reserve**

Cradle Mountain – Lake St. Clair National Park	131 920	ha
Southwest National Park	442 240	ha
Franklin–Lower Gordon Wild Rivers National Park	181 075	ha
Walls of Jerusalem National Park	11 510	ha
Hartz Mountains National Park	6 470	ha
Devils Gullet State Reserve	806	ha
Marakoopa Cave State Reserve	790	ha
Exit Cave State Reserve	441	ha
Liffey Falls State Reserve (part thereof)	20	ha
Port Davey State Reserve	17	ha
Sarah Island Historic Site	6	ha

– fully protected by the Tasmanian *National Parks and Wildlife Act 1970.*

. **Conservation Area**

Central Plateau	23 250	ha
Oakleigh Creek of which 379 ha (approx) is State Forest	756	ha
Southwest of which approx 162 400 ha is State Forest	428 500	ha (approx)
St Clair Lagoon (vested in HEC)	255	ha

– provided a measure of protection by the Tasmanian *National Parks and Wildlife Act 1970* and, in the case of the State Forest, a management regime is provided by the Tasmanian *Forestry Act 1920.*

. **Protected Area**

Central Plateau 92 000 ha

– provided a measure of protection by the Crown Lands Act 1976

. **State Forest** 11 250 ha (approx)

– management regime is provided by the Tasmanian *Forestry Act 1920.*

. **Forest Reserves**

Meander Forest Reserve	1 638 ha
Liffey Forest Reserve	825 ha
Drys Bluff Forest Reserve	680 ha

. **Land vested in the Hydro–Electric Commission**

Franklin–Lower Gordon Leased Reserve	17 500 ha (approx)
Strathgordon–Scotts Peak Area	6 200 ha (approx)
Middle Gordon–Denison Area	6 800 ha
Lake Augusta Area	1 580 ha
Nelson Valley Area	790 ha
Lake Mackenzie Area	550 ha (approx)

– the Leased Reserve is provided a high level of protection under the Tasmanian *National Parks and Wildlife Act 1970* for the term of the lease (until 2011) but it may be cancelled earlier.

– other vested areas are utilised for dams, quarries and access roads; in the near future, a vested area in the vicinity of Scotts Peak will be reduced to the minimum required for management of the power development and the balance will come under the management of the Department of Parks, Wildlife and Heritage.

. **Unallocated Crown Land** 5 270 ha (approx)

– provided a measure of protection by the Tasmanian *Crown Lands Act 1976.*
– It is the intention of the Tasmanian Government to include most State–administered land in the nominated area in National Parks or equivalent reserves.

. **Commonwealth Land**

Maatsuyker Island 182 ha

– presently under the control of the Federal Department of Transport and Communications.

In private ownership –

. Freehold block, approximately 100 hectares in the Vale of Rasselas – public acquisition could be considered. Four freehold blocks, totalling 220 hectares, on the Central Plateau. Freehold block, approximately 10 hectares at Pillinger on the foreshore of Kelly Basin.

(See Map 2.)

2(c) Responsible administration

Give names(s) and address(es) of body (bodies) responsible for administration of property.

The property is administered by the Government of the State of Tasmania through:

- Department of Parks, Wildlife and Heritage, GPO Box 44A, Hobart, Tasmania 7001.
- Forestry Commission, GPO Box 207B, Hobart, Tasmania, 7001.
- Hydro–Electric Commission, GPO Box 355D, Hobart, Tasmania, 7001.

Commonwealth land (Maatsuyker Island) is administered by the Federal Department of Transport and Communications.

Private property is the responsibility of the owners, who must comply with relevant laws with regard to ownership and occupation of their land.

The Government of Australia has enacted the *World Heritage Properties Conservation Act 1983* and the *Conservation Amendment Act 1988* to implement its responsibilities and obligations arising from the World Heritage Convention. The existing joint Ministerial Council of the Australian and Tasmanian Governments will assume responsibility for overseeing administration of the property.

3 IDENTIFICATION

3(a) Description and inventory

A detailed description of the property is to be provided. The property should fall into one of the following categories, defined in Articles 1 and 2 of the Convention.

CULTURAL HERITAGE

"monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;

groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;

sites: works of man or the combined works of nature and of man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view."

NATURAL HERITAGE

"natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;

geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;

natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty."

Give the size of the area of the property and, where applicable, of the buffer zone. The description should include precise details on the particular characteristics of the property. Details of the present and/or proposed use of the property should be included in this description.

The area nominated as the Tasmanian Wilderness World Heritage Area covers approximately 1 374 000 hectares of south–western and central Tasmania, as shown on Maps 1 and 2.

The nominated area contains a wide range of geological, landform and vegetation characteristics, and includes archaeological sites of outstanding value.

CULTURAL HERITAGE

Archaeology

Limited archaeological surveys have been conducted within the nominated area. In the early 1970s, intensive investigation of some coastal areas took place and recently surveys and detailed studies have been undertaken of the south coast and Port Davey areas, the western Central Plateau, the Overland Track and the valleys to the north of the high country.

Since 1981, preliminary surveys of a number of inland river valleys have been undertaken, including the Gordon, Franklin, Andrew, Acheron, Weld and Cracroft, Denison and Maxwell River valleys. (See Map 3.) In these valleys and in others adjoining the nominated area, some 37 cave sites have been located, the occupation of which are all considered to date between before 30 000 and 11 500 years ago. Kutikina Cave, in the Franklin River Valley, was the first such Aboriginal site where Ice Age occupation was recognised and investigated. It contains rich evidence of human occupation spanning almost 5 000 years. From less than one cubic metre of deposit excavated from Kutikina Cave, some 40 000 stone artefacts and 35 kilograms of bone materials consisting of 250 000 fragments were recovered, making it one of the richest prehistoric sites known in Australia. These deposits included large quantities of bone from the red–necked wallaby (*Macropus rufogriseus*) indicating a predominance of this one species in the diet of the inhabitants. Excavation of M86/2 in the Maxwell River Valley shows this site to be equally rich, particularly in faunal remains. The preservation of bone from this site is superb and the abundance and integrity of a well–preserved Pleistocene faunal assemblage is especially significant. Although one species, the red–necked wallaby, formed the bulk of the faunal deposit, a number of other species contributed an important minor component in the diet. Excavations at Bone Cave in the Weld River Valley, also rich in archaeological remains, are currently being carried out resulting in basal radio–carbon dating going back to 29 000 BP. The evidence from Bone Cave is similar to that from Kutikina in suggesting that the inhabitants were also heavily reliant on one species, in this case the eastern grey kangaroo (*Macropus giganteus*).

The recent discovery of rock art at three cave sites in the Maxwell, Cracroft and Weld River Valleys is especially significant as it shows such painting, presumed to have ceremonial significance, to be an integral part of this Ice Age society. Judds Cavern (Wargata Mina) is the most richly decorated of these sites. It is one of the largest river caves in Australia with over 3.5 km of explored passages. The main art panels are located approximately 50 metres inside the cavern and at the very limits of daylight penetration. The presently visible decoration of one panel extends over a horizontal distance of eight metres and is three metres high. The paintings are all in red and comprise hand stencils and large areas of smeared pigment. The recent application of accelerated radio–carbon dating on rock art pigment has resulted in the first ever dating of Pleistocene rock art with evidence of the use of human blood as a fixative. There are almost certainly areas of decorated wall at present covered by calcium carbonate wash and stalagmites. The paintings at Ballawinne Cave also comprise red hand stencils located in total darkness between 20 and 30 metres inside the cave at the end of a narrow, twisting entrance passage and smears of ochre at the entrance to this passage.

The Tasmanian highlands contain a range of stone artifact scatters, stone quarries and rock shelters. The western Central Plateau is extremely rich in open campsites, particularly around lakes and rivers and forest margins, indicating a distinctive adaptation to this sub–alpine environment during the Holocene. Excavations at Warragarra rockshelter in the upper Mersey Valley and in the Little Fisher River Valley show that these highland valleys were occupied about 10 000 years ago immediately following deglaciation and that this inland forest habitat became more important in the later Holocene. The south coast and Port Davey contain a range of sites including rockshelters, quarries and an immense variety of shell middens some of which are large and complex. Investigations at Ninene rockshelter and other midden sites in Port Davey are currently being carried out. The evidence suggests changing patterns of shellfish exploitation which persisted perhaps over several thousand years until the arrival of Europeans in the early nineteenth century. These sites have been little disturbed since that time.

The nominated area includes Sarah Island, the site of the earliest of several penal settlements in Tasmania, and a number of minor sites along the Gordon River associated with the settlement. It operated from 1821 to 1833 as a place of secondary punishment for convicts who had re–offended. The heavy work felling Huon pine along the Gordon River, severe climate and harsh conditions made it a place of dread that came to be equated with the most inhumane excesses of the colonial convict system. It was re–occupied briefly in 1846–47 by a probation station. The surviving remains include ruins of the penitentiary and other buildings of an industrial area.

NATURAL HERITAGE

Geology and geomorphology

The island of Tasmania is a rugged region, in contrast to much of the mainland of Australia, and may be divided into two physiographic provinces. These reflect the geological structures and different lithologies which underlie the region. The fold structure province occurs in the western half of the State and is dominated by Precambrian basement rocks, while the fault structure province in the east consists of younger (Permian–Triassic) horizontally bedded sediments and Jurassic dolerite. There is a corresponding change across this boundary of land, soil and vegetation types. The nominated area covers both fold and fault structure provinces. As a result of this nomination, assuming it is successful, a much larger area of the fault structure province will be included in the World Heritage Area.

Fold structure province

The fold structure province occurs in the south–west of the nominated area and is dominated by regionally deformed Precambrian rocks. It is the largest region of Precambrian rocks in Tasmania extending from the south coast to Cradle Mountain and is often referred to as the Tyennan Nucleus. The region is extremely rugged and densely vegetated with north–south trending mountain ranges and valley systems. Rocks vary in age from Precambrian to Devonian and have been subjected to two major structural events, the Frenchman and Tabberaberan orogenies. These rocks provide the underlying control on the physiognomic form of the country. Precambrian units are mainly of metasedimentary origin and consist of quartzite, schist, phyllite, conglomerate, dolomite, siltstone and sandstone. It has been suggested that these were deposited in a tidally dominated shallow–shelf sea. The more resistant sequences, such as quartzite, form most of the prominent ranges in the area while less resistant schist, dolomite, limestone and phyllite underlie many of the valleys and plains.

In combination with structural and lithological controls, changing climates have also influenced landscape development. This was highlighted most recently by late Cainozoic to Pleistocene glacial and periglacial events which affected extensive parts of western and central Tasmania. Ice caps, cirque glaciers and valley glaciers were generally confined to the higher mountains and plateaux. At least three and possibly six glaciations have been recognised. (Map 5 indicates the locations of major glacial landscapes across Tasmania.)

Glacial erosion has contributed to spectacular landform features in the fold structure province including horns, aretes, cirques, "U" shaped valleys and rock basins (tarns). These are common at Frenchmans Cap and in the Frankland, Arthur, Prince of Wales and Ironbound Ranges. Below about 600m, depositional features are typical including moraines and various other outwash deposits. Spectacular glacial features include the dramatic ice–scoured face of the Font in the Spires Range. Periglacial activities included considerable slope instability in extraglacial areas giving rise to gellifluctate, landslip and talus deposits. Periglacial conditions still occur on some of the higher peaks. Mountain and valley glaciers dominated and were contiguous with the larger glaciers and ice caps of the Central Plateau. The landforms and deposits associated with these areas could provide important information on the relationship between glaciations in the fold and fault structure provinces.

The coastline has been subjected to a number of sea level changes during the glaciations and the present coastline provides a classic example of a drowned landscape. The discordant coastline in the south, and ria at Port Davey and Bathurst Harbour, provide good evidence for marine transgression. In general the coast is very exposed with rocky wave cut platforms, steep slopes, cliffs, gulches, blowholes and arches, although beaches occur where there is some headland protection.

Special landforms associated with the development of karst are a feature of the south–west. These have formed through the solution of carbonate rocks such as Precambrian dolomite and Ordovician limestone. Features include spectacular cave systems, natural arches, clints and grikes, dolines, karren, pinnacles and blind valleys. (See Map 4.) The longest cave system in Australia (Exit Cave) is located in the nominated area while other karst areas occur in the Weld, Cracroft, Maxwell and Denison Valleys.

The drainage system of the fold structure province has a pronounced trellis pattern with most rivers and creeks confined between parallel ridges. Only the larger rivers, notably the Franklin and Gordon, have had the power to cut through the mountain ranges at "right angles" producing spectacular gorges.

Fault structure province

The fault structure province occurs generally above 600m in the east and north of the nominated area, and consists of Permian–Triassic horizontal sediments of the Parmeer Supergroup capped by Jurassic dolerite. The sediments are divided into upper (Triassic) and lower (Permian) units. Basement rocks are probably of Precambrian, Cambrian, Ordovician and Silurian age. These outcrop in minor areas (the Cradle Mountain region contains an example).

The Permian sediments of the Parmeer Supergroup consist primarily of glacio–marine sequences including tillite, sandstone, siltstone, mudstone and limestone horizons. The Triassic unit was probably laid down during a humid, cool climate in swamps, lakes and river channels. Fossils include faunal and floral assemblages with very strong Gondwanan affinities. Some rocks contain rare plant and amphibian fossils. Sandstone, mudstone, siltstone, shale and coal bands occur in the upper unit.

A dramatic period of igneous activity followed the deposition of these sediments in the Jurassic with the injection of massive amounts of dolerite into the Parmeener Supergroup. The intrusion was probably related to tensional stresses between contintental blocks within the Gondwanan super–continent. Due to its resistant nature dolerite covers a vast tract of the nominated area. Sedimentary roof rocks are restricted to areas such as the Walls of Jerusalem.

Faulting which may have occurred during the Jurassic, Cretaceous or Tertiary periods gave rise to the distinct scarp bounded plateaux and residual hills which contrast dramatically with the fold structure province to the south. The fault structure province includes the Cradle Mountain–Lake St Clair, Walls of Jerusalem and Hartz Mountains National Parks, parts of the Lemonthyme and the Southern Forests, Eldon Range and small areas of land around Mount Anne, Mount Ronald Cross and the King William Range.

Physiographically, the Lemonthyme area is part of the north–west edge of the Central Plateau region. The dolerite capped February Plains, an outlier of the Plateau to the east, give way on their western side to escarpments and steep forested slopes down to the Forth River. Cradle Mountain, Mount Emmett and Mounts Pelion East and West are among a number of outlying dolerite capped peaks within the Cradle Mountain–Lake St Clair National Park. In its upper reaches, the Mersey River has eroded through the dolerite capping into underlying Triassic and Permian sediments. The Central Plateau was affected by Pleistocene ice sheets and contains up to 4,000 glacial lakes. These spectacular features occur in ice–sculptured basins, some of which follow conjugate joint patterns.

The Southern Forests cover an elongated stretch of land about 160km from north to south and 5 to 30km from east to west. The area is geologically very diverse and dolerite capped peaks and ranges are dominant features of the landscape. An excellent example is the Hartz Mountains with its capping of Jurassic dolerite which forms spectacular fluted columns and jagged ridges.

In general terms the landscape of the northern two thirds of the fault structure province is a series of rugged peaks, with broad valleys between, often with surface Quaternary glacial deposits. Mount Ronald Cross and Mount Anne areas are dolerite capped outliers with detailed topographic features sculpted by past glaciation.

Ice caps, valley glaciers and cirque glaciers covered most of the higher country in this province. Many of the glacial erosion and deposition features described as features of the fold structure province also occur in the higher country of the fault structure province. Outstanding features include Lake St Clair (the deepest lake in Australia) and the myriad of lakes on the plateau surface south of the Walls of Jerusalem. Cirques occur on most of the mountains in the area and glacio–fluvial deposits are found in the Picton, Middle Huon, Denison and Upper Weld Valleys and the Vale of Rasselas. (See Map 5.)

Vegetation

The cool wet climate of Tasmania's south–west region is unusual in Australia. The nature of the vegetation in consequence has as much in common with cool temperate regions of South America and New Zealand as with the rest of Australia.

The intricately varying geology, soil, topographic relief and fire frequency have created a rich tapestry of colour, texture, and form in the vegetative landscape. The closed–forest (temperate rainforest), open–forest (eucalypt forest), buttongrass moorland and the alpine communities occur in a unique mosaic of Gondwanan and Australian elements of the flora. For example, the nominated area contains populations of relict Gondwanan conifer genera now known only from Tasmania: *Athrotaxis, Diselma, Microcachrys.* The cool temperate alpine moorland and rainforest communities of the nominated area have the best representation of these ancient taxa. The plants of the Australian element which have evolved more recently dominate the sclerophyll communities of the area. The genus *Eucalyptus* is a prime example.

Such is the size and diversity of the nominated area that it harbours a wealth of habitats which support many unusual plant taxa and communities. Two–thirds of Tasmania's endemic higher plant taxa are present in the area; about half of these are dependent on the area for most of their distribution. (See Maps 6 and 7.) The area contains many higher plant species (many endemic to Tasmania) listed as rare or threatened. The nominated area is also likely to be correspondingly important for the conservation of lower plant species but knowledge of these species is as yet only fragmentary. Preliminary studies of lichens and bryophytes have already revealed the presence of new endemic taxa. The area contains vast tracts of pristine rainforests and represents the greatest range in floristic and structural variation of these forests in cool temperate Australia.

Of the identified vegetation communities in Tasmania the nominated area contains at least 32 of the 34 temperate rainforest communities; 42 of the 43 alpine communities; 31 of the 65 wet sclerophyll communities; 15 of the 35 dry eucalypt forest communities; 20 of the 25 buttongrass moorland communities and 10 of the 37 grassland and grassy woodland communities. In addition there are communities within the nominated area for which surveys have not been undertaken or are as yet incomplete. These include significant areas of coastal vegetation, wet and dry scrub communities and some of the best developed examples of Tasmania's *Sphagnum* bogs.

Alpine vegetation

The alpine vegetation of the nominated area differs from that found on the mainland of Australia in that it is almost totally dominated by shrubby species as opposed to the typical tussock grass and herb–dominant vegetation of the mainland alps. Alpine vegetation occupies the higher peaks and plateaux above the climatic treeline and in areas of impeded drainage and wind exposure below the climatic treeline. The climatic treeline varies from approximately 800m near the coast, as in the Ironbound Range, to 1 200m in the more inland regions, such as the King William Range. The complete range of floristic assemblages within the alpine zone across Tasmania is represented by the nominated area and takes in each of the major centres of alpine endemism.

Those parts of the alpine zone where drainage is slow support fascinating plant communities dominated by bolster plants and dwarf pines. Taller heaths and coniferous shrubberies are found on well–drained sites, including boulder fields.

Rainforest

Although nearly all the nominated area below the treeline is climatically suitable for the growth of temperate rainforest, the formation covers less than 30 per cent of this area. This vegetation type is characterised by the dominance of Gondwanan tree species, a generally low diversity of higher plants and a rich cryptogamic flora. The Tasmanian temperate rainforest differs from tropical and subtropical rainforests in the low number of dominant tree species, the absence of lianes, the relative lack of epiphytes apart from moss and lichen, the total absence of typical rainforest morphological adaptions, such as drip tip leaves, stem flowering and buttressing, and in the small leaves of its dominant species. Whilst having much in common with the temperate rainforests of New Zealand and South America, its characteristics remain distinctive.

Most of the rainforest in the nominated area contains myrtle beech (*Nothofagus cunninghamii*), leatherwood (*Eucryphia lucida*) and sassafras (*Atherosperma moschatum*), the myrtle beech usually being dominant. Some riverine rainforests are co–dominated by Huon pine (*Lagarostrobos franklinii*), one of the longest lived species in Australia, some individuals being at least 2 000 years old. King Billy pine (*Athrotaxis selaginoides*), celery top pine (*Phyllocladus asplenifolius*), and horizontal (*Anodopetalum biglandulosum*) are the major species accompanying myrtle beech and sassafras on poor sites and at high altitude, where the rainforests are much more complex.

The nominated area is the stronghold for the restricted and fire sensitive endemic species Pencil pine (*Athrotaxis cupressoides*) and Deciduous beech or Tanglefoot (*Nothofagus gunnii*). Both achieve dominance in high altitude montane rainforest – often occuring together.

Eucalypt forest

Messmate stringybark (*Eucalyptus obliqua*) and Smithton peppermint (*E. nitida*) are found as emergents from rainforests over large areas. Messmate stringybark is found on the better soils in the east, and Smithton peppermint on the poorer soils mainly in the west.

In addition to the mixed forests (eucalypt forests with a rainforest understorey) eucalypts dominate a range of other communities. These include sub–alpine woodlands; dry sclerophyll forests and woodlands in which the understorey is multiple–aged and contains small leaved prickly shrub species; wet sclerophyll forests in which the understorey is single–aged and contains broad leaved shrub species and ferns; and some scrub and moorland communities where the eucalypts are emergent.

The area contains magnificent examples of tall forests with eucalypts such as the mountain ash (*Eucalyptus regnans*), the world's tallest flowering plant, forming a canopy 60–90m high over a 10–20m high closed wet sclerophyll understorey of *Olearia argophylla, Pomaderris apetala, Acacia dealbata* and *Acacia melanoxylon.* Rainforest species such as myrtle beech, sassafras and tree ferns replace the wet sclerophyll understorey where the fire frequency has been low.

A wide range of age classes, species dominance, successional stages and biophysical diversity is represented in the area. The condition of much of this unique collection of tall forest ecosystems is pristine. These forests are sufficiently diverse to ensure that the complex processes which are required for their natural development may continue with ecological security. Reserves on the Western Tiers protect the full altitudinal range of forest types from tall ash eucalypt forests in the gullies and on the lower slopes through dwarf *Northofagus* forest to stands of King Billy Pine and snow gums on the higher slopes.

The degree to which the limited remaining pristine tall eucalypt forests are included in the nominated area is illustrated by Maps 10 and 11 which relate the wilderness qualities of Tasmania to the presence of tall eucalypt forest. The area contains the major examples of pristine tall forests in Tasmania.

The ecosystem dynamics of the tall eucalypt forests are likely to be vulnerable to long term climate change, given their degree of sensitivity to fire regimes. The diversity of topography and climatic zones which surrounds these forests may assist in the conservation of these ecosystems.

Scrub, heath and moorland

Much of the nominated area is covered by moorland vegetation dominated by buttongrass (*Gymnoschoenus sphaerocephalus*), a sedge species with globular seed heads set on long stalks. Buttongrass plains are associated with the poorest of soils and bad drainage. Buttongrass may be found in a mixture with other sedges, rushes, ti–trees, paperbarks and heaths, or it can form pure communities in which the sedge forms large hummocks.

There are also substantial areas of scrub and heath communities dominated by ti–trees (*Leptospermum* spp.) and paperbarks (*Melaleuca* spp.). These typically occur around the margins of buttongrass plains and on poorly drained sites. The little light that penetrates through the canopy of these communities is sufficient to support a tangled growth of cutting grass (*Gahnia grandis*) and dog rose (*Bauera rubioides*).

Grassland

The nominated area contains a substantial area of Tasmania's high altitude native grassland, some of which is the product of firing of rainforest, and some of which is probably edaphic/climatic in origin.

Other habitats

Specialised communities occur in more restricted habitats. Of particular note is the wide range of lentic and lotic ecosystems. Owing to their unusual hydrological properties Lake Sydney and Lake Timk, beneath Mount Bobs and Mount Anne respectively, have developed interesting marginal herbland communities while the Snowy Range contains examples of the dynamic string bog systems involving bolster plants. The meromictic lakes and coastal lagoons with their unusual micro–organisms are two other examples of important wetland habitats. On a larger scale the south–west coast has a wide range of

plant communities peculiar to salt marsh, coastal cliffs, coastal sand dunes and sea bird breeding colonies. These offer specialised niches for rare and restricted endemic plants. Limestone and dolomite substrates, whether on lowland plains, riverine cliffs or at high altitude, are also important habitats for restricted endemic plant species.

Ecosystem dynamics

The present vegetation cover has developed in response to a series of interactions between climate, soil, topography, vegetation and fire. If any of these variables can be isolated as the most critical in the genesis of patterns and landscape, it is fire. A major source of fire over the last 30 000 years has resulted from occupation by Aboriginal people. More recently, fishermen, timber getters and prospectors have set fire to the vegetation during their brief incursions into the region.

Fire frequency is the most critical variable in the vegetation patterning of the area because the major vegetation types differ remarkably in their abilities to resist, recover from and support fire. Individual species also vary in their ability to regenerate in the low–light conditions that prevail at the ground at all times except immediately after fire or other major disturbances.

Most of the rainforest dominants are easily killed by fire, although some including myrtle beech and sassafras will resprout where its impact has been light. Recolonization takes place from soil stored seeds or seeds from unburnt patches of rainforest and the few survivors. The rainforest dominants, unlike the other tree species in the south–west, are capable of seedling establishment in small gaps created by the death of individual trees. Thus, they can maintain continuing occupancy of sites in the absence of fire.

The dominants of the other lowland vegetation types are able, not only to survive and reproduce after fire, but also to encourage it. The leaves and branches of most rainforest species burn poorly but the wood and leaves of eucalypts, ti–trees and paperbarks will ignite easily, even when green. The open canopies of communities dominated by eucalypts allow rapid drying out of fuel in the ground layer and encourage the fierce convectional updrafts that carry burning embers of bark long distances during conflagrations. After the fire, the dominants of eucalypt forest and scrub release masses of seed from woody capsules, always present in the upper branches, and also resprout from buds held dormant and protected under thick bark or beneath the ground. Almost all the species of the buttongrass plains resprout vigorously after fire, and buttongrass itself is so inflammable that it can be ignited during rain.

If by chance or design fires do not occur for a long period in an area occupied by a vegetation type associated with a higher fire frequency, the vegetation will change to another type that is less likely to burn. For instance, if mixed forests are not burned for 300 or 400 years, the emergent eucalypts will die out and the mixed forest will convert to pure rainforest. If buttongrass plains escape burning for long periods, the buttongrass will be suppressed by the growth of the already present ti–trees and paperbarks, and rainforest species may in turn establish beneath their canopies. These escapes from fire result in a less inflammable vegetation, reducing the chances of a return to the previous type.

Conversely, if by chance or design fire frequency increases above the rate suited to a particular vegetation type, a process of ecological drift will ensue, with an eventual conversion to more fire–resistant and more inflammable types. The tendency towards ecological drift in these circumstances is exacerbated by the substantial loss of nutrients that occurs with firing. In the case of the more open vegetation types, such as sedgeland, many of the nutrients in the above–ground biomass are lost in each fire. While the nutrients contained in the vegetation are a relatively small proportion of the soil–vegetation nutrient capital, frequent fires can steadily lower the nutrient status of a site, with outputs to the atmosphere and ground water far exceeding inputs through rain water and weathering of bedrock. It is conjectured that the lowering of the nutrient capital results in slower growth rates and, therefore, increases the probability of a fire occurring before the vegetation gains the relative fire protection of a closed canopy. Conversely, long periods without fire lead to a buildup in the nutrient capital and therefore increased growth rates and a lower probability of frequent fire.

The reciprocal relationships between vegetation, fire and fertility create a spatial patterning of vegetation whereby rainforests are most likely to be found on the most fertile soils and in the areas of highest rainfall. However, rainforests are also found widely on extremely poor soils in situations topographically protected from fire. For example, most of the area surrounding Port Davey is covered by sedgeland, the only exceptions being where fire finds difficulty of access through water or rock barriers, and on steep slopes facing south east. The tendency for rainforest to occur on steep slopes that face south–east is the result of the prevailing winds which, during extreme dry periods, come from the north–west. Fires burning downhill move more slowly and are much less fierce than those burning uphill.

Fauna

The fauna of the nominated area is of world importance because it includes an unusually high proportion of endemic species and relict groups of ancient lineage. The faunal values of the area are, as in any natural ecosystem, closely linked with the associated natural community (river, rainforest, alpine, tall forest) and the overall physical nature of the environment. The diverse topography, geology, soils and vegetation in association with harsh and variable climatic conditions have combined to create a wide array of animal habitats. The fauna of the area is correspondingly diverse. The insularity of Tasmania, and of the nominated area in particular, has contributed to the uniqueness of the fauna, and has helped to protect it from the impact of exotic species which have seriously affected the fauna of mainland Australia.

Two main groups can be recognised in the fauna: one, including the marsupials and burrowing freshwater crayfish, that are relicts of the fauna of the ancient Gondwana super–continent; and another, including rodents and bats, that invaded Australia from Asia millions of years after the break up of Gondwana.

Of the 37 mammal species present (two monotremes, 17 marsupials and 18 eutherians), six are endemic to Tasmania including the Tasmanian devil (*Sarcophilus harrisii*) which, if the thylacine is extinct, is the world's largest extant carnivorous marsupial. Over 150 bird species are present, of which 13 are endemic including one of Australia's rarest birds, the orange–bellied parrot (*Neophema chrysogaster*). There are 14 reptile species, of which six are endemic. One, the Pedra Branca skink (*Leiolopisma palfreymani*) lives only on the small rocky island off the southern coast known as Pedra Branca. Another species, the mountain lizard (*Leiolopisma orocryptum*) is known only from two mountain tops in the area, Mt Anne and Algonkian Mountain. Six frog species are present, of which two are endemic. The brilliant green Tasmanian tree frog (*Litoria burrowsi*) is mainly restricted to the nominated area. There are 21 species of freshwater fish including eight endemic species. Four native fish, the swamp galaxias (*Galaxias parvus*) and the Lake Pedder galaxias (*Galaxias pedderensis*), Clarence galaxias (Galaxias johnstoni) and Western Lakes paragalaxias (Paragalaxias julianus), are largely restricted to the nominated area.

The nominated area is notable for the relative lack of introduced animals. Exotic species that do occur include some mammals (viz. feral cat *Felis catus*, rabbit *Oryctolagus cuniculus*, fallow deer *Dama dama*, black rat *Rattus rattus*, house mouse *Mus musculus* and sugur glider *Petaurus beviceps*); some birds (eg starling *Sturnus vulgaris* and kookaburra *Dacelo giga*); some fish (viz brown trout *Salmo trutts*, Atlantic salmon *Salmo salar*, rainbow *Oncorhynchus mykiss* and brook trout *Salvelinus fontinalis*); and some invertebrates (eg honey bee *Apis mellifera* and European wasp *Vespula germanica*).

Alpine

The alpine regions are typified by a specialised fauna of great zoogeographic interest with high endemicity and local phenotypic variation. Three endemic species of lizards of the genus *Leiolopisma* occur on mountain tops in the nominated area. Many alpine insects are adapted to pollinate the alpine vegetation. Diurnal moths of the primitive sub–family Archiearinae such as the rare endemic *Dirce aesiodora*, occur on some peaks. Alpine grasshoppers are common and include four monotypic endemic genera. The rare endemic dragonfly *Archipetalia auriculata* breeds in alpine streams. It is the most archaic member of an ancient family, Neopetaliidae, and has strong Gondwanan affinities.

Rainforest

The rainforest invertebrate fauna is diverse and includes many groups of Gondwanan descent. Talitrid amphipods have undergone great adaptive radiation in Tasmanian forests. Fifteen species are present in the nominated area, one of the richest centres of amphipod diversity in the world. Rotting logs, moss–covered substrates and leaf litter are important microhabitats for many archaic invertebrate groups that show high levels of endemism in the nominated area. Land snails, flatworms, onycophorans, spiders, centipedes, millipedes, collembola and beetles have been found to be well represented in these environments.

Although 22 mammal species occur in rainforest, only the endemic long–tailed mouse (*Pseudomys higginsi*) occurs principally in this habitat. The lack of a distinct rainforest mammal fauna has parallels with *Nothofagus*–dominated rainforests of New Zealand and southern South America. No birds, reptiles or amphibians are confined to the rainforest habitat.

Eucalypt forest

Closed forests with old trees that provide hollows for shelter and breeding are inhabited by three species of arboreal mammals, the common ringtail possum (*Pseudocheirus peregrinus*), common brushtail possum (*Trichosurus vulpecula*) and eastern pygmy–possum (*Cercartetus nanus*), and many birds such as the endemic green rosella (*Platycercus caledonicus*) and swift parrot (*Lathamus discolor*). Eucalypt forest supports a greater diversity of mammals and birds than any of rainforest, scrub, heath, moorland or alpine communities. The wedge–tailed eagle (*Aquila audax*) and the white form of the grey goshawk (*Accipiter novaehollandiae*) nest in tall eucalypt trees.

The Tasmanian ghost moth (*Aenetus paradiseus*) is a very primitive insect which inhabits tall forests, including *Eucalyptus regnans* and *E. delegatensis*, in this area. This endemic species displays the most extreme sexual dimorphism of any of the ghost moths.

Scrub, heath and moorland

Scrub, heath and moorland are widespread and important habitats occupied by animals with many interesting adaptations. In coastal areas and on offshore islands, vast numbers of one of the muttonbirds, the short–tailed shearwater (*Puffinus tenuirostris*), return to breed each year from their northern hemisphere migrations. Moorland dominated by buttongrass is inhabited by the endangered orange–bellied parrot (*Neophema chrysogaster*), the endangered ground parrot (*Pezoporus wallicus*) and the uncommon broad–toothed rat (*Mastacomys fuscus*). Freshwater crayfish such as the endemic *Parastacoides tasmanicus* live in burrows under the buttongrass tussocks despite the highly acidic groundwaters that are produced in such environments. Their burrows are in turn colonised by a range of extraordinary endemic invertebrates such as the primitive syncarid crustaceans *Allanaspides helonomus* and *Allanaspides hickmani*. Both of these species have very restricted distributions near the inundated Lake Pedder. The monotypic endemic dragonfly *Synthemiopsis gomphomacromioides* breeds in mud surrounding buttongrass tussocks.

Alpine grassland and shrubland on the Central Highlands are the habitats of a variety of rare and threatened endemic animals including the alpine scorpion fly *Apteropanorpa tasmanica*, an endemic genus and species. These habitats are also of critical importance for two butterflies: *Oriexenica ptunarra ptunarra*, the smallest satyrid in Australia; and *Oriexenica orichora flynni*.

Aquatic – freshwater, esturine and marine

The high annual rainfall experienced in the nominated area results in diverse aquatic habitats from alpine tarns to lakes, coastal lagoons, streams, rivers and estuaries. The freshwater crustaceans are of world significance as many groups such as amphipods, isopods and crayfish are relicts of the Gondwanan fauna.

Meromictic lakes on the Lower Gordon River have become internationally known for being permanently stratified and yet relatively shallow. They are inhabited by diverse and unusual aquatic micro–organisms.

The streams, rivers, coastal lagoons and estuaries support many species of native fish and a highly endemic aquatic invertebrate fauna. Major rivers, such as the Old and Davey Rivers in the south–west of the area and the New River in the Southern Forests, are of great importance because of their pristine state. A new genus and species of lymnaeid snail has been discovered in the Franklin River near Kutikina Cave. The Lymnaeidae are cosmopolitan freshwater snails, and the discovery of a new genus, known only from the nominated area, is of world significance.

The lakes of the Denison Range are of great interest because of their physical, chemical and biological characteristics.

Caves

Extensive underground passages occur in the widely distributed limestone and dolomite within the area, for example at Precipitous Bluff, Mount Anne, Upper Weld River, Maxwell, Franklin River and Gordon River, De Witt Island and Ile de Golfe. They provide constant habitats that are exploited by diverse and often highly specialised animals. Inhabitants include many endemic invertebrates including crickets, spiders, beetles and aquatic crustaceans. Superlative displays of the Tasmanian glow–worm (*Arachnocampa tasmaniensis*) can be seen at several locations, particularly at Exit, Entrance and Marakoopa Caves.

Islands

Islands off south west Tasmania, isolated in a remote and harsh environment for thousands of years, are of great zoological interest for studies of genetic drift and natural selection. The southernmost populations of Tasmanian pademelon *Thylogale billardierii*, long–nosed potoroo *Potorous tridactylus*, swamp antechinus *Antechinus minimus* and swamp rat *Rattus lutreolus* inhabit these islands.

The elephant seal *Mirounga leonina* which is generally restricted to subantarctic regions occurs occasionally at Matsuyker Island and one birth has been reported from there. This island is the only breeding site in Tasmania for the New Zealand fur seal *Arctocephalus forsteri*. Needle Rocks and Pedra Branca Island are important resting sites for Australian fur seals *Arctocephalus pusillus*.

These islands are significant for seabird conservation, particularly as they are free of introduced predators. Seabirds that breed on the islands include muttonbirds *Puffinus tenuirostris*, fairy penguins *Eudyptula minor*, fairy prions *Pachyptila turtur*, diving petrels *Pelecanoides urinatrix*, shy albatross *Diomedea cauta* and Australian gannet *Morus serrator*.

Unusual populations of reptiles, including the Tasmanian endemic pretty skink *Leiolopisma pretiosa*, metallic skink *L. metallica* and endangered Pedra Branca skink *L. palfreymani*, are adapted to life on the islands. The latter species is restricted to tiny Pedra Branca, an important breeding site for shy albatross and Australian gannets.

The islands are habitats for a wide range of invertebrates. Unusual centipedes, land snails, land amphipods and insects have been collected from various islands. A species of the chironomid *Rheochlus*, a genus of midge known only from New South Wales and South America, inhabits De Witt Island.

Present Uses

The Southwest, Franklin–Lower Gordon Wild Rivers, Cradle Mountain–Lake St Clair, Walls of Jerusalem and Hartz Mountains National Parks, Exit Cave State Reserve, Sarah Island Historic Site, the Central Plateau Protected Area, the Central Plateau Conservation Area, the Denison Spires section of the Southwest Conservation Area and part of the Oakleigh Creek Conservation Area are managed by the Department of Parks, Wildlife and Heritage for their natural, cultural and recreational values.

The entire area is of immense interest and value for scientific purposes. Accelerated research within the past decade, particularly since the initial World Heritage listing of part of this area, has produced an array of information on natural and cultural resources and processes that makes a significant contribution to international scientific endeavour.

The nominated area provides a natural, undisturbed benchmark against which the environmental impact of human activities elsewhere may be judged. In 1977 the Southwest National Park was designated a Biosphere Reserve under the UNESCO Man and the Biosphere Program in recognition of its exceptional ability to fulfil this role.

A range of recreational activities related to the natural and cultural values of the area is pursued. Large numbers of car and bus visitors travel to Cradle Mountain, Lake St Clair and Hartz Mountains, and along the Lyell Highway and Gordon River and Scotts Peak Roads. Farmhouse Creek, Cockle Creek, the Little Fisher Valley and the Lemonthyme are accessible by vehicle. A significant proportion of all visitors to Tasmania travel up the Gordon River on one of several cruise boats. Scenic flights in conventional and amphibious light aircraft are increasingly allowing many people to appreciate the wilderness. Port Davey and Bathurst Harbour are well suited to wilderness cruising and sailing. Fishing is a prominent recreational activity in the Lake Pedder impoundment and many of the lakes of the Central Plateau. Many people enjoy camping in accessible as well as more remote areas.

Increasing numbers of people are visiting the region for more active recreation, including bushwalking, caving, rock and ice climbing, rafting, canoeing and cross–country skiing. In particular, long established trails such as the Overland Track and the South Coast Track provide challenging wilderness experiences for walkers. The region provides outstanding opportunities and settings for these activities.

Many artists and photographers draw on the natural features of the area as a source of inspiration for their work.

Port Davey is used for shelter by professional fishermen. Beekeeping occurs along the Lyell Highway, Gordon River and Scotts Peak Roads, Mount McCall track and on roadsides in the Southern Forests.

Other uses within the nominated area are limited mineral exploration (at Warnes Lookout/Jane River and Adamsfield), two quarries (limestone near Lune River and Darwin quarry), lighthouses, hydro–electric power development and transmission, and telecommunications.

3(b) Maps and/or plans

Detailed maps showing the location and boundaries of the property (see section 1d above) should be attached to this form, referring to official survey maps where possible.

For properties which are located in urban areas, it may be necessary to use in addition to a small–scale map on which the geographical co–ordinates will be indicated, a large–scale map or a detailed plan so that the location of the property will be accurately indicated. List under item 3 b the maps and/or plans attached.

The boundary of the nominated area is shown on Map 1. Locations of special features relating to World Heritage characteristics are given in the series of maps at Appendix 1.

3(c) Photographic and/or cinematographic documentation

Supporting documentation in the form of photographs, slides, etc. may be attached. List under section 3c all such documentary items, and indicate source.

Plates 1 to 56 (Appendix 6) illustrate the nominated area and indicate examples of species, landforms and archaeological features found therein. A number of books and films illustrating many of these features has been produced. The principal audio–visual material is included in the bibliography at Appendix 5. Slides will be provided separately.

3(d) History

As far as cultural property is concerned, information may be supplied on the following:

. for monuments and groups of buildings: the period(s) represented, with the date(s) of construction and name(s) of principal architect(s) if known; original condition and subsequent changes; original and later functions;

. for an archaeological site: its origin; subsequent principal changes in terms of form, group occupying site, significance, etc.; year of discovery and name of archaeologist concerned if appropriate.

For property located in zones where natural disasters may occur (earthquakes, landslides, floods etc.), provide all relevant data; for instance, in the case of a property in a seismic zone, give details on all previous seismic activity, and the precise location of the property in the seismic calculations etc.

As far as natural property is concerned information may be supplied on the following:

.natural history of the site:

.present and past modifications by man of the natural property including information on human population and settlements within the natural heritage site;

.history of the natural property as a conservation unit.

Aboriginal Occupation

Tasmania maintains a unique position in world terms with respect to the study of early human society. At least 8 000 years ago Tasmania was cut off from mainland Australia by the flooding of Bass Strait, thereby isolating the Aboriginal inhabitants. The Tasmanian Aborigines were, until the arrival of the European explorer Abel Tasman in 1642, the longest isolated human group in world history, surviving some 500 generations without outside influence.

The current archaeological evidence for the nominated area indicates a significant Ice Age (Pleistocene) society in the inland south–western region. Recent dating demonstrates that this culture existed from at least 31 000 years ago until the end of the Ice Age some 11 500 years ago. Coastal occupation of the region by the Aboriginal people dates from at least 3 000 years ago to the time of European invasion in the nineteenth century, but may extend from around 6 000 years ago, when the sea stabilised at its present level.

Evidence from the Pleistocene sites indicates that the Ice Age inhabitants of central southern and south–west Tasmania had developed a hunter–gatherer society allowing people to occupy the region, at least seasonally. Features of this included an emphasis on hunting and the targetting of a few animal species, particularly certain macropods; the efficient exploitation and movement of lithic raw materials, such as Darwin glass, an impactite from the Darwin Crater (in the west of the region); the manufacture of clothing from animal skins, reflected in bone points in the cave floor deposits; the inclusion of small, delicately flaked stone scrapers, referred to as thumbnail scrapers, in varied stone tool kits; and the production of paintings on subterranean cave walls and ceilings.

The central southern and inland south–western sites appear to have been abandoned at the end of the Ice Age some 11 500 years ago, when a climatic change to warmer, wetter conditions changed the dominant vegetation cover from open grassland/woodland to rainforest. However, from around 11 000 years ago onwards people were at least occasionally visiting the northern part of the nominated area, as is shown by evidence from Warragarra Rockshelter.

Around 3 000 years ago, systematic re–occupation of large parts of the nominated area began, including the south and south–west coastal regions and the central highlands. In the south–west region, Aboriginal occupation appears to have been concentrated on the coastal margins from this period until the time of European contact early in the 19th century.

At the time of the first European arrivals, the nominated area was occupied by two main tribal groups – the Big River Tribe in the central highlands and the Port Davey Tribe who predominantly inhabited the south–west and southern coastal regions. Each tribe is estimated to have comprised 300 to 400 people. What little is known of the traditional Aboriginal settlement and lifestyles of these tribes largely derives from the journals of G.A. Robinson. Robinson travelled extensively within the territories of these tribal groups in the 1830s during his mission to remove the relatively few remaining Tasmanian Aborigines from the region.

European History

European incursion into the nominated area commenced in the early 1800s, particularly by sea. The main attractions of the area became Huon pine cutting, whaling and mining. Whaling ceased before the turn of the century but pine cutting continued more or less up to recent times in some parts of the area.

In 1821 the Macquarie Harbour penal settlement was established on Sarah Island which was selected for its remoteness from the centre of population at Hobart and for the economic potential of exploiting the Huon pine resource around the shores of Macquarie Harbour and along the Gordon River. This was the earliest penal settlement in Tasmania.

Surveyor Calder in 1840 cut a track from Lake St Clair to the lower reaches of the Gordon in preparation for a trip to the area by Governor Sir John Franklin and Lady Jane Franklin, who travelled the route in May 1842.

From that time the nominated area continued to have a very rich if somewhat intermittent history of visits and occupation by Europeans involving discovery, exploration, exploitation, settlement, maritime travel, electricity generation and recreation.

The abandoned township of Pillinger, which was the port for one of the major copper mines near Queenstown around the turn of the century, includes the ruins of three double scratch brick kilns. These kilns are thought to be unique in Australia and are significant for their design innovations, their age and their structural integrity.

In the early twentieth century, osmiridium was mined at Adamsfield, which grew to a settlement of 3000 people at its peak.

3(e) Bibliography

List but do not attach all published material that includes important references to property, and which provided sources for the compilation of this nomination.

A bibliography of major references to the region, including those used to compile the nomination, is provided at Appendix 5.

4 STATE OF PRESERVATION/CONSERVATION

4(a) Diagnosis

Describe the present condition of the property. In cases where the property is in imminent or potential danger, provide details.

Most of the area is in a natural or near natural condition, as illustrated by Map 8.

The major human modification of the region has been the construction in the early 1970s of the Middle Gordon hydro–electric power scheme, which involved the damming of a section of the Gordon River outside the nominated area, and the inundation of Lake Pedder to form two large impoundments. As part of this scheme a road was constructed into the heart of the south–west wilderness and a small town, Strathgordon, was constructed just outside the Southwest National Park.

Hydro–electric development has taken place in the Strathgordon–Scotts Peak area, and at Mount Arrowsmith, Lake St Clair, Lake Augusta and Lake Mackenzie. Investigation camps and tracks remain in the Lower Gordon River area and at Mount McCall. There is some visual impact associated with these developments on the viewfields from some popular peaks. The Lake Murchison impoundment forms a minor intrusion into the Cradle Mountain–Lake St Clair National Park.

The condition of large tracts of forests, plains and alpine areas is pristine. Fire continues to be the greatest threat to much of the more remote country. On the edges of the area (in the Lemonthyme, south of Farmhouse Creek and in several other localised areas) some forest disturbance has occurred due to previous logging and/or roading activities.

Within the area small scale mining has taken place in the past. Limestone is currently extracted from a quarry near Exit Cave. The Darwin Quarry is located just inside the western boundary of the nominated area. It supplies rockfill for a dam project. Strict conditions have been imposed on its operation to protect the wider environment.

Wakes produced by large tourist vessels have been identified as the major cause of streambank erosion on the Lower Gordon River. This problem may be exacerbated by river level fluctuations associated with the Midddle Gordon Power Station. Action has been taken to regulate boat traffic and bank erosion monitoring is taking place. An extensive rehabilitation program is not feasible; instead, the river requires careful long term management to enable natural regeneration processes to occur.

The condition of the meromictic lakes beside the Gordon River is affected by the operation of the Middle Gordon Power Scheme. An improved management regime is being investigated.

Localised erosion exists on walking tracks and vegetation damage at campsites and elsewhere occurs due to trampling. Overall, the impact of this degradation is very small and is being addressed through the formulation and implementation of walking track management plans and the establishment of composting toilets. Since 1986/87, approximately $1.4 million has been spent on walking track maintenance and construction in the existing World Heritage Area.

Licences for the grazing of sheep over an area of up to 8 000 hectares of the Central Plateau Protected Area are likely to continue to be issued on an annual basis subject to a management plan.

The root rot fungus *Phytophthora cinnamomi* selectively affects tree and shrub species. It is widespread along access routes in some parts of the area.

The only permanent residents in the nominated area are ranger staff at Lake St Clair and Cradle Valley and the lightkeepers on Maatsuyker Island.

4(b) Agent responsible for preservation/conservation

Give name and address of body or bodies responsible for state of preservation/conservation of property (as distinct from administrative responsibility – see item 2c above).

The Tasmanian Government through the Department Parks, Wildlife and Heritage acting on the advice of the Tasmanian World Heritage Area Council in relation to major policy matters. The Tasmanian World Heritage Area Consultative Committee is a mechanism for interested community groups to provide input to management of the area.

4(c) History of preservation/conservation

Provide details of preservation/conservation work undertaken on property and of preservation/conservation work that is still required.

For history of reservations, see Appendix 4.

4(d) Means for preservation/conservation

Under this item information should be provided on actual or pending laws or policies which establish the property as a conservation unit, on the technical means available, on the institutional context in which the property is managed, as well as on the financial resources available for preservation/conservation of the property.

Australian Government legislation –

- *World Heritage Properties Conservation Act 1983*
- *Conservation Amendment Act 1988*

Tasmanian Government legislation –

- *Forestry Act 1920*
- *National Parks and Wildlife Act 1970*
- *Aboriginal Relics Act 1975*
- *Crown Lands Act 1976*

4(e) Management plans

Give details of any relevant existing local, regional or national plans (urban development, land reform, etc.) and their implications for the property.

The Tasmanian *National Parks and Wildlife Act 1970* requires management plans to be prepared for reserves. A management plan for the Cradle Mountain–Lake St Clair National Park took effect on 14 September 1988 with the exception of three sections relating to the exercise of other statutory powers which require the approval of both Houses of the Tasmanian Parliament. Draft management plans have been prepared for the Southwest, Franklin–Lower Gordon Wild Rivers and Hartz Mountains National Parks and the Central Plateau Protected Area. Additional management plans will be prepared and amendments to existing plans made to cover the entire nominated area.

The management arrangements for the existing World Heritage Area have worked well and will be continued for the expanded World Heritage Area. This means that the operational management of the area will be handled by the Tasmanian Department of Parks, Wildlife and Heritage with direction on major policy issues coming from the Tasmanian World Heritage Area Ministerial Council.

There will be close consultation between the Tasmanian Department of Parks, Wildlife and Heritage and the Tasmanian Forestry Commission with regard to the fire and forest management of areas of State Forest adjacent to the boundary of the nominated area. Forestry operations are permitted in areas adjacent to the boundary.

5 JUSTIFICATION

A statement to be made on the significance (i.e. its "outstanding universal value" in the terms of the Convention) of the property that justifies it for inclusion in the World Heritage List. Property will be evaluated against the following criteria adopted by the World Heritage Committee:

a) **For cultural property, outstanding universal value will be recognized when a monument, group of buildings or site – as defined in Article 1 of the Convention – submitted for inclusion in the World Heritage List is found to meet one or more of the following criteria. Therefore, each property should:**

(i) **represent a unique artistic achievement, a masterpiece of the creative genius; or**

(ii) **have exerted great influence, over a span of time or within a cultural area of the world, on developments in architecture, monumental arts or town planning and landscaping; or**

(iii) **bear a unique or at least exceptional testimony to a civilisation which has disappeared; or**

(iv) **be an outstanding example of a type of building or architectural ensemble which illustrates a significant stage in history; or**

(v) **be an outstanding example of a traditional human settlement which is representative of a culture and which has become vulnerable under the impact of irreversible change; or**

(vi) **be directly or tangibly associated with events or with ideas or beliefs of outstanding universal significance.**

In every case, consideration must be given to the state of preservation of the property (which should be evaluated relatively, in comparison to the state of preservation of other property dating from the same period and of the same type and category).

In addition, the property should meet the test of authenticity in design, materials, workmanship or setting; authenticity does not limit consideration to original form and structure but includes all subsequent modifications and additions, over the course of time, which in themselves possess artistic or historical values.

b) **For natural property, outstanding universal value will be recognized when a natural heritage property – as defined in Article 2 of the Convention – submitted for inclusion in the World Heritage List, is found to meet one or more of the following criteria. Therefore, properties nominated should:**

(i) **be outstanding examples representing the major stages of the earth's evolutionary history; or**

(ii) **be outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment; as distinct from the periods of the earth's development, this focuses upon ongoing processes in the development of communities of plants and animals, landforms and marine and fresh water bodies; or**

(iii) **contain superlative natural phenomena, formations or features, for instance, outstanding examples of the most important ecosystems, areas of exceptional natural beauty or exceptional combinations of natural and cultural elements; or**

(iv) **contain the most important and significant natural habitats where threatened species of animals and plants of outstanding universal value from the point of view of science or conservation still survive.**

It should be realized that individual sites may not possess the most spectacular or outstanding single example of the above, but when the sites are viewed in a broader perspective with a complex of many surrounding features of significance, the entire area may qualify to demonstrate an array of features of global significance.

In addition to the above criteria, the sites should also meet the conditions of integrity:

- **The areas described in (i) above should contain all or most of the key interrelated and interdependent elements in their natural relationships; for example, an "Ice Age" area would be expected to include the snow field, the glacier itself and samples of cutting patterns, deposition and colonization (striations, moraines, pioneer stages of plant succession, etc.).**

- **The areas described in (ii) above should have sufficient size and contain the necessary elements to demonstrate the key aspects of the process and to be self-perpetuating. For example, an area of "tropical rainforest" may be expected to include some variation in elevation above sea level, changes in topography and soil types, river banks or oxbow lakes, to demonstrate the diversity and complexity of the system.**
- **The areas described in (iii) above should contain those ecosystem components required for the continuity of the species or of the objects to be conserved, This will vary according to individual cases; for example, the protected area for a waterfall would include all or as much as possible, of the supporting upstream watershed; or a coral reef area would be provided with control over siltation or pollution through the stream flow or ocean currents which provide its nutrients.**
- **The areas described in (iv) above should be of sufficient size and contain the necessary habitat requirements for the survival of the species.**

  In the case if migratory species, seasonable sites necessary for their survival, wherever they are located, should be adequately protectected. The Committee must receive assurances that the necessary measures be taken to ensure that the species are adequately protected throughout their full life cycle. Agreements made in this connection, either through adherence to international conventions or in the form of other multilateral or bilateral arrangements would provide this assurance.

Overview

The nominated area comprises most of the last great temperate wilderness remaining in Australia, and is one of only a few such regions in the world. The extent to which wilderness areas predominate in Tasmania is indicated by Map 9. In this context the nomination should be viewed as a whole – not merely as the sum of its specifically identified values, but in their interrelation and dependency on one another. The geology, glacial systems, karst, vegetation, fauna and the distribution and integrity of the archaeological sites, are all facets of the dynamic ecosystem development located within one largely continuous tract of primitive land.

It is this wilderness quality which underpins the success of the area in meeting all four criteria as a natural property and which is the foundation for the maintenance of the integrity of both the natural and cultural values which are displayed.

5(a) Cultural Property

The nominated area fulfils three criteria described for inclusion on the World Heritage List as a cultural property.

5(a)(i) Criterion iii –

Bear a unique or at least exceptional testimony to a civilisation which has disappeared,
and

Criterion v –

be an outstanding example of a traditional human settlement which is representative of a culture and which has become vulnerable under the impact of irreversible change.

The Pleistocene archaeological sites, including the painted caves, in the nominated area are collectively an integral whole representing an Ice Age society which has disappeared (Criterion iii).

The evidence at the sites bears unique testimony to a high latitude, cold climate society by virtue of the number of sites found and the occupational remains which are of outstanding integrity. The limestone caves in which these remains occur have excellent preservative qualities. The remote nature of the wilderness in which they are found, and the environmental changes that led to the areas being infrequently used by later hunter–gatherer societies and Europeans have ensured that the sites have been relatively undisturbed for the past 11 500 years. No suite of Pleistocene sites in this pristine state is known to survive anywhere else in the world.

All the archaeological evidence to date supports the view that the same cultural system is represented at all known Ice Age sites throughout central southern and inland south–western Tasmania. The density of sites in the area bears witness to successful human colonisation during the last glacial period, all the sites forming an integral and exceptional set of archaeological evidence. The relatively intact and well preserved nature of these sites provides an opportunity to reconstruct the lifestyle of their inhabitants and their interaction with the environment, including Pleistocene fauna, as well as their responses to the changing climatic and ecological conditions throughout the Ice Age.

Rock painting was an integral aspect of this Ice Age society and the recent discovery of this artform at three cave sites in the area is especially significant.

The number of sites found (which is expected to increase upon further research), the density, quality and integrity of the archaeological deposits, and the presence of Ice Age paintings, all combine to support the argument that these Pleistocene sites are a unique testimony to a civilization that has disappeared (Criterion iii).

The Holocene Aboriginal sites of the south and south west coasts of the nominated area exemplify a hunter–gatherer way of life in a rugged and harsh coastal landscape. However, it is the fact that these sites lie within a landscape relatively undisturbed by European settlement and occupation that gives them a universal significance. The landscape itself is intact with no significant grazing, road intrusion, agriculture, mining, forestry or other economic activities. These factors make the south and south–western coast of Tasmania unique in the southern and eastern parts of the Australian continent as the coastal adaptations of Aborigines can be seen within a landscape almost entirely unmodified by Europeans.

Such extensive and intact archaeological evidence of a past settlement is of World Heritage value for its exceptional testimony to the development of a culture over many millenia (Criterion iii), and as an outstanding example of a traditional settlement which would be vulnerable under the impact of development (Criterion v).

5(a)(ii) Criterion vi –

Be directly or tangibly associated with events or with ideas or beliefs of outstanding universal significance.

Pleistocene rock art is tangible evidence of common expressive responses which may tell us something fundamental about human behaviour. This evidence is of value to the study of early human society and its relationship with, responses to and effects upon the environment.

Judds Cavern (Wargata Mina) in the Cracroft Valley, Ballawinna Cave on the Maxwell River and Weld Arch in the Weld Valley are almost certainly the most southerly Pleistocene painted sites in the world. The complex of these Pleistocene sites represents the most southerly evidence for the prehistoric social system established in the western Tasmanian valleys during the last Ice Age.

The paintings add an important social dimension to our understanding of an Ice Age society adding as they do evidence of non–prosaic activity. Such creative evidence is rarely available from archaeological deposits that bear witness to more prosaic activities, such as food gathering and tool manufacture. Every indication is that the paintings are an early manifestation of artistic, perhaps ceremonial activity both in Australian and world terms. Furthermore, the identification of mammalian (probably human) blood in the paint pigments used at Judds Cavern (Wargata Mina) is unique evidence which will contribute to the assessment of the role of these paintings in a social context.

Archaeological evidence from the Ice Age derived from the nominated area has significant implications for our understanding of the behaviour of peoples, and the colonisation of the southern hemisphere in general. Internationally, the importance of the archaeological evidence, including the paintings, lies in its parallels with human occupation during the last Ice Age elsewhere – in particular western and central Europe, and possibly South America.

The transportation of convicts from the metropolitan territories of European powers was a major component of the colonial process and an historical phenomenon of major significance. The only British colonies founded as convict settlements were in Australia. The ruins of Macquarie Harbour penal settlement at Sarah Island are a tangible link with Australia's convict history. As the earliest penal settlement in Tasmania, the site is particularly important.

5(a)(iii) Integrity

The long isolation of Tasmania from external influences, the environmental and cultural changes that led to the shift in Aboriginal occupation patterns in the past, and the difficult nature of much of the terrain have combined to maintain the integrity of the cultural resources of the area.

Each prehistoric site is a unique scientific resource, being evidence of the activities of particular individuals and/or groups at a particular time. The prehistoric sites identified to date in the nominated area have suffered little disturbance and thus have a high degree of integrity. The combination of these sites as a suite of places, and the high level of their integrity forms unique evidence of an entire Ice Age society.

The Pleistocene sites have outstanding integrity. They have not been disturbed by Holocene Aboriginal or recent European occupation, and the archaeological deposits have been preserved with exceptional integrity for the past 11 500 years. The cultural deposits in caves are in most cases sealed by a sheet of calcium carbonate flowstone. Their integrity is, however, highly dependent on maintaining the natural hydrological regimes of each karst system. Equally, the survival of rock painting is dependent on the stability of its micro–environment.

The Holocene archaeological sites of the south and south–west coast of Tasmania have also been subjected to little human disturbance since the European settlement of Tasmania, and therefore provide a rare opportunity to examine the relationship between Aboriginal people and a landscape substantially unmodified by Europeans.

Sarah Island has not been re–occupied since the closure of the probation station. Consequently the integrity of the ruins has not been disturbed by subsequent development.

5(b) Natural Property

The nominated area fulfils all four criteria described for inclusion of properties on the World Heritage List as a natural property.

It comprises most of the last great temperate wilderness remaining in Australia, and is one of the last remaining such areas in the world. It is this quality which underpins the success in meeting all four criteria for a natural property and is the basis for the maintenance of its integrity. The area encompasses diverse habitats, including jagged coasts, islands, major estuaries, alpine peaks, turbulent rivers, sheltered lakes, rainforest and moorland. The flora and fauna include many primitive groups that are living evidence of ancient Gondwanan origins, with relatives in South America, Africa and India. As well as satisfying each of the four criteria required for inclusion on the World Heritage List, the area meets the required conditions of integrity.

5(b)(i) Criterion i

Outstanding examples representing the major stages of the earth's evolutionary history.

Geology

The rock formations of the area, as well as providing the foundation for the unique landscape features and producing the soils which support unique animal and plant communities, are in themselves of great importance in demonstrating major stages in the Earth's evolutionary history. Of particular significance are the following characteristics of the area.

The oldest Precambrian rocks (mainly quartzites, phyllites and schists representing metamorphosed sandstone, mudstone and mafic igneous rocks) form the backbone of the south–west and parts of the Cradle Mountain – Lake St Clair and Franklin – Gordon areas. These rocks represent the basement to the widespread Palaeozoic sequences which constitute much of eastern Australia (the Tasman fold belt) but are only exposed in significant quantities in Tasmania. Precambrian rocks form distinctive north–south trending fold mountain ranges which are extremely rugged and often have glacially sculptured ridges. They are prominent features of the western Tasmanian landscape.

Rare and unusual rocks within the Precambrian include the pyroxene bearing eclogites and associated gneissic rocks at Collingwood River which were formed at extremely high pressures and temperatures (indicating original burial at depths in excess of 25 km in the Earth's crust).

The Precambrian rocks provide superb examples of multiple fold phases and associated textural modifications of the original sandstones, and display a wide range of pressure–temperature conditions of metamorphism which indicate that various parts of the original orogenic complex have been mixed by tectonic processes.

Younger Precambrian rocks are also present, and include an unusually thick sequence of carbonate rocks (mainly dolomite) in the Weld River area which has weathered to produce unusual karst features.

Significant Cambrian rocks are found within the Adamsfield Trough which include a superb development of tectonic melange or "broken formation" in the Ragged Basin complex. This melange comprises large fragments (up to several kilometres long) of different rock types (chert, greywacke, mudstone, quartzite, ultramafic rocks) which have been juxtaposed by intense tectonic processes and resemble the Franciscan melanges of the western U.S.A.

The Denison Range area features a Late Cambrian to Early Ordovician sequence, comprising thick conglomerates and associated trilobite bearing siltstone and sandstone. This sequence represents the type section of a very extensive unit of alluvial fan–delta plain deposits fringing the Tyennan Precambrian rocks in western Tasmania. These rocks constitute one of the most extensive, best exposed and spectacularly developed fan–delta sequences of Early Palaeozoic age anywhere in the world.

The fossiliferous Ordovician limestone sequence of the Picton, Florentine and Rasselas Valleys is one of the best developed carbonate sequences of this age in the southern hemisphere, and provides an important reference section for correlation throughout the world. The limestone has given rise to many of the important karst features of the nominated area.

The Permian–Triassic sediments and associated sheet–like Jurassic dolerite intrusions are particularly well developed and exposed in the Central Plateau area, and provide unique evidence for the original attachment of Australia to Antarctica prior to continental drift. The Jurassic dolerites do not occur on mainland Australia. The Permian-Triassic sediments contain fossil Gondwanan flora and fauna assemblages.

A large meteorite impact crater of Pleistocene age in the Andrew River valley, known as Darwin Crater, is of world significance. This crater is the source of a wide field of silicate spatter glass (the Darwin glass), and has been partially filled with a 100 m thickness of lacustrine sediments containing a superb record of Pleistocene flora.

The Lake Edgar Fault is the only fault known in Tasmania with clear evidence of recent movement (displacement of outwash gravels), and one of the few recently active faults in Australia. Geological evidence indicates that this fault was also active in Cambrian times. It accordingly represents one of the most enduring faults in Australia.

The geological features of the nominated area contain outstanding evidence of the major stages of the earth's evolutionary history. It is an area with a complicated geological history and and exceptional range of ages of the main geological componants. Deposits from every age except the Cretaceous are well represented.

Glaciation

The nominated area includes glacial deposits of three major periods: Late Cainozoic, Permo–Carboniferous and Precambrian – each of which comprise a major stage in the Earth's evolutionary history. In particular, the nominated area contains an outstanding legacy of the Late Cainozoic ice ages. This legacy is of major international significance for the following reasons:

- in contrast to the northern hemisphere where large areas of land surface occur in temperate latitudes, much of the equivalent southern latitudes are covered by water and the response to global cooling has been somewhat different;

- Tasmania is one of only three land areas (together with New Zealand and Andean Patogonia) where it is possible to unravel the history of terrestrial glaciation in the southern hemisphere;

- Tasmania is the only one of these three areas that has remained tectonically stable;

- Tasmania has an excellent record of glaciation of middle to early Pleistocene age that is not available anywhere else in the world;

- there is evidence for at least three, and possibly as many as six, separate glaciations, which on a world scale is a major sequence of multiple glaciation; and

- there is a climatic gradient across the nominated area that contrasts maritime glaciological conditions and low glacial snowlines in the west and south–west with the more continental glaciological conditions and higher snowlines further east. The interaction of differing glaciological regimes on differing geological substrates is reflected in the diversity of landform types.

The nominated area therefore fills both a geographical gap and a chronological gap in the evidential record for climatic change during a major stage in the Earth's evolutionary history.

Further, the glaciated areas of Tasmania complement one another to form part of a set of phenomena that demonstrate the diversity of process and response in the glaciation of southern temperate latitudes. These include erosional and depositional features produced both directly by glaciers and by the meltwater streams that flowed from them.

Glacial ice has contributed to spectacular landform features – hundreds of lakes and tarns are a legacy of repeated ice cap glaciations. In particular, on the Central Plateau, an ice cap was responsible for the development of an ice-abraded plain of rock basin lakes and rounded eminences without parallel in southern temperate latitudes. Examples of well developed glacial erosional and depositional features can also be found on the King William, Prince of Wales, Denison and Spires Ranges.

The many erosional landforms of glacial origin can be grouped into glacial systems on the various higher mountain areas, but the depositional landforms extend into adjacent mountain valleys. The depositional landforms include extensive moraine deposits in valleys such as the Franklin, Weld and Cracroft.

All these glacial systems are in an essentially unmodified condition and they are located within the one largely continuous belt of primitive land. Collectively they represent an extraordinary, if not unique, natural phenomenon of outstanding universal value.

The outcropping dolerite rocks of much of the nominated area are particularly useful for dating glacial processes and contribute to the international importance of this part of Tasmania in the study of glacial history.

Extraglacial areas

The nominated area includes extraglacial regions which provide valuable evidence of major climatic changes. For example, the lower temperature and drier conditions during the late Cainozoic Ice Ages led to a reduced forest biomass which facilitated considerable slope instability. Diamicton slope mantles are widespread. These include solifluction sheets, block streams, rock glaciers, landslip deposits and other colluvia, and many are relic periglacial features from previous episodes of cold climate.

The instability also resulted in greatly increased inputs of sediment to streams, some of which were highly seasonal in character. Extensive depositional landforms including flights of alluvial terraces remain as testimony to this stage in the evolution of this part of the Earth.

Coastal areas were also affected by climate change. During the glacial stages the sea level was lower than it is now and the rivers eroded to lower base levels. When the ice melted and the sea level rose the valleys were flooded to form rias such as Port Davey and Bathurst Harbour, with their complex of inlets and islands. There is also evidence of higher sea levels than at present during the last Interglacial Stage. This evidence includes the presence of marine terraces and sediments, and sea caves up to ten metres above present sea level on Ile de Golfe and elsewhere.

The location of these landforms in the southern temperate latitudes, where there is little evidence of extraglacial terrestrial processes, emphasises the importance of the area in world terms.

Glacio–karstic features

The evolution of Tasmanian karst is interwoven with the history of Quaternary climatic changes. Glacial interaction with karst is very rare in southern temperate latitudes and this, combined with the variety of glacio–karstic interactions evident in the nominated area, emphasises the international significance of these features:

- the nominated area contains the only glacio–karst terrains in Australia and no comparable glaciated karst of similar age (pre–Last Glacial) is known elsewhere in southern temperate latitudes;

- important glacio–karstic landforms occur in the Mount Anne massif at Mt Bobs and elsewhere. They include cirque basins with underground drainage. There are also relict clastic deposits, such as angular rubble and water–laid sediments, in caves within many of the karst areas of the region and dry valleys which have resulted from a combination of karstic and glacial processes. Cave sediments and speleothems are important with respect to past climatic change and in one cave have already been dated back 400,000 years.

Such features are significant for interpreting landscape evolution during a major stage in the Earth's evolutionary history.

Gondwanan flora and fauna

The biota of the area is living evidence of the previous existence of a southern super–continent, Gondwana, that fragmented and dispersed to produce the present southern hemisphere land masses. With the breakup of Gondwana during the late Cretaceous, the Gondwanan biota became geographically separated. Climatic changes resulted in continuing evolution and extensive regional extinctions of species. The descendants of Gondwanan biota are now largely confined to those pieces of land that remain in the far south of the southern hemisphere. The past existence of Gondwana explains the once puzzling floristic resemblance of the rainforest and alpine vegetation in the now widely separated regions of Tasmania, New Zealand and southern South America.

Cool temperate rainforest, alpine moorland and upland freshwater communities in the nominated area are especially rich in groups of animals and plants with Gondwanan affinities. Most are Tasmanian endemics although a few also occur in New Zealand and the Australian mainland. The rainforest and alpine vegetations, richest in taxa with Gondwanan affinities, are very sensitive to fire. These groups are of universal significance as they provide evidence about past continental formations and environments and the processes that have contributed to the present Australian biota.

Primitive relictual groups can provide invaluable information about the evolution of major biological groups, for example, the Anaspididae (mountain shrimps) are believed to be relatively little changed from early ancestors of many extant crustacean groups. High proportions of endemic invertebrates with Gondwanan affinities are reserved in habitats that have persisted in the nominated area, such as endemic conifer stands and wet forests, rotting logs, caves, aquatic habitats and mountain peaks.

Examples of higher plant species descended from the original Gondwanan taxa in the nominated area include nine species of conifers representing six genera and three families. Two of the genera are monospecific (*Diselma* and *Microcachrys*) while another one is only represented by two species (*Microstrobos*). Eight of the species are endemic to Tasmania and all have most of their distributions within the nominated area. Tasmania is the only remaining region in the southern hemisphere to have representatives of the family Taxodiaceae – the family that includes the world's largest plant, the Californian redwood (*Sequoia sempervirens*). King Billy pine (*Athrotaxis selaginoides*) is an example which dominates extensive areas of high montane rainforest. Firing of these areas in the past 100 years has resulted in one third of these forests being burnt. King Billy pine is largely unable to regenerate after fire which places the long term survival of this vegetation type in jeopardy. The nominated area protects about 80% of Tasmania's King Billy pine forests. Another fire sensitive conifer, Huon pine (*Lagarostrobos franklinii*), was widespread across Australia in Gondwanan times but is now found only in western Tasmania. The largest pristine stand (Denison River) and the oldest known stand (Lower Gordon River) of Huon pine are situated within the nominated area.

Other notable taxa descended from the Gondwanan flora include members of the families Cunoniaceae, Escalloniaceae and Winteraceae, together with three ancient and monotypic genera of Proteaceae – *Bellendena, Agastachys* and *Cenarrhenes.* In addition, the present–day distribution of other genera show Gondwanan links, for example, *Eucryphia, Orites, Lomatia* and *Nothofagus.*

Many groups of animals in the nominated area are regarded as Gondwanan relicts, including both vertebrates and invertebrates.

Two of the only three surviving species of the most primitive group of mammals in the world – the egg–laying monotremes – inhabit the nominated area along with areas of mainland Australia. The platypus (*Ornithorhynchus anatinus*) is abundant in pristine rivers and the echidna (*Tachyglossus aculeatus*) lives in drier forests and heaths. Their ancestors inhabited Gondwana.

The most primitive of Australia's marsupials, the dasyurids, underwent adaptive radiation during the 35 million years of isolation on the Australian continental plate after Gondwana broke up. Basically a carnivorous group, they are preceded in marsupial evolutionary history only by the opossum family Didelphidae of South America. Six species of dasyurids are present including the world's largest extant carnivorous marsupial, the Tasmanian devil (*Sarcophilus harrisii*). Another species, the thylacine, commonly known as the Tasmanian tiger or the marsupial wolf (*Thylacinus cynocephalus*), may also live in forest habitats in the area, where it was known to roam until the first quarter of this century. Although no confirmed evidence of its existence has been produced since 1936, sightings continue to be reported from the area. Thylacine skeletons have been found in caves in the Exit Cave area.

The present distribution of parrots, especially their concentrations in Australia and southern South America, is evidence for the existence of Gondwana. The greatest diversity of parrots occurs in the Australasian region. Several parrot species are found in the nominated area, including the threatened orange–bellied parrot and the ground parrot.

Of Australia's four indigenous families of frogs, the Myobatrachidae and Hylidae are believed to have had Gondwanan origins. Close relatives are found in South America. Two species in the former family, the endemic Tasmanian froglet (*Ranidella tasmaniensis*) and brown froglet (*Ranidella signifera*), and two species in the latter, the endemic Tasmanian tree frog (*Litoria burrowsi*) and brown tree frog (*Litoria ewingi*), occur in the area. *Litoria burrowsi*, which lives from sea–level to alpine areas, is mainly found in the nominated area.

A Gondwanan origin is indicated for the onycophoran family Peripatopsidae, which is represented in the area by at least four undescribed species in the genera *Euperipatoides* and *Ooperipatellus.* Members of the family occur in South Africa, Australia and Chile.

The Tasmanian cave spider (*Hickmania troglodytes*) has clear Gondwanan affinities. It is the only member of the family Hickmaniidae known outside of Chile. It is also one of the most primitive araneomorph spiders in the world, having four booklungs rather than the usual two for araneomorphs.

Several aquatic insect groups have close affinities with groups found in South America, New Zealand and Southern Africa. These include dragonflies, chironomid midges, stoneflies, mayflies and caddisflies. The caddisflies in particular, of which 131 species occur in the area, provide strong evidence of transantarctic relationships.

The freshwater crustacean groups: Anaspidacea, Parastacidae and Phreatoicidae, are of great zoogeographic importance. Anaspids appear to be primitive relicts with the nominated area being their main refuge. *Anaspides tasmaniae* is widespread in the area from alpine tarns to caves. Other smaller syncarids such as *Micraspides* and *Allanaspides* inhabit freshwater crayfish burrows in buttongrass plains. Unusual stygocarid anaspidaceans are only known in Tasmania from one sphagnum bog in the nominated area. The present distributions of the freshwater crayfish family Parastacidae (Tasmania, mainland Australia, New Guinea, New Zealand, South America and Madagascar) and the freshwater isopod group Phreatoicoidea (Tasmania, mainland Australia, New Zealand, India, South Africa) are evidence of Gondwanan origins. At least two endemic parastacids live mainly in the nominated area and phreatoicoid isopods are the most important freshwater isopods in the area in terms of abundance and diversity.

Several primitive taxa in the nominated area have distributions which indicate that they are relicts of a more ancient fauna that was widespread during the Cretaceous or earlier. They are more ancient than Gondwana. Anaspids are present in South America and New Zealand and are found as Triassic fossils in the northern hemisphere. *Trogloneta*, a mysmenid spider from Kutikina Cave on the Franklin River is congeneric with a species in France and two species in North America. They are a group of primitive, cryptic, lungless spiders. Five species of alpine moths in the subfamily Archiearinae occur on mountain peaks in the area. This is the most primitive subfamily of the largest cosmopolitan family of moths, the Geometridae. The only other species in this sub–family are three in the southern Andes, three in Europe and two in North America.

One species in the genus *Sabatinca* of the primitive lepidopteran sub–order Zeugloptera occurs in the area. Members of this rare sub–order retain mandibles rather than having the typical lepidopteran proboscis, and hence are considered to pre–date the evolution of angiosperms. Zeuglopterans also occur in South and North America and in Europe and must have dispersed worldwide prior to the breakup of Gondwana.

Integrity

The remote and difficult terrain which dominates the nominated area, together with its great size and variety of habitats, provides significant protection for the natural heritage values. The maintenance of the outstanding wilderness quality which underlies these values ensures that these representatives of major stages of the Earth's evolution should not be threatened by human interference.

5(b)(ii) Criterion ii

Outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment; as distinct from the periods of the Earth's development, this focuses upon ongoing processes in the development of communities of plants and animals, landforms and marine and fresh water bodies.

Vegetation

The ongoing processes within natural ecosystems are well represented in the nominated area. The tracts of coastal plant communities free from exotic sand binding grasses allow the natural process of dune formation and erosion to continue undisturbed in the presence of the native grasses *Festuca littoralis* and *Spinifex hirsutus*. Alpine lakes and streams totally free of pollution have already provided a means to monitor comparatively the impact of acid rain in the northern hemisphere. The alpine ecosystem with its complexity of relationships between plant formations and abiotic factors such as frost, snow, wind and rain makes fascinating study. The dynamics of the unusual "cushion plants" (bolster heaths) are also of great interest. In some areas these plants create miniature vegetation dams in a series of steps known as "string bogs". The altitudinal transition down through the treeline corresponds with the decline in plant endemism and species richness.

The mosaic of varied plant formations below the treeline while seemingly distinct is linked together by processes of succession: the transition from moorland to rainforest being perhaps a matter of only five hundred years without fire. This ecological succession of communities is in itself a significant biological process of World Heritage value. The possibility of monitoring these successions is now a major feature of the nominated area.

The moorlands which are well represented at the present time in Tasmania are dependent on frequent burning to exclude trees. The poor drainage in association with the peat soils which form under this vegetation slows down the process of tree invasion and growth. However, without fire the ti–trees develop into scrub, the soils become less water logged and the transition to forest is thus commenced. In areas long unburnt in Tasmania the outstanding eucalypt tall open forests are replaced by cool temperate rainforests. The eucalypts are unable to regenerate beneath the closed forest understorey and eventually senesce leaving pure rainforest in their stead. Much of the nominated area between sea level and 1 000 m altitude has the potential to support cool temperate rainforest. The area contains vast tracts of pristine rainforest and represents the greatest range in floristic and structural variation of these forests in cool temperate Australia.

Infrequent catastrophic events in the form of wild fire are an essential part of the natural process in maintaining the tall forest ecosystems. The nominated area contains excellent examples of pristine tall eucalypt forests (shown on Maps 10 and 11). These forests are of sufficient size and are appropriately located to facilitate ongoing natural processes, and therefore are capable of self perpetuation within the nominated area.

Since each of the vegetative ecosystems is undisturbed except through fire, biological evolution continues virtually free of human effects. The alpine communities of the nominated area have an extremely high plant endemism (up to 60 per cent), a feature which is rare on a global scale. Many endemic species are of Gondwanan origin and thus are also of significance for studies in the evolution of biota in the southern hemisphere during the Tertiary. These communities contain many rare plant species, are in a pristine state and consequently are scientifically important in a broad regional and global context.

At least three conifers in the nominated area are of extreme longevity which makes them of particular scientific importance for dendrochronological studies. These species are Huon pine, Pencil pine and King Billy pine. Individuals of King Billy pine and Pencil pine are known to be over 1 000 years old, while individuals of Huon pine have been recorded to be over 2 000 years old. Other Huon pine trees are suspected of being in the order of 3 000 years old based on diameter measurements. Fossil evidence indicates that Huon pine or its precursors was present on mainland Australia about 90 million years ago.

Also of significance and indicative of the evolutionary process is the presence of many endemic members of large Australian plant families. For example, members of the Australian heath family Epacridaceae are well represented in the alpine and rainforest communities. Pandani (*Richea pandanifolia*), almost exclusively confined to Tasmania, resembles a giant grass tree and is among the world's tallest heath species. It grows commonly in the rainforests of the nominated area. *Richea scoparia* occasionally gets to tree form but is typically an extremely prickly, brightly flowered shrub that dominates extensive areas of the alpine zone in the nominated area. *Dracophyllum minimum*, another related taxon has evolved the cushion form which is ideally adapted to the exposed windy conditions of the Tasmanian alpine zone. In the wet forests Tasmanian climbing heath (*Prionotes cerinthoides*) with its delicate pink bell flowers provides a link between the Ericaceae and Epacridaceae showing features in common with both.

There are outstanding samples of currently active speciation in a number of groups, particularly the genus *Eucalyptus*. Examples abound of hybridisation and introgression. Transition zones which include genetic exchanges among *Eucalyptus amygdalina, Eucalyptus nitida* and *Eucalyptus coccifera* are found in the area. Examples are also found of clinal variation (for example alpine yellow gum (*Eucalyptus subcrenulata*)) and habitat selection for characteristics such as frost resistance (for example white gum (*Eucalyptus gunnii*)). The previously glaciated areas of the western Central Plateau contain many other groups in which speciation is active, for example *Gonocarpus*, *Ranunculus* and *Plantago*.

Fauna

Tasmania abounds in evidence of evolutionary processes operating in isolation – at least since the Pleistocene, and in some cases prior to this period. The nominated area represents by far the largest area of protected habitat in Tasmania and will continue to provide a major refuge for the evolving and distinctive Tasmanian fauna.

The nominated area also represents an important refuge, possibly the last refuge, for several species whose habitats elsewhere are under threat. Such species include the spotted–tail quoll (*Dasyrus maculatus*), swamp antechinus (*Antichinus minimus*), broad–toothed rat (*Mastacomys fuscus*) and ground parrot (*Pezoporus wallicus*).

A remarkably high degree of Tasmanian endemism ranging from 20 to 100 per cent has been recorded in invertebrate groups. The habitats in the nominated area that are especially important for such endemism are alpine areas, rainforest, rotting logs and litter in wet forests, deep soil, lakes and caves. Each of these habitats have served as refugia and permitted survival of relict invertebrate taxa during climatic fluctuations on geological time scales. In relatively recent times they provided pockets of suitable habitat during the last Ice Age.

There are numerous examples of evolution proceeding in the nominated areas. For example distinct sub–species of the following mainland mammals all occur in the area: Bennett's wallaby (*Macropus rufogriseus*), swamp antechinus (*Antechinus minimus*), southern brown bandicoot (*Isoodon obesulus*), common wombat (*Vombatus ursinus*), common ringtail possum (*Pseudocheirus peregrinus*), common brushtail possum (*Trichosurus vulpecula*), eastern pygmy–possum (*Cercartetus nanus*) and the swamp rat (*Rattus lutreolus*). With continuing isolation, each may in time become distinct species. A similar situation exists for many birds in the area such as the azure kingfisher (*Alcedo azurea*).

Alpine heaths and boulder fields on mountain ranges in the area have been the habitat for adaptive radiation of skinks in the genus *Leiolopisma* with three distinct endemic species having evolved. The snow skink (*Leiolopisma greeni*), small–scaled skink (*L. microlepidotum*) and mountain skink (*L. orocryptum*) inhabit alpine and subalpine shrubbery and scree slopes.

Genetic and phenotypic variations produced through evolutionary processes have been recorded in numerous invertebrate species in isolated environments in the area, including mountain peaks, offshore islands and caves. For example, several species of the relictual cave spider (*Icona*), the enigmatic transantarctic spider (*Physoglenes*), and the widespread cave spider (*Rubrius milvinus*) all show such variation between cave populations in the area. So too do the primitive diurnal alpine archiearine moths that inhabit the area, such as the four species of *Dirce*: *Dirce lunaris, D solaris, D aesiodora*, and *D oriplancta*. These brightly coloured moths are the ecological equivalent of butterflies which are scarce at high altitudes. They are of outstanding biogeographical significance as they represent strong evidence that subalpine habitats have been continuously present in this area since the breakup of Gondwana.

The process of adaptation to different and difficult environments within the nominated area has resulted in some extraordinary species that are among the largest of their kind in the world. The giant pandani moth (*Proditrix sp.*) has been discovered in rainforests in the nominated area. This extraordinary yponomeutoid moth lives in the axils of the giant heath, *Richea pandanifolia*. Several species of Neanuridae, probably the largest collembolans in the world, inhabit rotting logs in rainforests. This group of large spectacular collembolans is considered to be a Gondwanan relict, with its closest relatives being in New Zealand and New Caledonia. The brightly–coloured stonefly (*Eusthenia spectabilis*), which inhabits cold streams including the Franklin River system, is one of the world's largest stoneflies.

Many invertebrate groups, such as land flatworms, large amphipods, *Peripatus*, stag beetles and stoneflies, show extraordinary diversity within Tasmania, particularly within the nominated area. The stag beetle genus *Lissotes* is represented in the nominated area by six to eight species, all of which are endemic to Tasmania.

The hairy cicada (*Tettigareta tomentosa*), an endemic Tasmanian species of the primitive cicada family Tettigarctidae is active at low temperatures and retains a climatic rhythm believed to have been acquired during a glacial epoch.

Karst geomorphology and karst hydrology

Processes of karst geomorphological and hydrological evolution continue in an uninterrupted natural condition within the area and represent a major asset of international significance. These processes are occurring in a variety of environments:

- the geological environment includes karstification in limestones and dolomites of upper Precambrian–lower Cambrian, Ordovician and Devonian age;

- there is variation in the topographical environment with karsts occurring in valley bottoms, on slopes, on mountain ridges, on the coastline and as islands in the Southern Ocean;

- the biokarstic environment varies widely with considerable differences in soil characters, vegetation and fauna, and resulting variations in water chemistry and rock weathering; and

- there is considerable climatic variability, and the present Holocene Interglacial in which karst is still evolving represents a continuation of the climatic fluctuations that have characterised the late Cainozoic.

The development of recent underground breaches of surface drainage divides in the Burgess–Bobs Saddle, at Marble Hill, beneath the Lots Wife ridge and elsewhere represent excellent examples of processes of karst hydrological development in response to variations in flow regime, sediment supply and geological substrate. The accumulation of sub–fossil bone at Exit Cave, including extinct macropod megafauna, and anthropogenic sediments in caves in the Franklin and Weld Valleys, adds a further dimension to these processes of sediment accumulation. The latter also reflects human interactions with the natural environment.

Radiometric dating of sediments in the caves permits numerical estimation of the rates at which those processes have operated through time. This has implications for understanding geomorphic processes in neighbouring environments, such as rates of valley incision. This is enhanced by the wide geographical distribution of the karst areas and means that the individual karsts form part of a set of sites that document variations of natural processes across the region, both now and in the past.

The undisturbed nature of these caves and their catchments is important for allowing continuation of natural hydrological and biological processes in the caves and for ongoing karst development.

Periglaciation

Periglacial processes also continue on some higher summits. There are excellent examples of the ongoing development of stone steps, stone stripes, frost sorted polygons and nivation hollows on mountains such as the Boomerang, Mount La Perouse, Mount Rufus, Frenchmans Cap and elsewhere.

Other geomorphological processes

The nominated area is subject to continued processes of geomorphic evolution in undisturbed natural conditions. Among the many important attributes are processes of fluvial deposition and the continuing evolution of spectacular gorges that may be the result of ongoing superimposition of ancient drainage systems originally developed on other rock types that have since been eroded away, with the rivers being progressively lowered onto bedrock. Processes of marine and aeolian deposition and erosion also continue free of unnatural disturbance. Because most processes are continuing without human interference the area offers an irreplaceable benchmark against which the effects of human activity elsewhere (such as soil erosion and landslips) may be measured.

The variety of geological substrates on which these processes are occurring, together with variations in microclimate, topography and biota adds greatly to its international importance as a benchmark region.

Soils

The blanket bogs of the nominated area consist of organic soils (peats) which started to accumulate during late Tertiary or Pleistocene times. They provide excellent examples of ongoing soil processes and are important in providing information on climatic changes and vegetation development. South–west Tasmania probably has the most extensive blanket bogs in the southern hemisphere. Further significance is added to the peatlands as, although similar organic soils occur in other parts of the world, those of the nominated area have formed vegetation communities which are restricted to Tasmania. The peats of South–west Tasmania are generally poorly understood and probably conceal many unique features. For example, the peat mounds which occur on some peatlands appear to have formed through the differential expansion and contraction of peat resulting from wetting and drying.

Integrity

The conditions of integrity are met by the great size, the diverse range of environments and the predominantly pristine and wild nature of the nominated area. These factors together with the lack of foreseeable artificial impacts justify the prediction that ecological and evolutionary processes in the area will continue unimpeded and that the diversity and complexity of present ecosystems will be perpetuated.

5(b)(ii) Criterion iii

Superlative natural phenomena, formations or features, for instance, outstanding examples of the most important ecosystems, areas of exceptional natural beauty or exceptional combinations of natural and cultural elements.

Vegetation

The coastline is vegetated by beautiful flowering heaths and tall forests. Extensive temperate rainforests frame wild rivers; buttongrass, heath and moorland extend over vast plains, and wind–pruned alpine vegetation provides spectacular displays during the limited flowering season.

Eucalypt tall open forests are considered to be of international significance for their aesthetic and scientific values. The dominant species in the tall open forests in Tasmania, *Eucalyptus delegatensis, Eucalyptus obliqua,* and *Eucalyptus regnans*, belong to the subgenus *Eucalyptus* s. str. ("Monocalyptus") which is wholly Australian. The impressive structural development of these forests, which contain some of the tallest recorded flowering plants in the world, and the unique characteristics of the communities related to their interdependence on fire, patterns of species dominance and high biomass production on relatively infertile soils, are examples of superlative natural phenomena. These forests are also an integral part of an area considered to be of exceptional natural beauty. The height and grandeur of the relatively sparse eucalypt overstorey, towering 60–90 metres, set against the 20–35 metre dense rainforest understorey, is of oustanding aesthetic value.

Eucalyptus regnans, the tallest flowering plant species in the world, is well represented in the nominated area. In contrast, the world's smallest eucalypt *Eucalyptus vernicosa* is also present.

Those tall eucalypt forests in the area characterised by the ash species (*Eucalyptus regnans, Eucalyptus delegatensis*) as emergent over rainforest understorey, represent the culmination of a remarkable evolution of the component species and communities. In order for these tall eucalypts to propagate, the rainforest understorey must be cleared as the eucalypt seedlings cannot survive in the rainforest understorey. The instrument for clearing the understorey is wildfire. The fire has to be intense to sweep through the fire resistant rainforest. Such fires can also kill the standing eucalypts and any seeds which they have shed. It is only the seeds held in the small seed capsules at the time of the fire which can survive the heat.

Individuals of these species are particularly sensitive to fire and exemplify the apparent paradox that for their genetic material to survive they must be destroyed by the fires. The tall forest ecosystems of the area are dynamic evolutionary products critically dependent and sensitive to the intensity and frequency of fires to allow their survival in sites where the climax vegetation is rainforest.

If the fires are too frequent the eucalypts will not reach maturity. If they are too infrequent the eucalypts will senesce and die at around 400 years of age, giving way to climax rainforest. In the high rainfall of the nominated area this phenomenon of the "hot fire paradox" has its greatest expression.

Fauna

The fauna is also impressive, with a unique assemblage of marsupials and birds in evidence. The nominated area is the best place to see all of the world's larger carnivorous marsupials in the wild. The Tasmanian devil *Statcophilus harrisii*, spotted–tailed quoll *Dasyurus maculatus* and eastern quoll *Dasyurus viverrinus* are commonly seen at night. Although extinct, sightings of the thylacine *Thylacinus cynocephalus*, are still reported from the area. Raptors, such as the white form of the grey goshawk (*Accipiter novaehollandiae*), the white–breasted sea-eagle *Haliaeetus leucogaster* and the majestic wedge–tailed eagle *Aquila audax,* are seen hunting in the area. Millions of muttonbirds (*Puffinus tenuirostris*) make impressive displays as they return each year to breed around the coast and islands. Cave fauna is of outstanding interest due to the unique adaptations that are necessary in this sunless ecosystem. Displays of glow–worms (*Arachnocampa tasmaniensis*) in several limestone chambers in the area are of spectacular beauty.

Landscape

The geological and glacial events that have shaped the land, the climatic patterns and the Aboriginal occupation have combined to produce a varied and outstanding landscape. The landscape features in their wilderness setting have, individually and collectively, exceptional natural beauty.

Sheer quartzite or dolerite capped mountains are spectacular features, of which Cradle Mountain, Frenchmans Cap, Federation Peak and Precipitous Bluff, in particular, are of international renown.

Cold, deep lakes, created by glacial action, are perched among the ranges like secret jewels. The King William, Denison, Frankland and Arthur Ranges and Hartz Mountains are wonderfully endowed with such lakes. Fine examples of these are the deep sheer–walled cirques of Lakes Murray and Rhona. Lake Rhona is distinguished by its white quartz sand beach so reminiscent of Lake Pedder before its inundation. On the Central Plateau thousands of lakes, tarns and pools, interspersed with low alpine vegetation and conifers, in copses or as single trees, give an unrivalled landscape which is further augmented by snowfall.

The King William Range has a most distinctive glaciated landscape which is best appreciated from the range itself rather than from a distance. A walk along the crest of the range reveals the outstanding natural beauty of the area with a 360 degree view of a very diverse landscape, including the magnificence of the rugged wilderness landscape to the west and south–west.

Distinctive landscapes include the karst landforms of the upper Weld Valley and the broad glacial Vale of Rasselas with the backdrop of the Denison Range.

Extensive lowland plains stretch between the ranges in the south–west, allowing wonderful views of the jagged skyline. The pale green to orange colour of the buttongrass plains and the whites, yellows and pinks of the springtime sedgeland are most attractive. These soft, moist plains, contrasted with the heavy bulk of the ranges, result in a landscape of classical grandeur.

The forms, textures, colours and juxtaposition of vegetation within the area create broad vistas and micro–features of exceptional beauty. A small sample of these includes the intricate rainforest community on the north–east ridge of Mount Anne, the colourful alpine gardens scattered throughout the area in elevated locations, the autumn gold displays of deciduous beech (*Nothofagus gunnii*) on the high steep slopes in the northern half of the area, and the complex of poorly drained buttongrass plains and low dry ridges clad with eucalypt woodland in the vicinity of the Navarre Plains.

The south and south–west coasts are truly spectacular, comprising a series of bold, steep headlands interspersed with sweeping sandy beaches, rocky coves and secluded inlets. Port Davey and islands, connected by the Bathurst Channel to Bathurst Harbour, form a dramatic landscape best appreciated by air or sea. The power of the coastal landscape is intensified by the impact of the often mountainous swells of the Southern Ocean.

Karst formations and features

The karst features of the area represent unique natural formations. Within the highly varied geologic, topographic, biokarstic and climatic environments that exist in the nominated area, karst landform species and landform communities have developed.

In the surface karst environment there are excellent examples of closed depressions or sinkholes. Features associated with sinking or rising waters include the very spectacular Vanishing Falls streamsink, where the falls disappear underground for two kilometres before reappearing.

The very rugged karst on the north–east ridge of Mount Anne with its massive dolines, pinnacles and clifflines, is of major significance, as is the impressive Weld Arch with its high level caves.

The nominated area contains superb examples of a variety of cave forms. The area contains some of the finest examples of underground streamways in the southern hemisphere. These include the semi–filled water caves of Precipitous Bluff and the massive passages in Exit Cave.

The area also includes magnificent examples of cave sediment accumulations. There are well dated angular rubbles in the caves of the lower Franklin Valley that represent mechanical weathering under cold climate conditions. Other caves contain colluvial, fluvial and glaciofluvial deposits of great importance, such as the sequences in Judds Cavern (Wargata Mina) in the Cracroft Valley and in Exit Cave. The chemical deposits include a wide variety of speleothems that range from massive and spectacular forms to delicate crystal structures. Among the non–calcite minerals there are the gypsum oulophilites of Deena Reena Cave and gypsum needles of Exit Cave.

Glacial formations and features

The area contains superlative examples of erosional and depositional landforms that have resulted from the action of glacial ice and meltwater that flowed from the glaciers. The landforms of glacial erosion include the basin of Lake St Clair, the deepest lake in Australia; the classical glacial trough of the Upper Forth River Valley; the trough and rock basin at Lake Judd; the superb rock basins of the Arthur, Frankland and Eldon Ranges, the Spires, Frenchmans Cap and Hartz Mountains; the glacially over–ridden dolerite escarpments in the Walls of Jerusalem area and on the western edge of the Central Plateau; and the transverse rock basin lakes in the upper Mersey River catchment. The myriad of rock basin lakes on the Central Plateau is also of major significance. These typically follow the trend of major joint lines in the Jurassic dolerite.

The DuCane Range at Mount Geryon is a superlative example of a glacially fretted upland which is complemented by the classically scalloped upland of the King William Range, developed in a similar geological and climatic context some kilometres further south.

Depositional landforms that have resulted from glaciation are also natural formations of great significance. Glacial deposition has resulted in diversion of drainage in the Cradle Mountain area. There is a wide variety of moraine types. Superb examples of large lateral moraines extend into the Weld and Snake Valleys from the Mount Anne massif.

Other geomorphological formations

Geochemical and geomorphic processes have worked on the geological structure to produce a variety of scientifically and aesthetically interesting landforms. These include features of fluvial origin such as the superb erosion surface topography that is well preserved over much of the area.

There are magnificent examples of superimposed gorges including those along the Gordon River between the Thumbs and Mount Wright and downstream of the Gordon–Franklin confluence. Wide moorland floored valleys such as the Vale of Rasselas stand in contrast to the gorges both in appearance and origin. These valleys have glacial outwash deposits and excellent examples of river terraces formed during various Pleistocene deglaciation events which resulted in the release of large volumes of water.

Among the coastal landforms that represent superlative natural formations are New River Lagoon and its enclosing beach and dune; the outstanding elevated marine terraces that extend well inland from the west coast; the sea caves and geos of the south–western coastline, and the magnificent ria of Port Davey and Bathurst Harbour.

Integrity

The conditions of integrity are met by the extent of pristine wilderness and undisturbed catchments. Careful management of existing and foreseeable pressures on the nominated area will ensure that each of these superlative natural features and processes will be conserved. Virtually all other areas in the temperate zone have been so substantially modified by agriculture and industry that their pristine wilderness characteristics have been destroyed.

5(b)(iv) Criterion iv

The most important and significant natural habitats where threatened species of animals and plants of outstanding universal value from the point of view of science and conservation still survive.

Flora

The nominated area is rich in habitats containing rare and endemic plant and animal taxa. It contains around 240 Tasmanian endemic higher plant taxa, of which about half have most of their distribution within the nominated area. Of the 20 Tasmanian endemic genera, only two are not represented within the nominated area, while all of the species in genera with an Gondwanan distribution are present.

The nominated area contains populations of approximately fifty threatened species including *Centrolepis pedderensis, Lomatia tasmanica, Milligania johnstonii, Milligania longifolia, Oreomyrrhis gunnii* (see Appendix 3).

In general within the nominated area the rainforests, alpine and riparian communities are the richest in rare and endemic plant taxa. Included amongst the threatened rainforest species are the locally dominant Huon pine and King Billy pine. The moorlands of the far south–west are also important habitats for rare endemic taxa including species such as *Winifredia sola* and *Haemodorum distichophyllum.*

Several threatened Tasmanian endemic species are now known only from alkaline pans of the south–west moorlands. These include *Milligania johnstonii, Centrolepis pedderensis* and *Centrolepis paludicola.* Riparian limestone cliffs of the Franklin and Lower Gordon Rivers are the habitat for *Milligania longifolia* and *Oreomyrrhis gunnii*, while the high altitude dolomite outcrops in the karst country of Mount Anne is the only known locality of *Oreoporanthera petalifera* and *Sagina* sp. nov. Several Tasmanian endemics are largely confined to the coastal vegetation including *Cyathodes abietina, Westringia brevifolia* and *Gnaphalium* sp. nov.

The lower plants are less well known than the vascular plants. However, rare and endangered lichen species are known (see Appendix 3). Similarly some endemic bryophytes have been recorded in the nominated area.

The lakes within the area are unique on a global scale and contain many endemic species of microflora. The lakes and their biota change dramatically across the geological line separating the fold structural province from the fault structural province. To the east a "green window" light regime dominates as opposed to the "red window" light regime to the west.

Some of the lakes in the Southern Forests area, such as those in the Denison Range, are a significant transition in terms of the east–west divide. These lakes contain endemic, possibly rare, species of algae such as *Thecadiniopsis tasmanica.*

The meromictic lakes of the Lower Gordon River (thought to be the shallowest in the world) and other water bodies of the nominated area such as coastal lagoons are of great importance for the conservation of a rich micro flora and fauna.

Fauna

The nominated area is inhabited by a significant number of threatened (rare, vulnerable or endangered) animal species, many of which have been listed as such by the IUCN.

The dasyurid swamp antechinus (*Antechinus minimus*) can reasonably be regarded as threatened particularly due to habitat destruction on mainland Australia. It is widespread and secure within the nominated area in wet heath and moorland. The broad–toothed rat (*Mastacomys fuscus*) occupies similar habitats in upland areas that are widely distributed but it is surprisingly uncommon. Other mammals of note are the eastern quoll (*Dasyurus viverrinus*), Tasmanian pademelon (*Thylogale billardierii*), Tasmanian bettong (*Bettongia gaimardi*) and eastern barred bandicoot (*Perameles gunnii*), all of which have recently become extinct or are endangered outside Tasmania.

Of the birds, two species are listed as threatened. The endangered orange–bellied parrot (*Neophema chrysogaster*) is one of the rarest parrots in the world, with a total population of only 150–200 birds. It breeds only in south–west Tasmania. The ground parrot (*Pezoporus wallicus*) is a moorland inhabitant that is considered vulnerable to extinction due to habitat loss on mainland Australia. It is widespread in the nominated area.

Of the reptiles, the Pedra Branca skink (*Leiolopisma palfreymani*) is endangered, as its total population is confined to a small rocky islet off Tasmania's southern coast, within the nominated area.

Four species of native fish, the swamp galaxias (*Galaxias parvus*), the Lake Pedder galaxias (*G. pedderensis*), the Clarence galaxias (*G. johnstoni*) and the Western Lakes paragalaxias (*G. julianus*) have very restricted distributions within the nominated area. *G.johnstoni* is endangered and *G. pedderensis*, in recent years found only in small creeks in the area of the inundated Lake Pedder, is one of Australia's rarest fish and is vulnerable to extinction.

There are restricted or rare species of aquatic insects found in the nominated area, such as the stoneflies *Newmanoperla prona* and *Kimminsoperla williamsi,* known only from a few localities, and *K. biloba*, known only from the King William Saddle. Two endangered species of caddisflies, namely *Taskiria mccubbini* and *Taskiropsyche lacustris* have not been recorded since the flooding of Lake Pedder. The primitive Tasmanian torrent midge (*Edwardsina tasmaniensis*), known only from the Denison River, is endangered.

Due to the sensitivity of their forest habitats to disturbance, all onycophoran species are regarded as vulnerable. At least four undescribed species occur in the area. The nemertine *Argonemertes australiensis* is regarded as threatened for similar reasons. The e collembolan species *Lasofinius gemini* is only known from its type locality, in callidendrous rainforest at King William Saddle. It appears to have a very restricted distribution.

The primitive freshwater crustacean *Anaspides spinulae* is vulnerable and restricted to alpine lakes and Lake St. Clair in the northern part of the area. The smaller syncarid *Allanaspides hickmani*, which lives in burrows of the endemic freshwater crayfish *Parastacoides tasmanicus*, is known from two small areas beside the inundated Lake Pedder and is very vulnerable. Another threatened species of Tasmanian syncarid within the nominated area is *Anaspides tasmaniae.*

The conservation of alpine habitats is especially important. Three endemic species of lizards (*Leiolopisma spp.*) are largely restricted to these environments within the nominated area. The endemic alpine dragonfly (*Archipetalia auriculata*) breeds only in high cold streams in western Tasmania. It is the most archaic member of a very ancient family, the Neopetallidae. Its presence indicates that the environment of the nominated area has undergone relatively little change throughout the long history of the species. Maatsuyker Island and other islands in the nominated area are important because of the total lack of feral mammals.

Integrity

The conditions of integrity are based on the outstanding wilderness quality of the nominated area, which includes habitats of sufficient size to provide the greatest opportunity for the survival of the plant and animal species mentioned above. The survival of certain species may depend to some degree on the management of regions beyond the nominated area. An example is the orange-bellied parrot. This species regularly migrates to mainland Australia and in addition, a significant proportion of its breeding habitat lies within Conservation Areas adjacent to the nominated area. However, with appropriate management of those sensitive areas and compatible management of the nominated area, the breeding habitat of this rare parrot will be effectively conserved.

A distinguishing feature of the area compared with mainland Australia is the relative lack of introduced placental mammals in Tasmania. In particular, dingoes and foxes are not present, and so do not pose a threat to native fauna through competition and predation.

Many fish, including the brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*) and brook trout (*Salvelinus fontinalis*), have been introduced throughout Tasmania and are found within the area. These species, implicated in the decline of several native aquatic species, are absent from many pristine lakes and river systems.

6. SIGNATURE

Signed (on behalf of State Party)

Full name Graham Frederick Richardson

Title Minister of State for the Arts, Sport, the Environment, Tourism and Territories

Date 15th September 1989

APPENDIX 2

TABLE

OCCURRENCE OF RESTRICTED ENDEMIC TAXA IN GEOGRAPHIC CENTRES 1–7 (see Map 7).

Authorities for taxa are those given in Brown et al. (1983).

Centre 1	*Centrolepis* sp. nov. *Epacris stuartii, Gaimardia* sp. nov. *Geum talbotianum, Haemodorum distichophyllum, Lomatia tasmanica, Milligania johnstonii, Senecio papillosus, Senecio primulifolius, Sprengelia distichophylla, Trochocarpa disticha.*
Centre 2	*Acacia pataczeckii, Epacris barbata, Eucalyptus barberi, Euphrasia collina* ssp. *deflexifolia, Helichrysum lycopodioides, Lasiopetalum micranthum, Melaleuca pustulata, Pultenaea selaginoides, Spyridium microphyllum.*
Centre 3	*Capsella tasmanica, Centrolepis muscoides, Cyathodes nitida, Eucalyptus archeri, Euphrasia gibbsiae* ssp. *microdonta, Gunnera cordifolia, Isolepis* sp. nov, *Milligania longifolia, Oreomyrrhis gunnii, Pimelea pygmaea, Ranunculus concinnus, Scirpus tasmanicus.*
Centre 4	*Caladenia atkinsonii, Eucalyptus morrisbyi, Eucalyptus risdonii, Euphrasia gibbsiae* ssp. *wellingtonensis, Monotoca linifolia, Prasophyllum concinnum, Senecio brunonis.*
Centre 5	*Epacris virgata, Pimelea filiformis, Tetratheca gunnii.*
Centre 6	*Epacris marginata, Euphrasia phragmostoma, Euphrasia semipicta.*
Centre 7	*Euphrasia gibbsiae* ssp. *pulvinestris, Schoenus pygmaeus, Viola hederacea* ssp. *curtisiae.*
Ungrouped	*Caladenia longii, Centrolepis pulvinata, Deyeuxia lawrencei, Helichrysum selaginoides, Helichrysum spiceri, Odixia achlaena, Phebalium daviesii, Prasophyllum truncatum, Pratia irrigua, Schoenus absconditus, Stackhousia gunnii.*

APPENDIX 3

LISTS OF RARE, VULNERABLE AND ENDANGERED SPECIES

FLORA
FAUNA

RARE, VULNERABLE AND ENDANGERED SPECIES OF FLORA THAT OCCUR IN THE NOMINATED AREA.

Details obtained from IUCN and CONCOM lists and recent scientific documentation.

The status of the listed taxa is denoted by the following symbols: R = Rare, V = Vulnerable, E = Endangered.

NON–VASCULAR PLANT TAXA

LICHEN

Arthonia apteropteridis	R
Cliostomum griffithii	R
Coelocaulon aculeatum	R
Conotremopsis weberiana	R
Leproloma membranacea	R
Multiclavula vernalis	R
Pycnothelia caliginosa	R
Usnea acromelana	R
U. subcapillaris	R

VASCULAR PLANT TAXA

ENDEMIC

PTERIDOPHYTA

GLEICHENIACEAE

Gleichenia abscida	R

ANGIOSPERMAE

APIACEAE

Oreomyrrhis gunnii	V

ARALIACEAE

Pseudopanax gunnii	R

ASTERACEAE

Helichrysum expansifolium	R
Senecio papillosus	R
S. primulifolius	R

BRASSICACEAE

Capsella tasmanica	R
Cheesemania radicata	R

CAMPANULACEAE

Wahlenbergia saxicola	R

CARYOPHYLLACEAE

Sagina sp. nov.	R

CENTROLEPIDACEAE	
Centrolepis muscoides	R
C. paludicola	R
C. pedderensis	E
Gaimardia amblyphylla	R
CYPERACEAE	
Isolepis tasmanica	R
Schoenus biglumis	R
S. pygmaeus	R
EPACRIDACEAE	
Epacris mucronulata	R
E. navicularis	R
Cyathodes nitida	V
Monotoca linifolia	R
M. sp. nov.	R
Sprengelia distichophylla	R
Trochocarpa disticha	R
ERICACEAE	
Pernettya lanceolata	R
EUPHORBIACEAE	
Oreoporanthera petalifera	R
HAEMODORACEAE	
Haemodorum distichophyllum	R
HYDATELLACEAE	
Hydatella filamentosa	R
LAMIACEAE	
Westringia brevifolia var. *raleighii*	R
LILIACEAE	
Milligania johnstonii	V
M. longifolia	V
MYRTACEAE	
Eucalyptus radiata robertsonii	R
ONAGRACEAE	
Epilobium perpusillum	V
ORCHIDACEAE	
Prasophyllum buftonianum	R
POACEAE	
Danthonia sp. nov.	R
PROTEACEAE	
Lomatia tasmanica	V
Orites milliganii	R

RANUNCULACEAE

Ranunculus jugosus	R

RESTIONACEAE

Restio glaber	R
Winifredia sola	R

RHAMNACEAE

Cryptandra alpina	R
Pomaderris elliptica	R
Spyridium gunnii	R

ROSACEAE

Geum talbotianum	R

RUTACEAE

Acradenia frankliniae	R
Phebalium montanum	R
P. oldfieldii	R

THYMELAEACEAE

Pimelea cinerea	R
P. pygmaea	R

NON-ENDEMIC

PTERIDOPHYTA

ATHYRIACEAE

Cystopteris filix-fragilis	R

CYATHEACEAE

Cyathea cunninghamii	R

GRAMMITIDACEAE

Grammitis pseudociliata	R

PSILOTACEAE

Tmesipteris elongata	R

ANGIOSPERMAE

BRASSICACEAE

Lepidium flexicaule	R

CALLITRICHACEAE

Callitriche brachycarpa	R

CRASSULACEAE

Crassula moschata	R

CYPERACEAE

Carex raleighii	R

RARE, VULNERABLE AND ENDANGERED SPECIES OF FAUNA THAT INHABIT THE NOMINATED AREA.

Details obtained from IUCN and CONCOM lists and recent scientific documentation.

The conservation status of the species is denoted by the following symbols: R = Rare, V = Vulnerable, E = Endangered, X = Probably extinct.

Scientific name	*Common name*	*Status*
INVERTEBRATES		
TRICLADIDA		
GEOPLANIDAE	Land flatworms	
Artioposthia sp 11		R
Geoplana sp 7		R
Geoplana sp 8		R
Geoplana sp 9		R
Geoplana sp 10		R
PLANARIANS	Freshwater flatworms	
Cura pinguis		R
Spathula dittae		R
ONYCOPHORA		
PERIPATOPSIDAE	Peripatus	
Euperipatoides nom. *leuckarti* (northern sp.)		V
E. nom. *leuckarti* (southern sp.)		V
Ooperipatellus insignis Taxon A		V
O. insignis Taxon B		V
OLIGOCHAETA	Earthworms	
ENCHYTRAEIDAE		
(undescribed species)		R
MEGASCOLECIDAE		
Perionychella pedderensis		X
PHREODRILADAE		
Phreodrilus nudas		R
P. proboscidea		R
P. uniseta		R
NEMERTEA		
PROSORHOCHMIDAE	Proboscis worms	
Argonemertes australiensis		R

MOLLUSCA		
GASTROPODA		
PLANORBIDAE		
Ancylastrum cumingianus	Freshwater snail	E
CRUSTACEA		
SYNCARIDA		
ANASPIDAE	Mountain shrimp	
Paranaspides lacustris		V
Allanaspides helonomus		V
A. hickmani		V
Anaspides spinulae		V
A. tasmaniae		R
BRANCHIURA	Fish Lice	
Dolops tasmanianus		R
INSECTA		
ODONATA	Dragonflies	
AESCHNIDAE		
Austroaeschna hardyi		R
NEOPETALIIDAE		
Archipetalia auriculata		R
SYNTHEMISTIDAE		
Synthemiopsis gomphomacromioides		R
Synthemis macrostigma orientalis		R
PLECOPTERA	Stoneflies	
EUSTHENIIDAE		
Eusthenia reticulata		R
GRIPOPTERYGIDAE		
Newmanoperla prona		R
NOTONEMOURIDAE		
Kimminsoperla biloba		R
K. williamsi		R

HEMIPTERA		
TETTIGARCTIDAE		
Tettigarcta tomentosa	Hairy cicada	R
MECOPTERA		
APTEROPANORPIDAE		
Apteropanorpa tasmanica	Alpine scorpion fly	R
DIPTERA		
BLEPHARICERIDAE		
Edwardsina tasmaniensis	Tasmanian torrent midge	E
MYCETOPHILIDAE		
Arachnocampa tasmaniensis	Tasmanian glow worm	R
TRICHOPTERA	Caddis flies	
CONOESUCIDAE		
Costora krene		R
KOKIRIIDAE		
Taskiria mccubbini		E
Taskiropsyche lacustris		E
LIMNOPHILIDAE		
Archaeophylax vernalis		R
LEPTOCERIDAE		
Westriplectes pedderensis		R
OECONESIDAE		
Tascuna ignota		R
PHILOPOTAMIDAE		
Hydrobiosella orba		R
PHILORHEITHRIDAE		
Aphilorheithrus luteolus		R
POLYCENTROPODIDAE		
Tasmanoplegas spilota		R
PLECTOTARSIDAE		
Nanoplectrus truchanasi		R

LEPIDOPTERA	Moths and Butterflies	
GEOMETRIDAE		
Acalyphes philorites	Alpine moth	R
Dirce aesiodora		R
D. oriplancta		R
Sabatina spp.		R
NYMPHALIDAE		
Heteronympha cordace comptena	Bright-eyed brown	E
Oriexenica ptunarra	Ptunarra xenica	R

VERTEBRATES

OSTEICHTHYES		
SALMONIFORMES		
PROTOTROCTIDAE		
Prototroctes maraena	Australian grayling	R
GALAXIIDAE		
Galaxias parvus	Swamp galaxiasR	
Galaxias pedderensis	Lake Pedder galaxias	E
REPTILIA		
SQUAMATA		
SCINCIDAE		
Leiodopisma palfreymani	Pedra Branca skink	E
AVES		
PSITTACIFORMES		
PSITTACIDAE		
Neophema chrysogaster	Orange–bellied parrot	E
Pezoporus wallicus	Ground parrot	V
ALCEDINIDAE		
Ceyz (=Alcyone = Alcedo) azurea	Azure kingfisher	R
MAMMALIA		
MARSUPIALIA		
THYLACINIDAE		
Thylacinus cynocephalus	Tasmanian tiger	X

APPENDIX 4

PROGRESS OF RESERVATION

PROGRESS OF RESERVATION

CRADLE MOUNTAIN – LAKE ST CLAIR NATIONAL PARK

Reservation	Date	Variation (ha)	Total (ha)
A. Sanctuary Status Under *Animals and Birds Protection Act 1919*			
Original reserve at Cradle Mountain	31 May 1927	63 943	63 943
	11 September 1934	+ 38 851	102 794
Includes Oakleigh Creek Conservation Area	23 June 1936	+ 21 854	124 648
	20 December 1939	+ 12 626	137 274

(When the area became a State Reserve in 1971 under the *National Parks and Wildlife Act* the Sanctuary status ceased to be of effect, except for an area which was not included in the State Reserve, which became the Oakleigh Creek Conservation Area.)

B. Scenic and State Reserve Status Under *Scenery Preservation Act 1915*			
Original Scenic Reserve at Cradle Mountain	16 May 1922	63 943	63 943
Above extended to Lake St Clair and including Oakleigh Ck Conservation Area	1 December 1936	+ 60 705	124 648
	3 May 1939	– 1 295	123 353
	3 July 1940	+ 12 626	135 979
St Clair Lagoon Area for vesting in HEC	4 September 1940	– 255	135 724
Pencil Pine	21 April 1948	+ 2 191	137 915
Dove River	15 October 1952	+ 367	138 282
Private Property aquired, Cradle Valley	12 August 1970	+ 184	138 466
Re–proclaimed under *National Parks and Wildlife Act*. Area re–calculated	18 July 1971		124 848
Mount Rufus Area	17 April 1974	+ 1 214	126 062
Vicinity of Derwent Bridge	28 December 1977	+ 107.2	126 169
Adjustment in Vicinity of Mount Rufus	22 February 1978	– 1 214	124 955
	22 February 1978	+ 1 250	126 205
Chalice Lake Area	24 June 1981	+ 5 710	131 915
Vicinity of Derwent Bridge	21 December 1983	+ 5.3	131 920

SOUTHWEST NATIONAL PARK

Reservation	Date	Variation (ha)	Total (ha)
Port Davey State Reserve	24 October 1951	*512	*512
Extension (islands)	12 December 1962	+ 82	594
Lake Pedder National Park	23 March 1955	23 877	24 471
Extension (subsequently known as Southwest National Park	16 October 1968	168 192	192 663
Revocation	1 February 1969	– 36	192 627
Southwest National Park			
Re–proclamation & Extension	3 November 1976	179 673	372 300
Extension	17 November 1976	+ 27 140	399 440
Extension	1 December 1976	+ 3 800	403 240
Extension	13 May 1981	+ 39 000	442 240
Area as at 30 November 1988			442 240

*Plus about 17 ha not subsequently included in the National Park; remains as Port Davey State Reserve.

FRANKLIN–LOWER GORDON WILD RIVERS NATIONAL PARK

Reservation	Date	Variation (ha)	Total (ha)
Gordon River State Reserve	3 May 1939	2 509	2 509
Extension	19 June 1974	+ 1 342	3 851
Frenchmans Cap National Park	14 June 1941	9 550	9 550
Extension	29 August 1951	+ 3 459	13 009
Lyell Highway State Reserve	3 May 1939	7 284	7 284

(The above reserves ceased to exist on their incorporation into the Franklin–Lower Gordon Wild Rivers National Park)

Franklin–Lower Gordon Wild			
Rivers National Park	13 May 1981	195 200	195 200
Revocation	2 September 1982	**– 14 125	181 075
Area as at 30 November 1988			181 075

**Despite revocation from the National Park and vesting in the HEC (Gazette 15 September 1982) this area remains part of the World Heritage Area. It was leased to the Minister for Lands, Parks and Wildlife from 1 December 1986 for 25 years and for the purposes of the *National Parks and Wildlife Act* is regarded as a State Reserve.

HARTZ MOUNTAINS NATIONAL PARK

Reservation	Date	Variation (ha)	Total (ha)
Original Scenic Reserve	24 May 1939	9 308	9 308
Revocation	7 April 1943	– 1 214	8 094
Revised Gazettal	12 March 1952	+ 809	8 903
Revocation	5 March 1958	– 283	8 620
Revocation	1 July 1979	– 2 150	6 470

OTHER RESERVES

Reservation	Date	Variation (ha)	Total (ha)
Marakoopa Cave State Reserve	16 August 1939		790
Oakleigh Creek Conservation Area	20 December 1939		756
St Clair Lagoon (vested in HEC)	4 September 1940		255
Liffey Falls State Reserve (part thereof)	1 February 1949		20
Port Davey State Reserve (part therof)	24 October 1951		17
Sarah Island Historic Site	19 May 1954		6
Southwest Conservation Area			
(portion within the nominated area)	13 April 1966		428 500
Devils Gullet State Reserve	14 June 1972		806
Central Plateau Protected Area	12 September 1978		92 000
Exit Cave State Reserve	4 April 1979		441
Meander Forest Reserve	27 June 1980		1638
Liffey Forest Reserve	16 October 1980		825
Walls of Jerusalem National Park	17 June 1981		11 510
Central Plateau Conservation Area	10 February 1982		23 250
Drys Bluff Forest Reserve	3 December 1982		680

APPENDIX 5

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Literature

ALLEN J., COSGROVE R. & BROWN S. (in press), New Archaeological Data from the Southern Forests Region, Tasmania. Submitted to *Australian Archaeology*.

ALLEN J. (1989) Excavations at Bone Cave, South Central Tasmania, January–February 1989. *Australian Archaeology*.

ANDREWS A.P. (1976), Revision of Family Galaxidae (Pisces) in Tasmania (MSc Thesis). *Australian Journal of Marine and Freshwater Research* 27:297–349.

ANDREWS J.T. (1975), *Glacial Systems: An Approach to Glaciers and their Environments*. Duxbury Press, Belmont.

ANGUS M. (1975), *The World of Olegas Truchanas*. Olegas Truchanas, Hobart.

ANON. (1987), List of Australian endangered vertebrate fauna. CONCOM Working Group on Endangered Fauna and Flora.

ARTS, SPORT, THE ENVIRONMENT, TOURISM AND TERRITORIES, DEPT. OF THE (1988) *Report of the Commission of Inquiry into the Lemonthyme and Southern Forests* (2 Vols.) AGPS, Canberra.

ASHTON D.H. (1976), The Development of Even–aged Stands of *Eucalyptus regnans* F. Muell. in Central Victoria. *Australian Journal of Botany* 24:397–414.

ASHTON D.H. (1981), Fire in tall open forests (wet sclerophyll forests). In: A.M. Gill, R.H. Groves & I.R. Noble (eds.) *Fire and the Australian biota*. Australian Academy of Science, Canberra, pp339–366.

ASHTON D.H. (1981), Tall Open–forests. In: R.H. Groves (ed.) *Australian Vegetation*, Cambridge University Press, Cambridge, pp121–151.

AUGUSTINIUS P. & COLHOUN E.A. (1986), Glacial history of the upper Pieman and Boco Valleys, western Tasmania. *Australian Journal of Earth Science* 33:181–191.

AUSTRALIAN CONSERVATION FOUNDATION (1975), *The Wonderful Southwest*. Habitat, Special Issue.

AUSTRALIAN CONSERVATION FOUNDATION (1976), Submission to the South West Advisory Committee on the South West National Park Draft Management Plan.

AUSTRALIAN HERITAGE COMMISSION (undated), Statement of significance – Western Tasmania. Unpublished.

AUSTRALIAN HERITAGE COMMISSION (1983), *The Heritage of Tasmania*. MacMillan, Sydney.

AUSTRALIAN HERITAGE COMMISSION (1986), Background Notes on the Native Forests In Tasmania. Unpublished.

AUSTRALIAN HERITAGE COMMISSION (1986), National Estate Values of the Picton Valley in the APM Concession 1986. Unpublished.

AUSTRALIAN HERITAGE COMMISSION (1987), National Estate Values of the Southern Forests Area (excluding the Picton) lying within the APM Concession. Unpublished.

AUSTRALIAN HERITAGE COMMISSION (1987), *The Rainforest Legacy: Australian National Rainforests Study, Volume 1*. Special Australian Heritage Publication Series No.7(1), AGPS, Canberra.

AUSTRALIAN HERITAGE COMMISSION (1988), Report to the Minister for the Arts, Sport, the Environment, Tourism and Territories on the Cultural and Natural Heritage of South–Western Tasmania and on the Report of the Commission of Inquiry into the Lemonthyme and Southern Forests.

BANKS M.R. (ed.) (1972), *The Lake Country of Tasmania*. Symposium of the Royal Society of Tasmania, Launceston.

BANKS M.R. & KIRKPATRICK J.B. (1977), *Landscape and Man: The interaction between man and environment in Western Tasmania.* Symposium of the Royal Society of Tasmania, Launceston.

BARLOW B.A. (ed.) (1986), *Flora and Fauna of Alpine Australasia.* CSIRO, Melbourne.

BATTAGLIA M. & ROSE C. (1987), Fire Management Plan, Cradle Mountain–Lake St Clair National Park. Tasmanian National Parks and Wildlife Service.

BEADLE N.C.W. (1981), *The Vegetation of Australia.* Cambridge University Press, Cambridge.

BEADLE N.C.W. & COSTIN A.B. (1952), Ecological classification and nomenclature. *Proceedings of the Linnean Society of New South Wales* 77:61–82.

BECKMANN, R. (1987), Myrtles, Platypus and Fungi. *Ecos* 51:18–20.

BELL C. & SANDERS N. (1980), *A Time to Care.* Chris Bell, Blackmans Bay.

BERGMAN G.F.J. (undated), *Gustav Weindorfer – The Hermit of Cradle Mountain.* Typescript, NPWS Library.

BERRY R.J. (1974), Conserving genetic variety. In: A. Warren & F.B. Goldsmith (eds.) *Conservation in Practice,* J. Wiley & Sons, London.

BINKS C.J. (1980), *Explorers of Western Australia.* Michael & Pauline Brewer, Hobart.

BLACKHALL S.A. & PETERS D.G. (1981), *Defect Occurrence in Eucalypts.* Tasmania National Parks and Wildlife Service.

BLAIN B.R., FULLAGAR D., RANSON J., HARRIS S., JONES R., STADLER E., COSGROVE R. & MIDDLETON G. (1983), The Australian National University – Tasmanian National Parks and Wildlife Service Expedition to the Franklin and Gordon Rivers, 1983: A Summary of Results. *Australian Archaeology* 16:71–83.

BLAKERS M. (1987), *Australia's Eucalypt Forests World Heritage Values.* Australian Conservation Foundation, The Wilderness Society, South East Forest Alliance.

BLAKERS R. & ROBERTSON P. (eds.) (1983), *Tasmania's Rainforests – What Future?* Australian Conservation Foundation, Hobart.

BODEN R.W. & OVINGTON J.D. (1975), National planning for conservation areas. In: F. Fenner (ed.) *A National System of Ecological Reserves in Australia,* Report of the Australian Academy of Science 19, Canberra pp.86–95.

BOLAND D.J., BROOKER M.I.H. & TURNBULL J.W., (1980), *Eucalyptus Seed.* CSIRO, Canberra.

BOSS–WALKER, L (undated), *Peaks and High Places : Cradle Mountain–Lake St. Clair National Park, Tasmania.* Scenery Preservation Board, Hobart.

BOSWORTH P. (1983), *Wilderness, Land Use and National Parks and Wildlife Service. A Public Seminar on the Use of Forests next to our World Heritage National Parks.* Tasmanian Conservation Trust, Hobart.

BOWLING L.C. & TYLER P.A. (1984), Endangered lakes of scientific and cultural value in the World Heritage Area of southwest Tasmania. *Biological Conservation* 30: 201–209.

BOWMAN D.M.J.S. & JACKSON W.D. (1981), Vegetation Succession in South West Tasmania. *Search* 12(10):358–362.

BRAND I. (1984), *Macquarie Harbour Penal Settlements 1822–1833 and 1846–1847.* Jason Publications, Tasmania.

BRECKWOLDT R. (1986), *The Last Stand: Managing Australia's Remnant Forests and Woodlands.* AGPS, Canberra.

BRIGGS J.D. & LEIGH J.H. (1988), *Rare or Threatened Australian Plants.* Australian National Parks and Wildlife Service, Canberra.

BROWN B. & DOMBROVSKIS P. (1983), *Wild Rivers*. P. Dombrovskis, Hobart.

BROWN M.J. (1987), Project 66 – Conservation of King Billy Pine *(Athrotaxis selaginoides* D. Don.). A progress report to World Wildlife Fund, Australia.

BROWN M.J., CROWDEN R.K. & JARMAN S.J. (1982), Vegetation of an alkaline pan–acidic peat mosaic in the Harwood River Valley, Tasmania. *Australian Journal of Ecology* 7:3–12.

BROWN M.J., DUNCAN F., JACKSON W.D., JARMAN S.J., KIRKPATRICK J.B. & TYSON R.G. (1982), Vascular plants of the Denison Range & Vale of Rasselas. *Tasmanian Naturalist* 71:1–6.

BROWN M.J., HOGGINS D.D. & BAYLY–STARK H.J. (1977), *Conservation of flora in Tasmania. The status of plant species which are primitive, endemic or of geographical significance.* Wildlife Division Technical Report 77/4, Tasmania National Parks and Wildlife Service.

BROWN M.J., KIRKPATRICK J.B. & MOSCAL A. (1983), Conservation status of endemic vascular plants in alpine Tasmania. *Proceedings of the Ecological Society of Australia* 12:168–169.

BROWN M.J., KIRKPATRICK J.B. & MOSCAL A. (1983), *An Atlas of Tasmania's Endemic Flora.* Tasmanian Conservation Trust, Hobart.

BROWN M.J. & PODGER F.D. (1982), Floristic and fire regimes of a vegetation sequence from sedgeland–heath to rainforest at Bathurst Harbour, Tasmania. *Australian Journal of Botany* 30:659–676.

BROWN P.B. & WILSON R.I. (1984), *Orange–bellied Parrot Recovery Plan: Management Recommendations to the Governments of Tasmania, Victoria and South Australia.* Tasmanian National Parks and Wildlife Service.

BURBIDGE A.A. & JENKINS R.W.G. (1984), *Endangered Vertebrates of Australia and its Island Territories.* Report of the Working Group on endangered fauna of the Standing Committee of the Council of Nature Conservation Ministers. Australian National Parks and Wildlife Service, Canberra.

BUREAU OF METEOROLOGY, TASMANIA (1978), Climate of Tasmania. In: *Tasmanian Year Book*, Government Printer, Hobart.

BUSBY J.R. (1986), A biogeoclimatic analysis of *Nothofagus cunninghamii* (Hook.) Oerst. in Southeastern Australia. *Australian Journal of Ecology* 11:1–7.

BUSBY J.R. (1987), Vegetation, flora and fauna – implications for biological reserves. Paper presented at Greenhouse 87 Conference, December 1987. Monash University, Victoria.

CADMAN S. (1984), *Fire and Forest Management in Tasmania: Impacts and Alternatives.* Forest Action Network, Hobart.

CALAIS S.S. & KIRKPATRICK J.B. (1983), Tree species regeneration after logging in temperate rainforest, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 117:77–83.

CAMERON M. (ed.) (1981), *Guide to Flowers and Plants in Tasmania.* Reed, Sydney.

CAMPBELL I.C., MCKAIGE M.E. & LAKE P.S. (1986), The fauna of Australian high mountain streams: ecology, zoogeography and evolution. In: B.A. Barlow (ed.) *Flora and Fauna of Alpine Australasia*, CSIRO, Melbourne, pp83–108.

CARTLAND G.B. FOOT G.F. & OGILVIE A.G. (1978), *South West Advisory Committee Report.* Government Printer, Hobart.

CHIPPENDALE G.M., & WOLF L. (1981), *The Natural Distribution of* Eucalyptus *in Australia.* Australian National Parks and Wildlife Service Special Publication 6, Canberra.

CLARKE A.K. (1987), Exciting discoveries in the Cracroft region. *Journal of Tasmanian Cave and Karst Research Group* 2:31–38.

COCHRANE G.R., FUHRER B.A., ROTHERHAM E.R., SIMMONS J.M. & WILLIS J.H. (1980), *Flowers and Plants of Victoria and Tasmania.* Reed, Sydney.

COLHOUN E.A. (1976), The glaciation of the Lower Forth Valley, North–Western Tasmania. *Australian Geographical Studies* 14(2):83–102.

COLHOUN E.A. (1985), Glaciations of the West Coast Range, Tasmania. *Quaternary Research* 24:39–59.

COLHOUN E.A. & GOEDE A. (1979), The Late Quaternary Deposits of Blakes Opening and the Middle Huon Valley, Tasmania. *Philosophical Transcripts of the Royal Society London* B286:371–395.

COMMISSION OF INQUIRY INTO THE LEMONTHYME AND SOUTHERN FORESTS: Exhibits presented to the Commission, listed in Vol. 2 of 1988 *Report of the Commission of Inquiry into the Lemonthyme and Southern Forests* (2 Vols.) AGPS, Canberra.

COMMONWEALTH REPORTING SERVICE (1987, 1988), Transcripts of Proceedings of Commission of Inquiry into the Lemonthyme and Southern Forests.

CONCOM (1985), Identification and Management of Wilderness Areas in Australia. A Report by the CONCOM Working Group on Management of National Parks.

CONCOM (1986), Guidelines for Reservation and Management of Wilderness Areas in Australia. A Report by the CONCOM Working Group on Management of National Parks.

CORBETT K.D. & BANKS M.R. (1972), Ordovician stratigraphy of the Florentine Synclinorium, Southwest Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 107:207–230.

COSGROVE R. (1984), *Aboriginal Economy and Settlement in the Tasmanian Central Highlands.* Tasmanian National Parks and Wildlife Service Occasional Paper No. 5, Tasmanian National Parks and Wildlife Service, Hobart.

COSGROVE R. (1989), Thirty Thousand Years of Human Colonisation in Tasmania – New Pleistocene Dates. *Science.*

COSGROVE R. & JONES R. (in press), Judds Cavern: a subterranean Aboriginal painting site, southern Tasmania. Submitted to *Rock Art Research.*

CREMER K.W. (1965), Effects of Fire on seed shed from *Eucalyptus regnans. Australian Forestry* 29:251–262.

CROOME R.L., LING H.U. & TYLER P.A. (1988), *Dinobryon unguentariformis* (Chrysophyceae), an unusual new species from Australia. *British Phycological Journal* (in press).

CULLEN P.J. (1987), Regeneration patterns in populations of *Athrotaxis selaginoides* D. Don from Tasmania. *Journal of Biogeography* 14:39–51.

CUNNINGHAM T.M. (1960), The natural regeneration of *Eucalyptus regnans.* School of Forestry, University of Melbourne, Bulletin 1.

DALTON P.J. (1981), Gymnosperms. In: W.D. Jackson (ed.) *The Vegetation of Tasmania*, Australian Academy of Science, Canberra, pp116–117.

DAVEY A.G. (1984), Evaluation criteria for the cave and karst heritage of Australia. *Helectite* 15(2):1–41.

DAVIES J.B. (1983), *Huon Pine Survey 1983, World Wildlife Fund.* Wildlife Division Technical Report 83/2, Tasmania National Parks and Wildlife Service, Hobart.

DAVIES J.B. (1988), *Land Systems Survey of Tasmania Region 6: South, East and Midlands – A Resource Classification Survey*, Department of Agriculture, Tasmania.

DAVIES J.L. (1962), Geomorphology and Glaciation. *Journal of Geological Society of Australia* 9(2):243–248.

DAVIES J.L. (ed.) (1965), *Atlas of Tasmania.* Lands and Survey Department, Hobart.

DERBYSHIRE E., BANKS M.R., DAVIES J.L. & JENNINGS J.N. (1965), *Glacial map of Tasmania.* Special publication No.2, Royal Society of Tasmania.

DICKINSON K.J.M. & KIRKPATRICK J.B. (1985), The flammability and energy content of some important plant species and fuel components in the forests of Southern Tasmania. *Journal of Biogeography* 12:121–134.

DIXON G. (1984), Notes on the Geology of the Proposed Western Tasmania National Park. Unpublished.

DIXON G. & SHARPLES C. (1986), Reconnaissance geological observations on Precambrian and Palaeozic rocks of the New and Salisbury Rivers, Southern Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 120:87–94.

DOMBROVSKIS P. & MILLER E. (undated), *The Quiet Land.* Peter Dombrovskis Pty. Ltd, Sandy Bay, Tasmania.

DUNCAN F. (1986), *Vegetation survey of non–allocated Crown land in Tasmania: Report 1.* Wildlife Division Technical Report 86/2, Tasmanian National Parks and Wildlife Service.

DUNCAN F. & BROWN M.J. (1985), *Dry sclerophyll vegetation in Tasmania: the communities and their extent and conservation status.* Wildlife Division Technical Report 85/1, Tasmanian National Parks and Wildlife Service.

EASTOE C.J. (1979), *Geological Monuments in Tasmania.* For the Geological Society of Australia, Tasmania Division.

ELDRIDGE N. & STANLEY S.M. (eds.) (1984), *Living Fossils.* Springer Verlag.

ELLIOT H., DE LITTLE D. & REID C. (1985), Invertebrate Fauna. Working Paper 7. Background to the Environmental Impact Statement on Tasmanian Woodchip Exports Beyond 1988.

FENNER F. (ed.) (1975), *A National System of Ecological Reserves in Australia.* Australian Academy of Science Report No. 19, Canberra.

FIELDING P., NEWMAN O.M.G. & ROSE R.W. (1976), West Coast birds issue Avian fauna of the Crotty area. *The Tasmanian Naturalist* 44:1–9.

FIGGIS P. & MOSLEY G. (1988), *Australia's Wilderness Heritage.* Weldon, Melbourne.

FLOOD, J. (1982), The Last Wilderness – South West Tasmania. In: *Heritage Australia* 1(2):60–63.

FORESTRY COMMISSION, TASMANIA (undated), Major forest types of the Southern Forests.

FORESTRY COMMISSION, TASMANIA (undated), Tasmania's Forest Reserves.

FORESTRY COMMISSION, TASMANIA (undated), Tasmania's Rainforests.

FORESTRY COMMISSION, TASMANIA (1987), *The Rainforest of Tasmania.* Government Printer, Hobart.

FRANKEL O.H. (1975), Genetic conservation: Our evolutionary responsibility. *Genetics* 78:53–65.

FRANKEL O.H. (1975), Conservation in Perpetuity: Ecological and Biosphere Reserves. In: F. Fenner (ed.) *A National System of Ecological Reserves in Australia*, Australian Academy of Science, Report No.19, Canberra, pp9–10.

FRANKEL O.H. & SOULE M.E. (1981), *Conservation and Evolution.* Cambridge University Press, Cambridge.

GEE H., FENTON J. & HODGE G. (1978), *The South West Book: A Tasmanian Wilderness.* Australian Conservation Foundation, Melbourne.

GIBSON N. (1986), *Huon pine: conservation and management.* Wildlife Division Technical Report 86/3, Tasmanian National Parks and Wildlife Service.

GIBSON N. & HOPE G.S. (1986), On the origin and evolution of Australian alpine cushion plants. In: B.A. Barlow (ed.) *Flora and Fauna of Alpine Australasia*, CSIRO, Melbourne, pp 63–82.

GILBERT J.M. (1959), Forest succession in the Florentine Valley, Tasmania. *Papers and proceedings of the Royal Society of Tasmania* 93:129–151.

GILL A.M., GROVES R.H. & NOBLE I.R. (1981), *Fire and the Australia Biota.* Australian Academy of Science, Canberra.

GOEDE A. (1967), Tasmanian cave fauna: character and distribution. *Helectite* 5:71–83.

GOEDE A. (1969), Underground stream capture of Ida Bay, Tasmania, and the relevance of cold climatic conditions. *Australian Geographic Studies* 30:89–100.

GOEDE A. (1974), The exploration history of Judds Cavern, Cracroft area, Tasmania. *Journal of the Sydney Speleological Society* 18(9):239–247.

GOEDE A. (1977), Cracroft expeditions – survey results, scientific observations and speculations. *Journal of the Sydney Speleological Society* 21(3):55–63.

GOEDE A. & HARMON R.S. (1983), Radiometric dating of Tasmanian speleothems – evidence of cave evolution and climatic change. *Journal of the Geographic Society of Australia* 30:89–100.

GOEDE A. & MURRAY P. (1977), Pleistocene man in South Central Tasmania: evidence from a cave site in the Florentine Valley. *Mankind* II:2–10.

GOEDE A. & MURRAY P. (1979), Late Pleistocene bone deposits from a cave in the Florentine Valley, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 113:39–52.

GOWLLAND R. & GOWLLAND K. (1976), *Trampled Wilderness: The History of South West Tasmania* (2nd Edition). Richmond & Sons Pty Ltd, Devonport.

GREEN R.H. (1973), *The Mammals of Tasmania.* Queen Victoria Museum, Launceston.

GREEN R.H. (1983), Little pygmy–possum, *Cercatetus lepidus.* In: R.Strahan (ed.), *Complete Book of Australian Mammals*, Angus and Robertson, Sydney.

GREENSLADE P. (in press), The Conservation Status of Tasmanian Non–Marine Invertebrates. Australian National Parks and Wildlife Service Report Series.

GROSE R.J. (1960), Effective seed supply for the natural regeneration of *Eucalyptus delegatensis* R.T. Baker, syn. *Eucalyuptus gigantea* Hook. f. *Appita* 13:141–148.

GROVES R.H. (ed.) (1981), *Australian Vegetation.* Cambridge University Press, Cambridge.

HARDY A.D. (1935), Australia's great trees. *Victorian Naturalist* 51:231–241.

HARRIS S., RANSON D. & BROWN S. (in press), Maxwell River Archaeological Survey 1986. *Australian Archaeology.*

HARWOOD C. & KIRKPATRICK J.B. (1980), *Forestry and Wilderness in the South West.* Tasmanian Conservation Trust, Hobart.

HAWES M. (1981), *Above Me Only Sky.* Drinkwater Publishing.

HAWES M. & HEATLY D. (1985), *Wilderness Assessment and Management: A Discussion Paper.* The Wilderness Society, Hobart.

HILL L. & MICHAELIS F.B. (1988), *Conservation of Insects and Related Wildlife.* Occasional Paper No. 13, Australian National Parks and Wildlife Service, Canberra.

HOME AFFAIRS AND ENVIRONMENT, DEPT OF (1984), *A National Conservation Strategy for Australia.* AGPS, Canberra.

HOPE R.M., BRINE J.M., DUNPHY M., VALLANCE N.K., WALKER R.N., WEBB L.J., WRIGHT–MCKINNEY J. & YENCKEN D.G.D. (1974), *Report of the National Estate*, AGPS, Canberra.

HOSEL J., BRISSENDEN R., & BRISSENDEN R. & O'NEIL C. (ed.) (1982), *The Gift of the Forest.* Australian Conservation Foundation & Currey O'Neill. Melbourne.

HOUSE OF REPRESENTATIVES SELECT COMMITTEE (1972), *Wildlife Conservation: Report from the House of Representatives Select Committee.* Government Printer, Canberra.

HUTTON G. (ed.) (1981), *Australia's Natural Heritage.* Australian Conservation Foundation, Melbourne.

HUXLEY T. (1974), Wilderness. In: A. Warren & F.B. Goldsmith (ed.) *Conservation in Practice*, J. Wiley & Sons, London.

HYDRO-ELECTRIC COMMISSION, TASMANIA (1978), *Lower Gordon River Scientific Survey.* 24 Reports.

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES (1982), *The World's Greatest Natural Areas: An Indicative Inventory of Natural Sites of World Heritage Quality.* IUCN (CNPPA), Switzerland.

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES (undated), *United Nations List of National Parks and Equivalent Reserves.* IUCN, Switzerland.

JACKSON W.D. (ed.) (1981), *The Vegetation of Tasmania.* XIII International Botanical Congress. Australian Academy of Science (Exhibit 124).

JACKSON W.D. & BOWMAN D.M.J.S. (1982), Reply: Ecological drift or fire cycles in South-west Tasmania. *Search* 13(7–8):175–176.

JARMAN S.J. & BROWN M.J. (1983), A definition of cool temperate rainforest in Tasmania. *Search* 14(3–4):81–87.

JARMAN S.J., BROWN M.J. & KANTVILAS G. (1984), *Rainforest in Tasmania.* Tasmanian National Parks and Wildlife Service.

JARMAN S.J., CROWDEN R.K. & BROWN M.J. (1982), A descriptive ecology of the vegetation in the Lower Gordon River Basin, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 116:165–177.

JENKINS R.E. & BEDFORD W.D. (1973), The use of natural areas to establish environmental baselines. *Biological Conservation* 5:168–174.

JENNINGS J.N. (1975), How well off is Australia for caves and karst? A brief geomorphic estimate. In: *Australian Speleological Federation: Proceedings of the 10th Biennial Conference*, Brisbane, 1974, pp82–90.

JENNINGS J.N. (1985), *Karst Geomorphology.* Basil Blackwell, Oxford.

JENNINGS J.N. & AHMAD N. (1957), The legacy of an ice cap. *Australian Geographer* 6:62–75.

JENNINGS J.N. & BANKS M.R. (1958), The Pleistocene glacial history of Tasmania. *Journal of Glaciology* 3(24):298–303.

JENNINGS J.N. & MABBUTT J.A. (eds.) (1971), *Landform Studies from Australia and New Guinea.* ANU Press, Canberra.

JOHNSON H. (1973), *The International Book of Trees.* Mitchell Beazley, London.

JONES R. (1974), Tasmanian Tribes. In: N.B. Tindale, *Aboriginal Tribes of Australia*, University of California Press, Berkley, pp. 319–354.

JONES R. (1981), The extreme climatic place. *Hemisphere* 26(1):54–59.

JONES R. (1982), Submission to the Senate Select Committee on South West Tasmania. *Australian Archaeology* 14: 96–106.

JONES R. (ed.) (1982), *The Tasmanian rainforest estate: occurrence, composition and status as affected by settlement, forestry practices and management policies.* Environmental Studies Occasional Paper 15, University of Tasmania, Hobart.

JONES R. (1984), Hunters and History: a case study from Western Tasmania. In: C. Schrire (ed.) *Past and Present in Hunter–Gatherer Studies.* Academic Press, New York, pp.27–64.

JONES R. (1987), Ice-Age Hunters of the Tasmanian Wilderness. *Australian Geographic.* 8:26–45.

JONES R. & ALLEN J. (1984), Archaeological investigations in the Andrew River Valley, Archeron River Valley and at Precipitous Bluff – SW Tasmania. *Australian Archaeology* 19:86–101.

JONES R., COSGROVE R., ALLEN J., CANE S., KIERNAN K., WEBB S., LOY T., WEST D. & STADLER E. (in press), An Archaeological Reconnaissance of Karst Caves Within the Southern Forests Region of Tasmania, September 1987. Submitted to *Australian Archaeology*.

JONES R., RANSON D., ALLEN J. & KIERNAN K. (1983), The Australian National University–Tasmanian National Parks and Wildlife Service Archaeological Expedition to the Franklin River, 1982: A Summary of Results. *Australian Archaeology* 16: 57–70.

JULEN, H (1976), *The Penal Settlement of Macquarie Harbour 1822–1833*. Mary Fisher, Launceston.

KEAST A. (ed.) (1981), *Ecological Biogeography of Australia*. Dr W. Junk, The Hague.

KERSHAW P. (1983), Huon Pine – Australia's longest living tree – tells an epic story of survival. *Habitat* 11(1):32–34.

KIERNAN K.W. (1982), Glaciation and karst in Tasmania: review and speculations. *Helictite* 20(1):11–16.

KIERNAN K.W. (1983), Weathering evidence for an additional glacial stage in Tasmania. *Australian Geographic Studies* 21(2):197–220.

KIERNAN K.W. (1984), Land Use in Karst Areas: Forestry Operations and the Mole Creek Caves. A Report to the Tasmanian Forestry Commission and Tasmanian National Parks and Wildlife Service.

KIERNAN K.W. (1986), Southern Forests – A Brief Review of Possible Geomorphic Resources. Unpublished Report to Tasmanian Government.

KIERNAN K.W. (1987), Geomorphology and Quaternary Geology of the Upper Forth Valley and Upper Mersey Valley (The Lemonthyme Area). Report to Australian Heritage Commission.

KIERNAN K.W., JONES R. & RANSON D. (1983), New Evidence from Fraser Cave for glacial man in south west Tasmania. *Nature* 301: 28–32.

KING W.B. (1981), *Endangered Birds of the World: The ICBP Bird Red Data Book*. Smithsonian Institute Press, Washington DC.

KIRKPATRICK J.B. (undated), General Justification for the World Heritage Nomination for the Eucaplyt Forest. Unpublished.

KIRKPATRICK J.B. (1980), Tasmanian High Mountain Vegetation 1 – a Reconnaissance Survey of the Eastern Arthur Range and Mount Picton. *Papers and Proceedings of the Royal Society of Tasmania* 114:1–20.

KIRKPATRICK J.B. (1982), Phytogeographical analysis of Tasmanian alpine floras. *Journal of Biogeography* 9:255–271.

KIRKPATRICK J.B. (1983), Treeless plant communities of the Tasmanian high country. *Proceedings of the Ecological Society of Australia* 12:61–77.

KIRKPATRICK J.B. (1984), Tasmanian high mountain vegetation II – Rocky Hill and Pyramid Mountain. *Papers and Proceedings of the Royal Society of Tasmania* 118:5–20.

KIRKPATRICK J.B. (1986), The Surviving Large Stands of Old Growth Wet Sclerophyll Forest and Mixed Forest in Tasmania and a Discussion of their Importance for Nature Conservation. Unpublished.

KIRKPATRICK J.B. (1986), Known Significance of That Part of the Western Tasmania National Heritage Area that Lies Within the Boundaries of the Former Australian Paper Manufacturers Concession. Report to Australian Heritage Commission.

KIRKPATRICK J.B. (1986), Conservation of plant species, alliances and associations of the treeless high country of Tasmania, Australia. *Biological Conservation* 37:43–57.

KIRKPATRICK J.B. (1986), Tasmanian alpine biogeography and ecology and interpretations of the past. In: B.A. Barlow (ed.) *Flora and Fauna of Alpine Australasia*, CSIRO, Melbourne, pp229–442.

KIRKPATRICK J.B. (1987), Forest reservation in Tasmania. *Search* 18(3):138–142.

KIRKPATRICK J.B. (in press), Some ecological aspects of natural forest conservation in temperate Australia. Submitted to *Journal of Environmental Management*.

KIRKPATRICK J.B. & BACKHOUSE S. (1985), *Native Trees of Tasmania*. S. Backhouse, Hobart.

KIRKPATRICK J.B. & BROWN M.J. (1984), A numerical analysis of Tasmanian higher plant endemism. *Botanical Journal Linnean Society London* 88:165–183.

KIRKPATRICK J.B. & BROWN M.J. (1984), The palaeogeographic significance of local endemism in Tasmanian higher plants. *Search* 15(3–4):112–113.

KIRKPATRICK J.B. & BROWN M.J. (1987), The nature of the transition from sedgeland to alpine vegetation in SW Tasmania: I: Altitudinal vegetation change on four mountains. *Journal of Biogeography*.

KIRKPATRICK J.B. & DICKINSON K.J.M. (1984), *Vegetation Map of Tasmania, 1:500,000*. Tasmanian Forestry Commission, Hobart.

KIRKPATRICK J.B. & DUNCAN F. (1987), Tasmanian high altitude grassy vegetation: its distribution, community composition and conservation status. *Australian Journal of Ecology* 12:73–86.

KIRKPATRICK J.B., GILFEDDER L. & FENSHAM R. (1988), *City Parks and Cemeteries – Tasmania's Remnant Grasslands and Grassy Woodlands*. Tasmanian Conservation Trust, Hobart.

KIRKPATRICK J.B., MINCHIN P.R. & DAVIES J.B. (1985), Floristic composition and macro–environmental relationships of Tasmanian vegetation containing bolster plants. *Vegetation* 63:89–96.

KIRKPATRICK J.B. & MOSCAL A. (1987), Conservation Status of the Vegetation and Flora of the Lemonthyme Area, Tasmania. Report to the Australian Heritage Commission.

KIRKPATRICK J.B., PEACOCK R. & CULLEN P. (1988), Preliminary Results of Floristic Wet Forest Survey. Report to the Australian Heritage Commission.

KIRKPATRICK J.B., PEACOCK R., CULLEN P. & NEYLAND M.J. (1988), The Wet Eucalypt Forests of Tasmania. Report to the Australian Heritage Commission.

LAKE P.S. (1974), Conservation. In: W.D. Williams (ed.) *Biogeography and Ecology in Tasmania*, Dr W. Junk, The Hague.

LAKE PEDDER COMMITTEE (1974), *The Flooding of Lake Pedder, Final Report of the Lake Pedder Committee of Inquiry*. AGPS, Canberra.

LAW G. (1986), The Last Tall Forests. *Wildlife Australia* Summer:14–19.

LEAMAN D.E. & NAQVI I.H. (1967), Geology and Geophysics of the Cygnet District. *Tasmanian Geological Survey Bulletin* 49.

LEIGH J., BODEN R. & BRIGGS J. (1984), *Extinct and Endangered Plants of Australia*. Macmillan, Melbourne.

LEIGH J., BRIGGS J. & HARTLEY W. (1981), *Rare or Threatened Australian Plants*. Special Publication 7, Australian National Parks and Wildlife Service, Canberra.

LEMPRIERE T.J. (1954). (Written 1842), *The Penal Settlements of Early Van Diemens Land*. Royal Society of Tasmania, Launceston.

LESSLIE R.G., MACKEY B.G. & SCHULMEISTER J. (1988), *Wilderness Quality in Tasmania*. Australian Heritage Commission, Canberra.

LESSLIE R.G. & STEIN J.A. (1988), *Analysis of the Report of the Commission of Inquiry into the Lemonthyme and Southern Forests with respect to Wilderness*. Australian Heritage Commission, Canberra.

LEWIS A.N. (1923), Notes on a geological reconnaissance of Mt Anne and the Weld River Valley, South–Western Tasmania, *Proceedings of the Royal Society of Tasmania*.

LING H.V., CROOME R.L. & TYLER P.A. (1988 in press), Freshwater dinoflagellates of Tasmania, a taxonomic and ecological survey. *British Phycology Journal*.

LOURANDOS H. (1983), 10,000 Years in the Tasmanian Highlands. *Australian Archaeology* 16:39–47.

LOURANDOS H. (1985), Intensification and Australian Prehistory. In: T.D. Price and J.A. Brown (eds.) *Prehistoric Hunter Gatherers*, Academic Press.

LOY T., JONES R., NELSON D.E., MEEHAN E., VOGEL J., SOUTHON J. & COSGROVE R. (in press) Accelerated Radiocarbon Dating of Human Blood Proteins in Pigments from Late Pleistocene Art Sites in Australia. *Antiquity*.

LOY T. & JONES R. (in preparation), Residue analysis and the identification of functions of late Pleistocene and early Holocene stone tools from Tasmania.

LUCAS G. & SYNGE H. (1978), *The IUCN Plant Red Data Book*. IUCN, Gland, Switzerland.

McDENRICK I.G. (1981), The Gondwanan element. In: W.D. Jackson (ed.) *The Vegetation of Tasmania*, Australian Academy of Science, Canberra, pp123–129.

McGOWAN A. (in press), Salvage excavations on convict built reclaimed land, Sarah Island. *Australian Journal of Historical Archaeology*.

McKELVERY M. (1976), *Cradle Country: A Tasmanian Wilderness*. Rigby.

MACPHAIL M. (undated), Late Pleistocene environments in Tasmania. *Search* 6(7):295–300.

MACPHAIL M.K. (1979), Vegetation and climates in Southern Tasmania since the Last Glaciation. *Quaternary Research* 11:306–341.

MACPHAIL M.K. (1980), Regeneration processes in Tasmanian forests: a long–term perspective based on pollen analysis. *Search* 11(6):184–190.

MACPHAIL M.K. (1986), "Over the top": pollen–based reconstruction of past alpine floras and vegetation in Tasmania. In: B.A. Barlow (ed.) *Flora and Fauna of Alpine Australasia*, CSIRO, Melbourne, pp173–204.

MACPHAIL M.K. & COLHOUN E.A. (1985), Late Last Glacial vegetation climate and fire activity in Southwest Tasmania. *Search* 16(1–2):43–45.

MARTIN A.A. & LITTLEJOHN M.J. (1982), *Tasmanian Amphibians*. Fauna of Tasmania Handbook 6. University of Tasmania, Hobart.

MATTHEWS P.G. (ed.) (1985), *Australian Karst Index*. Australian Speleological Federation.

MICHAELIS F.B. (1985), *Rare or threatened species from inland waters of Tasmania, Australia*. Record Queen Victoria Museum 87.

MICHAELIS F.B. (1985), *A report on the threatened fish of inland waters in Australia*. Report Series No. 3, Australian National Parks and Wildlife Service, Canberra.

MIDDLETON G.J. (1979), *Wilderness Caves of the Gordon–Franklin river system*. Centre for Environmental Studies Occasional Paper 11, University of Tasmania, Hobart.

MOORE B.P. (1972), Southern cave beetle fauna in perspective. In: *Proceedings of the 8th National Conference of the Australian Speleological Federation, Hobart, Tasmania, December, 1970*. pp81–84.

MOUNT A.B. (1979), Natural regeneration processes in Tasmanian forests. *Search* 10(5):180–186.

MOUNT A.B. (1982), Fire–cycles or succession in South–West Tasmania. *Search* 13(7–8):174–175.

MULVANEY D.J. & GOLSON J. (1971), *Aboriginal Man & Environment in Australia*. ANU Press, Canberra.

MURRAY P.F., GOEDE A. & BADA J.L. (1980), Pleistocene human occupation at Beginners' Luck Cave, Florentine Valley, Tasmania. *Archaeol. Phys. Anthropol. Oceania* 15:142–152.

NATIONAL PARKS AND WILDLIFE SERVICE, TASMANIA (undated), Cradle Mountain – Lake St Clair National Park Fauna.

NEILSON D. (1975), *South West Tasmania – A Land of the Wild*. Rigby.

NEYLAND M. (1986), *Conservation and Management of Tree Ferns in Tasmania.* Wildlife Division Technical Report 86/1, Tasmanian National Parks and Wildlife Service.

OGDEN J. (1978), Investigations of the dendrochronology of the Genus *Athrotaxis* D. Don (Taxodiaceae) in Tasmania. *Tree-Ring Bulletin* 38:1–13.

OGDEN J. (1978), On the dendrochronological potential of Australian trees. *Australia Journal of Ecology* 3:339–356.

PEMBERTON M. (1986), *Land Systems of Tasmania Region 5: Central Plateau.* Department of Agriculture, Tasmania.

PEMBERTON M. (in press), *Land Systems of Tasmania – South West.* Department of Agriculture, Tasmania.

PLAYFORD G. & DETTMAN M.E. (1978), Pollen of *Dacrydium franklinii* Hook. F. and comparable early tertiary microfossils. *Pollen et Spores* XX(4):512–534.

PLOMLEY N.J.B. (1966), *Friendly Mission.* Tasmanian Historical Research Society, Hobart.

PLOMLEY N.J.B. (ed.) (1987), *Weep in Silence. A History of the Flinders Island Aboriginal Settlement. With the Flinders Island Journal of George Augustus Robinson 1835–1839.* Blubberhead Press, Hobart.

POTTS B.M. & JACKSON W.D. (1986), Evolutionary processes in the Tasmanian high altitude eucalypts. In: B.A. Barlow (ed.) *Flora and Fauna of Alpine Australasia*, CSIRO, Melbourne, pp511–528.

PRINEAS P., LEMBIT R. & FISHER N. (1986), *Australia's wilderness: an inventory.* Australian Conservation Foundation, Canberra.

PRYOR L.D. (1981), *Australian Endangered Species: Eucalypts.* Special Publication 5, Australian National Parks and Wildlife Service, Canberra.

RAINFOREST WORKING GROUP (1985), Rainforest Conservation in Australia. Report to the Minister for Arts, Heritage and Environment.

RANSON D. & HARRIS S. (1986), Maxwell River Archaeological Survey. Tasmanian National Parks and Wildlife Service.

RATKOWSKY D.A. & RATKOWSKY A.V. (1977), Plant communities of the Mt Wellington Range, Tasmania. *Australian Journal of Ecology* 2:435–445.

ROBERTSON P. & O'LOUGHLIN T. (1983), Forestry and wilderness in the Southern Forests. In: *Forestry in Wilderness?* Tasmanian Conservation Trust, Hobart.

ROSS J. (1831), *The Van Diemens Land Anniversary and Hobart-Town Almanack for the Year 1831.* James Ross, Hobart-Town, VDL.

RUSSELL J.A., MATTHEWS J.H. & JONES R. (1979), *Wilderness in Tasmania.* Centre for Environmental Studies Occasional Paper 10, University of Tasmania, Hobart.

SAUNDERS D.A., ARNOLD G.W., BURBIDGE A.A. & HOPKINS A.J.M. (1987), *Nature Conservation: The Role of Remnants of Native Vegetation.* Surrey Beatty & Sons, Chipping Norton.

SLATER J. (1987), *Arboreal Marsupial Fauna in Southern Tasmania.*

SMITH P.E. (1977), A Value Analysis of Wilderness. *Search* 8:311–317.

SMITH P.E. (1979), The Philosophy of Wilderness. *Conservation* 10, 3–5.

SOUTHWELL L. (1983), *The Mountains of Paradise, the Wilderness of South West Tasmania.* Les Southwell Pty Ltd.

SPECHT R.L., ROE E.M. & BOUGHTON H.V. (1974), Conservation of Major Plant Communities in Australia and Papua New Guinea. In: *Australian Journal of Botany* Supplement No. 7.

SPROD D. (1977), *Alexander Pearce of Macquarie Harbour.* Cat & Fiddle Press, Hobart.

STATHAM H.L. (1987), Fauna of the Southern Forests: An Inventory compiled for the Forestry Commission (Tasmania).

TAIT N.N. & BRISCOE D.A. (1987), Onycophora in Tasmania: Report on World Heritage Area. Directed Research. Tasmanian Department of Lands, Parks and Wildlife, Hobart.

TASMANIAN CONSERVATION TRUST (1984), *The Forest Book.* Tasmanian Conservation Trust, Hobart.

TASMANIAN GOVERNMENT and AUSTRALIAN HERITAGE COMMISSION (1981), *Nomination of Western Tasmania Wilderness National Parks for inclusion in the World Heritage List.* AGPS, Canberra.

THOMAS D. (1979), *Tasmanian Bird Atlas. Fauna of Tasmania Handbook No.2.* University of Tasmania, Hobart.

THORNBACK J. & JENKINS M. (1982), *The IUCN Mammal Red Data Book Part 1.* IUCN, Gland, Switzerland.

TIDWELL W.D., KIM J.H. & KIMURA T. (1987), Mid–Mesozoic Leaves from near Ida Bay, Southern Tasmania, Australia. *Papers and Proceedings of the Royal Society of Tasmania 121.*

TYLER P.A. (1974), Limnological studies. In: W.D. Williams (ed.) *Biogeography and Ecology in Tasmania,* Dr W. Junk, the Hague, pp 29–63.

VANDERWAAL R. & HORTON D. (1984), Coastal South West Tasmania: the prehistory of Louisa Bay and Maatsuyker Island. *Terra Australis 9,* Australian National University, Canberra.

WATERMAN P. (ed.) (1981), *South West Tasmania Resources Survey: Project Report.* Vols 1 and 2. South West Tasmania Resources Survey. Also 25 Discussion Papers, 22 Working Papers, 20 Occasional Papers.

WELLS S.M., PYLE R.M. & COLLINS N.M. (1983), *The IUCN Invertebrate Red Data Book.* IUCN, Gland, Switzerland.

WILDERNESS SOCIETY, THE (1986), *Tasmania's Rainforests.* The Wilderness Society, Hobart.

WILLIAMS E. (1979), *Tasman Fold Belt System in Tasmania. Explanatory Notes for the 1:500,000 Structural Map of Pre–Carboniferous Rocks of Tasmania.* Department of Mines, Tasmania, Revised edition.

WILLIAMS K. (1987), *The Vegetation of the Southern Forests: A literature review and inventory.* Forestry Commission, Tasmania.

WILLIAMS W.D. (ed.) (1974), *Biogeography and Ecology in Tasmania.* Dr W. Junk, The Hague.

2. Audio–Visual Materials

(available from The Wilderness Society, Hobart)

Earth First
Australia 1987, 45 mins Colour

Franklin : Last Wild River
Australia 1978, 45 mins Colour

Franklin River
80 Slides with audio–tape 15 mins

Franklin River Journey
Australia 1980 25 mins Colour

Highland Winter
Australia 1982 25 mins Colour

Huon Cry
Australia 1983 25 mins Colour

Last Stands – Tasmania
Australia 1982 45 mins Colour

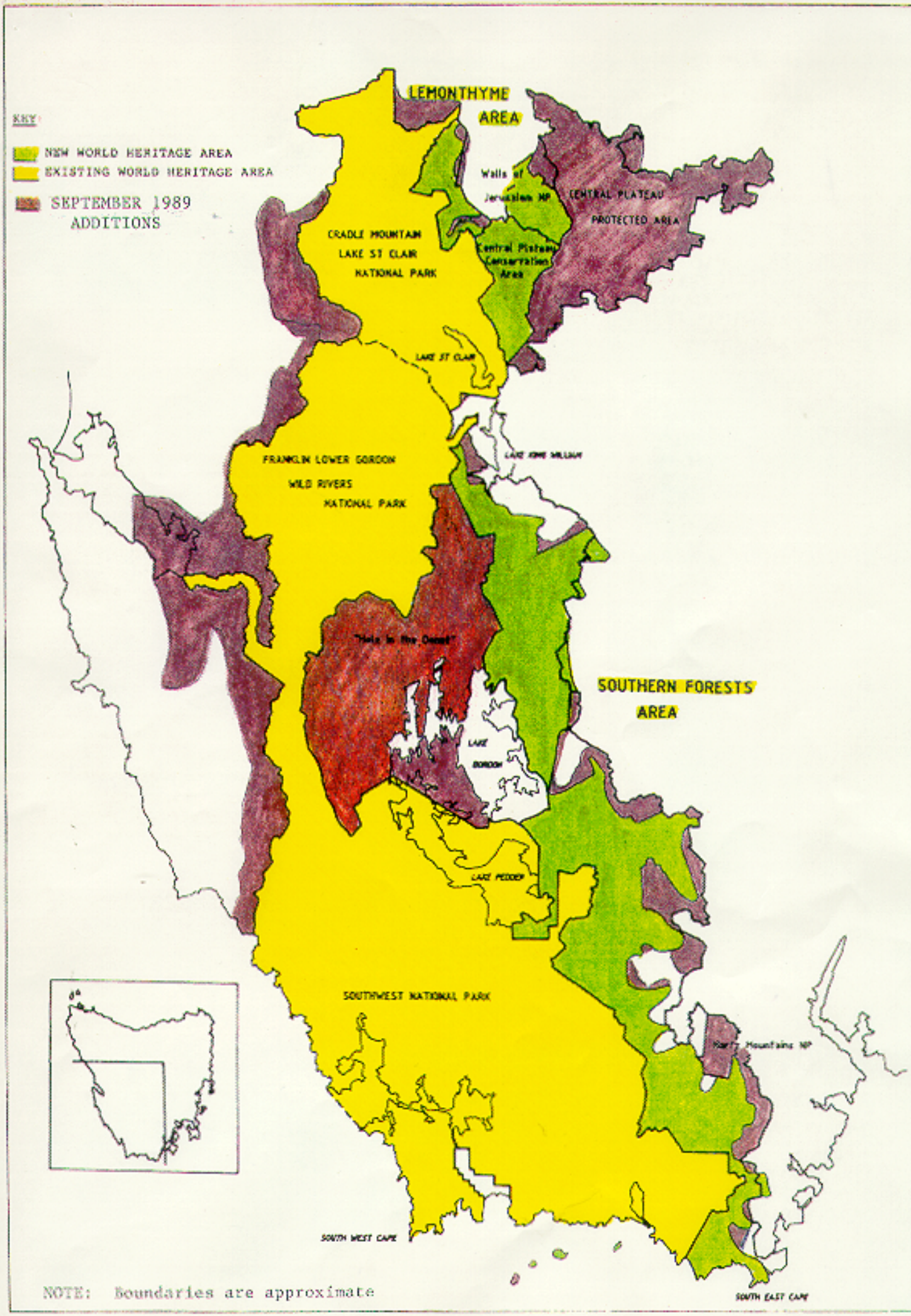
"Pictures" by Midnight Oil
VHS 5 mins

South West Tasmania : A Wilderness in Question
Australia 1978 45 mins Colour

Tasmanian Forest Video
VHS 30 mins

The Franklin River Blockade Film
Australia 1983 15 mins Colour

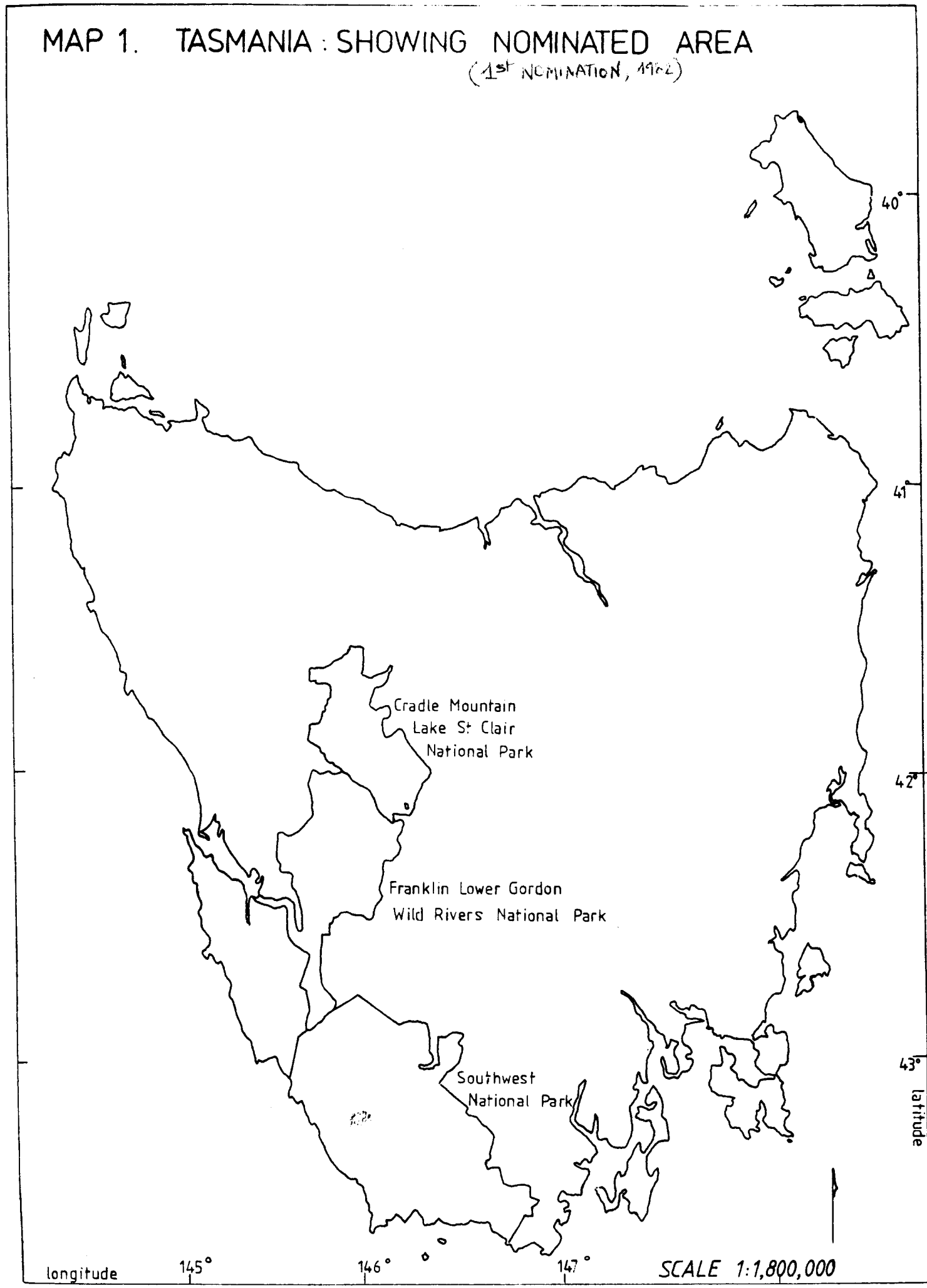
World Heritage
32 Slides with audio–tape 10 mins

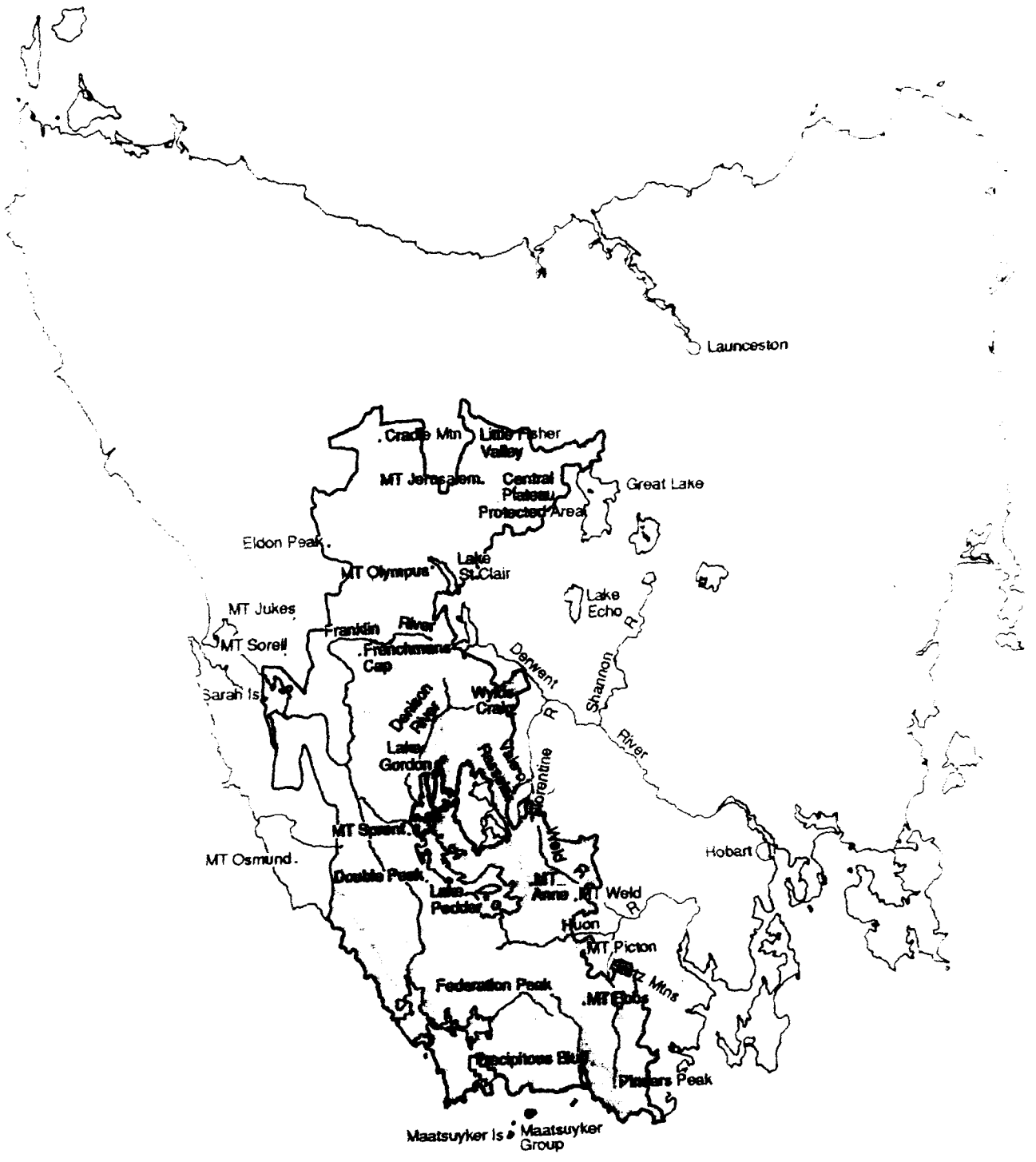


NOTE: Boundaries are approximate

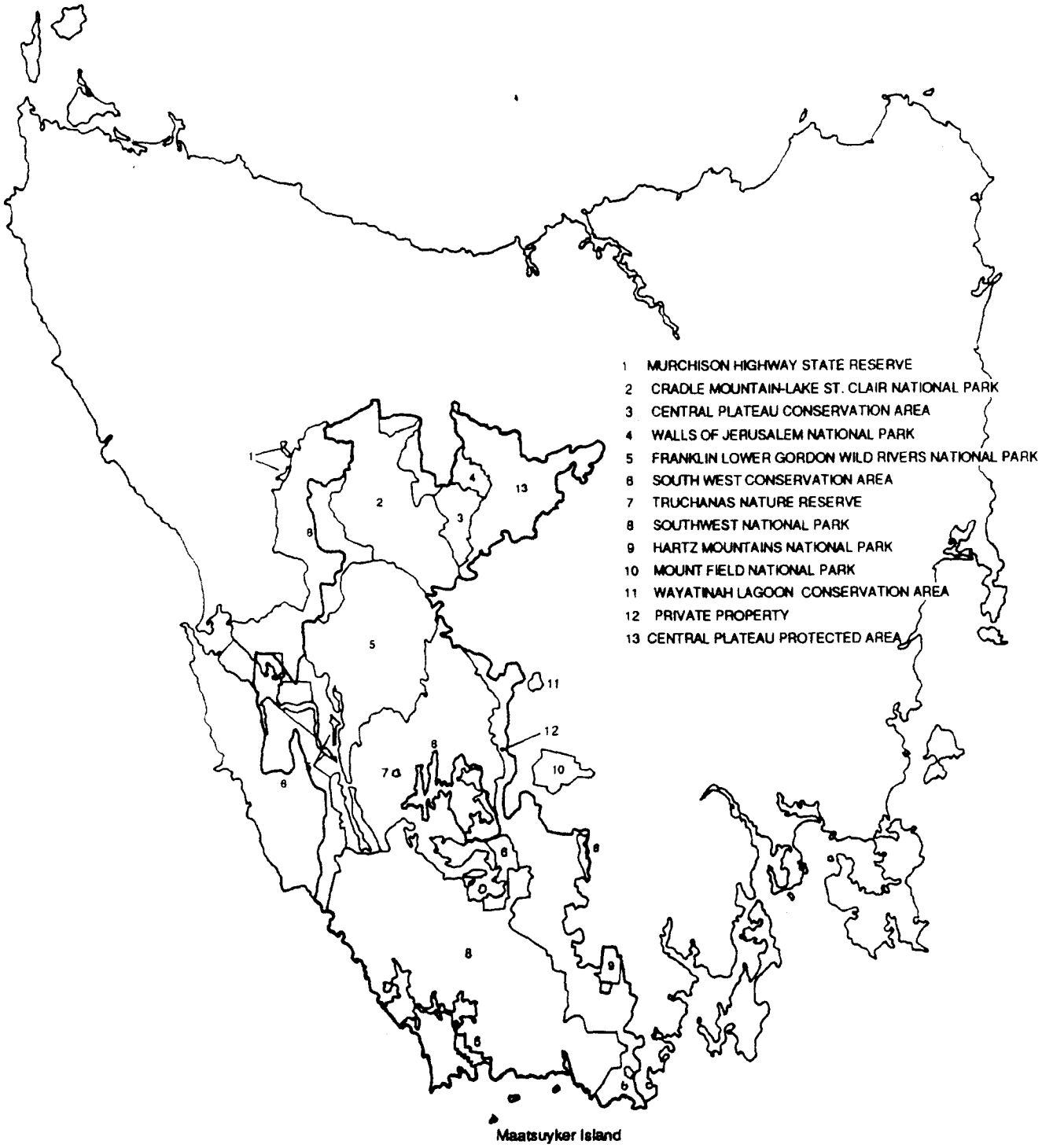
MAP 1. TASMANIA : SHOWING NOMINATED AREA

(1st NOMINATION, 1982)

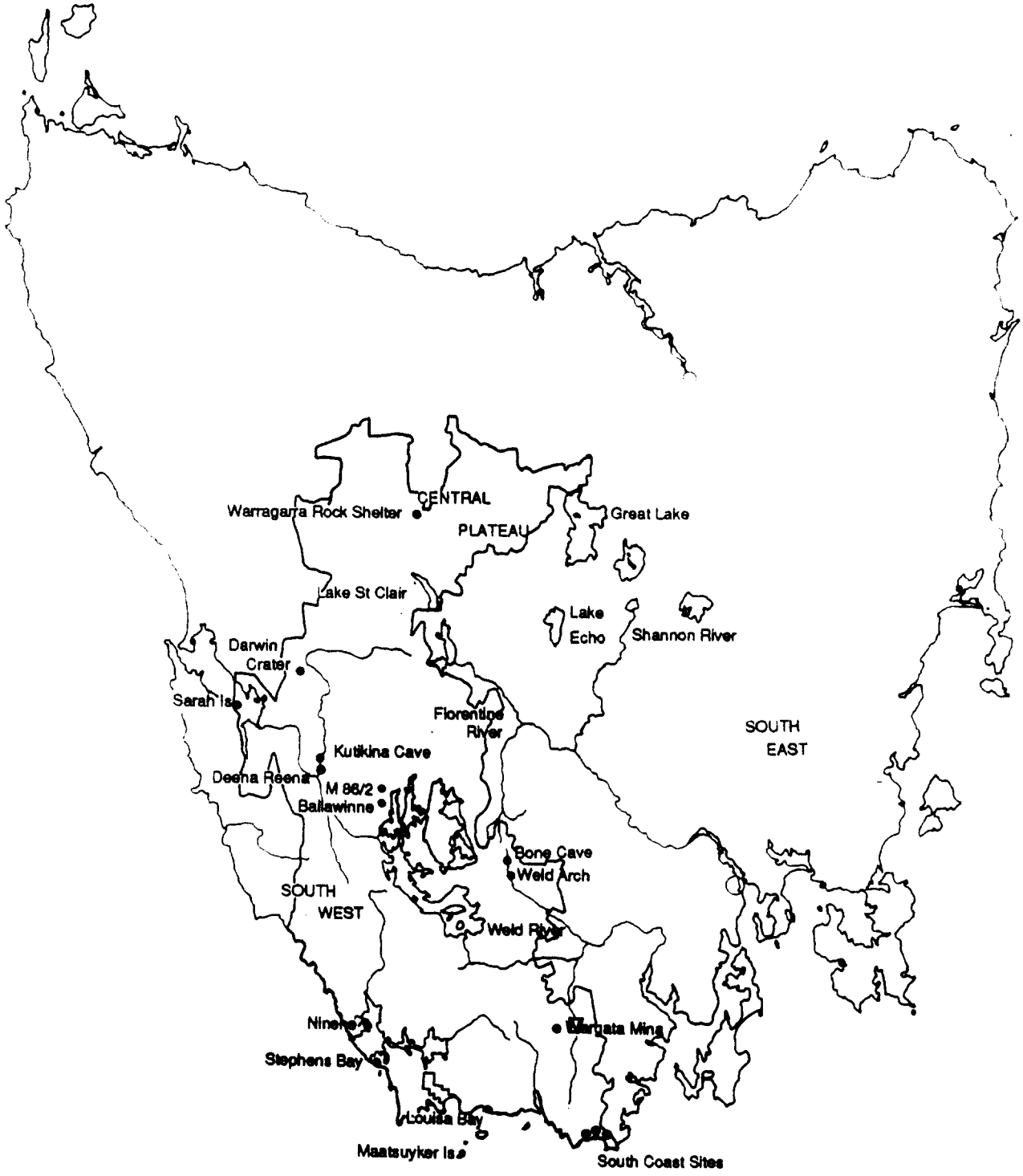




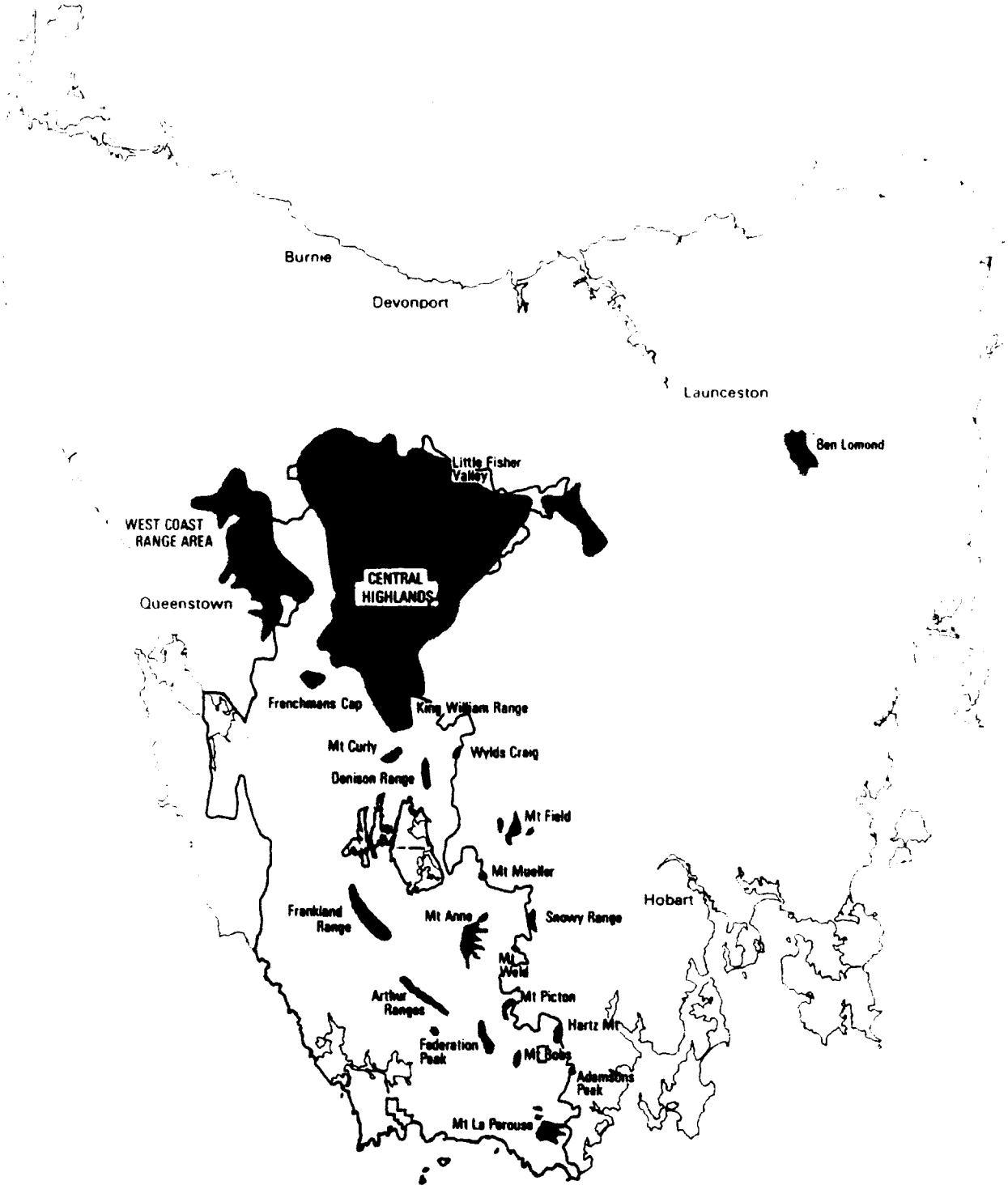
Map 1 Boundary of World Heritage Area



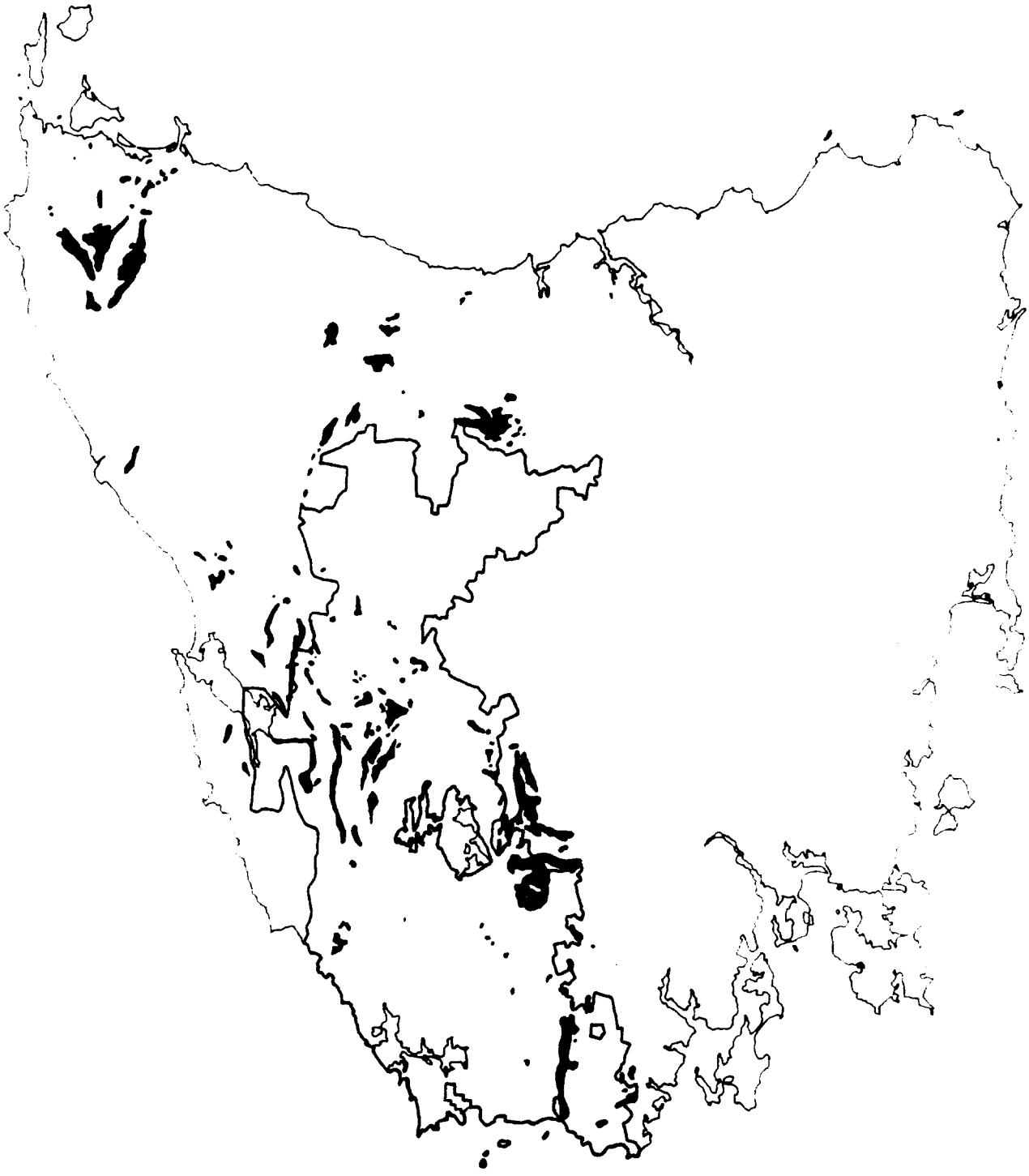
Map 2 Reserved lands in and adjacent to the nominated area



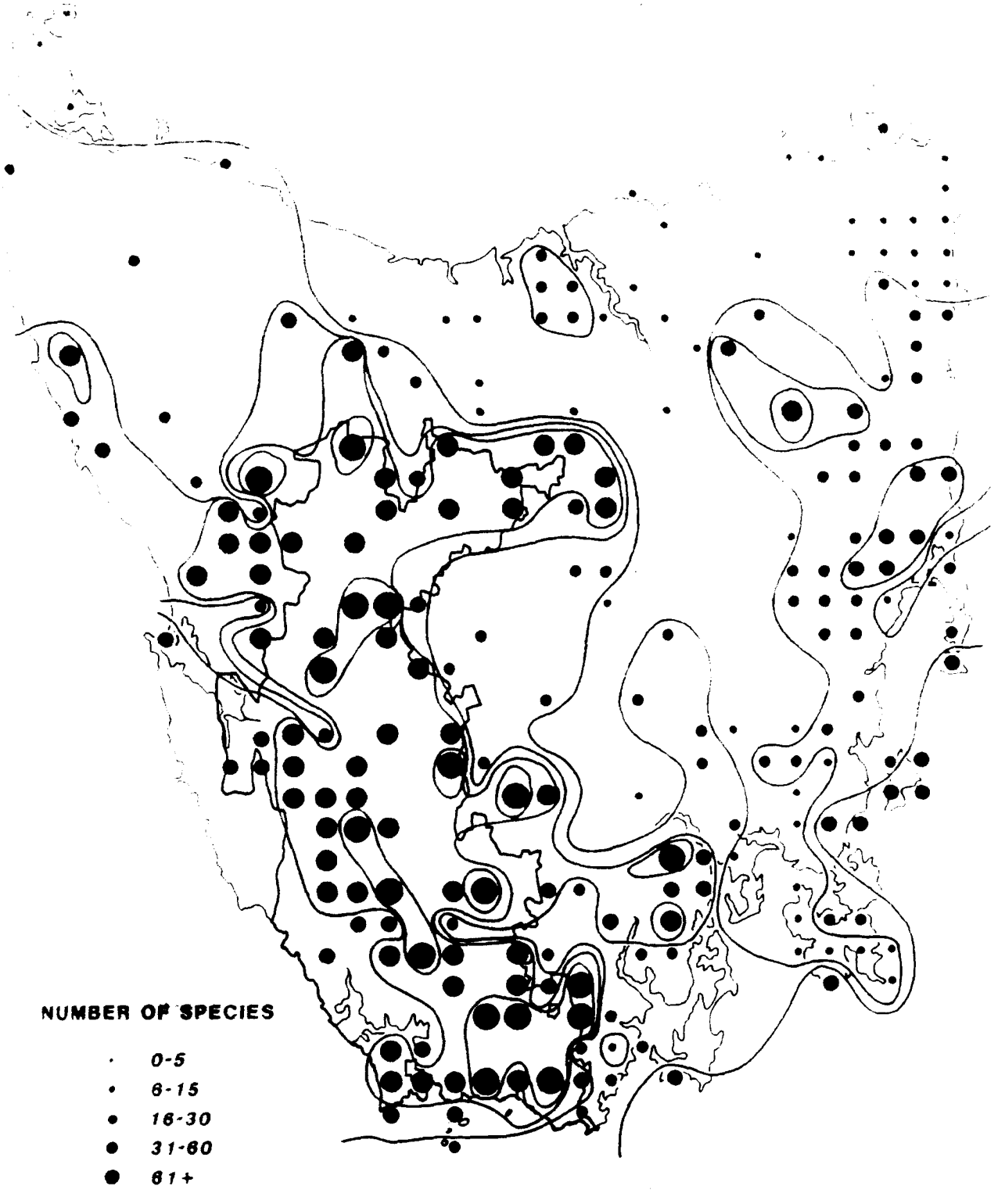
Map 3 Known major archaeological sites in proposed World Heritage Area.



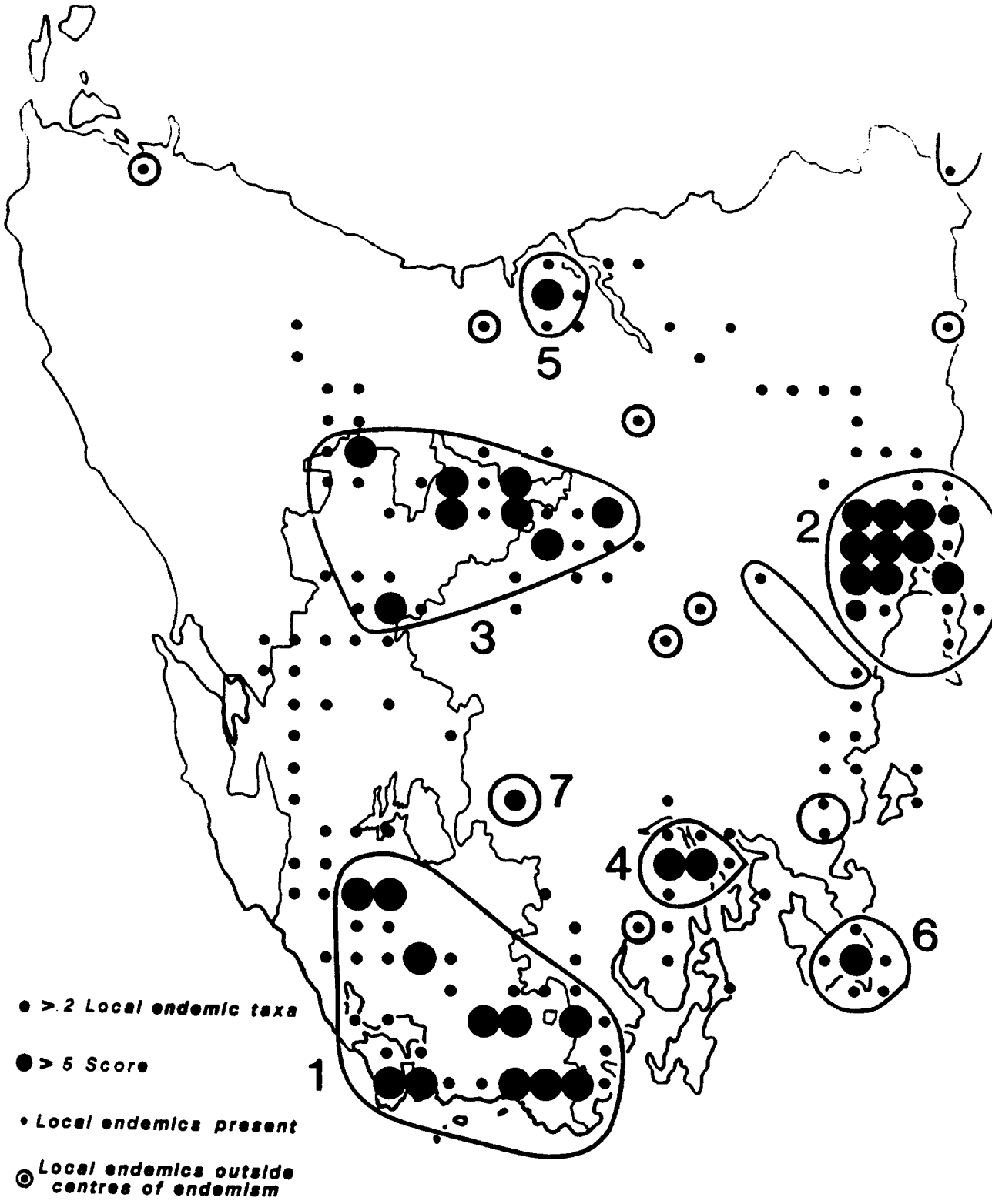
Map 4 Indicitive locations of major glacial landscapes in Tasmania.



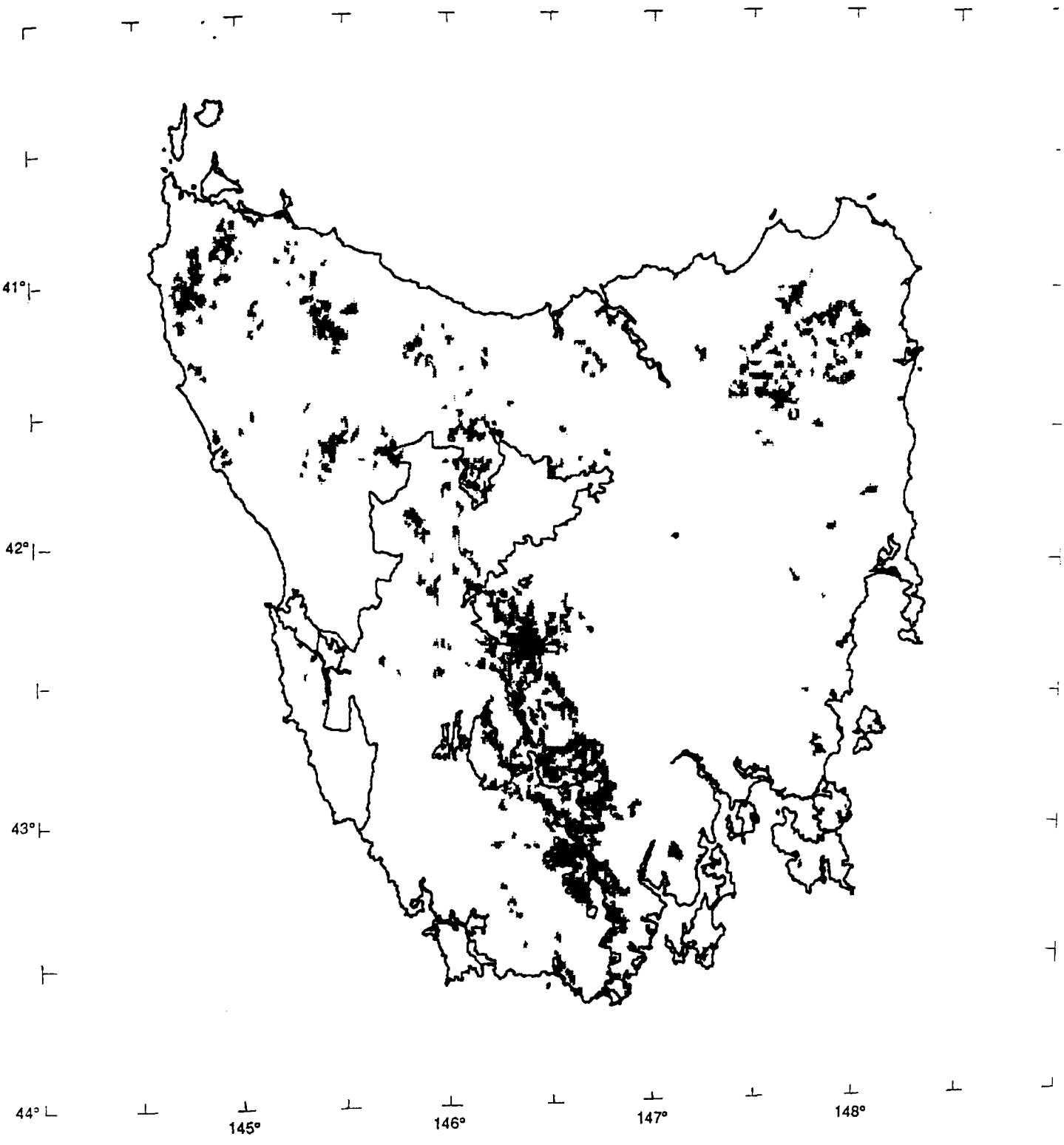
Map 5 Karst areas in Tasmania



Map 6 Contour map of endemic plant species richness by 10 x 10km grid squares.



Map 7 Centres of local endemism (numbered) and the distributions of local endemics outside these centres.



Forest Areas

Map 8 Very tall (> 41m) old growth Eucalypt forests

Plate 10 South East Cape from Pindars Peak.

(Source: G Dixon)

Plate 16 Vale of Rasselas

(Source: G Law)

Australian Government

Department of the Environment, Water, Heritage and the Arts

Our reference: 2007/12494

Mr Francesco Bandarin
Director
World Heritage Centre
UNESCO
7, place de Fontenoy
75352 Paris 07 SP
FRANCE

Dear Mr Bandarin

I refer to the World Heritage Committee decision 32 COM 7B.41 relating to the Tasmanian Wilderness World Heritage Area.

As requested by the Committee in paragraph 6 of the decision, I am pleased to provide you with an updated report on the state of conservation of the property and a report on progress relating to issues raised by the Committee in its decision. Please also find attached, as requested in paragraph 4 of decision 32 COM 7B.41, a revised Statement of Outstanding Universal Value for the property for approval by the World Heritage Committee.

Please do not hesitate to contact Dr Kate Feros (telephone: +61 2 6274 2002, email: Kate.Feros@environment.gov.au) if you have any queries in relation to this matter.

Yours sincerely

Mr James Shevlin
First Assistant Secretary
Heritage Division

19 January 2010

to APA
7459)

—> Kaori
For follow up
2/02/10

GPO Box 787 Canberra ACT 2601 Telephone 02 6274 1111 Facsimile 02 6274 1666
www.environment.gov.au

Australian Government

STATE PARTY REPORT

ON THE STATE OF CONSERVATION

OF THE

TASMANIAN WILDERNESS WORLD HERITAGE AREA (AUSTRALIA)

PROPERTY ID 181bis

IN RESPONSE TO WORLD HERITAGE COMMITTEE DECISION WHC 32 COM 7B.41

FOR SUBMISSION BY 1 FEBRUARY 2010

TABLE OF CONTENTS

TABLE OF CONTENTS cont'd

WORLD HERITAGE COMMITTEE DECISION
Thirty-second session - Quebec City, Canada - 2-10 July 2008
41. Tasmanian Wilderness (Australia) (C/N 181) - Decision: 32 COM 7B.41

The World Heritage Committee,

1. Having examined Document *WHC-08/32.COM/7B.Add*,

2. Recalling Decision **31 COM 7B.43**, adopted at its 31st session (Christchurch, 2007),

3. Takes note of the findings of the recent World Heritage Centre / ICOMOS / IUCN monitoring mission to the property, and requests the State Party to:

a) institute a mechanism through the future Tasmanian Wilderness World Heritage Area (TWWHA) management plan reviews, and involving all relevant stakeholders, to monitor, assess and manage the ecological integrity of the TWWHA and adjoining reserves by considering activities related to forestry operations, road construction and regeneration fires in the areas adjacent to the property;

b) submit a proposal for modifying the boundaries of the TWWHA to include the adjacent 21 areas of national parks and state reserves, which are currently not a part of the inscribed World Heritage property but are covered by its management plan;

c) not to renew the existing leases for mineral exploration and exploitation within the property and immediately adjacent to it (such as in the Melaleuca Cox Bight area), after their expiry and to rehabilitate the areas concerned and to incorporate them into the World Heritage property. Further, no new mining licenses should be granted within the property or in the areas which are being recommended for addition;

d) maintain and improve the resourcing for the research, documentation, protection, monitoring and effective management for archaeological and Aboriginal cultural sites both those within the TWWHA and those in the adjacent forestry areas that reflect the wider context of Aboriginal land-use practices and are of potential Outstanding Universal Value;

e) manage the forestry areas outside the inscribed property in order to protect cultural sites of potential Outstanding Universal Value;

f) ensure logging roads in areas adjacent to the TWWHA consider the ecological integrity, possible cultural sites and aesthetic values of the property, and reclaim roads no longer required;

g) prepare and implement a vegetation management plan covering the TWWHA and the adjoining forest reserves jointly by national parks and the forestry authorities, to address representativity of vegetation types and to reduce risks, particularly from fires and climate change;

h) implement the recommendations emanating from the recently completed 2008 review of the Tasmania Regional Forest Agreement;

i) establish an active programme for monitoring the impacts of climate change on the property and incorporate this programme into a risk-reduction strategy and action plan;

4. Also requests the State Party to revise the Statement of Outstanding Universal Value for the property to include relevant recent natural and cultural knowledge available regarding the site, for approval by the World Heritage Committee;

5. Reiterates its request to the State Party to consider, at its own discretion, extension of the property to include appropriate areas of tall eucalyptus forest, having regard to the advice of IUCN; and also further requests the State Party to consider, at its own discretion, extension of the property to include appropriate cultural sites reflecting the wider context of Aboriginal land-use practices, and the possibility of re-nominating the property as a cultural landscape;

6. Requests moreover the State Party to submit to the World Heritage Centre, by **1 February 2010,** an updated report on the state of conservation of the property, including a revised Statement of Outstanding Universal Value and progress related to the above mentioned issues, for examination by the World Heritage Committee at its 34th session in 2010.

EXECUTIVE SUMMARY

This Progress Report on the State of Conservation of the Tasmanian Wilderness World Heritage Area (TWWHA, the property):

- responds to World Heritage Committee **Decision 32 COM 7B.41** made in Quebec City (2008) by providing an updated Statement of Outstanding Universal Value and reporting progress against issues raised in the decision; and
- provides an update to the **2007 and 2008 reports** prepared in response to World Heritage Committee **Decisions 30 COM 7B.32** and **31 COM 7B.43**.

Decision 32 COM 7B.41 relates to issues regarding the management of the TWWHA itself, external threats to the property and issues related to potential outstanding universal values outside the property.

3a) Stakeholder involvement & monitoring
In collaboration with the Australian Government, the Tasmanian Government is considering a range of options to establish the most appropriate and representative framework to monitor, assess and manage the TWWHA and adjoining reserves for ecological integrity. The roles and arrangements for stakeholder involvement and engagement in management of the TWWHA are also being considered in the context of a national review of World Heritage advisory committees and executive officers.

3b) Proposal for boundary modification
In response to the Committee's request, Australia is pleased to provide a proposal for modifying the boundaries of the TWWHA which adds a total of 23,873 hectares to this property which already extends to 1.38 million hectares, or 20% of the State of Tasmania. A map of the proposal is provided at **Appendix 1**.

3c) Mineral exploration, exploitation and rehabilitation
Australia agrees that mining is not appropriate in the World Heritage property. Further, the Australian and Tasmanian Governments are working to ensure that the Southwest Conservation Area south of Melaleuca to Cox Bight is incorporated into the property once the existing small scale mining lease arrangements have been resolved. Governments are also working together to resolve existing exploration licence arrangements at Adamsfield. National environmental legislation protects the values of the World Heritage property from threats originating both inside and outside the property.

3d) Resourcing for Aboriginal Cultural Heritage

Australia has maintained and improved resources for Aboriginal heritage in Tasmania. Resources for management of Aboriginal heritage in the TWWHA are provided by the Australian and Tasmanian Governments. Additional funds and resources have been made available for Aboriginal cultural heritage identification and management within and around the property, as well as for Aboriginal community capacity building. This includes an additional AU$387,500 from the Australian Government for an Aboriginal heritage project inside the TWWHA.

3e) Aboriginal Cultural Heritage management outside property

Forestry Tasmania endorsed all of the recommendations in the World Heritage Committee's Mission report, including recommendations for enhanced protection measures for archaeological and Aboriginal sites within and adjacent to the TWWHA.

Forestry Tasmania's Sustainability Charter has the following specific aims to protect Aboriginal heritage in State forests:

- Identify, protect and maintain Aboriginal and historic cultural heritage values in State forests.
- Seek active consultation with the Aboriginal community to develop opportunities for collaborative management of Aboriginal sites and values.

3f) Logging Roads

Through the application of the Tasmanian Forest Practices Code and relevant recommendations emanating from the 2008 Second Five Yearly Review of the Tasmanian Regional Forest Agreement, the ecological integrity and aesthetic values of the property, as well as possible cultural sites, continue to be taken into account in the planning and management of forest harvesting operations, including logging roads, in areas adjacent to the TWWHA. Decisions on the reclamation and rehabilitation of logging roads adjacent to the TWWHA that are no longer needed for forestry purposes are taken in the context of any future recreational opportunities and the zoning of adjacent areas within the TWWHA.

3g) Vegetation Management

The Tasmanian Government is reviewing vegetation management planning for the TWWHA and adjoining forest reserves in the light of several initiatives, including the next review of the TWWHA Management Plan, the expanded TWWHA area once adopted, and initiatives already under way relating to managing the risks to vegetation from fire and climate change.

3h) Second Five-Yearly Review of Tasmanian Regional Forest Agreement
In January 2010 the Governments released a detailed *Joint Australian and Tasmanian Government Response to the "Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement".* The response sets out a range of actions to address each recommendation and sets achievable targets for their implementation (see **Appendix 2)**.

3i) Climate Change
The risks of climate change to the World Heritage property have been identified and assessed. This information is incorporated into an active monitoring program and risk management strategy for the property.

4, 6) Revised Statement of Outstanding Universal Value
Australia has prepared a Statement of outstanding universal value for the Committee's consideration which reflects all values of the TWWHA, including the cultural landscape elements (see **Appendix 3**).

5) Extensions to the property

Apart from the addition of the 21 adjacent formal reserves and the Southwest Conservation Area south of Melaleuca to Cox Bight, Australia restates that it does not propose to extend the boundary of the TWWHA further. The addition of the 21 adjacent formal reserves will increase the representation of tall eucalypt forests and cultural sites of significance to the Aboriginal community in the property. The revised statement of outstanding universal value provided with this report better reflects all the values of the property, including cultural landscape elements.

1. RESPONSE FROM THE STATE PARTY TO THE WORLD HERITAGE COMMITTEE'S DECISION

This document includes the progress report requested in **Paragraph 6** of the World Heritage Committee's Decision. The updated report is provided for examination by the Committee at its 34th session in 2010.

1.1. Paragraph 3a of the Committee's Decision

Institute a mechanism through the future Tasmanian Wilderness World Heritage Area (TWWHA) management plan reviews, and involving all relevant stakeholders, to monitor, assess and manage for ecological integrity the TWWHA and adjoining reserves by considering activities related to forestry operations, road construction and regeneration fires in the areas adjacent to the property;

State Party's Response

In collaboration with the Australian Government, the Tasmanian Government is considering a range of options to establish the most appropriate and representative framework to monitor, assess and manage the TWWHA and adjoining reserves for ecological integrity. The roles and arrangements for stakeholder involvement and engagement in management of the TWWHA will also be considered in relation to the monitoring and reporting for the next TWWHA management plan review and in the context of the current national review of World Heritage advisory committees and executive officers, which is expected to be complete in March 2010.

Stakeholder engagement in planning and monitoring

In collaboration with the Australian Government, the Tasmanian Government is considering a range of options to establish the most appropriate and representative framework to monitor, assess and manage the TWWHA for ecological integrity. This consideration will draw on what has been learnt from existing mechanisms, and procedural, legislative and regulatory reviews where possible, as this accords with the "adaptive management" and "continuous improvement" approach to managing the TWWHA and its adjoining relevant land tenures.

There will be consultation with the Tasmanian Wilderness World Heritage Area Consultative Committee (WHACC), a key component of the longstanding partnership arrangements between the Australian and the Tasmanian Governments. The Consultative Committee has an independent chair and 16 members representing major stakeholder groups and interests in the TWWHA. The WHACC is actively engaged in advising on planning, management and policy matters concerning the property and, as in previous reviews, will play a major advisory role in the next review of the TWWHA management plan when that process commences.

The WHACC was involved in the first State of the TWWHA report published in 2004, which looked at the extent to which the objectives of the TWWHA management plan had been achieved.

To inform the next review of the current TWWHA management plan, there will be an update monitoring report prepared on achievement of key outcomes identified in the 1999 plan. With the involvement of the WHACC, Forestry Tasmania and public consultation, this update monitoring report for the TWWHA can provide a mechanism to monitor, assess and report activities adjacent to the boundary that could affect the TWWHA and surrounding reserves. This process is linked to future Periodic Reports and the TWWHA management plan review process which will also include public consultation.

Outcomes of a review of World Heritage governance and advisory committees being undertaken by the Australian Government will also be a critical consideration in this process, as outlined below.

Review of World Heritage Governance in Australia
Since November 2008, Australia has undertaken a national review of World Heritage governance. The review has achieved the following outcomes as agreed between the Australian Government and State and Territory Governments:

- abolition of the various property-specific World Heritage Ministerial Councils, elevating discussions on World Heritage from a single property to a national Ministerial forum,
- establishment of the Australian World Heritage Advisory Committee (AWHAC), comprising the Chairs of advisory committees of each World Heritage property – to advise ministers on national issues affecting Australia's World Heritage,
- agreement on new World Heritage management principles and funding principles for Australia's World Heritage properties, and
- an Australian World Heritage Intergovernmental Agreement (IGA) (agreed in November 2009).

Following on from the World Heritage governance review, the Australian Government is reviewing property-specific World Heritage advisory committees and executive officers. The aim of this review is to determine the efficiency, effectiveness and appropriateness of the current arrangements in delivering high quality, on-ground outcomes for Australia's World Heritage properties. This review will ensure that the arrangements in place are the most efficient, effective and appropriate means of fulfilling Australia's obligations under the *Convention Concerning the Protection of the World Cultural and Natural Heritage* (the World Heritage Convention), specifically Article 5.

This national review, together with the World Heritage Committee's decision on the TWWHA, will provide the context for reviewing the arrangements for stakeholder involvement and engagement in management and monitoring of the TWWHA. It is envisaged that there will be a bilateral agreement regarding an improved mechanism by June 2010.

Relevant Recommendations from the 2008 Second Five Yearly Review of the Tasmanian RFA
In addition, through the 2008 Second Five Yearly Review of the *Tasmanian Regional Forest Agreement* (RFA), both Governments have reconfirmed their commitments to continuous improvement in Ecologically Sustainable Forest Management as envisaged by the National Forest Policy Statement and the

Tasmanian RFA. The RFA is designed to adapt to new information, priorities and community expectations. Although there were no specific recommendations relating to the management of the property in the Second Five Yearly Review of the RFA, relevant recommendations relate to monitoring activities, reserve management, water and climate change (see **Appendix 2**).

Relevant outcomes from the current review of the Tasmanian Forest Practices Code and consultation with stakeholders tasked with managing adjoining forest production areas will also inform this process. Details of the review of the Forest Practices Code are available at:
http://www.fpa.tas.gov.au/index.php?id=81

1.2. Paragraph 3b of the Committee's Decision

Submit a proposal for modifying the boundaries of the TWWHA to include the adjacent 21 areas of national parks and state reserves, which are currently not a part of the inscribed World Heritage property but are covered by its management plan;

State Party's Response

In response to the Committee's request, Australia is pleased to provide a proposal for modifying the boundaries of the TWWHA which adds a total of 23,873 hectares to this property which already extends to 1.38 million hectares, or 20% of the State of Tasmania. A map of the proposal is provided at **Appendix 1**.

The areas proposed for inclusion in the TWWHA add to the integrity of the TWWHA and the representation of existing values, and are listed below. See attached map (**Appendix 1**) for location and size of the areas.

The 21 formal reserves outside the TWWHA but covered by the TWWHA Management Plan (20,063 hectares)

As noted by the 2008 reactive monitoring mission, there are currently 21 formal reserves, mainly to the north and east of the property, which are adjacent to the property and covered by its management plan. The mission noted that the World Heritage Committee had long hoped that these areas would be incorporated into the World Heritage property.

The mission's report recommended expanding the World Heritage property to include these reserves to provide for a more coherent management regime and to increase the representation of the tall eucalyptus forest in the TWWHA. This recommendation was subsequently adopted by the World Heritage Committee in Quebec City, in **Decision 32 COM 7B.41,** as noted above.

The 21 areas include two small areas that were added to the Southwest National Park (south of Hartz Mountains [the 'Hartz hole'] and south-east of Cockle Creek) in June 1991. Another two small areas were included in the Franklin–Gordon Wild Rivers National Park, one in the vicinity of the Navarre Plains, the other in the Beech Creek area in January 1992 and August 1991 respectively. Two further small areas at Lees Paddocks in the Mersey Valley were added in 1991.

In December 1998 the *Regional Forest Agreement (Land Classification) Act 1998* received Royal Assent. On commencement of the Act a further 15 areas (one area of State Reserve and 14 National Park additions) were declared to be reserved land.

All 21 areas are within the area covered by the *Tasmanian Wilderness World Heritage Area Management Plan 1999* and are managed in accordance with this plan.

Values of the TWWHA that are also particularly well expressed in these 21 areas include, but are not limited to:

- Vegetation, including tall eucalypt forest, rainforest, alpine and subalpine flora and buttongrass moorland.

- Habitat for threatened flora and fauna species, such as the Tasmanian wedge-tailed eagle.
- Geoheritage values, particularly karst landscapes.
- Aesthetic values.
- Cultural values and sites significant to the Tasmanian Aboriginal community.

The Southwest Conservation Area south of Melaleuca to Cox Bight
The 2008 mission visited the Southwest Conservation Area south of Melaleuca to Cox Bight. The mission recommended that while some of the areas discussed by IUCN in the 1982 technical evaluation had already been incorporated into the property, Melaleuca should be incorporated into the World Heritage property as soon as the existing leases expire and that renewal or granting of any new leases should not be considered. This recommendation was also adopted by the World Heritage Committee in Quebec City, in **Decision 32 COM 7B.41,** as noted above.

Australia considers it appropriate to resolve the existing mining lease (Rallinga 20M/1992) before the Southwest Conservation Area south of Melaleuca to Cox Bight is incorporated into the property. Should there be a delay in resolution of the lease or in the legislative amendments required in the Tasmanian Parliament, this may necessitate a two-stage boundary modification or a delay in the boundary modification coming into effect. It is the clear intent of both the Australian and Tasmanian Governments, however, that the Southwest Conservation Area south of Melaleuca should be incorporated into the property. To this end, and noting provisions for compensation under relevant Tasmanian legislation, the Australian Government is undertaking an independent valuation of the existing mining lease.

Values of the TWWHA that are particularly well expressed in the area around Melaleuca through to Cox Bight include, but are not limited to:

- Habitat for threatened flora and fauna species, such as the orange-bellied parrot,
- Geoheritage values, particularly relating to the Cox Bight dunes, bogs and peat mounds,
- Wilderness values, some high quality wilderness lies within the Melaleuca to Cox Bight corridor,
- Aesthetic values, and
- Cultural values and sites significant to the Tasmanian Aboriginal community.

1.3. Paragraph 3c of the Committee's decision

Not to renew the existing leases for mineral exploration and exploitation within the property and immediately adjacent to it (such as in the Melaleuca Cox Bight area), after their expiry and to rehabilitate the areas concerned and to incorporate them into the World Heritage property. Further no new mining licences should be granted within the property or in the areas which are being recommended for addition;

State Party's Response

Australia agrees that mining is not appropriate in the World Heritage property. Further, the Australian and Tasmanian Governments are working to ensure that the Southwest Conservation Area south of Melaleuca is incorporated in the property once the existing small-scale mining lease arrangements have been resolved. Governments are also working together to resolve exploration licence arrangements at Adamsfield. National environmental legislation protects the values of the World Heritage property from threats originating both inside and outside the property.

The Australian Government's policy position is that mining is not appropriate inside World Heritage properties.

National environmental legislation is also in place to protect matters of national environmental significance, including World Heritage properties, from significant adverse impacts. This legislation, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), applies not only to activities within or immediately adjacent to World Heritage properties, but wherever they occur, if they are likely to have a significant adverse impact on the values for which the property was inscribed. This means that if an activity such as mineral exploration or mining were to be proposed for any area where it is likely to have a significant impact on the values of the TWWHA, or any other World Heritage property in Australia, the provisions of the EPBC Act relating to the protection of World Heritage properties would be triggered.

Australia is satisfied that appropriate mechanisms are in place to protect World Heritage properties from significant impacts caused by mineral exploration and mining.

Southwest Conservation Area south of Melaleuca (3,810 hectares)
The Southwest Conservation Area south of Melaleuca was excluded from the World Heritage property because of the pre-existing tin mining operations and mineral potential of the area. It should be noted that this mining operation, which was carried out on a very small scale, has now ceased.

The Committee's request coincides with a long-term management objective for the Southwest Conservation Area south of Melaleuca. Australia agrees with the Committee's request to incorporate this area into the TWWHA and to rehabilitate it.

The management intent for this area has long been that the lease should be cancelled once the current lessee ceases mining. The Management of Adjacent

Areas section of the *TWWHA Management Plan 1999* states specifically in relation to Melaleuca:

"Mineral Exploration and Mining.

- *Seek to ensure that the current consolidated mining lease at Melaleuca is cancelled once the existing lessee ceases mining. [It is noted that compensation may be payable under Section 94(4) of the* Mineral Resources Development Act 1995*.]" (p 205)*

The Melaleuca – Port Davey Area Plan 2003 (a subordinate plan to the TWWHA Management Plan), although currently excluding the corridor south of Melaleuca to Cox Bight, has the following vision and relevant management prescription:

> *To provide appropriate recreational opportunities and facilities for visitors consistent with the protection of wilderness quality and the natural and cultural values of the area. (p 6)*
>
> *Following the cessation of mining at Melaleuca, consider the inclusion of the Melaleuca – Cox Bight corridor of the Southwest Conservation Area into the Southwest National Park. (p 81)*

The current leaseholders , Rallinga Mines Pty Ltd (Rallinga), of the existing mining lease (Rallinga 20M/1992), which covers 128ha, ceased mining activity in the first quarter of 2007. The lease is now subject to an independent valuation by the Australian Government.

Rehabilitation requirements are set out in Rallinga's Draft Development Proposal and Environmental Management Plan (1991). The Melaleuca–Port Davey Area Plan also encourages rehabilitation of exposed gravel areas resulting from past mining activity, with a priority action to liaise with Mineral Resources Tasmania in the preparation and implementation of a revised environmental plan for the existing mining lease area.

Australia considers it appropriate to resolve the existing mining lease before the Southwest Conservation Area south of Melaleuca is incorporated into the property, and this may necessitate a two-stage boundary modification as discussed in section 1.2. However, as shown by the attached boundary proposal and map, it is the clear intent of both the Australian and Tasmanian Governments that the Southwest Conservation Area south of Melaleuca to Cox Bight should be incorporated into the property as soon as practicable.

The World Heritage Committee is asked to note that in September 2008, the Tasmanian Government refused an application for an exploration licence over a significant portion of the Southwest Conservation Area between Cox Bight and Melaleuca. Under the Tasmanian *Mineral Resources Development Act 1995,* (MRD Act) it is a fundamental objective that Exploration Licences be issued in the expectation that the successful proving of a resource carries the reasonable prospect of a mine proceeding. On the basis that there was no reasonable prospect of mining meeting approvals consistent with the area's likely inclusion in the TWWHA, the Exploration Licence application was refused by the Tasmanian Minister for Energy and Resources.

Adamsfield

As reported in 2008, Adamsfield is the only place inside the TWWHA where mineral exploration and mining are permitted under the TWWHA Management Plan. The area is a Strategic Prospectivity Zone under the Tasmanian *Mining (Strategic Prospectivity Zone) Act 1993*. The current exploration licence at Adamsfield expires in 2011. An amendment to relevant Tasmanian legislation will be required to end mineral exploration and mining at Adamsfield. The Australian and Tasmanian Governments have agreed in principle to the Committee's decision in relation to Adamsfield and are working together to resolve exploration licence arrangements at Adamsfield, noting provisions for compensation under relevant Tasmanian Government legislation.

1.4. Paragraph 3d of the Committee's decision

Maintain and improve the resourcing for the research, documentation, protection, monitoring and effective management for archaeological and Aboriginal cultural sites both those within the TWWHA and those in the adjacent forestry areas that reflect the wider context of Aboriginal land-use practices and are of potential outstanding universal value;

State Party's Response

Australia has maintained and improved resources for Aboriginal heritage in Tasmania. Resources for management of Aboriginal heritage in the TWWHA are provided by the Australian and Tasmanian Governments. Additional funds and resources have been made available for Aboriginal cultural heritage identification and management within and around the property, as well as for Aboriginal community capacity building. This includes an additional AU$387,500 from the Australian Government for an Aboriginal heritage project inside the TWWHA.

Resources for management of Aboriginal heritage in the TWWHA are provided by the Australian and Tasmanian Governments. Baseline funding for the TWWHA from the Australian Government's Caring for our Country initiative has been confirmed for the period 2009-10 to 2012-13. Over the four years the Australian Government will provide AU$13.6 million for the TWWHA. The regular annual allocation of AU$40,000 (from the TWWHA baseline budget) for Aboriginal heritage works on Aboriginal land within the TWWHA will be maintained.

The Australian Government also recently provided a AU$1.8 million stimulus package from the Jobs Fund for works within the TWWHA. An allocation of AU$387,500 from this fund has been made for a project starting in 2009-10 dealing specifically with Aboriginal heritage management matters, most particularly with south coast Aboriginal heritage in the TWWHA. The project includes targeted, accountable resources for State-wide Aboriginal community organisations. The Tasmanian Parks and Wildlife Service will work with Aboriginal community organisations on, for example, interpretation of Aboriginal heritage, and protective measures for sites under threat from human and natural disturbance.

The Tasmanian Government provides (on average) AU$8.5 million per year in direct funding for the TWWHA, including for Aboriginal heritage management.

The Tasmanian Parks and Wildlife Service has also secured funding under the Australian Government's Caring for our Country Program (Working on Country) for an Aboriginal trainee ranger program, through which five Aboriginal trainees will be placed in Tasmanian Parks and Wildlife Service field operations across Tasmania, including in the TWWHA, for four years. The program, which commenced in late 2009, builds on an objective of the Tasmanian Parks and Wildlife Service to engage with the Aboriginal community and increase Indigenous employment in the Service. The Tasmanian Parks and Wildlife Service also has an Aboriginal Trainee Field Officer Program employing Aboriginal community members in the Tasmanian Parks and Wildlife Service. The Trainee Rangers will be supported in gaining academic qualifications under the program as part of their four year training period. The trainees will gain

experience in managing Aboriginal heritage issues in the TWWHA and at other locations across the State. The Aboriginal Trainee Field Officer Program has been instrumental in providing a pathway for members of the Tasmanian Aboriginal community to enter a career in environmental and reserve management.

In addition, the Tasmanian Parks and Wildlife Service regularly works with the Tasmanian Aboriginal Land and Sea Council (TALSC) and Aboriginal community groups that represent Aboriginal people in the TWWHA and adjacent areas. This collaboration addresses management and conservation of Aboriginal heritage, including such diverse issues ranging from the impact of vehicles on the coastal environment, to the development of walking tracks and interpretation for visitors. The Consultative Committee for the TWWHA continues to include a representative from the Tasmanian Aboriginal community.

Forestry Tasmania has also developed an Aboriginal employment strategy, which includes cadetships and other employment opportunities. Further details of Forestry Tasmania's strategies for ongoing management of Tasmanian Aboriginal cultural heritage are included in the response to decision 3(e) as part of this report.

1.5. Paragraph 3e of the Committee's decision

Manage the forestry areas outside the inscribed property in order to protect cultural sites of potential outstanding universal value;

State Party's Response

Forestry Tasmania endorsed all of the recommendations in the World Heritage Committee's Mission report, including recommendations for enhanced protection measures for archaeological and Aboriginal sites within and adjacent to the TWWHA.

Forestry Tasmania's Sustainability Charter has the following specific aims to protect Aboriginal heritage in State forests.

- Identify, protect and maintain Aboriginal and historic cultural heritage values in State forests.
- Seek active consultation with the Aboriginal community to develop opportunities for collaborative management of Aboriginal sites and values.

Forestry Tasmania acknowledges Aboriginal heritage management is a vital part of maintaining natural, cultural, social, religious and spiritual values. In State forests, Aboriginal heritage is protected under the Tasmanian *Aboriginal Relics Act 1975,* the Tasmanian *Forest Practices Act 1985* and the Tasmanian Forest Practices Code 2000.

A dedicated Tasmanian Government unit (Aboriginal Heritage Tasmania) provides regulatory advice on Aboriginal heritage under current protective legislation that applies to all land tenures. The Forest Practices Authority provides regulatory advice in relation to forestry activities in accordance with relevant legislation. Contemporary legislation being drafted for Aboriginal heritage in Tasmania will include a framework for increased involvement of Aboriginal community members and improved integration with land use planning, natural resource management and decision-making.

Heritage sites in State forests are specifically recognised in the management decision classification system and special management zones. Forestry Tasmania also uses a system of archaeological potential zoning maps to assess the probability of Aboriginal sites in State forests. All new Aboriginal heritage sites identified in State forests are submitted to the Aboriginal Heritage Office for inclusion in state-wide databases.

In State forests, cultural heritage sites are managed under the Tasmanian Forest Practices Code and the principles of the Burra Charter (the Australian ICOMOS charter for places of cultural significance), which provides fundamental strategies for the conservation of cultural heritage values. Where appropriate, existing guidelines are supplemented by direct consultation with the Forest Practices Authority and with the Tasmanian Aboriginal Land and Sea Council (TALSC) and Aboriginal community groups.

As reported in its "Stewardship Report 2009" (formerly known as the Sustainable Forest Management Report) Forestry Tasmania incorporates all elements of the Tasmanian and Australian Governments' regulatory framework for management of Tasmanian Aboriginal heritage in all land tenures under its management.

Archaeological surveys are undertaken as part of the pre-harvest assessment of special values.

During 2008-09, 570 hectares were surveyed for non-Aboriginal heritage, with 26 new sites being found. These included timber tramways, huts, water races and early prospecting implements. One new Aboriginal cultural heritage site was found as a result of surveys conducted over an area of 211 hectares.

Auditing by the Forest Practices Authority for the 2008-09 year indicated a rating of better than 3.8, out of a maximum of four, for Aboriginal and cultural heritage management on State forests. Further information on 2008-09 performance can be found at:
http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/General/FPA_08-09_annual_report.pdf

Engagement with Tasmania's Aboriginal community

Forestry Tasmania's "Sustainability Charter 2008" lists the identification, protection and maintenance of Aboriginal and historic cultural heritage in State forests as one of its key aims. This is achieved through active consultation with the Aboriginal community to develop opportunities for collaborative management of Aboriginal sites and values.

In order to foster awareness of Aboriginal sites and values, Forestry Tasmania collaborates with TALSC in the development and delivery of cultural awareness training for Forestry Tasmania staff. Forestry Tasmania has also developed an Aboriginal employment strategy, which includes cadetships and other employment opportunities.

Forestry Tasmania undertakes collaborative projects with Aboriginal community groups, particularly TALSC. This includes joint management of significant sites identified in State forests and promotion of Aboriginal culture, including arts and crafts, at Forestry Tasmania tourism sites and exhibition venues.

Further information
Further information on Forestry Tasmania's "Stewardship Report" can be found at:
http://www.forestrytas.com.au/uploads/File/pdf/pdf2009/6005_StewardshipReport.pdf

Further details on Forestry Tasmania's aims under the Sustainability Charter regarding the protection and management of Tasmanian Aboriginal heritage can be found in Section 4 at:
http://www.forestrytas.com.au/uploads/File/pdf/Charter.pdf

1.6. Paragraph 3f of the Committee's decision

Ensure logging roads in areas adjacent to the TWWHA consider the ecological integrity, possible cultural sites and aesthetic values of the property, and reclaim roads no longer required;

State Party's Response

Through the application of the Tasmanian Forest Practices Code and relevant recommendations emanating from the 2008 Second Five Yearly Review of the Tasmanian Regional Forest Agreement, the ecological integrity and aesthetic values of the property, as well as possible cultural sites, continue to be taken into account in the planning and management of forest harvesting operations, including logging roads, in areas adjacent to the TWWHA. Decisions on the reclamation and rehabilitation of logging roads adjacent to the TWWHA that are no longer needed for forestry purposes are taken in the context of any future recreational opportunities and the zoning of adjacent areas within the TWWHA.

This section builds upon information provided in the 2008 Update Report's Attachment F "Additional information from Forestry Tasmania on roading".

As detailed in the 2008 Update Report, roads, tracks and fire trails in State forests provide access for a range of forest management and other activities, including tourism, fossicking, hunting, and for the apiary industry. All roading activities undertaken by Forestry Tasmania are regulated through the Forest Practices Code which includes the following general principles:

- Ascertain the presence of significant natural and cultural values before building roads; and
- Avoid road locations in areas where roading would substantially affect significant values.

The Forest Practices Code is available at:
http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/Admin/FPC2000_Complete.pdf

When a forestry road is no longer required, decisions in relation to its future are made in accordance with the Forest Practices Code and the Tasmanian Reserve Management Code of Practice (2003), as well as in the context of recreational opportunities. For example, in the past, properly constructed roads in the vicinity of the TWWHA have generally not been reclaimed, apart from the Picton Road south of Farmhouse Creek where about 1.7 km covering an area of 1200 m^2 was rehabilitated in 2000. A number of tracks constructed during mineral exploration prior to the declaration of the TWWHA have been closed, removed from maps and allowed to regenerate. A good example is the mineral exploration track on the southern side of the Weld Valley which is now impassable to motor vehicles but still used occasionally by bushwalkers to access Mt Weld.

An independent expert panel has finalised a review for the Tasmanian Forest Practices Authority of the biodiversity provisions of the Forest Practices Code within a broader review of the Code in its entirety. The Forest Practices Authority has advised that it will report to both the Australian and Tasmanian Governments, as Parties to the *Tasmanian Regional Forest Agreement 1997* on this review by

2010, as a basis for ongoing consultations with both Governments on the protection and recovery of threatened species, to allow the Governments to meet their obligations in respect of forestry operations under the RFA. This includes a review of the processes used within the forest practices system for the management of threatened species within wood production forests, including the construction of roads.

The report entitled “Review of the biodiversity provisions of the Tasmanian *Forest Practices Code* is available at http://www.fpa.tas.gov.au/index.php?id=81&tx_avotherresources_pi1[action]=ResByCat&tx_avotherresources_pi1[cat]=60

Results from the 2008-09 audit of road works on State forests by the Forest Practices Authority have been released. These results indicate a rating of more than 3.7 (out of a maximum of 4), which exceeds the ‘above sound’ benchmark. This annual report is available at: http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/General/FPA_08-09_annual_report.pdf

1.7. Paragraph 3g of the Committee's decision

Prepare and implement a vegetation management plan covering the TWWHA and the adjoining forest reserves jointly by national parks and the forestry authorities, to address representativeness of vegetation types and to reduce risks, particularly from fires and climate change;

State Party's Response

Australia agrees in principle with the Committee's request and the Tasmanian Government is reviewing vegetation management planning for the TWWHA and adjoining forest reserves in the light of several initiatives, including the future full review of the TWWHA Management Plan, the expanded TWWHA area once adopted, and initiatives already under way relating to managing the risks to vegetation from fire and climate change.

While Australia is pleased to report the following progress relating to paragraph 3(g) of the Committee's decision, the State Party is of the view that vegetation management planning is best considered in the context of other activities such as: the full review of the TWWHA Management Plan; the expanded TWWHA area (should the Committee adopt the proposal at section 1.2); and initiatives relating to managing the risks to vegetation in the TWWHA from fire and climate change.

- The Tasmanian Government has undertaken preliminary scoping work in consultation with all relevant Tasmanian Government agencies and Forestry Tasmania, including high level management principles to be applied to all relevant land tenures.
- Through the State Fire Management Council, the Tasmanian Government is developing a strategic approach to the management of fire across all tenures in Tasmania, including the TWWHA, through the development of a State Fire Management Policy. A draft policy, which incorporates consideration of forestry plantations, the effect of drought and the potential impacts of climate change, has been considered by the State Fire Management Council and is being reviewed by stakeholders prior to finalisation. This is occurring concurrently with the development of a Strategic Fire Management system for all reserves managed by the Tasmanian Parks and Wildlife Service, including the TWWHA, which will guide the management of vegetation to reduce risks to values from unplanned fires.
- A report on monitoring of vegetation in the TWWHA with respect to climate change was released in July 2009 (refer section 1.9 of this report addressing paragraph 3(i) of the Committee's decision for this and other initiatives). This represents a more detailed guide for management of the risks of climate change to vegetation.

- A joint response to the recommendations of the 2008 RFA Review, in particular recommendations 11 (a review of current mechanisms for ensuring that forest harvesting operations do not impact on the integrity of the boundaries of formal reserves), and 26 and 27 (fire and smoke management) (refer **Appendix 2**).

The Tasmanian Wilderness World Heritage Area Management Plan 1999 will continue to be the primary management planning mechanism for the TWWHA and the 21 identified reserves which form part of the boundary modification proposal outlined in section 1.2. Management arrangements for the Southwest Conservation Area south of Melaleuca will be reviewed when the mining licence arrangements are resolved, and the area will be managed under the TWWHA management plan as part of the next review of the plan. Both Governments will consider the timing for the next review of the plan, in relation to other priorities, as future budgets are framed.

1.8. Paragraph 3h of the Committee's decision

Implement the recommendations emanating from the recently completed 2008 review of the Tasmanian Regional Forest Agreement;

State Party's Response

In January 2010 the Governments released a detailed *Joint Australian and Tasmanian Government Response to the "Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement".* The detailed response sets out a range of actions to address each recommendation and sets achievable targets for their implementation.

In March 2008, the Australian and Tasmanian Governments released the *Report to the Australian and Tasmanian Governments on the Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement*. The Parties announced in principle agreement with all 43 recommendations in the report and agreed to develop a detailed response.

In January 2010 the Governments released a detailed *Joint Australian and Tasmanian Government Response to the "Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement".* The detailed response sets out a range of actions to address each recommendation and sets achievable targets for their implementation.

In the detailed response, the Parties have reconfirmed their commitments to provide support to those reserves covered by the Tasmanian Wilderness World Heritage Area Management Plan and to the continuous improvement of the Ecologically Sustainable Forest Management system which underpins the *Tasmanian Regional Forest Agreement 1997*. The commitments in this detailed response from the Parties will demonstrate that Tasmania's forest management systems continue to adapt to new information, priorities and community expectations.

The response is attached at **Appendix 2**.

1.9. Paragraph 3i of the Committee's decision

Establish an active program for monitoring the impacts of climate change on the property and to incorporate this program into a risk-reduction strategy and action plan;

State Party's Response

The risks of climate change to the World Heritage property have been identified and assessed. This information is incorporated into an active monitoring program and risk management strategy for the property.

A National Response to Climate Change

In 2007 Australia prepared a National Adaptation Framework as part of its *Plan of Collaborative Action on Climate Change*. A key focus of the Framework is to support decision-makers in understanding and incorporating climate change into policy and operational decisions at all scales and across all vulnerable sectors. The Framework is available at:

http://www.coag.gov.au/coag_meeting_outcomes/2007-04-13/docs/national_climate_change_adaption_framework.pdf

In August 2009, the Australian Government released a report entitled *The Implications of Climate Change for Australia's World Heritage Properties: A Preliminary Assessment.* The report was prepared by the Australian National University and assesses the likely impacts of climate change on properties, identifies major gaps in knowledge and recommends a range of responses. A copy of the report is available at:
www.environment.gov.au/heritage/publications/climatechange

Australia believes this report is the first comprehensive report by any country into the impacts of climate change on all of its World Heritage properties.

This report is informing the Climate Change Adaptation Plan for Australia's World Heritage and Iconic Areas (in preparation) which will set out clear principles and actions for incorporating climate change adaptation into management of Australia's World Heritage and iconic areas.

A National Climate Change and Commercial Forestry Action Plan has been developed in consultation with all Australian States and Territories and was released on 6 November 2009. The action plan covers those forests intended for commercial production. It is intended to guide action by the forestry industry, with the support of Governments, to respond to climate change through adaptation and mitigation, underpinned by research and development and communication. The plan identifies knowledge gaps and proposes actions to assist forest industries to respond to climate change. Governments have consulted with stakeholders to develop practical strategies and actions to manage the risks, and take advantage of opportunities, brought about by climate change impacts and policy responses. The Action Plan is available at:

www.daff.gov.au/forestry/national/national_climate_change_and_commercial_forestry_action_plan

The Australian Government is also undertaking a national climate change and forests vulnerability assessment in consultation with all States and Territories for all forests, both in reserves and production forests.

Climate change risk management in Tasmania

Climate change and water were a focus of the *Tasmanian Regional Forest Agreement* (RFA) Second Five Yearly Review which was completed in 2008. In response to relevant recommendations on Climate Change arising from the RFA Second Five Yearly Review, the Parties to the RFA have stated that they recognise the role of Tasmania's forests in mitigating climate change. The Australian and Tasmanian Governments are preparing for the impacts of climate change, including investigating climate change impacts on forests and vegetation across all relevant land tenures.

In 2006-07 the Tasmanian Government established a Climate Change Office and began development of a State climate change strategy, and required all Government agencies to develop a framework and policies within their own areas of concern. The Tasmanian Government has also developed the strategy, *Tasmanian Framework for Action on Climate Change* which recognises the importance of forests and other natural carbon stores. The document identifies a range of potential impacts on the environment, with specific reference to the TWWHA, and sets protection of Tasmania's natural carbon stores as one of eight priorities. The document notes that future action may include research into the most effective methods for managing the risks of climate change and developing a risk-mapping database of Tasmania's carbon stores with a particular focus on their susceptibility to fire. The Tasmanian climate change strategy can be found at:
http://www.dpac.tas.gov.au/divisions/climatechange/framework

Within this framework, the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE) has undertaken a range of work which is relevant to the World Heritage Committee's decision.

The Tasmanian Government recognises the potential impact on water availability due to changes in rainfall patterns from climate change and the likely increase in carbon sequestering activities through tree plantations. Consequently, DPIPWE has adopted a risk-based and adaptive management approach to the analysis and management of water interception and extraction activities across all relevant land tenures, including the TWWHA and production forests. Risk assessments using the Water Availability and Forest Land Use Planning Tool to assess the impacts of plantation forest interception have been undertaken in Tasmanian catchments over 2008-09, and the results have been incorporated into Tasmanian water planning processes as a priority.

DPIPWE has also prepared a report on the development of the Water Availability and Forest Land Use Planning Tool, and its initial application in one catchment. This report has been publicly released, together with the independent reviews undertaken by two external experts, and the technical report prepared by the

consultant who undertook the Water Availability and Forest Land Use Planning Tool development. These reports are available at http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/CGRM-7KL4RA?open

More specifically related to the World Heritage Committee's decision, DPIPWE released a report in July 2009 entitled *Monitoring the Impact of Climate Change on the Flora and Vegetation Values of the Tasmanian Wilderness World Heritage Area: A Review*. The aim of the report was to:

- review the main monitoring themes and questions for the future management of vegetation in the TWWHA in the context of climate change; and
- recommend ways in which a monitoring strategy might be developed to answer these questions.

The Review is part of an ongoing process to identify future work priorities in this area. An extensive set of recommendations was provided by the review and DPIPWE is currently considering their implementation.

In 2009, the Tasmanian Government established a new initiative in DPIPWE, *Natural Systems Resilient to Climate Change,* as a four year project. A key outcome of the project is to incorporate policy and management responses around adaptation into the core business of DPIPWE of sustainably managing and conserving Tasmania's natural resources. By the end of the project a climate change adaptation strategy will be developed for a whole of Government approach, in line with the priority areas for action in the *Tasmanian Framework for Action on Climate Change (2008).*

1.10. Paragraph 4 of the Committee's decision

<u>Also requests</u> the State Party to revise the Statement of Outstanding Universal Value for the property to include relevant recent natural and cultural knowledge available regarding the site, for approval by the World Heritage Committee;

State Party's Response

Australia has prepared a Statement of Outstanding Universal Value for the Committee's consideration.

A Statement of Outstanding Universal Value has been prepared for the consideration of the World Heritage Committee (refer **Appendix 3**).

The Tasmanian Wilderness is inscribed on the World Heritage List under seven criteria. At the time of its inscription it was the only property that met so many criteria and today remains one of only two properties (Mt Taishan in China being the other) to meet seven criteria. This is a reflection of the breadth and richness of outstanding universal value present in the Tasmanian Wilderness and is a distinction of which Australia is proud.

The original nomination identified values consistent with the 1982 cultural criteria[1] (iii), (v) and (vi), and the inscription of the cultural property was against these criteria. This is consistent with the 1989 re-nomination of the property.

As noted in section 1.11, the State Party considers that a cultural landscape renomination is not required, as the attached Statement of Outstanding Universal Value presents cultural landscape values against the criteria for which the property was originally nominated and inscribed.

[1] The 1982 World Heritage criteria for a cultural property were as follows:
- (iii) be unique, extremely rare, or of great antiquity;
- (v) be a characteristic example of a significant traditional style of … human settlement, that has ….become vulnerable under the impact of irreversible socio-cultural or economic change;
- (vi) be most importantly associated with … events … of outstanding historical significance.

1.11. Paragraph 5 of the Committee's decision

Reiterates its request to the State Party to consider, at its own discretion, extension of the property to include appropriate areas of tall eucalyptus forest, having regard to the advice of IUCN; and also further requests the State Party to consider, at its own discretion, extension of the property to include appropriate cultural sites reflecting the wider context of Aboriginal land-use practices, and the possibility of re-nominating the property as a cultural landscape;

State Party's Response

Australia has considered the Committee's request. Apart from the addition of the 21 adjacent formal reserves (covered by the TWWHA management plan) and the Southwest Conservation Area south of Melaleuca to Cox Bight, Australia restates that it does not propose to extend the boundary of the TWWHA further. The addition of the 21 adjacent formal reserves will increase the representation of tall eucalypt forests and cultural sites of significance to the Aboriginal community in the property. The revised Statement of Outstanding Universal Value provided with this report better reflects all the values of the property, including the cultural landscape elements.

In preparing its response on this matter, Australia has considered the findings of the World Heritage Committee's 2008 reactive monitoring mission to Tasmania as well as progress against commitments under the *Tasmanian Regional Forest Agreement 1997*.

This mission, which included independent experts from the World Heritage Centre, ICOMOS and IUCN, concluded that no extension into tall eucalypt forests in production areas was necessary, as the property already includes a good representation of these forests.

In reaching this conclusion, the mission considered the representation of old growth forest within the area covered by the TWWHA and its management plan, as well as in other reserves in Tasmania, and the fact that potential threats from production forestry activities outside the World Heritage property boundary are well managed. The mission also concluded that the Regional Forest Agreement and Tasmania's forest practices system provide an appropriate framework for managing conservation values outside the TWWHA. Further, the inclusion of the additional areas in the boundary modification proposal at Section 1.2 increases the representation of tall eucalypt forests within the TWWHA.

In relation to the request to consider a renomination of the property as a cultural landscape, Australia is of the view that the attached Statement of Outstanding Universal Value covers the cultural landscape elements for which the Tasmanian Wilderness was inscribed in 1982 and for which there is an enhanced justification (refer **Appendix 3**).

1.12. Paragraph 6 of the Committee's Decision

Requests the State Party to submit to the World Heritage Centre, by 1 February 2010, an updated report on the state of conservation of the property, including a revised Statement of Outstanding Universal Value and progress related to the above mentioned issues for examination by the Committee at its 34th session in 2010.

State Party's Response

This document is the progress report requested in **Paragraph 6** of the Committee's Decision. This updated report on the state of conservation of the property is provided for examination by the Committee at its 34th session in 2010.

As noted in section 1.10 above, the Statement of Outstanding Universal Value is provided at **Appendix 3**.

2. OTHER CURRENT CONSERVATION ISSUES IDENTIFIED BY THE STATE PARTY

This section of the report provides an update of issues identified in the 2008 State of Conservation report.

Potential threats are addressed through national and state recovery programs and the adaptive management arrangements for the property. As part of this adaptive management of the property, a limited review of the 1999 Management Plan has been undertaken and will come into force in early 2010.

2.1. Review of Management Plan

The Tasmanian Parks and Wildlife Service is finalising the limited mid-term review of the *Tasmanian Wilderness World Heritage Area Management Plan 1999*. This review was designed to update under-performing aspects of the plan and take on relevant emerging issues. As this updated plan is now likely to come into force early in 2010, the timing for the next review of the TWWHA management plan will be considered in relation to other priorities, as future budgets are framed.

More information is available on the mid-term management plan review at: http://www.parks.tas.gov.au/index.aspx?base=702

2.2. Environmental Impact Assessment

The Tasmanian Parks and Wildlife Service has upgraded its impact assessment process. The revised system is more thorough, has increased accountability, greater transparency and offers significantly improved assessment of environmental, social and economic impacts. The system has four levels of assessment, is electronically distributed and integrates with all other local and Federal assessment processes.

Initial trials and training of field staff have been completed. The Tasmanian Parks and Wildlife Service is currently finalising its first audit of the upgraded system and will then improve the system based on the outcomes of the audit as required.

2.3. Flood Damage

In the 2008 State of Conservation Report, it was reported that there had been damage to the property from floods and heavy rains in late 2007. Values affected are mostly vegetation including Gondwanan linked species such as Huon pine along the rivers, as well as severe damage to visitor infrastructure such as jetties and walkways.

Australia is able to report that remediation work has been conducted on flood-damaged areas at Bird River and Mt McCall. In addition, the replacement of visitor infrastructure at Sarah Island in Macquarie Harbour (completed October 2009) and Sir John Falls on the Gordon River (completed December 2009) has occurred.

2.4. Lake Fidler

Lake Fidler is one of three meromictic lakes located in the Gordon River system, all of which are subject to disturbance related to the operation of the Middle Gordon Power Scheme which pre-dates the World Heritage listing of the property in 1982.

As reported during the 1989 renomination process, Lake Fidler was the only one of the three to retain its meromixis at the time of the extension. Following the loss of meromixis in Lake Fidler in 2003, Hydro Tasmania had partial success in restoring the meromixis through a saline recharge in 2004. The 2008 State of Conservation Report noted that following that recharge, the meromictic state of Lake Fidler continued to decline gradually.

In April 2008, it appears recharge occurred, assisted by minimal power station discharge from mid-April, low tributary inflows and a series of high tides. This resulted in a wedge of salt water reaching far enough upstream to naturally recharge the meromixis of Lake Fidler. The meromixis continues to be monitored.

2.5. Basslink

As reported in 2008 State of Conservation Report, the installation of the Basslink undersea power cable connecting Tasmania to mainland Australia resulted in a changed management regime for the Gordon River Power Station. Prior to the commissioning of the cable, research during the assessment process indicated that the operation of Basslink could potentially cause changed conditions downstream along the Gordon River system in the south west of the World Heritage property.

Hydro Tasmania conducted monitoring for close to five years prior to Basslink commissioning in April 2006 and will continue to monitor the effects of Basslink operations on the middle Gordon River. Monitoring examines the following aspects:

- hydrology
- water quality
- fluvial geomorphology
- karst geomorphology
- riparian vegetation
- benthic macro-invertebrates
- benthic algae
- fish.

Results of the 2008–09 monitoring period were greatly influenced by the unusual flow regime experienced in the Gordon River. Discharge from the Gordon Power Station was low compared to previous years, with few periods of high discharge and significant periods of operation with only the environmental flow. The flow regime was influenced by the need to rebuild the storage and was made possible by the supply of power from non-hydro sources, of which imported power via Basslink was the major source.

In general, conditions in the Gordon River in 2008–09 were largely similar or improved relative to 2007–08. The recovery in vegetation, the lack of seepage erosion and static trends in net erosion can be attributed to the effects of low discharge from the power station, and may be considered an unexpected influence of Basslink as a consequence of power import used to allow the rebuilding of storages. Furthermore, the implementation of the environmental flow also appears to have provided significant benefit to the macro-invertebrate communities.

Further information on this issue is available online at http://www.hydro.com.au/home/Our+Environment/Water/Basslink+Environmental+Studies/Gordon.htm

2.6 Climate change

As noted in Section 1.9 addressing the Committee's decision in relation to climate change risks to the TWWHA, the Department of Primary Industries, Parks, Water and Environment has received a report entitled *"Monitoring the impact of climate change on the flora and vegetation values of the TWWHA: A Review*". A 10 year program to monitor the impacts of climate change has been developed. The data and ongoing monitoring programs will provide crucial information on the status of TWWHA flora values and will inform management actions necessary to document and mitigate effects of climate change on flora assets in the TWWHA. The data will form a key reference for setting management priorities and appropriate management to protect TWWHA flora values. A workshop to develop priority projects was held in October 2009. Discussions have been held with university researchers to encourage research programs in priority areas. Climate change risk assessments for fauna and earth sciences remain a priority to implement.

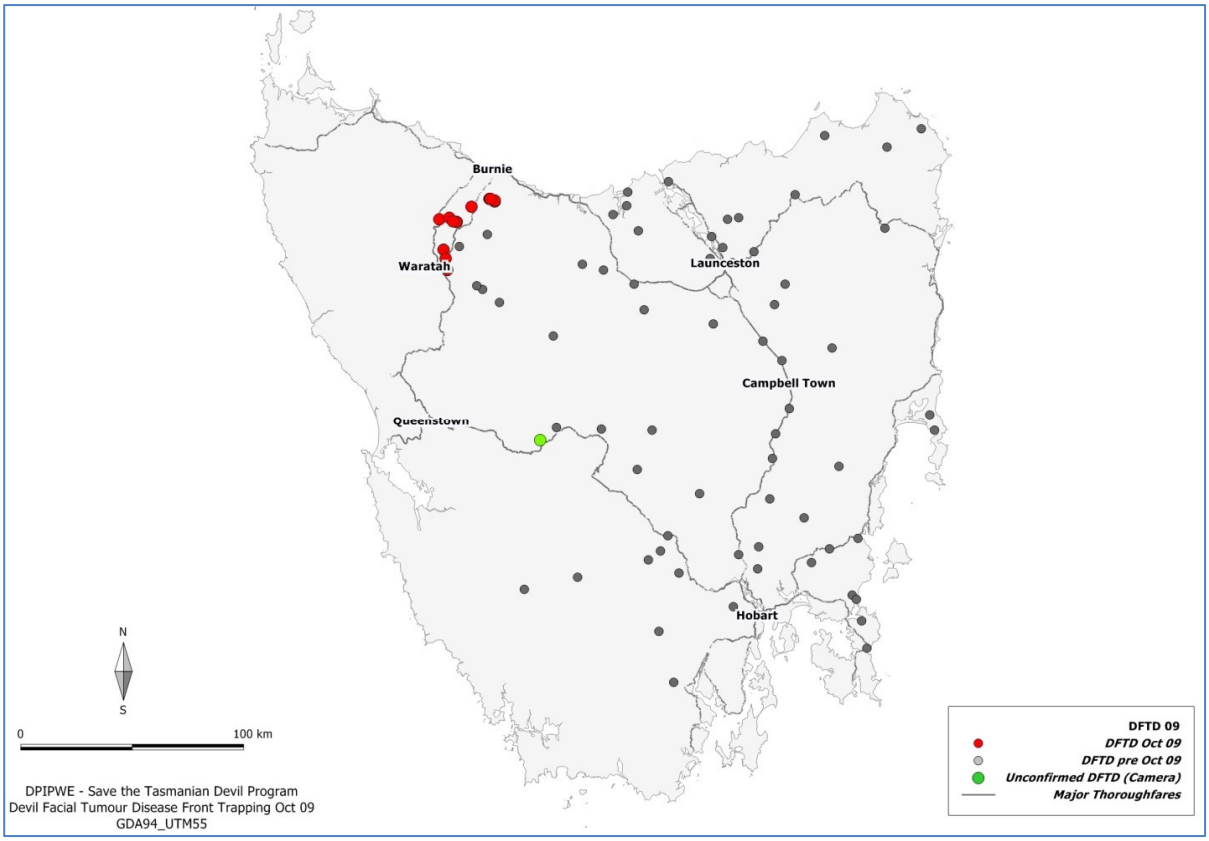
2.6. Biosecurity issues

As reported in 2008, a number of biosecurity issues have emerged in Tasmania, some of which may threaten World Heritage values. These emerging issues have been acknowledged in the interim review of the Management Plan for the property and are being addressed as priorities. In addition, since the last State of Conservation report in 2008, a Wildlife Disease Strategy for the property has been developed and is being implemented.

- **Devil Facial Tumour Disease (DFTD)**
  The Tasmanian devil (*Sarcophilus harrisii)* is considered a World Heritage value, and is one of the marsupial carnivores for which the TWWHA is a stronghold. The species is found across Tasmania. Since 1996 a devastating and previously unknown facial tumour disease (DFTD) has struck the species, with a very high mortality rate amongst those infected. It is believed to be spread from animal to animal, through direct contact.

  At the time of the most recent State of Conservation report in January 2008, the disease was found at only a small number of locations at the edges of the property, such as Cradle Mountain and Strathgordon. As shown in the map, however the disease continues to spread in a westerly direction across Tasmania. Sightings of the devil have declined by 70% since DFTD was first observed in 2006. As at May 2009, DFTD is found across more than 60% of Tasmania. However it appears that devils in the more remote areas of the World Heritage property remain free of the disease.

Devil Facial Tumour Disease Front Trapping October 2009.



In May 2009, the Australian Government upgraded the listing of the Tasmanian devil from “Vulnerable” to “Endangered” under national environmental law. Tasmania’s *Threatened Species Protection Act 1995* has also listed the devil as “Endangered” since May 2008. The revised listing aims to provide the Tasmanian devil with greater protection.

The Australian Government has committed AU$10 million and the Tasmanian Government AU$13.5 million over five years to the Save the Tasmanian Devil Program. This is to help with research into disease transmission and treatment, and to support captive and wild populations. The Tasmanian devil has also been listed as “Endangered” on the Red List of the International Union for the Conservation of Nature (IUCN).

The Save the Tasmanian Devil Program is focused on the key areas of:

- Population monitoring - Gathering data in the field to clarify disease distribution and impacts, and to help determine conservation strategies.
- Disease diagnostics - Laboratory-based investigation of the disease itself, which includes defining the disease, exploring its transmission, the possible ways to fight it.
- Wild population management - Establishing methods for managing the impact of the disease in the wild.
- Insurance population – An Insurance Population with 'founders' taken from areas of the State where there hasn't been any record of the disease.

The best current estimate of how many Tasmanian devils remain in the wild is between 20,000 – 50,000 mature individuals (which is assumed to be about half the overall number). The use of camera traps is a new technique allowing the more widespread monitoring of devils and the disease, particularly in remote areas.

The decline in devil numbers means there are now large amounts of surplus carrion in the landscape (up to 100 tonnes/day) - and other carnivores are already responding to that surplus. One of the biggest threats is posed by introduced species – such as foxes, feral cats and wild dogs - which now have an opportunity for expansion. Further information on this issue is available online at:
www.dpiw.tas.gov.au/inter.nsf/WebPages/LBUN-5QF86G?open and at
http://www.tassiedevil.com.au

- **Amphibian chytrid fungus**
  Chytridiomycosis is an infectious disease affecting amphibians worldwide. The disease has been recorded in other regions of mainland Australia and now Tasmania. Some species of endemic frogs are amongst the World Heritage values of the property. As reported to the Committee in 2008, a national Threat Abatement Plan for this disease is in place. In August 2007, researchers reported to the Tasmanian Wilderness World Heritage Area Consultative Committee that the disease had been detected in frogs in many areas across the State, including the margins of the property.

  The actions relating to the amphibian chytrid fungus (chytrid) in the Wildlife Disease Strategy primarily focus on stopping the spread of chytrid into the TWWHA. Chytrid monitoring sites have been established within and adjacent to the TWWHA to monitor disease spread and effectiveness of management. Monitoring programs for frogs that are largely endemic to the TWWHA are being trialled.

  A two-day workshop was held in January 2009 with land managers and chytrid experts from James Cook University and the New South Wales Parks and Wildlife Service attending. Two posters (one targeting bushwalkers and the other targeting fresh food importers) and a brochure about chytrid have been widely distributed to industry and the community.

  In conjunction with Natural Resource Management South, the Tasmanian Department of Primary Industries, Parks, Water and Environment has developed draft hygiene protocols for use by land management agencies. Research and management efforts continue in the development of effective biosecurity measures to contain both the amphibian chytrid fungus and root-rot *Phytophthora cinnamomi*, another pathogen found in the TWWHA.

  More information on these issues is available at http://www.environment.gov.au/biodiversity/threatened/ktp/frog-fungus.html

  http://www.environment.gov.au/biodiversity/threatened/publications/tap/phytophthora/index.html

- **Platypus - fungal disease**
  Two of only three surviving species of monotremes – the most primitive group of mammals – are among the World Heritage values of the property. These are the platypus (*Ornithorhynchus anatinus*) and the shortbeaked echidna (*Tachyglossus aculeatus*). Although the platypus is currently common and widespread, there is concern about the potential impact of an infection caused by an aquatic fungus, *Mucor amphiborum*.

  The disease was first detected in 1982 near Campbell Town in the central north of the state. Since 1982 the disease has spread across at least 11 northern Tasmanian river catchments. Widespread surveys in 2008-2009 found that mucormycosis is still affecting platypuses in four northern river catchments. However the proportion of sick animals has dropped considerably since the mid 1990's, suggesting disease impacts have declined. The situation continues to be monitored.

  Platypus surveys inside the TWWHA and immediately adjacent to it have not detected any diseased animals. Further details on this are available at www.dpipwe.tas.gov.au/platypusdisease

- **Orange-Bellied Parrot** - ***Psittacine circoviral* disease**

  The Orange-Bellied Parrot (*Neophema chrysogaster*) is a World Heritage value of the property and is listed as critically endangered under Australian and Tasmanian threatened species legislation. A captive breeding program has been established as part of the Recovery Plan for the species. In 2008, Australia reported that some birds held in captivity outside of the property, as part of this program, had contracted *Psittacine circoviral* disease. The disease is listed as a key threatening process under national legislation. The disease is not known within wild populations of Orange-Bellied Parrot.

  The disease was recorded in only one of the three captive populations of Orange-Bellied Parrot. The captive population has been monitored since then and no further clinical signs of the disease have been detected.

  A volunteer group assisting with Orange Bellied Parrot conservation work is coordinated by the Tasmanian Parks and Wildlife Service with financial support from the Australian Government. Teams of two to four volunteers spent fortnightly shifts observing Orange Bellied Parrots at Melaleuca (outside the World Heritage property) and Birchs Inlet (on the Gordon River) between October 2008 and March 2009. A total of 56 volunteers assisted with this work. The Birchs Inlet program included the release and observation of 48 captive-bred birds.

2.7. Introduced species

The Tasmanian Government is reviewing introduced animal management in the TWWHA. The review is being undertaken by the Department of Primary Industries, Parks, Water and Environment. The review documents all introduced animals known to occur in the TWWHA and their impacts. A standard risk assessment is applied to introduced animals occurring inside and outside the TWWHA to determine priorities for management. This review will form the basis for the development of a strategy to better manage the impacts of introduced species in the TWWHA. A draft report has been completed and the review will be completed by mid 2010. More information on introduced animals is available from http://www.dpiw.tas.gov.au/inter.nsf/ThemeNodes/LJEM-6PX4TJ?open

- **Weeds**
  An emerging issue reported in 2008 is the spread and establishment of highly invasive weeds such as sea spurge (*Euphorbia paralius*) and marram grass (*Ammophila arenaria)*, particularly around the south and west of the property. With the support of the Australian Government, specially trained teams, including volunteers, continue to successfully target weeds around the south and western coastline with the aim of stopping these weeds establishing in the property. In addition, research is underway to see whether biological control may be possible. Further information on this issue is available online at www.parks.tas.gov.au/factsheets/threats/CoastalWeeds.pdf

- **Introduced Trout**
  Surveys were undertaken in March 2009 in large coastal river catchments of the southwest of the TWWHA between Cape Sorell and South East Cape to identify waterways which are free of introduced trout and to establish a baseline for future monitoring. Recreational trout fishing is permitted within the property. The survey found, with a high level of confidence, no trout in any coastal river catchment surveyed other than the New River Lagoon, where a self-sustaining population has become established. The trout free area represents 459,000ha and is the single largest area of river catchments that remain free of introduced fish species in south-eastern Australia. The report on this survey also reviews the distribution of trout within the whole TWWHA.

- **Wild Dogs**
  Following reports of wild dogs in the TWWHA in the past, the issue has been monitored. Although no further sightings of wild dogs in the property were reported up to June 2009, this issue continues to be monitored.

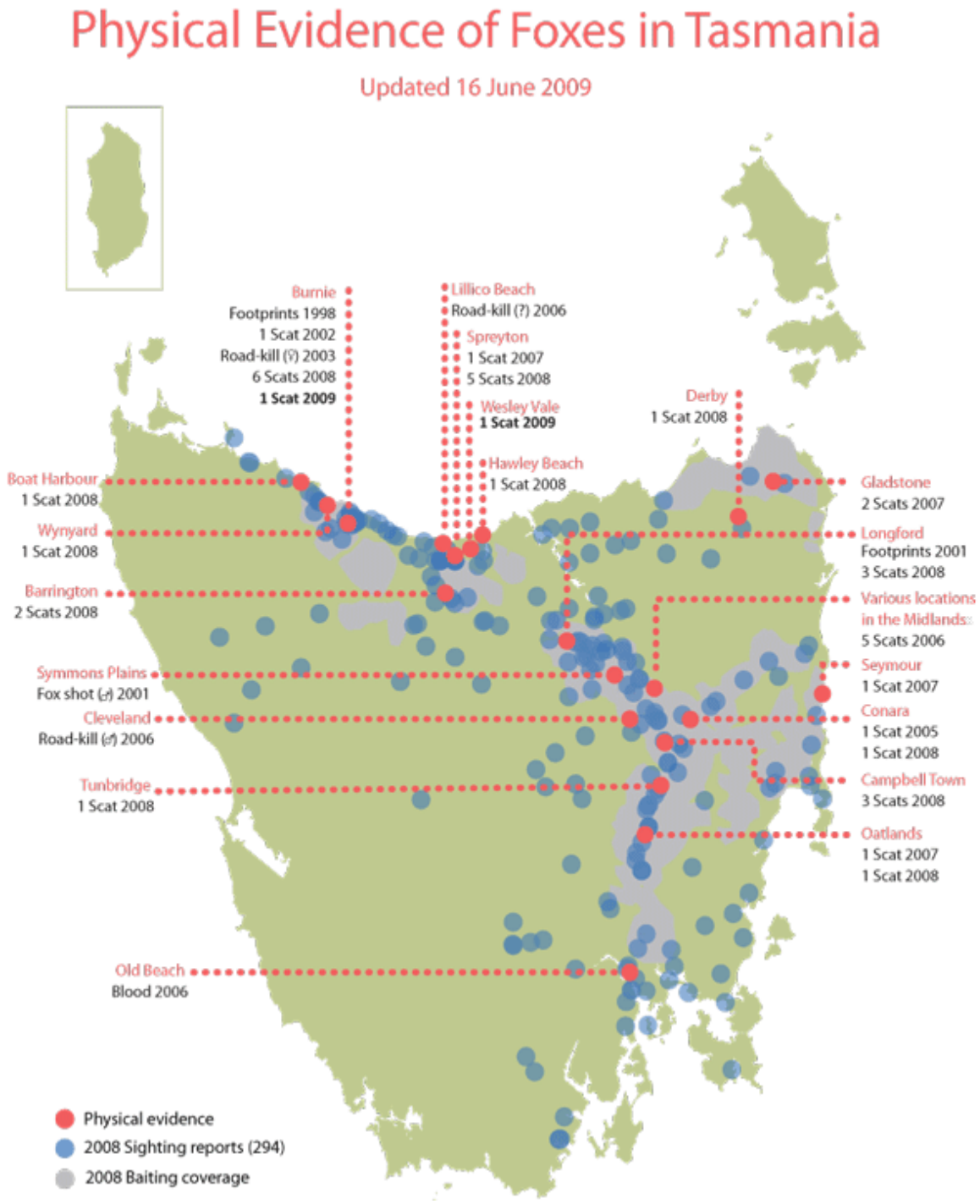
- **Fallow Deer**
  The report entitled “The distribution and abundance of Fallow Deer in the Central Plateau Conservation Area and adjacent areas in Tasmania” (2007) finds that Fallow Deer populations exist in several areas adjacent to the Central Plateau Conservation Area and also within the Central Plateau Conservation Area (part of the TWWHA) at least on a seasonal basis. Abundance was low and during the survey very little obvious damage caused by the deer was observed within the Central Plateau Conservation Area. Much of the TWWHA is unlikely to be suitable habitat for deer and consequently a low level of deer monitoring has been recommended. The next survey is due by the end of the 2009-10 summer.

- **Lyrebirds**
  As reported in 2008, the Superb Lyrebird was introduced into Tasmania in the 1930s and 1940s at both Hastings and Mt Field. Populations have since spread into the TWWHA. In 2000 a study on the possible impacts of the lyrebird was completed. Few conclusive results were found from this study and from further three year study undertaken by the Department of Primary Industries, Parks and the Environment. The impacts of the lyrebird are currently being examined through a PhD study. The current research focus is whether TWWHA values are being threatened because of their presence.

- **European Fox**
  The European fox (*Vulpes vulpes*) was introduced illegally into Tasmania in recent years. Evidence for the presence of foxes is shown in the map overleaf. The potential impact of the fox on both native species and livestock has been demonstrated on mainland Australia and it is important that foxes not spread to the World Heritage Area. The Australian and Tasmanian Governments have invested AU$19 million in the Fox Eradication Program, which aims to eradicate the fox before it can establish in Tasmania.

  A map of physical evidence of foxes in Tasmania (as at 16 June 2009) is provided overleaf.

  Updates on this issue are available at
  http://www.dpiw.tas.gov.au/inter.nsf/ThemeNodes/LBUN-5K438G?open



Source:
http://www.dpiw.tas.gov.au/inter.nsf/Images/PWOD-7T53XS?open

3. POTENTIAL MAJOR RESTORATIONS, ALTERATIONS AND/OR NEW CONSTRUCTION(S) WITHIN THE PROTECTED AREA

The following section provides an update on current and potential redevelopments within the protected area covered by the Management Plan for the property.

The majority of visitor facilities are provided in Visitor Services Sites or Zones. These are the locations where the majority of visitors experience the property.

The Global Financial Crisis has impacted on tourism to Australia and to Tasmania in particular, which has resulted in some planned tourism ventures not proceeding.

3.1. Tourism redevelopment at Lake St Clair

Lake St Clair, at the edge of the TWWHA, is a Visitor Services Zone provided for in the Management Plan for the TWWHA. Since the 1930s there has been visitor accommodation at Lake St Clair.

In recent years, various redevelopment projects have been proposed, in accordance with the Management Plan for the property, at this location. Proposals reported in 2008 are:

- Redevelopment of tourist facilities at Cynthia Bay
  In 2009, Eco-Geo International Pty Ltd bought the lease and now manages the facilities. The new leaseholder is proposing some low level changes at the site for the 2009-10 summer in accordance with the approved Development Plan and Environmental Management Plan.

- Adaptive re-use of Pumphouse Point for tourist facility
  The proposal reported in the 2008 Update Report has been granted approval, with conditions.

3.2. Tourism development at Cockle Creek

Cockle Creek is a Visitor Services Site under the TWWHA Management Plan and is located in one of the adjacent 21 formal reserves that form part of the proposed boundary modification (refer Section 1.2 of this Update Report). While a development on private and reserved land has been approved, the proponent has not proceeded to date. Discussions are continuing regarding the future of the development.

3.3. Cradle Valley Centralised Sewerage Scheme

Construction of this sewerage treatment plant is nearing completion. It is expected that individual sewerage systems for each accommodation lodge under the new scheme will significantly improve environmental quality in Cradle Valley. The system will come on line in early 2010.

Toilet system improvements on the Overland Track are nearly complete to protect the environment from untreated waste. Outdated composting toilet systems at some Tasmanian Parks and Wildlife Service locations have been removed and improvements in one of the commercial operator's treatment systems are under way. These changes will also enhance the visitor experience.

3.4. Liffey Canal maintenance and upgrade

Hydro Tasmania has proposed to undertake works to maintain and upgrade the diversion canal in the upper reaches of the Liffey River in the north-east of the property. The proposal was assessed for impacts by the Parks and Wildlife Service under the TWWHA Management Plan and was also referred to the Australian Government for assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Tasmanian Parks and Wildlife Service is awaiting further documentation from Hydro Tasmania before further assessment occurs. The proponent will also require final approval from the Commonwealth under the EPBC Act.

Details and status of this proposal are available at:
http://www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4079

3.5. Australian Government Jobs Fund Projects

During 2009 the Australian Government has announced additional infrastructure projects for the TWWHA both to protect values and present the TWWHA. These include the projects at the following TWWHA locations and gateways:

- *South Coast Track & Melaleuca* - AU$265,000 - This project will address the highest priority maintenance tasks and upgrades, primarily track and toilet infrastructure.

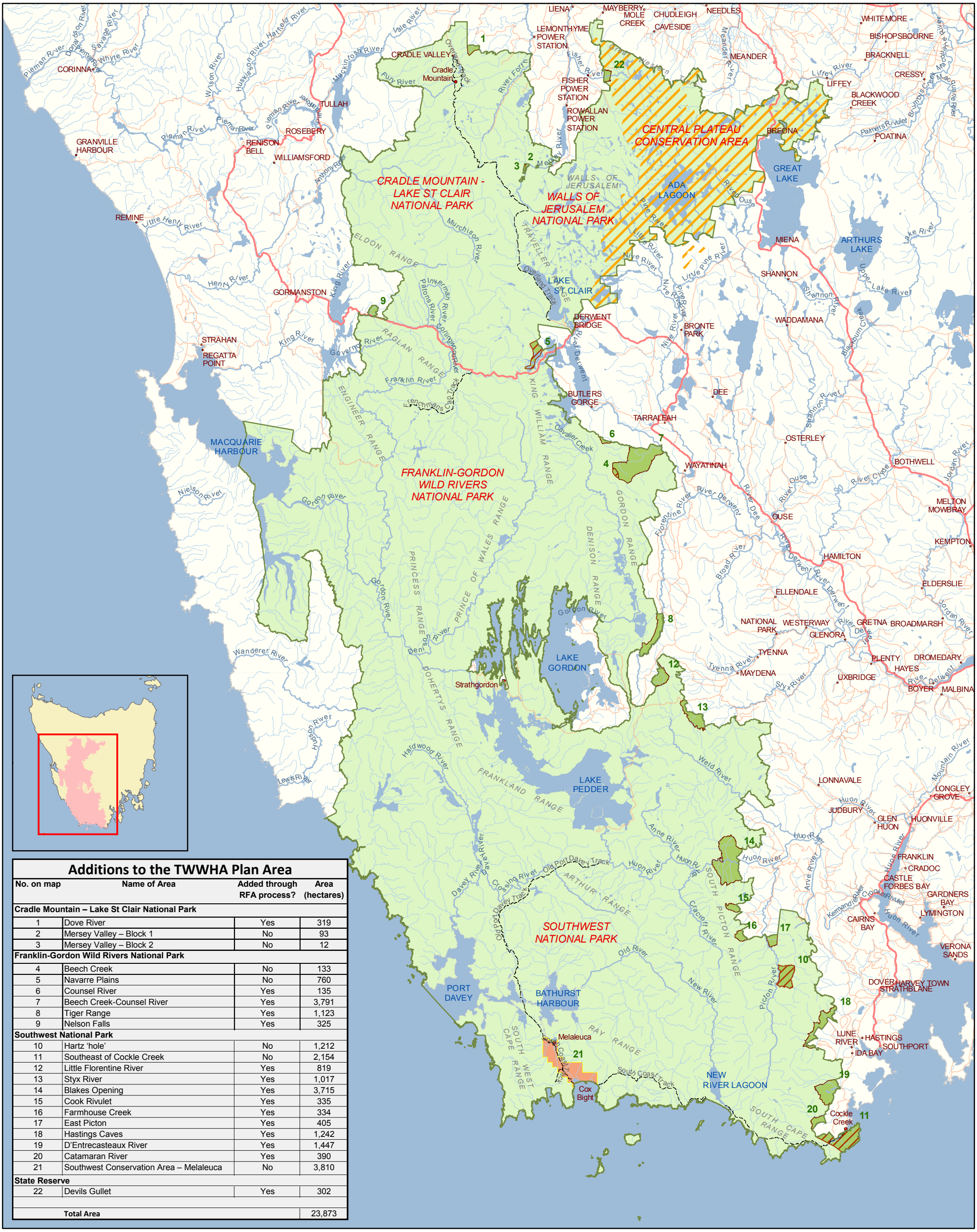
- *Sarah Island* - AU$355,000 - Redesign the walking track infrastructure on Sarah Island to facilitate access by mobility impaired visitors as well as allowing large groups from the cruise vessels to access the island.

- *Cradle Mountain* - AU$491,000 - Track repairs and maintenance, mostly day walks from Cradle Mountain. Conservation, repairs and maintenance to and around Waldheim.

- *Mt Field* - AU$194,000 - Track repairs and maintenance.

- *Aboriginal heritage* AU$387,500 - To record, protect and interpret Aboriginal heritage in the area of the South Coast Track and Melaleuca.

4. APPENDICES



Additions to the TWWHA Plan Area

No. on map	Name of Area	Added through RFA process?	Area (hectares)
Cradle Mountain – Lake St Clair National Park			
1	Dove River	Yes	319
2	Mersey Valley – Block 1	No	93
3	Mersey Valley – Block 2	No	12
Franklin-Gordon Wild Rivers National Park			
4	Beech Creek	No	133
5	Navarre Plains	No	760
6	Counsel River	Yes	135
7	Beech Creek-Counsel River	Yes	3,791
8	Tiger Range	Yes	1,123
9	Nelson Falls	Yes	325
Southwest National Park			
10	Hartz 'hole'	No	1,212
11	Southeast of Cockle Creek	No	2,154
12	Little Florentine River	Yes	819
13	Styx River	Yes	1,017
14	Blakes Opening	Yes	3,715
15	Cook Rivulet	Yes	335
16	Farmhouse Creek	Yes	334
17	East Picton	Yes	405
18	Hastings Caves	Yes	1,242
19	D'Entrecasteaux River	Yes	1,447
20	Catamaran River	Yes	390
21	Southwest Conservation Area – Melaleuca	No	3,810
State Reserve			
22	Devils Gullet	Yes	302
	Total Area		23,873

Tasmanian Wilderness World Heritage Area - proposal for boundary modification

- World Heritage Area boundary (inc additions)
- World Heritage Area (land area)
- Central Plateau Conservation Area
- Formerly part SWCA (Melaleuca to Cox Bight)

Additional reserve areas inside the TWWHA plan area:

- Added through the RFA process
- Added through non RFA process

- Waterbodies
- Major rivers
- Minor rivers
- Principal Road
- Minor Road
- Walking Tracks

Map produced by:
Australian Government Department of the Environment, Water, Heritage and the Arts (2010)
Projection: WGS84 MGA Zone 55S Scale: 1:700,000
Data:
World Heritage Area; Protected Areas - Tasmanian Government
Waterbodies; Waterways - Geodata Topo 250K, Geoscience Australia

Joint Australian and Tasmanian Government Response to the

"Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement"

January 2010

Joint Australian and Tasmanian Government Response to the Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement.

Preface

The Commonwealth and Tasmanian Governments (the Parties) signed the Tasmanian Regional Forest Agreement (RFA) in 1997. The RFA extends until 2017. The RFA provides for the sustainable management of Tasmania's forests and the development of forest industry in the State. A supplement to the RFA - the Tasmanian Community Forest Agreement (TCFA) - was signed in May 2005.

The Parties remain committed to the RFA and the TCFA as the bilateral framework for the sustainable management and use of Tasmania's forests.

As part of the RFA and TCFA, the Parties made a range of commitments to support the outcomes and objectives of the RFA. They also agreed to undertake five yearly reviews of progress with implementation of these commitments.

The first Review was undertaken in 2002 and the second was completed in 2008. Both Reviews, undertaken by independent reviewers, took account of public submissions. Both Reviews reported that the Parties had made substantial progress towards meeting agreed commitments and milestones. However, a small number of commitments were found to be incomplete or were behind the agreed milestones.

In addition, a number of matters were raised, particularly through public submissions, concerning contemporary or emerging issues such as climate change impacts and mitigation, and the management of water and fire that were not prominent in 1997. Consequently, both Reviews made recommendations to progress implementation of agreed commitments, and to further improve sustainable forest management and development of Tasmania's forests and forest industries.

The second RFA Review report was released on 13 March 2008 by the Hon. Tony Burke MP, the Commonwealth Minister for Agriculture, Fisheries and Forestry and the Hon. Steven Kons MHA, the then Tasmanian Minister for Infrastructure and Resources. The comprehensive report identified 43 specific recommendations.

The Review report is available at: http://daff.gov.au/rfa/publications/annual-reports/tasmania/tasmania_rfa_second_five_yearly_review

The Ministers jointly announced that the Parties agreed in principle with the recommendations in the report and stated that a formal response to the recommendations would be provided by the Parties after details of implementation had been considered.

The Parties have carefully considered the Review Report and this Joint Australian and Tasmanian Government Response to the Second Five Yearly Review of Progress with Implementation of the Tasmanian Regional Forest Agreement provides the agreed detailed response to each of the Review's recommendations. Of note is that implementation of many of the recommendations has either commenced or have already been completed.

The Parties will continue to collaborate on implementation of the recommendations and will provide a detailed report on progress with implementation for the third RFA Review in 2012.

The Parties reconfirm their commitments to continuous improvement in Ecologically Sustainable Forest Management as envisaged by the National Forest Policy Statement and the RFA. The commitments in this response will ensure that Tasmania's forest management systems continue to adapt to reflect new information, priorities and community expectations.

Forest Practices System

Monitoring activities

Recommendation 1

That the State requests the Forest Practices Authority to review and report to the Parties on the procedures and practices the Forest Practices Authority follows to guarantee the independence and integrity of its monitoring and compliance functions and activities and any change that it proposes to those procedures and practices.

Response

The Tasmanian Government has requested the Forest Practices Authority to review and report to the Parties on the procedures and practices the Forest Practices Authority follows to guarantee the independence and integrity of its monitoring and compliance functions and activities and any change that it proposes to those procedures and practices.

The Forest Practices Authority has advised that it will undertake the review and report to both Parties during 2010, as a basis for ongoing consultations with the Parties to allow the Parties to meet their obligations under the RFA.

Availability of Forest Practices Plans

Recommendation 2

That the State further progresses improvements to the Forest Practices System by requesting the Forest Practices Authority to ensure that information is available from the forest practices planning process as follows:

(a) Subject to appropriate non disclosure of personal or sensitive information such as any confidential location of protected sites (although the values to be protected should be identified), the content or draft content (if a request is made prior to the certification of the plan) of forest practices plans, should be disclosed to immediate neighbours as soon as possible after a request is made, at a location agreed between the applicant for the Forest Practices Plan and the neighbour concerned; and

(b) Recognising the wider public interest in the ecologically sustainable management of Tasmania's forests, and subject to the non disclosure of the matters identified in (a) above, information on the values protected in any certified Forest Practices Plan and the manner of that protection, should be made available on request to any interested person, by ordinary mail or electronically.

Response

The Parties support this recommendation as a means of increasing transparency in the Forest Practices System.

The Tasmanian Government has requested the Forest Practices Authority to implement this recommendation. The Forest Practices Authority strongly supports this principle and has progressed implementation to ensure that non-confidential information contained in Forest Practices Plans is made available to neighbours and other interested members of the public in a timely manner. The Forest Practices Authority expects to finalise implementation in early 2010.

Forestry Tasmania currently makes information available for Forest Practices Plans on State forest consistent with this recommendation.

Relationship between the forest sector and its neighbours

Recommendation 3

That the Parties note the potential benefits that may follow from the review and implementation of the Good Neighbour Charter for commercial tree farming and implementation of a Good Neighbour Charter of wider scope and encourage the proposed signatories to the Charter to conclude the review as soon as possible, execute the charter and release it publicly.

Response

The review of the Good Neighbour Charter has been completed and the signatories (Forestry Tasmania, Gunns Ltd, Norske Skog Boyer Mills Ltd, Timberlands Pacific Pty Ltd, Forest Enterprises Australia Pty Ltd, and Great Southern Plantations Pty Ltd) released the Good Neighbour Charter for Commercial Forestry on 27 November 2008. The Parties welcome the Charter and recognise the importance of good relations between forest managers and neighbours, and note that the signatories have widened the scope of the Charter to apply to native commercial forestry as well as plantations.

The revised Charter is available at: http://www.fiatas.com.au/index.php?id=297

Recommendation 4

That the State consults with the signatories to the proposed Good Neighbour Charter with a view to encouraging the Charter signatories to establish a process for documenting and reporting on the effectiveness of the operational implementation of the Charter.

Response

The Tasmanian Government has consulted with the developers of the Good Neighbour Charter to inform them of this recommendation and seek their support for its implementation. Discussions between the Tasmanian Government Department of Infrastructure, Energy and Resources, the Forest Industries Association of Tasmania and Forestry Tasmania have commenced.

Management Planning

Recommendation 5

That the State establishes a program, by 30 June 2008, to complete the preparation of management plans or a management regime for all national parks and other formal reserves managed under the *National Parks and Reserves Management Act 2002*, including identifying the cost of the preparation of such plans.

Response

The Tasmanian Government has approved management plans covering 70 per cent of the area of reserves managed under the Tasmanian *National Parks and Reserves Management Act 2002*.

Management plans are in place for 16 of the State's 19 national parks. The Tasmanian Parks and Wildlife Service has prepared a program to complete the preparation of a general management plan for the three national parks (Mt William, Rocky Cape and Savage River) that do not have a management plan.

A draft management plan for the Savage River National Park was prepared and placed on public exhibition. Completion of management planning for the remaining two national parks – Rocky Cape and Mount William - has been deferred due to Tasmanian Aboriginal community interest in these areas (see response to recommendations 7 and 8).

As well as national parks, there are approximately 60 State reserves, 78 nature reserves, 12 game reserves, 181 conservation areas, 23 nature recreation areas, 21 regional reserves and 29 historic sites reserved under the Tasmanian *Nature Conservation Act 2002* and managed by the Tasmanian Parks and Wildlife Service. Management plans have been prepared for only a small percentage of these reserves.

Due to the large number of these reserves, a "general management plan" is proposed to cover them all. The general management plan will include a summary of values of the reserve system as well as values and zoning maps for each reserve. The structure of the proposed general management plan is aligned with the three Tasmanian Parks and Wildlife Service operational regions: South, North and North West. The first draft general management plan covering reserves in all regions has been completed.

Recommendation 6

That the State resources the program to enable all the management plans or the management plan regime for all national parks and other formal reserves managed under the Tasmanian *National Parks and Reserves Management Act 2002*, to be in place by 30 June 2010.

Response

The Tasmanian Parks and Wildlife Service is progressing a program to develop a general management plan to cover all reserves without specific management plans. The Tasmanian Government is committed to completing management plans for Mt William, Rocky Cape and Savage River National Parks as soon as practicably possible, noting that there are statutory timeframes required for public consultation, review and approval processes, and that there are ongoing discussions with the Tasmanian Aboriginal community who have an interest in these reserves. The target date for completion of this work is June 2011.

Completed management plans can be viewed at:
http://www.parks.tas.gov.au/index.aspx?base=5957

Recommendation 7

That where management plans are to be prepared for national parks or other formal reserves which involve matters to be resolved in negotiations with the Tasmanian Aboriginal community, those negotiations should be subject to an appropriate timetable to achieve resolution prior to 30 June 2009.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment will continue to negotiate an approach and program for the completion of management plans with the Tasmanian Aboriginal Community with the aim of achieving resolution during 2010.

Recommendation 8

That any matters covered by the management plan for those national parks or other formal reserves that can be progressed concurrently with negotiations with the Tasmanian Aboriginal community should be progressed in accordance with the program referred to above.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment is progressing the completion of management plans in accordance with the program developed in response to Recommendation 6 above.

Reserve Management

Recommendation 9

That the Parties, as a minimum, maintain annual funding in real terms for management of all the values of the reserve system in Tasmania and consider increasing the resources available to meet the management needs resulting from the expansion to the reserve system directly resulting from the RFA and the TCFA.

Response

The Parties will continue to provide funds to support those reserves covered by the Tasmanian Wilderness World Heritage Area Management Plan.

The Tasmanian Government will continue to fund the Comprehensive, Adequate and Representative reserve system, consistent with relevant commitments under the RFA and the TCFA, and the relevant management objectives for each element of the reserve system.

Recommendation 10

That the State ensures the conduct of audits of compliance with the Tasmanian *Reserve Management Code of Practice 2003* and the publication of the outcomes of those audits for financial year 2008-09 and thereafter.

Response

Forestry Tasmania has conducted audits of compliance with the Tasmanian *Reserve Management Code of Practice 2003* for a number of recently completed activities in forest reserves and has published the results in its 2007-08 Sustainable Forest Management Report. The report is available at:
http://www.forestrytas.com.au/publications/sustainable-forest-management

The Tasmanian Government Department of Primary Industries, Parks, the Environment and Water has completed a major upgrade of its internal environmental impact assessment system – the Reserve Activity Assessment (RAA) system. The RAA system is now operational for all reserves managed under the Tasmanian *National Parks and Reserves Management Act 2002*. The Tasmanian Government will extend audits of compliance with the Tasmanian *Reserve Management Code of Practice 2003*, to lands managed under the Tasmanian *National Parks and Reserves Management Act 2002* and will aim to commence reporting of compliance for the 2010-2011 year.

Recommendation 11

That the Parties request the Forest Practices Authority to include, as part of the current review of the Forest Practices Code, a review of current mechanisms for ensuring that forest harvesting operations do not impact on the integrity of the boundaries of formal reserves.

Response

The Tasmanian Government has requested the Forest Practices Authority to implement this recommendation.

The Forest Practices Authority has advised that it will include a review of mechanisms for ensuring that forest harvesting operations do not impact on the integrity of the boundaries of formal reserves as part of the current review of the Forest Practices Code.

It is planned that there will be a public exposure draft of the revised Tasmanian Forest Practices Code available in late 2010.

Threatened Species and Communities

Recommendation 12

That the Parties progressively prepare and publish Listing Statements or Advice, including conservation advice, for all forest-related threatened species. Priority should be given to completing Listing Statements for all endangered forest-related species by no later than the end of 2008. Listing Statements or Advice should also be prepared for all newly listed species at the time of listing.

Response

The Parties will continue to prepare Listing Statements and Conservation Advice for all nationally listed threatened species, in accordance with the processes required by Sections 194Q and 266B of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Tasmanian *Threatened Species Protection Act 1995*. Since 2009, the Tasmanian Government has prepared Listing Statements for all newly listed species at the time of listing.

The Parties encourage the nomination of any forest-related threatened species that are yet to be listed under State or Commonwealth legislation.

Recommendation 13

That the Parties make the Listing Statements or Advice publicly available on an appropriate internet site as each is completed.

Response

Both Parties will maintain the current practice of publishing Listing Statements or Conservation Advice on their respective websites as each is completed.
All listing statements and Conservation Advice for species and ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are currently available at: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

The Australian Government will continue to regularly publish this information online in accordance with the processes required by Section 266B of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

All listing statements for species listed under the Tasmanian *Threatened Species Protection Act 1995* are available on the Tasmanian Government's Department of Primary Industries, Parks, Water and Environment website at:
www.dpipwe.tas.gov.au/inter.nsf/WebPages/SJON-58E2VD?open#ListingStatements

Recommendation 14

That the Parties continue to complete Recovery Plans for forest-related endangered species, in accordance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* and the *Threatened Species Protection Act 1995*, but that priority in terms of time and resources should be given to the Recovery Plans already in preparation and the Listing Statement or Advice process referred to above.

Response

The Parties are continuing to complete Recovery Plans for forest-related endangered species, with the priority being on those plans already in preparation, and Listing Statements and Conservation Advice for forest-related endangered species. There are currently 13 Recovery Plans being developed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and three under the Tasmanian *Threatened Species Protection Act 1995*. These are planned for completion by August 2010.

The Parties will continue to support and implement endorsed Recovery Plans for species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Recommendation 15

That the Parties review the commitments under the RFA for lists of Priority Species with a view to removing duplication and ensuring consistency with lists required under the *Environment Protection and Biodiversity Conservation Act 1999* and the *Threatened Species Protection Act 1995*. An up-to-date list of forest-related threatened species and communities that include the RFA commitments should be publicly available on an appropriate internet site.

Response

The Parties will consult, including through the Species Information Partnership, on updating relevant commitments, definitions and Attachment 2 under the RFA for lists of Priority Species, to remove duplication and ensure consistency by the end of 2009. A list of Priority Species and recommended amendments which was prepared for the Second Five Yearly RFA Review is available on the Tasmanian Government's Department of Primary Industries, Parks, Water and Environment website at:
http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-7VH9NV?open.

An up-to-date list of Priority Species will be prepared by 2011, made available on the website, and will be further updated as species listing information changes.

Recommendation 16

That the State, in consultation with the Australian Government, reviews the processes used within the forest practices system for the protection and recovery of threatened species, in particular the annual independent monitoring and reporting of the application of management prescriptions for threatened species in the development and implementation of Forest Practices Plans.

Response

The Parties recognise the importance of ongoing monitoring to ensure the effectiveness of management prescriptions for threatened species.

An independent expert panel has finalised a review for the Forest Practices Authority of the biodiversity provisions of the Forest Practices Code. This includes a review of the processes used within the forest practices system for the management of threatened species within wood production forests. The report entitled "Review of the biodiversity provisions of the Tasmanian Forest Practices Code" is available at: http://www.fpa.tas.gov.au/index.php?id=40&tx_mininews_pi1[showUid]=30&cHash=9c6346860f

The Forest Practices Authority has advised that it will report to both Parties on this review by 2010, as a basis for ongoing consultations with the Parties on the protection and recovery of threatened species, to allow the Parties to meet their obligations under the RFA.

Recommendation 17

That the Parties continue to improve knowledge of threatened species and threatened communities and the efficacy of existing management prescriptions in protecting those species. This should include explicit monitoring programs, which might be general or for specific species or a combination of both. Priorities for monitoring should be reviewed annually, taking into account the regular threatened species and communities monitoring process undertaken in the forest practices system, with priorities being determined cognisant of current threatening processes, development pressures and relevant government policies.

Response

The Parties are committed to a process of continuous improvement in relation to the scientific knowledge of, and efficacy monitoring for, threatened species and threatened communities.

In particular, the Parties recognise the importance of a strategic approach to the management of threatened species habitat, a systematic approach to the management of and monitoring of changes in threatened species habitat.

The Parties agree to continue to work collaboratively to progress these approaches with priorities being determined cognisant of current threatening processes, development pressures and relevant government policies.

Recommendation 18

That the Parties consider the need to amend the RFA to reflect the 2006 amendments to the *Environment Protection and Biodiversity Conservation Act 1999* which require the existence of conservation advice for all threatened species and communities and which enables the exercise of Ministerial discretion in relation to the preparation of recovery plans.

Response

The Parties agree to consider the need to amend the RFA to reflect the 2006 amendments to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and will further discuss a package of amendments to the RFA to implement this recommendation along with recommendations 31 and 39.

Integrated Catchment Management

Recommendation 19

That the State completes Water Management Plans under the *Water Management Act 1999* in accordance with its commitments under the National Water Initiative Implementation Plan.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment is progressing Water Management Plans from 2007-09, consistent with the commitments and timelines under the National Water Initiative and Tasmania's Implementation Plan. The Plan is set out in Tasmania's Implementation Plan for the National Water Initiative, which is available on the Tasmanian Government Department of Primary Industries, Parks, Water and Environment website at:
http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/JMUY-6R78TG?open

The Parties note that the Council of Australian Governments has agreed to consider accelerating National Water Initiative commitments. The Tasmanian Government Department of Primary Industries, Parks, Water and Environment has a program in place for completion of Water Management Plans in accordance with its National Water Initiative commitments.

Recommendation 20

That the State, as a matter of priority, continues to invest in research into the impacts of forestry practices on hydrological cycles in Tasmanian catchments, including improved models at catchment levels, as well as improved data and catchment planning processes. The research should be undertaken in collaboration with other research organisations and independent experts and the State should put measures in place to ensure that relevant data on current and proposed plantation establishment and operations is readily available for the work.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment will consider new information on the impact of forestry practices on hydrological processes, and its incorporation into catchment models and water planning processes.

Forestry Tasmania maintains an active forest hydrology research program, partly supported by Tasmanian Community Forest Agreement funds for at least five years. Research is undertaken in partnership with the CRC for Forestry. Outcomes from research undertaken by Forestry Tasmania with relevant organisations and researchers will be published.

Data on the existing extent of plantations are published annually on the Tasmanian Government Department of Primary Industries, Parks, Water and Environment LIST database. Data on current and proposed plantation harvesting are provided to the Forest Practices Authority annually in Three Year Wood Production Plans.

Forestry Tasmania's Three Year Wood Production Plan is available on the Forestry Tasmania website at
http://www.forestrytas.com.au/forest-management/3yp

The Forest Practices Authority is currently investigating the feasibility of placing Three Year Wood Production Plans covering private land on their website.

The Parties note commitments made under the National Water Initiative and the work of the Council of Australian Governments' Working Group on Climate Change and Water.

Recommendation 21

That the State completes the development of its computer model for impacts of forestry practices on hydrological cycles in Tasmanian catchments that include prediction of the impact of forest-based activities on catchment water availability.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment has completed the development of the Water Availability and Forest Land Use Planning Tool. This model builds on the TasLUCaS model for predicting the impact of vegetation change on hydrological cycles, and provides quantitative information on a daily timestep.

The Parties note commitments made under the National Water Initiative and the work of the Council of Australian Governments' Working Group on Climate Change and Water.

Recommendation 22

That the State ensures that the wider community is able to access information on the methodology that supports the operation of the model, that there are public opportunities for exchange of information and sharing of opinions in relation to the operation of the model, and that the outcomes of the application of the model to catchments are disclosed and reported on a regular basis.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment has prepared a report on the development of the Water Availability and Forest Land Use Planning Tool, and its initial application in the Ringarooma catchment. This report has been publicly released, together with the independent reviews undertaken by two external experts, and the technical report prepared by the consultant who undertook the Water Availability and Forest Land Use Planning Tool (WAFL) development. The reports are available on the Tasmanian Government Department of Primary Industries, Parks, Water and Environment website at:
http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/CGRM-7KL4RA?open

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment will report on the outcomes of the application of the model to catchments as assessments are undertaken. It is expected that the application of the WAFL to relevant catchments will be completed following consideration of the outcomes of the CSIRO Tasmanian Sustainable Yields Project.

The CSIRO Tasmanian Sustainable Yields Project will be completed and reported upon in January 2010. The project will be providing a broad estimate of the hydrological impact of plantation water interception on catchment yields under a number of different scenarios, and will indicate where further application of the WAFL may be required. Information about the CSIRO Sustainable Yield's Project is available at:
http://www.csiro.au/partnerships/TasSY.html

For relevant catchments, the findings from the WAFL's application will be incorporated into the water planning process as required under the National Water Initiative. Further opportunity for the exchange of information and sharing of opinions in relation to the operation of the WAFL will be provided through the stakeholder consultation processes as part of the development of water plans.

The Parties note commitments made under the National Water Initiative and the work of the Council of Australian Governments' Working Group on Climate Change and Water.

Recommendation 23

That the State ensures that its Water Management Planning framework appropriately provides for a risk-based approach to management of water interception and extraction activities in accordance with the requirements of the National Water Initiative.

Response

The Tasmanian Government Department of Primary Industries, Parks, Water and Environment has adopted a risk-based approach to the management of water interception and extraction activities. Risk assessments using the model to assess the impacts of plantation forest interception have been undertaken in relevant Tasmanian catchments over 2008-09, and the results have been incorporated into water planning processes as a priority.

The Parties note commitments made under the National Water Initiative and the work of the Council of Australian Governments' Working Group on Climate Change and Water.

Recommendation 24

That the State requests the Forest Practices Authority to consider, in the current review of the Forest Practices Code, the inclusion of measures to enable the management of the impacts of forest practices on the yield of water in catchments, so as to meet objectives of Water Management Plans.

Response

The Tasmanian Government has requested the Forest Practices Authority to implement this recommendation.

In recognition of this, the Forest Practices Authority will implement this recommendation as part of the current review of the Forest Practices Code. The review will include consideration of the State's water management framework commitments under the National Water Initiative, as the basis for the development of an appropriate regulatory framework to support implementation at an operation level.

The Parties note commitments made under the National Water Initiative and the work of the Council of Australian Governments' Working Group on Climate Change and Water.

Environmental Management Systems and Forest Certification

Recommendation 25

That the State completes the development of an environmental management system for all reserves under the Tasmanian *Nature Conservation Act 2002* by 30 June 2009 and that the resources required to achieve implementation be allocated to enable implementation as soon as possible thereafter.

Response

The Tasmanian Parks and Wildlife Service has completed the first major component of an Environmental Management System – an upgraded environmental impact assessment process for reserve activities (the Reserve Activity Assessment system). This system provides a robust assessment of impacts on reserve values of existing and proposed activities. It enables

development of measures to avoid or mitigate any identified undesirable impacts as well as providing additional conservation benefits in reserves.

The Tasmanian Parks and Wildlife Service has developed a range of other management and business processes and procedures over the past 10 years that provide similar benefits to those expected from an Environmental Management System. These include the Reserve Standards Framework, a component of the Tasmanian Government Department of Primary Industries, Parks, Water and Environment Public Risk Policy, which is a strategic planning tool for the provision of visitor services. The Reserve Standards Framework underpins the Tasmanian Government Department of Primary Industries, Parks, Water and Environment's public policy approach to risk management. There is a comprehensive walking track classification system, an occupational health and safety system, and fire management policies and guidelines.

The Tasmanian Government will aim to develop and implement the Environmental Management System for land managed under the Tasmanian *National Parks and Reserves Management Act 2002* by June 2011.

Fire and Smoke Management

Recommendation 26

That the State ensures that the state-wide fire management policy framework that applies to all tenures across the State, takes account of the increase in the area of forest plantations since the last Review, the effect of drought and the potential impacts of climate change.

Response

A new State Fire Management Policy is being developed by the State Fire Management Council. Issues such as forestry plantations, the effect of drought and the potential impacts of climate change will be considered in the development of the policy. A draft policy has been considered by the State Fire Management Council and is being reviewed by stakeholders prior to finalisation.

Recommendation 27

That the State ensures that policies in the fire management policy framework on all tenures are made publicly available as the policies are confirmed or revised.

Response

The Tasmanian Government will ensure that policies in the fire management policy framework on all tenures are made publicly available on relevant websites as the policies are confirmed or revised.

The fire management policy framework prepared in 2006 is available at:
http://www.dier.tas.gov.au/forests/tasmanian_regional_forest_agreement_rfa#framework

Climate Change

Recommendation 28

That the Parties improve the collection and public reporting of relevant data to ensure that there is an improved understanding of the contribution, both positive and negative, that Tasmania's forests, forest management practices and the forestry sector generally, make to the global carbon balance and climate change issues.

Response

The Parties recognise the role of Tasmania's forests in mitigating climate change. The Parties are preparing for the impacts of climate change, including investigating climate change impacts on forests.

Development of a national climate change agenda is being driven by the Council of Australian Governments. The Primary Industries Ministerial Council, also acting on behalf of the Natural Resource Management Ministerial Council, endorsed the National Climate Change and Commercial Forestry Action Plan on 6 November 2009. This was developed in consultation with all States and Territories. In addition, for all forests including non-commercial forests, the Australian Government is undertaking a national climate change and forests vulnerability assessment again in consultation with all States and Territories.

The Australian Government is also developing the National Carbon Accounting System to provide comprehensive coverage of greenhouse gas emissions and removals in Australia's forests (including harvested wood products).

The Tasmanian Government recognises the importance of forests for sequestering carbon in its Tasmanian Framework for Action on Climate Change details of which can be found at: http://www.climatechange.tas.gov.au/__data/assets/pdf_file/0017/57230/CC_Framework_fact_sheet.pdf

Implementing the Tasmanian Framework for Action on Climate Change will include consideration of and reporting on the role of forests in Tasmania's emissions and their contribution to emissions reduction.

Private Land Management

Recommendation 29

That the State recognises the importance of providing public information on the success or otherwise of forest regeneration, and requests the Forest Practices Authority to:

(a) prepare a report on the success or otherwise of forest regeneration on private land on which native forest was harvested since the 2002 Review;
(b) provide a comprehensive report on regeneration success or otherwise of forests on public and private land in its annual report; and
(c) provide a consolidated report for consideration as part of the next five year Review.

Response

The Tasmanian Government recognises the importance of continuing to provide information on the forest practices system to all stakeholders, including improved information on the success or otherwise of forest regeneration activities on private land. In recognition of this, the Tasmanian Government has requested the Forest Practices Authority to implement this recommendation.

The Forest Practices Authority has advised it will implement this recommendation so that a consolidated report will be available for consideration as part of the third RFA review in 2012.

National Estate

Recommendation 30

That, notwithstanding changes in Commonwealth legislation, the Parties confirm their commitment to management of the national estate values as set out in Attachment 1 of the RFA for the duration of the RFA.

Response

The Parties reconfirm their commitment to the management of national estate values as set out in Attachment 1 of the RFA, for the duration of the RFA, consistent with their roles and responsibilities as set out in the 1997 Council of Australian Government agreement to rationalise Commonwealth-state heritage arrangements, and in subsequent Commonwealth-state agreements relating to heritage.

Recommendation 31

That the Parties consider amending the RFA to reflect the changes in the Commonwealth legislation related to the cessation of the national estate listing process. The Parties should consider including appropriate commitments to protect the values of any places listed on the National Heritage List in accordance with the Commonwealth legislation.

Response

The Parties agree to consider the need to amend the Tasmanian RFA to take into account changes in national legislation and processes and will further discuss a package of amendments to the RFA to implement this recommendation, along with recommendations 18 and 39.

Recommendation 32

That, given that the Register of the National Estate will not exist after 31 December 2011, the State examines the current places on the Register and determines whether any properties or values listed should be accorded any ongoing status and the nature of that status.

Response

Recalling the 1997 Council of Australian Governments' agreement to rationalise Commonwealth-state heritage arrangements and noting the transition period for the Register of the National Estate of 19 February 2007 to 18 February 2012, the Parties will aim to complete the transfer of the Register of the National Estate places to national and state heritage registers as appropriate.

All Tasmanian places of State significance on the Register of the National Estate for historic cultural heritage values are already included on relevant registers, are pending assessment or in the process of being assessed for listing.

The Tasmanian Government will aim to complete all Heritage Register entries of Register of the National Estate places by 31 December 2011, as part of the ongoing State-wide heritage survey implementation.

Information about the Tasmanian Heritage Register is available at http://www.heritage.tas.gov.au/register.html

Those Tasmanian Aboriginal Heritage places that were previously on the Register of the National Estate have been incorporated into the State database.

Site specific natural values of places on the Register of the National Estate are already on relevant State natural value data bases at:
http://www.dpiw.tas.gov.au/inter.nsf/webpages/ljem-6tv6tv?open

These values are also considered in relevant State planning processes.

Recommendation 33

That the State requests the Forest Practices Authority to revise the Forest Practices Archaeological Manual as soon as possible to address all matters other than Tasmanian Aboriginal heritage, and further revise that Manual, as required, to take account of the proposed Tasmanian Aboriginal Heritage legislation when it is enacted.

Response

The Tasmanian Parliament is expected to consider new Aboriginal Heritage legislation in 2010.

The Tasmanian Government has requested the Forest Practices Authority to consider implementing this recommendation. The Forest Practices Authority has advised that in its current form, the historic cultural heritage section of the manual is not an impediment to appropriate management, and therefore its revision is not a high priority. The Forest Practices Authority intends to give priority to amending the manual, when the new Tasmanian Aboriginal legislation is approved by the Tasmanian Parliament.

Sustainable Yield

Recommendation 34

That the State ensures that Forestry Tasmania prepares and makes available its report on the review of sustainable high quality sawlog supply from State forests as part of the documentation released for public comment as part of the third RFA Review.

Response

Since the signing of the RFA in 1997, Forestry Tasmania has undertaken three reviews, in 1998, 2002 and 2007, reports from which were published. The 2007 report is available on the Forestry Tasmania website at:
http://www.forestrytas.com.au/publications/sustainable-forest-management

To meet relevant sustainable yield commitments under the RFA, Forestry Tasmania will continue to undertake and report on a review of sustainable high quality sawlog supply from State forests and will release relevant reports to enable public comment as part of the third RFA Review in 2012.

Recommendation 35

That the State, in consultation with the forest processing industry, reviews and identifies appropriate and measurable indicators that show the quality of sawlogs supplied to the processing sector, and determines the data to be reported and the responsibilities for collecting and reporting on the data.

Response

Forestry Tasmania will consult with the Forest Industries Association of Tasmania to determine priorities for review and to identify appropriate and measurable relevant indicators.

Forestry Tasmania will build on existing reporting processes, including the Annual Sustainable Forest Management (SFM) Report (refer 2007-08 SFM Report Figs 9 and 10) which is available at: http://www.forestrytas.com.au/uploads/File/publications/SFM.pdf

Special Species

Recommendation 36

That the State completes the special timber species supply strategy by 30 September 2008, which should include information on the resource that remains available by species and the rate at which that resource will be available.

Response

Forestry Tasmania is implementing new resource planning, supply chain management and marketing/promotions initiatives consistent with the provisions of the RFA and TCFA. This has included a number of commissioned reports which are currently being finalised. These initiatives and reports have been integrated into a comprehensive and coherent strategy which will provide information on the resource, and more importantly, viable systems for improved value recovery and supply to market.

The draft Special Timbers Strategy was released by Forestry Tasmania for public comment on 31 July 2009 at:
http://www.forestrytas.com.au/branchline/branchline-july-31-2009/draft-special-timbers-strategy-released-for-public-comment

Following a one month consultation period, Forestry Tasmania expects to complete the Special Species Timber Strategy and publish it on its website in early 2010.

Resource Security

Recommendation 37

That the Parties commence the process of identifying the key issues relevant to considering the extension of the RFA in advance of the next RFA Review in 2012, so that an assessment of all the factors concerning desirability or otherwise of extending the RFA is available to the Review and is published as part of the next Review process. In particular, the progressive shortening of the period of industry resource security provided by the current RFA should be taken into account, together with operational and policy matters that were not prominent at the commencement of the RFA, such as catchment management and climate change.

Response

Consistent with the RFA, and as an important element of the National Forest Policy Statement, the process for extending the duration of the RFA will be considered by the Parties as part of the third RFA Review in 2012. Identification of key issues will be included when preparing for the next review.

RFA Attachment 12

Recommendation 38

That the Parties facilitate the preparation by industry of an updated development strategy for the industry, taking account of stakeholder views and the Forest and Forest Industry Strategy (1990), the RFA Employment and Industries Development Strategy, existing and future resource availability and industry developments, and emerging opportunities for new products and services.

Response

The Parties support the need to work with the forest industry to ensure it is internationally competitive and sustainable over the long term. The responsibility for developing such a strategy lies primarily with the industry.

The Tasmanian Government Minister for Energy and Resources has agreed to a proposal from the Forests and Forest Industry Council of Tasmania to coordinate the preparation of an updated industry development strategy. The Forests and Forest Industry Council of Tasmania is consulting with industry stakeholders, and expects to complete the strategy by the end of 2009. The Australian Government has agreed to provide relevant information for inclusion in the updated industry development strategy.

The Australian Government is also providing funding of $8.04 million over three years from April 2008 for the establishment of the Forest and Forest Products Industry Skills Council, ForestWorks, and has announced the national Forest Industries Development Fund to develop value adding initiatives that improve the international competitiveness of Australia's forest products. Round 1 of the fund was finalised in April 2009 and Round 2 grants were finalised in November 2009.

In February 2009, a sub-committee of the Forest and Wood Products Council met to progress the topics of future priorities and industry strategy. A paper that was drafted by industry outlining a strategy was presented to full Council in May 2009. The issue will be further discussed at future meetings.

On 19 June 2009, the Australian Government Minister for Innovation, Industry, Science and Research, Senator Kim Carr, announced that a new Pulp and Paper Industry Strategy Group would be formed to undertake a review of the pulp and paper manufacturing industry in Australia. The Strategy Group was tasked with developing a plan to encourage innovation and attract investment in pulp and paper manufacturing in Australia. Members of the Strategy Group included senior representatives from the leading pulp and paper companies, unions, industry experts and all levels of government. On 21 August 2009, Senator Carr released the Strategy Group's Issues Paper which noted the industry's support for further expansion of Australia's plantation resources. The Strategy Group submitted a draft Pulp and Paper Industry Strategy to Senator Carr on 20 November 2009 and the group is expected to submit its final report by the end of March 2010.

Recommendation 39

That the Parties review Attachment 12 of the RFA with the following objectives:

(a) to maintain the original focus and intent of enhancing employment and industry development in the forest and forest related sectors as is set out in Clause 72 and Attachment 12 of the RFA and the commitments in the Tasmanian Community Forest Agreement;

(b) to take account of current policies, available programs and potential opportunities with a view to making further appropriate commitments for the next ten years of the RFA; and

(c) to remove commitments already discharged or no longer relevant having regard to the preliminary examination of these matters as set out in Appendix 4 Table 1.

Response

The Parties agree to update and rationalise Attachment 12 of the RFA in advance of the third RFA Review in 2012 and agree that this should be done after completion of the Tasmanian forest industry development strategy (see recommendation 38).

Information and Education

Recommendation 40

That the Parties continue a program, in collaboration with industry stakeholders, of community education, information and awareness on the value of forests, the management of forests and the operation of the Forest Practices System in the pursuit of the ecologically sustainable management of forests, to assist the community to understand the issues associated with the management of forests for all values, particularly in light of climate change, biodiversity, catchment management and the domestic processing of wood products.

Response

The Parties recognise the value of community education, information and awareness on the value and management of forests.

The Tasmanian Government will continue a range of programs to improve community education, information and awareness, in collaboration with industry stakeholders. These include programs managed through the Forests and Forest Industry Council of Tasmania, Forestry Tasmania, the Forest Practices Authority and Private Forests Tasmania, and through continued support for the Forest Education Foundation.

The Australian Government will produce the State of the Forests Report and the State of the Environment Report as required by relevant policies and legislation. It will continue to contribute to relevant international fora such as the Food and Agriculture Organisation (FAO) and the United Nations Forum on Forests (UNFF).

Apiculture

Recommendation 41

That the State completes the plan for the future of the Tasmanian apiary industry in consultation with the Tasmanian Beekeepers Association and forest industry sector.

Response

The Forests and Forest Industry Council of Tasmania has established an Apiary Working Group that includes representatives of the Tasmanian Beekeepers Association, public land managers and the forest industry. The Working Group has developed a draft plan for the future of the apiary industry as a concept document, recognising that its implementation requires resolution of commercial matters that can only be resolved through direct negotiation between beekeepers and land managers.

RFA and TCFA Financial and Performance Auditing

Recommendation 42

That the Parties should identify the major financial commitments established by the RFA, TCFA and any related financial commitments, to establish a program of independent financial and performance audits of the discharge of those commitments (which may include separate program evaluation) and the achievement of the outcomes sought as a result of those commitments. The Parties should prioritise the audits as considered appropriate. In particular, the audits should address the effectiveness of the programs for (i) protection of forest communities on private land, (ii) intensive forest management, and (iii) industry development and restructuring. Reports produced as a result of audits or evaluations should be published on their completion.

Response

The Parties note that it is part of sound governance to regularly audit programs funded under the RFA and TCFA.

The Parties agree to facilitate performance evaluations and audits of programs for (i) protection of forest communities on private land, (ii) intensive forest management, and (iii) industry development and restructuring, at their completion. The Parties will publish completed performance evaluations and audits on relevant government websites.

Monitoring and Reporting

Recommendation 43

That, given that Recommendation 5.1 of the 2002 Review stated "[T]hat the Parties, as a priority, develop a process, to obtain reliable data to inform social and economic indicators for the community, and the performance of forest based industries relevant to Attachment 12 of the RFA. The sustainability indicators relevant to the social and economic aspects of the industry need to be reviewed when such reliable data becomes available.", recommendation 5.1 of the 2002 Review should be implemented by the Parties as a matter of high priority. The process should engage all relevant stakeholders in the identification of the data to be collected. This stage of the process should be completed by 30 September 2008. These data should be available to the next five year Review, and form part of the matters taken into account in the decision whether or not to extend the RFA.

Response

The Parties agree to continue to work together, and with industry and other relevant stakeholders, to improve the availability and reliability of social and economic data and indicators regarding the performance of forest based industries.

As part of the Australian Government's forestry policy commitments, a Forestry Industry Database is being developed by URS Forestry that will address information to assist predicting future wood flows and industry needs. This will include the collation of comprehensive information about the resource, the workforce and its skills requirements; and developing a national database for the use of industry and government bodies. This work is due for completion by July 2010.

The Parties also note that the ongoing work of the CRC for Forestry is producing new data for some key elements, which are expected to improve further for the third RFA Review in 2012.

The Australian Government has engaged the Australian National University Fenner School of Environment and Society to identify a set of indicators to describe and quantify the social and economic impacts of forestry in Australia over time, which included a case study in north east Tasmania. This report was released in May 2009 and is available at: http://www.daff.gov.au/forestry/national/monitoring_the_social_and_economic_impacts_of_forestry

This joint Australian and Tasmanian government response is available at: http://www.daff.gov.au/ and http://www.dier.tas.gov.au/

APPENDIX 3

TASMANIAN WILDERNESS 181bis
STATEMENT OF OUTSTANDING UNIVERSAL VALUE

Values

The Tasmanian Wilderness is one of the largest temperate wilderness areas remaining in the Southern Hemisphere and has the longest undisturbed stretch of temperate, high energy, embayed, rocky and sandy coastline in the world.

The area contains rocks from almost every geological period and geomorphological features from past glacial events, as well as an exceptionally broad range of ongoing geomorphological processes including fluvial, lacustrine, karst, periglacial and coastal processes.

The wide variety of undisturbed environments in the property provides for the continuance of long-ongoing ecological processes, which have resulted in an unusually high proportion of endemic flora and fauna species and a unique diversity of ancient taxa, including some of the world's longest-lived individual and clonal trees.

This extensive property also provides refuge for significant numbers of threatened species, including the world's largest carnivorous marsupials. Spectacular landscapes of the Tasmanian Wilderness include rugged mountain ranges, cloaked in delicate alpine and subalpine flora and scattered with picturesque tarns; expanses of buttongrass moorland; some of the world's tallest flowering forests; and extensive karst systems containing glow-worm displays. From the mountains, wild, tannin-stained rivers flow through cool temperate rainforest, cascading over waterfalls to meet wide, dark harbours, stormy coastlines and offshore islands.

The region also features the world's most dense concentration of Ice Age human occupation sites dating back some 35,000 years in what is thought to be evidence of the most southerly human occupation at that time. Aboriginal people developed unique and specialised technologies to adapt to the extreme cold conditions leaving behind one of the world's longest, richest and best preserved human occupation records from the Ice Age.

Criterion (iii) – bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared

The Tasmanian Wilderness World Heritage Area bears exceptional testimony to a unique Aboriginal society that developed during the last Ice Age and lasted from 35,000 to about 12,000 years ago. During this time Tasmanian Aboriginal people experienced profound changes in the climate and landscape.

In southwest Tasmania Aboriginal people developed a unique cultural tradition based on a specialised stone and bone toolkit that enabled the hunting and processing of a single prey species (Bennett's wallaby) that provided nearly all of their dietary protein and fat. As Bennett's wallabies did not migrate they were 'ecologically tied' to the grassland patches on valley floors, and Tasmanian Aboriginal people moved seasonally between these patches to hunt. Despite changes in the intensity with which Aboriginal people used the property, this highly specialised cultural adaptation is unique because, unlike other hunter-gatherer cultures in cold climates, it was largely unchanged through the climatic fluctuations of the last Ice Age.

As the Ice Age ended and temperatures increased, forests and moorlands replaced the grasslands preventing Aboriginal people from hunting in these upland regions. The Tasmanian Aboriginal people also developed a remarkable new coastal adaptation to the southwest using a mix of marine and terrestrial resources. This is evidenced by an exceptionally rich suite of shell middens and the remains of Aboriginal villages.

Criterion (v) – be an outstanding example of a traditional human settlement, land-use or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change

The outstanding preservation of bone and stone tools in the limestone caves of the area, coupled with the abandonment of the upland areas at the end of the Ice Age allows a detailed understanding of the unique adaptation by southwest Tasmanian Aboriginal people to their environment during the last glacial stage.

The climate of southwest Tasmania during the last Ice Age was much colder and drier than today. The environment comprised limited fertile grassland patches in valley floors surrounded by less fertile ground. Tasmanian Aboriginal people developed a remarkably stable adaptation that allowed them to use this environment consistently despite climate fluctuations during the Ice Age. They hunted Bennett's wallaby in the low altitude (<200m asl) grassland patches in the winter switching to hunting the same animal in the higher altitude (400m asl) patches in summer. Tasmanian Aboriginal people probably maintained the grasslands by systematic burning, making hunting predictable and enabling long-term occupation of this apparently inhospitable, inconstant environment.

As the Ice Age ended, beginning about 13,500 years ago, forests and moorlands replaced grasslands. By 12,000 years ago, Aboriginal people could not maintain their Ice Age traditions in this changing environment, providing an outstanding example of the vulnerability of a cultural tradition to irreversible climate change.

Criterion (vi) – be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance (in conjunction with other criteria)

The suite of Pleistocene occupation and art sites in the Tasmanian Wilderness provide a remarkable insight into the relationship between the secular and artistic activities of a specialised hunter-gatherer tradition in an Ice Age cultural landscape. Minimal human alteration to this landscape since the end of the Ice Age has ensured exceptional preservation of the outstanding record of this unique cultural tradition.

During the Ice Age, Tasmanian Aboriginal people developed an exceptionally close adaptation to a probably inhospitable landscape comprised of limited fertile grassland patches in valley floors surrounded by less fertile country. Despite climatic fluctuations during the last Ice Age, Tasmanian Aboriginal people used this landscape consistently, hunting Bennett's wallaby in the low altitude grassland patches in winter and in the higher altitude patches in summer. They probably maintained the open grassland patches by systematic burning, enabling long-term occupation of this apparently inhospitable landscape.

Southwest Tasmanian Aboriginal artistic expression during the last Ice Age is only known from the dark recesses of limestone caves. There is very limited evidence of occupation deposits in these caves, indicating a separation between art sites and places where people lived. This is very unusual in an international context where most Pleistocene caves with art contain occupation deposits at the mouth of the cave. Art is found in low altitude areas where Aboriginal people hunted in the winter, as well as at higher altitudes where hunting took place in the summer months.

The occupation and art sites provide a remarkable insight into an unusual relationship between secular and artistic activities in the landscape during the last Ice Age.

Criterion (vii) – contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

The Tasmanian Wilderness is a place of untamed natural phenomena, a place where humans, mostly on foot, can experience the wonder and beauty of nature at its most magnificent. Spectacular and contrasting landscapes of the Tasmanian Wilderness range from rugged mountain ranges scattered with picturesque tarns to wide, dark harbours and stormy coasts; from delicate alpine and subalpine flora and sweeping buttongrass moorlands to towering forests; from long-sheltered karst systems to exposed, windswept plateaux and peaks.

The glaciated mountains of the property are aesthetically distinct and outstanding, with red and gold to dark green tones in their blanket of vegetation, the dark tones of their glacial lakes, their silence in calm weather and their clamour during storms.

The high mountain landscape of the country in the east of the property has universally outstanding natural aesthetic value, related to its diversity of colours and forms, rather than relative relief.

The property contains examples of the world's tallest flowering forests. These eucalypt forests tower above rainforest trees of substantial stature, form awe-inspiring forests of truly exceptional beauty at both a landscape and individual scale.

Lowland areas with their sweeping green-gold buttongrass coat, stark white metamorphic rocks, dark waters, patches of emerald rainforest, terraces and flats and typically dark skies also present a landscape of outstanding contrasts and aesthetic distinction.

Underground, the extensive karst systems of the property have a rich representation of karst features in spectacular caves containing some of the most extensive glow-worm displays in the world.

Wild rivers carve through rainforest or moorland uplands and gorges, plunging over waterfalls into foaming eddies before snaking darkly under the lime green drapes of ancient Huon pines and moss-covered giant tree ferns to the lonely waters of the area's south western shores and towards the lowlands to the north and east. These dystrophic waters combined with southern temperate rainforest make western Tasmania scenically different from most other close analogues in the world and aesthetically outstanding on a global basis.

The south and far south-west coasts of the property are high energy and are globally exceptional in the diverse beauty of landforms that continue to be formed from the remnants of an ancient landmass in the fierceness of the 'Roaring Forties'. All of these processes continue largely in the absence of modern development and associated influences.

Criterion (viii) – be outstanding examples representing major stages of the earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features

The Tasmanian Wilderness is one of the largest temperate wilderness regions in the southern hemisphere, and is a place where natural geomorphic and soil processes continue to operate in a largely unmodified fashion.

The area contains rocks from almost every geological period and geomorphological features from past glacial events. There is also an exceptionally broad range of ongoing geomorphological processes.

Glacial features in the Tasmanian Wilderness are one of the best available global records of temperate glacial processes during the Late Cainozoic Ice Ages. Extra-glacial landforms and deposits are important in complementing and adding to this record. These include fluvial landforms such as glacio-fluvial terraces, periglacial features including slope mantles, coastal terraces and other features reflecting changing sea levels corresponding to changing Late Cainozoic climates and the long Pleistocene lake sedimentary and palynological records in the Darwin Crater.

Periglacial processes continue in alpine areas of the property with a globally unusual lack of influence of permafrost in creating landforms.

Undisturbed fluvial processes are ongoing, including alpine, forested, karst-influenced, tectonic influenced and peatland systems on a variety of bedrock substrates from almost every geological era.

Ongoing lacustrine processes are exemplified by undisturbed lake geomorphic systems and catchments, displaying a wide diversity of origins, processes and types, including meromictic processes, various glacial lake types, flood-plain lakes, karst/sinkhole lakes, dune lakes, oligotrophic and dystrophic types.

The property contains an exceptional expression, extensive scale and very high diversity of ongoing and undisturbed karst processes, including palaeokarst development going back up to 400 million years, hydrothermal karstification and glacio-karstic interactions.

Marine and aeolian processes are ongoing due to exposure to the 'Roaring Forties', along the longest undisturbed stretch of temperate, high energy, embayed rocky and sandy coastline in the world.

Much of the landscape is covered by organic soils, which form under a variety of vegetation types, including rainforest, and are highly distinct in characteristics and genesis from the organic soil assemblages in the northern hemisphere. Some features, such as migrating striped bogs and peat mounds appear to have characteristics that make them globally unique, including that ongoing natural processes remain in largely undisturbed condition.

Criterion (ix) – be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals

The Tasmanian Wilderness is a showcase of natural ongoing ecological and biological processes, perhaps best displayed by the presence of all stages of vegetation succession.

The property contains significant areas of natural habitat renowned for their plant diversity, species of ancient origins, a high degree of endemism and the presence of many species of natural rarity.

A primary value of the area resides within, and is protected by, its extensive area and essentially wild and largely undisturbed nature.

The wide variety of undisturbed environments in the property provides for the continuance of long-ongoing ecological processes, which have resulted in an unusually high proportion of endemic flora and fauna species and a unique diversity of ancient taxa, particularly those with ancestry dating back to the super continent of Gondwana.

The fauna of the Tasmanian Wilderness is of global significance because it includes an unusually high proportion of endemic species and relict groups of ancient lineage. These include many groups of marsupials and burrowing freshwater crayfish. The property provides refuge for an almost complete set of Tasmania's marsupials, monotremes and placentals, including the world's largest carnivorous marsupials.

There is fossil and pollen evidence to support the presence and evolution of particularly ancient flora genera within Tasmania for more than 60 million years. The property is also renowned internationally for the extreme longevity of some of its flora, the oldest of which has been dated as at least 43,000 years old.

The property's lowland and montane ecosystems best exemplify an ongoing ecological process of reciprocal interaction between vegetation type, environment and fire frequency. This process is universally outstanding in its complexity, involving five floristically and structurally distinct vegetation types: buttongrass moorland, melaleuca / eucalypt scrub, wet eucalypt forest, angiosperm dominated rainforest, and gymnosperm dominated rainforest.

The buttongrass moorlands provide examples of long ongoing ecological processes that have resulted in the development and/or survival of highly distinct communities of plants and animals. These examples are on the margin of freshwater and terrestrial systems, and appear to be either largely confined to, or best expressed on a global basis in the Tasmanian Wilderness. These keystone processes include the development of alkaline or siliceous pans, which provide habitat for many distinct species, the creation of distinct subterranean ecosystems by burrowing crayfish and the hummock-formation that results from the growth of buttongrass.

The bolster heaths of the high country of the Tasmanian Wilderness have a wide diversity of bolster plant species. These heaths are globally outstanding in that there is continual change in the mixture and patterns of species yet the bolster heaths remain remarkably constant and diverse in their overall composition. The bolster heath blocks drainage, ultimately forming ponds which provide habitat for unique aquatic communities.

The Tasmanian Wilderness has freshwater systems that are globally unusual in their degree of darkness and their lack of nutrients.

Together with the distinctive geomorphology, topography and climate, the unusual character of the freshwater systems of the property has resulted in the evolution of highly distinct fauna species, ecological communities and ecosystems. It is notable that even the usually cosmopolitan algae have species endemic to these waterways. Coastal lagoons, perched on hardpans in sand dune systems, have been recognised as particularly distinct. The biotic communities in the one remaining meromictic lake are regarded as a particularly important example of the way that meromixis creates distinct microbial communities.

In the estuarine system of the Bathurst Harbour-Port Davey ria, darkened fresh water sits upon the clear, salt water of the sea. This phenomenon brings close to the surface a diverse community of marine species usually found at depth. It has also led to the evolution of a small suite of species that appear to be confined to this system. Elsewhere in the world, waters are less dystrophic, do not lie above salt water in large sheltered estuaries, and/or have been disrupted by human activity.

Criterion (x) – contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation

The high degree of endemism to the Tasmanian Wilderness, and Tasmanian endemism, of the rich native biota found within this extensive and largely undisturbed property means that the site is one of the most important in the world for the conservation of biodiversity.

Ecosystems that are almost free of introduced plant and animal species cover most of the property, which contains some of the last remaining pathogen-free habitat for its many endemic and threatened species.

The buttongrass moorlands appear to be the only extensive hummock sedgeland in the world.

The temperate alpine ecosystems of Tasmania, largely within the property, appear to be among the most species-rich in the world, and have a globally outstanding number of biotic communities.

The wet eucalypt forest ecosystem in the property has an outstanding richness of cryptogams compared to wet eucalypt forests elsewhere.

The estuarine system of the Bathurst Harbour-Port Davey ria receives dystrophic waters from the wettest part of Tasmania and in the undisturbed, shallow waters of many parts of this area, the darkened fresh water sits upon the clear, salt water of the sea, which brings to the surface a diverse community of marine species usually found at depth.

The meromictic lake system on the Gordon River is also globally rare and provides habitat for specialised microbial communities.

A large number of threatened species of outstanding universal value from the point of view of science or conservation are found, some exclusively, within the above ecosystems.

Detailed descriptions of values which the State Party considers to contribute to the outstanding universal value of the property, and are managed as such under national legislation, are published and regularly updated on the following website:

http://www.environment.gov.au/heritage/places/world/tasmanian-wilderness/index.html

Integrity and Authenticity

In 1982 the property was inscribed with an area of over 7,000 km^2 (700,000 hectares) and the area was significantly extended in 1989 to cover 13,800km^2 (1.38 million hectares).

A further boundary modification is proposed in response to the World Heritage Committee's Decision WHC 32 COM 7B.41. This proposal incorporates 20,063 hectares in adjacent reserves on the northern and eastern boundary into the property. Pending resolution of the mining lease in the Melaleuca – Cox Bight enclave on the southern coast of the property, the proposal also includes adding this enclave of 3,810 hectares, representing a total extension of (23,873 hectares) and thereby significantly improving the southern boundary. Given the existing large extent of the property, this extension represents a small proportional increase (0.0172%) of the current size. However, the extension to the property is important for increasing the representation of existing values and substantially adding to the integrity of the property.

As acknowledged at the time of nomination, areas of production forest remain in areas adjacent to the property. These production forest areas are managed for multiple uses under the Tasmanian Regional Forest Agreement. A joint UNESCO, IUCN and ICOMOS monitoring mission to the property in 2008 found that the area managed under the TWWHA management plan provides a good representation of well-managed tall *Eucalyptus* forest and there is similar forest outside the property which is also well-managed, but for both conservation and development objectives. The mission concluded that the threats to these forests from production forestry activities are well managed and there is no need for the boundary of the property to be changed to deal with such threats.

Due to its rugged terrain, wild coastlines, and vegetation that is often difficult to penetrate, there is limited vehicular access and infrastructure inside the area and few other industrial, agricultural or modern western influences. There are various visitor access points and facilities, largely on the periphery of the property and linked to walking tracks through the property, and there are some unsealed roads that pre-date inscription and are used and managed in accordance with the zoning scheme under the *Tasmanian Wilderness World Heritage Area Management Plan*. There are only two main through roads in the Tasmanian Wilderness, namely the Lyell Highway (running east - west through the property) and the Lake Highway (running north – south across the far north-eastern part of the property). The main disturbance from modern industrial society to the property's natural processes is from hydroelectric power infrastructure and operation, in particular the Middle Gordon Power Scheme. Both the highway and the power scheme pre-date the property's inscription on the World Heritage List.

The landforms of the original Lake Pedder remain intact, though no longer visible, following flooding resulting from the power scheme. Downstream, along the Gordon River, intensive monitoring and management occurs of the impacts of bank erosion and altered hydrological processes upon geomorphic, lacustrine and ecological processes. Three meromictic lakes on the Gordon River fall within the original inscribed area, however only one, Lake Fidler, retained its meromixis at the time of listing. Lake Fidler has periodically lost its meromixis, and has had to be artificially recharged with saline waters in previous years. However in 2008 the lake experienced a natural saline recharge due to an exceptional coincidence of events brought about by drought and flooding storms.

The property is vulnerable to the consequences of anthropogenic climate change. Other potential threats to the integrity of the property, which are monitored and managed, are inappropriate access and/or use, increase in visitation above the limits of acceptable change, uncontrolled fire, tourism development and the spread of introduced species and pathogens.

The property contains over 40 late Pleistocene cave sites and hundreds of open Aboriginal cultural heritage sites that demonstrate a level of richness, distribution, and variability rarely seen in other comparable contexts. These archaeological deposits are unquestionably the remains of Tasmanian Aboriginal occupation over a 23,000 year period between approximately 35,000 and 12,000 years ago. Authenticity has been established through a rigorous research program over the past 25 years by archaeologists, anthropologists, and the Tasmanian Aboriginal community.

The exceptionally preserved Pleistocene deposits have outstanding integrity due to the deposition of calcium carbonate flowstone (leached from the surrounding limestone) over the top of a number of the cultural deposits since their abandonment 12,000 years ago, leaving them largely undisturbed by development, visitation and/or vandalism. The limestone cave deposits remain largely intact, undisturbed and safe from natural erosion. The bone preservation is excellent due to the high alkalinity of the sedimentary deposits.

These places are extremely important to the Tasmanian Aboriginal community, having exceptional cultural, emotional and spiritual value.

Protection and Management System

All World Heritage properties in Australia are 'matters of national environmental significance' protected and managed under national legislation, the *Environment Protection and Biodiversity Conservation Act 1999*. This Act is the statutory instrument for implementing Australia's obligations under a number of multilateral environmental agreements, such as the World Heritage Convention, the Convention on Biological Diversity and the Ramsar Convention.

By law, any action that has, will have or is likely to have a significant impact on the World Heritage values of a World Heritage property must be referred to the responsible Minister for consideration. Substantial penalties apply for taking such an action without approval. Once a heritage place is listed, the Act provides for the preparation of management plans which set out the significant heritage aspects of the place and how the values of the site will be managed.

Importantly, this Act also aims to protect matters of national environmental significance, such as World Heritage properties, from impacts even if they originate outside the property or if the values of the property are mobile (as in fauna). It thus forms an additional layer of protection designed to protect values of World Heritage properties from external impacts. The Act has been tested in court[1] in relation to protection of the values of World Heritage properties.

The property (as well as most of the adjacent reserved area proposed for inclusion in the boundary modification) is also specifically protected and managed under the *Tasmanian Wilderness World Heritage Area Management Plan.*

The first management plan for the property was approved in 1992. This was reviewed and replaced with a more comprehensive management plan in 1999. In 2010 an interim review brought the plan up to date with legislative changes and emerging issues.

The *State of the Tasmanian Wilderness World Heritage Area* report, a comprehensive evaluation of management effectiveness with respect to the property, was completed in 2004. Updated evaluation reports will be completed as part of future management plan reviews, providing a sound basis for adaptive management of the property.

[1] The *Minister for the Environment and Heritage v Queensland Conservation Council Inc [2004]* (Nathan Dam case) and *Booth v Bosworth [2001]* (Flying Fox case).

The Aboriginal cultural heritage values of the property are currently protected/administered by three pieces of legislation:

- *National Parks and Reserves Management Act 2002* (Tasmanian legislation)
- *Aboriginal Relics Act 1975* (Tasmanian legislation) – under review
- *Environment Protection and Biodiversity Conservation Act 1999* (Australian Government legislation)

The Tasmanian Parks and Wildlife Service is directly responsible for management of a large portion of the land that contains Aboriginal cultural heritage values within the property, along with the Tasmanian Aboriginal Land and Sea Council (TALSC), which has managed a number of small culturally significant land parcels since December 1995.

The *Tasmanian Wilderness World Heritage Area Management Plan* includes a comprehensive chapter on Aboriginal cultural heritage values. A trainee Aboriginal ranger program being undertaken by the Tasmanian Parks and Wildlife Service provides for monitoring of cultural sites and capacity building in the management and conservation of Aboriginal heritage.

Bibliography

Allen, J. (1994) Radiocarbon determinations, luminescence dating and Australian Archaeology. *Antiquity.* Vol. 68. pp.339-43

Balmer J., Whinam J., Kelman J., Kirkpatrick J.B. & Lazarus E. (2004) A review of the floristic values of the Tasmanian Wilderness World Heritage Area. Nature Conservation Report 2004/3. Department of Primary Industries Water and Environment, Tasmania, Australia

Brown, S. (1991) Art and Tasmanian prehistory: evidence for changing cultural traditions. In Bhan, P. and Rosenfeld, A. (eds.) *Rock Art and Prehistory*. Oxbow: Oxford. pp. 96-108.

Commonwealth of Australia (2008) *Australia's World Heritage.* pp.62-64. Australian Government Department of the Environment, Water, Heritage and the Arts. Canberra

Commonwealth of Australia (2008) *Approved Conservation Advice for Raja sp. L (Maugean Skate)*. Australian Government Department of the Environment, Water, Heritage and the Arts. Canberra

Cosgrove, R. and Jones, R. (1989). Judds Cavern: a subterranean Aboriginal painting site, southern Tasmania. *Rock Art Research*, 6(2): 96-104.

Cosgrove, R. (1995) Late Pleistocene behavioural variation and time trends: The case from Tasmania. *Archaeology in Oceania.* Vol. 30. pp. 83-104.

Cosgrove, R. (1999) Forty-Two Degrees South: The Archaeology of Late Pleistocene Tasmania. *Journal of World Prehistory.* Vol. 13, No. 4, pp. 357-402.

Cosgrove, R. (2007) Global Expansion 300,000-8000 years ago, Australia. In Elias, S. 2007 (ed) *Encyclopaedia of Quaternary Science.* Elsevier, Amsterdam, pp. 118-129.

Cosgrove, R. and Allen, J. (2001) Prey Choice and Hunting Strategies in the Late Pleistocene: Evidence from Southwest Tasmania. In A. Anderson, S. O'Connor and I. Lilley (eds) *Histories of Old Ages: essays in honour of Rhys Jones.* Coombs Academic Publishing, Australian National University, Canberra. pp. 397-429.

Driessen, M.M. and Mallick S.A. (2003) The Vertebrate fauna of the Tasmanian Wilderness World Heritage Area. Pacific Conservation Biology, Volume 9, 187-206, Surrey Beatty and Sons, Sydney.

Edgar, G., Last, P., Barrett, N., Gowlett-Holmes, K., Driessen, M., Mooney, P. (2007). *Marine and Estuarine Ecosystems in the Port Davey-Bathurst Harbour Region: Biodiversity, Threats and Management Options.* A report by Aquenal Pty Ltd to the Department of Primary Industries and Water, Tasmania.

Gammage, B. (2008) Plain Facts: Tasmania under Aboriginal Management. *Landscape Research.* Vol. 33, No. 2, pp. 241-254.

Garvey, J. (2007) The Wallaby Hunters of Ice Age Tasmania. *Australasian Science.* pp.30-33.

IUCN (2009) *Retrospective Statements of outstanding universal value for natural World Heritage sites* – A guidance note by IUCN (Version March 2009), including *Annex 1: IUCN advice on statements of outstanding universal value* (from IUCN's manual on preparing World Heritage nominations). Paris.

McNiven, I.J. (1994) Technological organization and settlement in southwest Tasmania after the glacial maximum. *Antiquity.* Vol. 68. pp. 75-82.

Mallick S.A. and Driessen, M.M. (2005) An Inventory of the invertebrates of the Tasmanian Wilderness World Heritage Area. Pacific Conservation Biology, Volume 11, 198-211, Surrey Beatty and Sons, Sydney.

Pike-Tay, A. and Cosgrove, R. (2002) From Reindeer to Wallaby: Recovering Patters of Seasonality, Mobility, and Prey Selection in the Palaeolithic Old World. *Journal of Archaeological Method and Theory.* Vol. 6, No. 2, pp. 101-146.

Pike-Tay, A., Cosgrove, R. and Garvey, J. (2008) Systematic seasonal land use by late Pleistocene Tasmanian Aborigines. *Journal of Archaeological Science.* Vol. 35. pp. 2532-2544.

Porch, N. and Allen, J. (1995) Tasmania: archaeological and palaeo-ecological perspectives. *Antiquity.* Vol. 69. pp. 714-732.

Sharples, C. (2003) *A review of the geoconservation values of the Tasmanian Wilderness World Heritage Area*, Nature Conservation Report 03/06, Nature Conservation Branch, Department of Primary Industries, Water and Environment, Hobart

Tasmanian Department of Primary Industries, Parks, Water and Environment (2009) *Tasmania's Cool Temperate Rainforest.* www.dpipwe.tas.gov.au/inter.nsf/WedPages/BHAN-54744C?open Hobart.

Tasmanian Parks and Wildlife Service (1999) *Tasmanian Wilderness World Heritage Area Management Plan, 1999.* Hobart.

Tasmanian Parks and Wildlife Service (2004) *State of the Tasmanian Wilderness World Heritage Area – an evaluation of management effectiveness.* Hobart

Tasmanian Parks and Wildlife Service (2004b) *Tasmanian Wilderness World Heritage Area: Values Update - 2005.* Draft 11, Unpublished.

Ucko, P. and Rosenfeld, A. 1967. *Palaeolithic Cave Art*. London.

World Heritage Centre (2009) *Frequently asked questions concerning retrospective statements of outstanding universal value - Draft.* Paris.

United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

The Culture Sector

H. E. Ms Gita Kamath
Ambassador,
Permanent Delegate
Permanent Delegation of
Australia to UNESCO
UNESCO House

WHC/74/APA/10/381

12 OCT 2010

Subject: Minor modification proposal of the *Tasmanian Wilderness* (NC 181ter) (Australia) World Heritage property

Madam,

I have the pleasure to inform you that the World Heritage Committee, at 34th session (Brasilia, Brazil, 25 July – 03 August 2010), examined the minor modification proposal of the ***Tasmanian Wilderness,*** and decided to **approve** the modification of this property already inscribed on the World Heritage List. Please find below the Decision **34 COM 8B.46** adopted by the Committee.

The *Operational Guidelines for the Implementation of the World Heritage Convention* (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by and not later that **15 December 2010.**

The full list of the Decisions adopted by the World Heritage Committee at its 34th Session is available on line at http://whc.unesco.org/en/sessions/34COM/.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the *World Heritage Convention*.

Please accept, Madam, the assurances of my highest consideration.

Yours sincerely,

Francesco Bandarin
Director a.i.
World Heritage Centre

cc: National Commission of Australia for UNESCO
ICOMOS
IUCN

7, place de Fontenoy
75352 Paris 07 SP, France
Tél. : +33 (0)1 45 68 10 00
Fax : +33 (0)1 45 67 16 90

www.unesco.org

Extract of the Decisions adopted by the World Heritage Committee at its 34th session (Brasilia, 2010)

Decision: 34 COM 8B.46

The World Heritage Committee,

1. Having examined Documents WHC-10/34.COM/8B, WHC-10/34.COM/INF.8B1.Add and WHC-10/34.COM/INF.8B2,

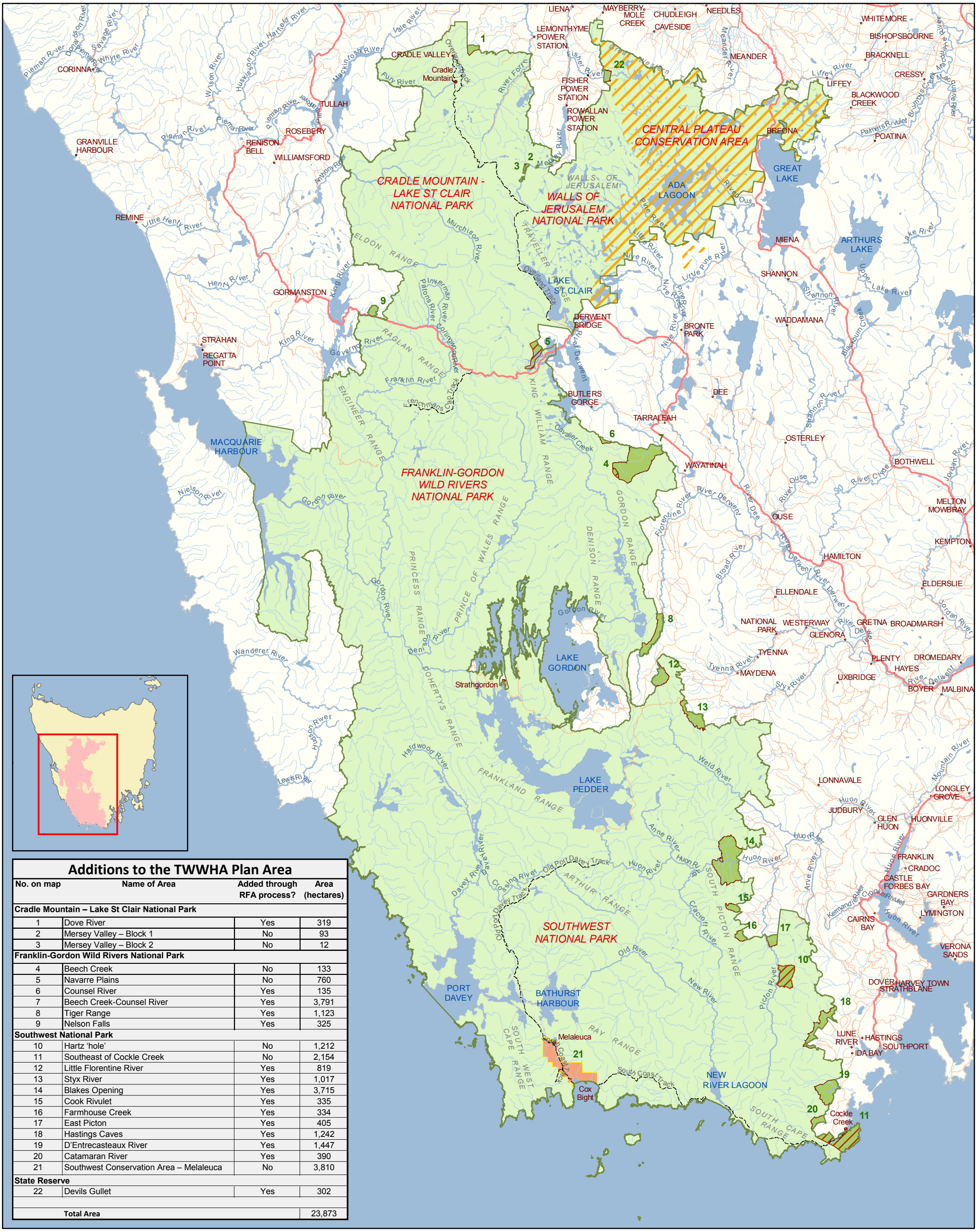
2. Approves the minor modification of the boundaries of the property **Tasmanian Wilderness, Australia**, in line with the proposals of the State Party, and as previously requested by the World Heritage Committee;

3. Welcomes the intention of the State Party to add the Southwest Conservation Area south of Melaleuca to Cox Bight to the property when mining licenses have expired;

4. Requests the State Party to ensure that the protection and management of the property within its modified boundaries takes account of past decisions of the World Heritage Committee regarding the State of Conservation of the existing property, including the management of threats in the areas adjoining its boundaries;

5. Recommends that the State Party consider further minor modifications to the boundaries to allow for inclusion of appropriate cultural sites, related to and complementing those within the property, with appropriate protection being put in place, and considering the past decisions of the World Heritage Committee on the boundaries of the property in relation the natural and cultural values;

6. Also recommends that the State Party augment its staff with cultural heritage specialists in order to ensure the adequate protection and management of cultural sites both within the property and immediately outside the boundaries.



Additions to the TWWHA Plan Area

No. on map	Name of Area	Added through RFA process?	Area (hectares)
Cradle Mountain – Lake St Clair National Park			
1	Dove River	Yes	319
2	Mersey Valley – Block 1	No	93
3	Mersey Valley – Block 2	No	12
Franklin-Gordon Wild Rivers National Park			
4	Beech Creek	No	133
5	Navarre Plains	No	760
6	Counsel River	Yes	135
7	Beech Creek-Counsel River	Yes	3,791
8	Tiger Range	Yes	1,123
9	Nelson Falls	Yes	325
Southwest National Park			
10	Hartz 'hole'	No	1,212
11	Southeast of Cockle Creek	No	2,154
12	Little Florentine River	Yes	819
13	Styx River	Yes	1,017
14	Blakes Opening	Yes	3,715
15	Cook Rivulet	Yes	335
16	Farmhouse Creek	Yes	334
17	East Picton	Yes	405
18	Hastings Caves	Yes	1,242
19	D'Entrecasteaux River	Yes	1,447
20	Catamaran River	Yes	390
21	Southwest Conservation Area – Melaleuca	No	3,810
State Reserve			
22	Devils Gullet	Yes	302
	Total Area		23,873

Tasmanian Wilderness World Heritage Area - proposal for boundary modification

- World Heritage Area boundary (inc additions)
- World Heritage Area (land area)
- Central Plateau Conservation Area
- Formerly part SWCA (Melaleuca to Cox Bight)

Additional reserve areas inside the TWWHA plan area:

- Added through the RFA process
- Added through non RFA process

- Waterbodies
- Major rivers
- Minor rivers
- Principal Road
- Minor Road
- Walking Tracks

Map produced by:
Australian Government Department of the Environment, Water, Heritage and the Arts (2010)
Projection: WGS84 MGA Zone 55S Scale: 1:700,000
Data:
World Heritage Area; Protected Areas - Tasmanian Government
Waterbodies; Waterways - Geodata Topo 250K, Geoscience Australia