# The Break O'Day National Park

Submission to:

Independent Verification Group
led by Professor Jonathan West

The Hon. David O'Byrne
State Minister for Economic Development
and
The Hon. David Crean
Federal Minister for Regional Australia and
Regional Development

# Break O'Day National Park

This submission is made on behalf of: **Greater Esk Tourism Inc**.

Contacts:

**Peter Troode**
President – Greater Esk Tourism Inc.
19 Gray Road
St Marys. 7215.
TAS.

Phone: 03 6372 2783
addlestone@bigpond.com

**Mary Knowles**
Secretary – Greater Esk Tourism Inc.
'Rivendell'
Gipps Creek 7213.
TAS.

Phone: 03 6385 2002
gippscreek@aussiebb.com.au

**Dr Andrew Lohrey**
33 Legge Street
Falmouth. 7215

Phone: 03 6372 5585
andrewlohrey@skymesh.com.au

# Break O'Day National Park

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# Section 1: Management

## Executive Summary

This submission contains three general proposals:

i) Firstly, that the Informal Reserves surrounding the town of St Marys, together with existing state and forestry reserves, be permanently protected with the status of a National Park, and that this park be called the Break O'Day National Park; and

ii) Secondly, that the Break O'Day National Park be administered by a Conservation Management Trust (CMT). This would be an incorporated not-for-profit body made up of community representatives drawn from conservation groups in the area as well as from local business people and, in addition, would have a Parks and Wildlife Services representative on it. The CMT would oversee the management plan and propose regulations relating to the overall management of the park. The CMT would have a bank account, budget, hire staff and manage visitors and volunteers, and through this mechanism the local community would be directly involved in the management of the park and the promotion of the area.

iii) Thirdly, that the initial establishing costs for the Break O'Day National Park be assessed and identified through a process of working in conjunction with the Commonwealth Government's Regional Development Australia. This is a place-based project and comes under Regional Development Australia's plans for economic diversification.

**Break O'Day National Park – Area**

The Tasmanian Forests Intergovernmental Agreement between the Commonwealth of Australia and the State of Tasmania, signed on 7 August 2011, agreed to immediately place 430,000 hectares of native forests into Informal Reserves and that, subject to verification, State legislation would formally protect these areas with appropriate land tenure.

Some of the 430,000 hectares of Informal Reserves are located around the town of St Marys. In addition to these Informal Reserves the St Marys area also contains the State Reserves of St Marys Pass State Reserve, St Patricks Head State Reserve and Little Beach State Reserve. These state reserves together with the Informal Reserves and several forestry reserves now constitute a natural interconnected single area containing high conservation values. (See the attached map p. 27 and map p. 28 ).

An area that has been also included in this single reserve is marked on the enclosed map as a 'restoration zone'. This area of forest is bordered by the Little Beach State Reserve to the east and Mt Elephant to the west. Currently this forest is not included in the 572,000 hectares of high conservation value forests and so is available for logging. It is our submission that this area of forest should be included within the boundary of this single interconnected area of reserve. Its inclusions would mean a strengthening of ecological interconnection between the elevated forests of Mt Elephant and the lower altitudes forests of the Little Beach State Reserve. The inclusion of this area would form a continuum of natural habitats so important for the long-term survival of endemic species. The inclusion of this area would also provide an entrance from the Tasman Highway into the Little Beach State Reserve which would not otherwise be available. Restoration work on this area would be carried out until the degraded state of this forest comes up to the standard of a National Park. This may take up to twenty years.

When looking at the map of the Break O'Day National Park it is clear that there are several blocks of privately owned land which are surrounded by National Park. Purchasing privately owned land for environmental protection is one of the objectives of the North East Tasmania Land Trust. This organization has expressed an interest in purchasing some of these blocks of land and returning them to their natural state and then having them included within the National Park. Through this procedure the National Park boundaries would gradually become more aligned with natural land forms.

**Land Tenure**

Under the terms of the National Parks and Reserves Management Act 2002, the name "National Park" is applied to a large natural area of land containing a representative or outstanding sample of major natural regions, features or scenery. We submit that this is the appropriate title and land tenure for the landforms and ecological diversity contained within the borders of the Break O'Day National Park. In addition, the following management objectives for a national park are entirely appropriate for this particular National Park. These objectives are:

- to conserve natural biological diversity;
- to conserve geological diversity;
- to preserve the quality of water and protect catchments;
- to conserve sites or areas of cultural significance;
- to encourage education based on the purpose of reservation and the natural or cultural values of the national park, or both;
- to encourage research, particularly that which furthers the purpose of reservation;
- to protect the national park against, and rehabilitate the national park following, adverse impacts such as those of fire, introduced species, diseases and soil erosion on the national park's natural and cultural values and on assets within and adjacent to the national park;
- to encourage and provide for tourism, recreational use and enjoyment consistent with the conservation of the national park's natural and cultural values;
- to preserve the natural, primitive and remote character of wilderness areas.

The objectives for a National Park reflect the evidence of high conservation values and ecological diversity within the boundary of the Break O'Day National Park. Dr Peter McQuillan from the University of Tasmania has written a report (2004) on this area, which states that the 'north east of Tasmania is known as a biodiversity hotspot'. (http://www.southsister.org/articles2/mcquillan.htm)

**The details of the natural values of the area are discussed fully in Section 2 of this submission (p. 10).**

**Name**

The name of this National Park is taken from the local Break O'Day River. The catchment and headwaters of this river have been formed by the western and southern slopes of the horseshoe formation of the mountains around St Marys, which constitute at least half of the land area of the National Park.

**Management**

It is our submission that the Break O'Day National Park should be administered by a Conservation Management Trust (CMT). This would be a not-for-profit incorporated body with a Management Committee made up of four representatives from conservation groups in the area and four representatives from local business/tourist operators. In addition, the Parks and Wildlife Services would have a representative on the Trust.

A CMT for a National Park is a new approach to Park management. It is an approach that could save the State Government management funding while directly involving the community but not privatizing or reducing the amount of public reserved land. This is an approach that is needed for the particular social and environmental characteristics of this particular National Park. Establishing a CMT for the Break O'Day National Park will require a legislative change, which could coincide with the legislation needed to establish the Park.

The CMT for the Break O'Day National Park would oversee the management plans and propose regulations relating to the overall management of the park. This CMT would have a bank account, budget, hire staff, own property and manage visitors and volunteers, and through this mechanism the local community would be directly involved in the management of the park and with the economic promotion of the area.

The CMT for the Break O'Day National Park would operate under the powers given by The National Parks and Reserves Management ACT 2002 – Section 30, 31 & 32. (Section 31 would need to be amended to allow for a Conservation Management Trust for a National Park). The CMT for the Break O'Day National Park would also act in conformity with Schedule 2 of this Act, which describes the objective of the resource management and planning system of Tasmania. These objectives are:

(a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity; and

(b) to provide for the fair, orderly and sustainable use and development of air, land and water; and

(c) to encourage public involvement in resource management and planning; and

(d) to facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c); and

(e) to promote the sharing of responsibility for resource management and planning between the different spheres of Government, the community and industry in the State.

## Local Management

Currently, the annual 250,000 tourists who pass through St Marys head for coastal destinations. Few stop in this area because it is not a known destination. With a National Park many of those tourists would make the Break O'Day National Park their destination. A tourist destination would thus bring important economic and financial development to this economically depressed rural area.

The only industrial activity in Fingal Valley is the Cornwall Coal Company, which has been shedding employees over the last decade. It is vital that this community is provided with some regional development support so that it can make the best use of its natural resources and these are the environmental resources of a National Park.

One of the important attributes of this area is the high level of community participation and voluntary work undertaken by locals. This participation involves the Rural Fire Services, the Ambulance Service as well as a host of community organizations. There are also environmental volunteers keen to help in the running of the National Park. These volunteers would be assisted by the Centrelink system of unemployment benefits that enables people over 55 years of age to work 15 hours a week in a voluntary capacity for an approved organization. There are a range of people living in the area who would qualify for this benefit and who would be suitable as National Park volunteers. There is therefore a healthy local potential for National Park volunteers.

The benefits of a local management authority (CMT) for the Break O'Day National Park would mean that locals will take an active and keen interest in the decision-making of park management. This would lead to attentive and informed decisions relating to tourist expansion and development as well as to the long-term protection of the Park environment. The Break O'Day National Park is an environment that lends itself to both these objectives in combination. Local knowledge would also an important feature of the Park's management, particularly in the areas of weed eradication, track construction and restoration work to be carried out in the restoration zone.

The Break O'Day National Park would bring great cultural and economic benefits to this area in terms of increasing employment in the currently operating tourist industry as well as employment in new tourist developments and in the management of the Park. This boost to the local economy would mean greater financial returns for all businesses in the whole valley.

## Fees and Income

The topography and settlement of this area means there is no natural single entrance to the Break O'Day National Park. This is because there are major roads and highways passing around and through it. There are also several small communities living within or near the borders of the Park. These are the communities of Dublintown, Germantown, Irishtown, Gray and Davis Gully. The people who live in these small rural communities interact daily with the larger area and St Marys. This local interaction together with the traffic that goes through the National Park means that it would be difficult if not impossible to charge an entrance fee at one single location.

From the local perspective, rather than an entrance fee a more appropriate means to ensure income to the CMT would be to charge a fee for the use of the Park's walking tracks. This would mean that visitors would need to register with the Visitor's Centre in St Marys for their bush walks. The Park topography lends itself to a range of walking tracks extending from a short hour walk up to a six-day hike. A registration fee based on the length of walk would seem appropriate. Visitor registration would also be necessary for security reasons as well as an occasion for providing information to visitors on local species and points of interest. The mechanism of registration for walks would be one source of income for the CMT. Other avenues would need to be pursued by the CMT.

**Regional Development**

It is our submission that the initial establishing costs to manage and operate the Break O'Day National Park should come through consultation with and through Regional Development Australia (RDA).

As the key focus of Regional Development Australia is on the economic, social and environmental issues affecting communities we would like to work with RDA in order to develop a funding package to establish the Park. Such a package would contribute to, and be a driver of, local business growth and would incorporate plans and strategies that would protect the Park's environment and help support local economic development, including the creation of new jobs and skills.

The Charter of Regional Development Australia refers to working in consultation with the community, business, non-profit organizations and all levels of government to articulate local priorities, identify and align resources, engage stakeholders and promote solutions.

The major local resources that are identified in order to establish the Break O'Day National Park include the following:

A visitor's Centre located in the town of St Marys;

management plan for the Park;

80 kilometers of new and existing track to be built or upgraded;

camp sites;

visitor transport around the Park; and

signage, advertising and promotion.

Through consultation with Regional Development Australia we hope to identify and align all of the essential resources that are needed for the Break O'Day National Park to be a successful regional development.

# Section 2: Natural Values Report

Report prepared by Nick Fitzgerald, BSc (Hons)

313 Nelson Rd, Mount Nelson, Tasmania

TasBotanic@gmail.com

August 2011

## Executive Summary

The Break O'Day National Park seeks to recognise and protect the outstanding biodiversity values and landscapes of the St Marys region in northeast Tasmania. The National Park would connect several smaller existing reserves resulting in a single reserve which covers a wide range of environmental variation from near-coastal to elevated peaks.

Conservation values of the proposed Break O'Day National Park include:

- A diverse variety of different wet and dry forest types including old growth forests;
- Key habitat for one of Tasmania's most threatened invertebrates, the blind velvet worm (*Tasmanipatus anophthalmus*), and the related rare giant velvet worm (*Tasmanipatus barretti*);
- Nesting habitat for threatened bird species including swift parrot (*Lathamus discolor*), grey goshawk (*Accipiter novae-hollandiae*) and wedge-tailed eagle (*Aquila audax fleayi*);
- Brookers gum (*Eucalyptus brookeriana*) forest – an endangered vegetation type which is very rare in eastern Tasmania;
- Threatened plant species such as the Guinea flower (*Hibbertia calycina*) and Roundleaf mintbush (*Prostanthera rotundifolia*) – both shrubs listed as vulnerable to extinction;
- High biogeographic significance based on the distribution of flora and fauna species including several National Estate areas recognising the unique biogeography of the area;
- An exceptional diversity of lichens, including several species rare or not known from elsewhere in Tasmania;
- Numerous significant landforms which are recognised geoconservation sites including Huntsmans Creek Waterfall, Upper Durham Creek Karst, St Marys Porphyrite and Catos Creek Dyke.

The unique and exceptional values of this area warrant a higher degree of protection than the existing small Forest Reserves and State Reserves. The biological significance of the area and the landscape features (scenery, water catchments and geoconservation values) are sufficient to justify National Park status. Management of a single integrated reserve would help maintain the integrity and viability of these important values.

## Introduction and Report

This report outlines the outstanding natural values of the proposed Break O'Day National Park. Other values which contribute to the conservation status of this area including cultural heritage, tourism and landscape aesthetics are not considered here.

The hills around St Marys rise steeply from the East Coast providing a connection between the coastal environment, the inland grasslands of the Fingal Valley, the dolerite highlands to the south and the granite hills to the north. This area is a mixing zone of different landscape types, geologies, climatic zones, species and ecological communities.

Existing reserves in the area are small to medium sized, managed by different agencies and separated by other land tenures. Substantial areas with high conservation values have only informal reserve status.

Connecting the Avenue River Forest Reserve north of St Marys to the Douglas Apsley National Park to the south will result in a substantial corridor of protected land in the coastal hinterland of Tasmania's East Coast. There are no other options for preserving native vegetation connections between the Eastern Tiers and North East Highlands due to land clearing in the Fingal Valley. It is also crucial to connect the coastal environment with the hinterland which rises steeply inland and this will require initiatives involving private landowners in the coastal strip.

This connectivity is important because it allows the continuity of native habitats along environmental gradients (e.g. in altitude and distance from the coast) and provides a corridor for animals and plants to move through the landscape over short and long time scales (McQuillan *et al.* 2009).

Management as a National Park will also protect upper catchment areas which are important for ensuring water quantity and quality for lower catchments including coastal wetlands and estuaries such as Henderson's Lagoon as well as providing water for St Marys and other human settlements in the area.

### *Land Tenure*

The proposed National Park covers around 11 664 hectares of public land, comprising seven existing reserves under the *Nature Conservation Act* and the *Forestry Act* (Table 1), plus areas of State forest and Crown Land (see map p. 29). Existing formal reserves account for 5703 hectares of the total area with the remaining 5 961 ha comprising State forest and Crown Land.

**Table 1.** Existing Reserves within the proposed Break O'Day National Park.

| Existing Reserve | Size (hectares) | Gazettal Date | Management Authority |
|---|---|---|---|
| Nicholas Range Forest Reserve | 810 | 18/12/1998 | Forestry Tasmania |
| St Marys Pass State Reserve | 367 | 30/03/1950 | Parks & Wildlife Service |
| St Patricks Head State Reserve | 1339 | 5/09/1963 | Parks & Wildlife Service |
| German Town Forest Reserve | 935 | 18/12/1998 | Forestry Tasmania |
| Huntsmans Cap Forest Reserve | 216 | 18/12/1998 | Forestry Tasmania |
| Little Beach State Reserve | 945 | 29/04/1995 | Parks & Wildlife Service |
| Lower Marsh Creek Forest Reserve | 1091 | 5/01/2005 | Forestry Tasmania |

The proposed National Park is contiguous with several areas of private land managed for nature conservation through legal instruments such as conservation covenants or Private Nature Reserves. A National Park would complement these private land conservation initiatives and together contribute to a holistic landscape-scale plan for conservation and complementary land uses as envisioned by the St Marys Protected Landscape concept (NETLT 2009). There are at least ten permanent private land protected areas totalling more than 340 hectares in the St Marys region, which is an exceptional commitment to conservation from private landowners.

## *Boundary Justification*

The southern part of the proposed National Park comprises the Lower Marsh Creek FR, Little Beach, St Patricks Head and St Marys State Reserves plus all of the adjoining State Forest. Effectively it includes all of the public land in this area, since this is needed to achieve a well connected and buffered reserve at the landscape scale. To the east of the German Town Forest Reserve an area of State Forest has been included so as to increase the representation of lowland dry eucalypt forest including old growth in the proposed National Park and to improve connectivity toward the coast and the north. State Forest around the Nicholas Range FR and Huntsmans Cap FR is included to connect existing reserves, including German Town FR to the east and Avenue River FR to the north. These areas of State Forest include significant patches of old growth forest. The northern boundary of the proposed National Park is largely determined by the presence of pine plantations and extensive areas of silvicultural regrowth eucalypt forest. The lower slopes of the Nicholas Range include old growth forest amongst silvicultural regrowth and consequently the whole public forest estate in these areas has been included to achieve integrity for the National Park. A Crown Land parcel at Cheeseberry Hill is included because it contains an important stand of *Eucalyptus brookeriana* wet forest.

By increasing the size of the protected area and consequently the variety of landscape features included and bringing the whole area under a single management plan the opportunities for biodiversity to adapt to climate change are increased.

# Description of the proposed Break O'Day National Park

## *Climate*

The region has a mild maritime climate at the coast grading rapidly into a more continental climate west of the drainage divide where the higher elevation results in colder minimum temperatures.

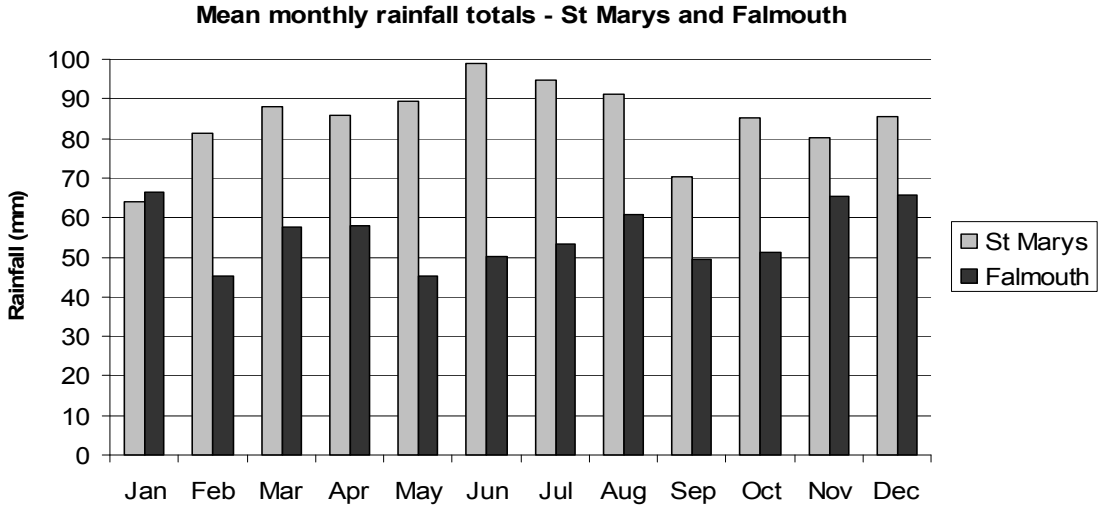


**Figure 2.** Mean monthly rainfall at St Marys (Lat: 41.58° S Lon: 148.18° E, Elevation: 258 m, records: 1905-2010) and Falmouth (Lat: 41.51° S Lon: 148.26° E, Elevation: 6 m, records: 1967-2010). Source: BOM.

Rainfall data from the coast at Falmouth show relatively constant rainfall throughout the year with an annual average of 666 mm while St Marys at 258 metres elevation and 9 km from the coast has a winter rainfall peak and an annual average of 1015 mm (Figure 2). Easterly weather patterns can bring intense rainfall to this region resulting in some of the heaviest rainfall events in Tasmania, particularly at higher elevations. For example, in the 12 years from 1999 to 2010, Gray near Mount Elephant has recorded 24 hour rainfall greater than 100 mm on 18 days and monthly totals of over 500 mm on two occasions, including in a single 4 day rainfall event. Cloud frequently gathers on the higher peaks such as St Patricks Head and consequently fog drip precipitation may add to rainfall and increase humidity at these elevations.

The nearest temperature records to the proposed NP are at Scamander (on the coast 3.5 km to the NW) and Fingal (11-25 km inland from the proposed NP). Monthly and annual maximum temperatures are very similar between the Scamander and Fingal (18°C and 17.8°C respectively, Figure 3). However Fingal has significantly lower minimum temperatures with an annual average of 5.3°C compared to 8.8°C at Scamander. Frosts occur frequently in winter around St Marys.

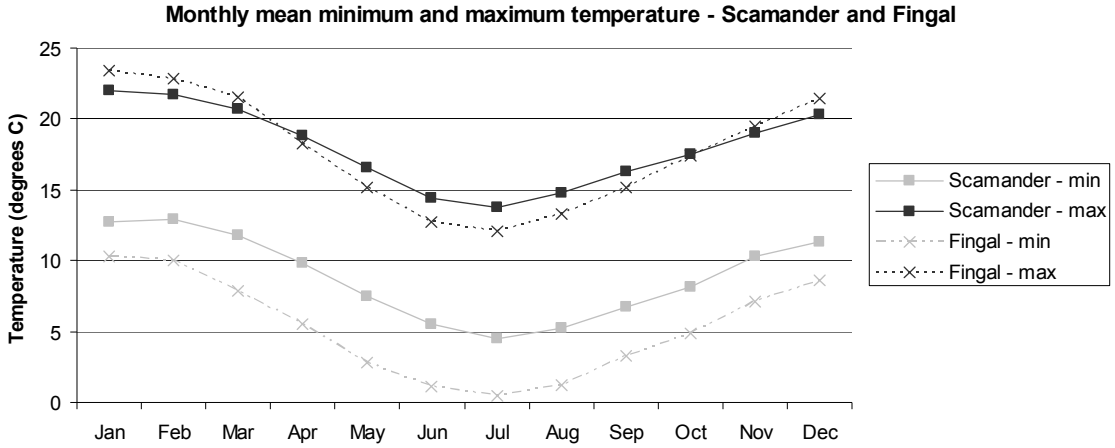


**Figure 3**. Mean monthly temperature at sites near the proposed National Park – Scamander (Latitude: 41.46° S Longitude: 148.26° E, Elevation: 3 m, records: 1974-2010) and Fingal (Latitude: 41.64° S Longitude: 147.97° E, Elevation: 237 m, 27 km from coast, records: 1882-2010).

## *Geology*

Geologically the proposed National Park covers three major rock types . The western part of the area is largely weathered Jurassic dolerite, with exposed dolerite on the peaks of the Nicholas Range, Mt Durham, Huntsmans Cap and St Patricks Head. Ordovician sedimentary rock ("Mathinna beds") occurs at lower elevations at the northern edges of the area. Most of the eastern portion of the area is composed of Devonian porphyry with an outcrop of dolerite at St Patricks Head. Small areas of Permian sedimentary rocks appear in several widespread locations, including the lower slopes of Mt Elephant. Limestone occurs in some of these areas, with associated karst features occurring at the Nicholas Range and Mt Elephant. Karst is rare in the northeast and east coast. The Upper Durham Creek Karst is of regional geoconservation significance and is vulnerable to changes in catchment land use.

A variety of soils occur in the area, reflecting the different bedrock types and the landscape processes and geological history.

## *Landscape and drainage*

The varied and complex landscape of the proposed National Park creates three major drainage patterns. The southern slopes of the Nicholas Range and the western slopes of Mount Elephant drain inland, with creeks feeding the Break O'Day River which flows west to join the South Esk River. Consequently rain falling only 6 kilometres inland from the east coast can end up flowing over 200 kilometres west and north to eventually reach the Tamar Estuary and Bass Strait. The northern part of the National Park features north-flowing creeks which enter the Avenue and Scamander rivers. The eastern slopes of the protected area comprise a series of small catchments with deeply incised creeks flowing east directly to the coast.

## *Vegetation*

Eucalypt forest is the major vegetation type in the area. The St Marys region features a high diversity of eucalypt species compared to elsewhere in north east Tasmania and several distinct forest types are recognised. Vegetation in this area is determined largely by moisture availability and soil fertility. The variation in altitude also influences vegetation patterns.

Dry open forests dominated by Ironbark (*Eucalyptus sieberi*) occur on dry sites on nutrient-poor soils throughout much of the northern and eastern parts of BODNP. Other dry forest types are characterised by either black peppermint (*E. amygdalina*) or stringybark (*E. obliqua*) occur in sizable patches. Wet stringybark forests grow on more sheltered sites such as gullies and south-facing slopes. At higher altitudes on the Nicholas Range gum-topped stringybark (*E. delegatensis*) replaces stringybark as the canopy species. There are only small areas of non-forest vegetation such as wet heath and tea-tree scrub.

## *Bioregions*

The proposed national park occurs at the boundary of three of Tasmania's nine bioregions, representing the exceptional convergence of different environments and species in this area. Most of the proposed national park is within the easternmost part of the Ben Lomond bioregion, while the lower elevation near-coastal hills are in the southernmost extent of the Flinders bioregion. The northern boundary of the South East bioregion is at the southern edge of the proposed reserve.

## Natural Values

### *Threatened Flora*

Twenty-one threatened flora species are presently known from the proposed National Park (Table 2), however some areas have not been adequately surveyed and as such there are likely to be additional threatened species present, such as those known from the surrounding area (Table 3, p.17).

**Table 2.** Threatened flora recorded from Proposed National Park.

| Name | Common Name | Tas status | National status | Distribution in Proposed National Park |
|---|---|---|---|---|
| *Asplenium trichomanes* subsp. *trichomanes* | dolerite spleenwort | v | | Recorded from Mount Durham and Huntsman Cap in the proposed NP. Occupies dolerite outcrops. |
| *Blechnum cartilagineum* | gristle fern | v | | Occurs in riparian situations along Little Beach Creek and Tin Creek in the proposed NP and on neighbouring private land. These catchments are key populations for the species in Tasmania. |
| *Cyathea cunninghamii* | slender tree fern | e | | Largest populations in Tasmania occur in sheltered gullies in Little Beach Creek and Lower Marsh Creek catchments in the proposed NP. |
| *Cyathea Xmarcescens* | skirted tree fern | e | | Largest populations in Tasmania occur in sheltered gullies in Little Beach Creek and Lower Marsh Creek catchments in the proposed NP. |
| *Desmodium gunnii* | southern ticktrefoil | v | | Numerous records within and near the proposed NP, including in Little Beach SR and German Town FR. Occurs in dry forest, particularly near the East Coast. |
| *Deyeuxia densa* | heath bentgrass | r | | Recorded from Huntsman's Cap, Nicholas Range and Lower Marsh Creek FR. Occurs in a variety of open habitats. |
| *Euphrasia collina* subsp. *deflexifolia* | eastern eyebright | r | | Numerous records from State Forest around South Sister. Occurs in open woodland, dry forest and heath near the East Coast. |
| *Glycine microphylla* | small-leaf glycine | v | | Recorded from German Town FR and Little Beach SR, also from several locations near the coast to the east of the proposed NP. Occurs in dry forest. |
| *Hibbertia calycina* | lesser guineaflower | v | | Occurs near McIntyre Creek in the north of the proposed NP. This is one of the key sites for this species which is restricted to dry north-facing slopes in Eucalyptus sieberi forest near Scamander and St Helens. |
| *Hierochloe rariflora* | cane holygrass | r | | Recorded from Lower Marsh Creek FR and German Town FR. Likely to be more widespread in dry and damp forest below around 400 m elevation in the proposed NP. Also known from this habitat in sites near the proposed NP. |
| *Hovea corrickiae* | glossy purplepea | r | | Recorded from German Town FR, which is the largest of 33 known populations of this species. Also occurs at Mt Elephant and Lower Marsh Creek FR. Confined to riparian sites and damp slopes in the northeast. |

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|---|---|---|---|---|
| *Hovea tasmanica* (previously *H. longifolia*) | rockfield purplepea | r | | Known from State Forest on the northern slopes of the Nicholas Range. Occurs on dry rocky or riparian sites in open forest. |
| *Pellaea calidirupium* | hotrock fern | r | | Recorded from dolerite outcrops at Mt Durham and Huntsman's Cap. Potentially present on other dolerite outcrops in the proposed NP. |
| *Phebalium daviesii* | davies waxflower | e | CR | Naturally confined to the George River near St Helens. An ex-situ population has been established in the St Patrick's Head SR. Extremely rare riparian species. |
| *Plantago debilis* | shade plantain | r | | Numerous records from various locations. Extensive potential habitat in both wet and dry forest. |
| *Pomaderris intermedia* | lemon dogwood | r | | Recorded from Elephant Pass, which is considered a key site for this species. Potentially more widespread in wet forest in the area. |
| *Prostanthera rotundifolia* | roundleaf mintbush | v | | Known from German Town FR and St Marys Pass SR. Common along the Scamander River north of the proposed NP. Occurs on dry hillsides and riverbanks. Estimated only 12 populations in Tasmania. |
| *Pterostylis ziegeleri* | grassland greenhood | v | VU | Recorded from State Forest near sea level close to Lagoons Beach. Coastal species unlikely to occur elsewhere in the proposed NP. |
| *Teucrium corymbosum* | forest germander | r | | Known from St Marys Pass, St Patricks Head and Lower Marsh Creek FR. Occurs in a variety of habitats. |
| *Thismia rodwayi* | fairy lanterns | r | | Occurs on southern slopes of South Sister on State Forest and private land. May occur elsewhere in suitable habitat: under leaf litter of wet forest under storey species on dolerite soils. |
| *Veronica plebeia* | trailing speedwell | r | | Recorded from St Patricks Head. Potentially more widespread in wet forest. |

*Threatened Species Protection Act 1995* (Tasmania): r = rare, v = vulnerable, e = endangered, x = extinct

*Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth): VU = vulnerable, EN = endangered, CR = critically endangered

**Table 3.** Threatened flora recorded from within 5 km and possibly present within Proposed National Park.

| Name | Common Name | Tas Status | National Status | Location of known records and potential habitat in proposed National Park |
|---|---|---|---|---|
| *Acacia siculiformis* | dagger wattle | r | | Suitable habitat is present in dry forest. Known from a site west of the proposed NP. |
| *Acacia ulicifolia* | juniper wattle | r | | Suitable habitat is present in dry forest near the coast. Several records from north of the proposed NP near Scamander. |
| *Asperula subsimplex* | water woodruff | r | | Potential habitat occurs in wetlands and riverbanks. Recorded from north of the proposed NP near Scamander. |
| *Austrostipa nodosa* | knotty speargrass | r | | Suitable habitat is present in dry forest. Recorded from varied habitats and elevations north and south of the proposed NP at the Scamander River and Fingal Tier. |
| *Caladenia caudata* | tailed spider-orchid | v | VU | Recorded from low elevation sites near Lagoons Beach just east of the proposed NP. Limited potential habitat in proposed NP prefers sandy and loamy soils in heath land or open woodland. |
| *Caladenia congesta* | black tongue finger-orchid | e | | Recorded from private land west of Mt Elephant just outside of the proposed NP. Potential habitat in dry open forest, particularly sandy or loamy soils. |
| *Conospermum hookeri* | Tasmanian smoke bush | v | VU | Recorded from coastal location near Scamander north of the proposed NP. Limited potential habitat occurs in low elevation heathy woodland in the proposed NP. |
| *Cynoglossum australe* | coast houndstongue | r | | Generally a coastal species but does occur occasionally inland. Potential habitat in dry forests. Known from coastal sites at Scamander and within 250 m of the southern end of the proposed NP in Lagoons Beach Coastal Reserve. |
| *Hibbertia virgata* | twiggy guineaflower | r | | Occurs near the coast south of Scamander. Prefers sandy coastal heath and near-coastal woodlands. Unlikely to occur in the proposed NP. |
| *Juncus amabilis* | gentle rush | r | | Recorded from Tasman Highway less than 1km east of proposed NP. Often found in roadside seepage areas. Potential habitat occurs in the proposed NP. |
| *Lepidium hyssopifolium* | soft peppercress | e | EN | Known from roadside of Falmouth Road around 2 km east of proposed NP. Occurs in grasslands, grassy woodlands and on roadsides. Limited potential habitat in proposed NP. |
| *Lepidium pseudotasmanicum* | shade peppercress | r | | Known from roadside of Falmouth Road around 2 km east of proposed NP. Occurs in grasslands, grassy woodlands and on roadsides. Limited potential habitat in proposed NP. |
| *Lepidosperma tortuosum* | twisting rapiersedge | r | | Several records from Tasman Highway south of St Marys around 1.5 km west of proposed NP at Mount Elephant. Some potential habitat in proposed NP in open woodland. |
| *Olearia hookeri* | crimsontip daisybush | r | | Known from dry forest 3 km south of proposed NP. Potential habitat occurs on dry rocky sites in open forest. |

| | | | | |
|---|---|---|---|---|
| *Pimelea curviflora* | curved rice-flower | r | | Recorded from hills southwest of the proposed NP. Potential habitat in wet forest. |
| *Pterostylis atriola* | snug greenhood | r | EN | Known from Thompsons Marshes in hills 3 km south of proposed NP. Potential habitat in shrubby open eucalypt forest. |
| *Scutellaria humilis* | dwarf skullcap | r | | Recorded from near Four Mile Creek east of proposed NP. Potential habitat in wet shady areas. |
| *Tricoryne elatior* | yellow rushlily | v | | Recorded from near Four Mile Creek east of the proposed NP. Limited suitable habitat in open woodland. |
| *Xerochrysum palustre* | swamp everlasting | | VU | Known from Thompsons Marshes in hills 3 km south of proposed NP. Limited potential habitat in swampy or riparian vegetation. |

*Threatened Species Protection Act 1995* (Tasmania): r = rare, v = vulnerable, e = endangered, x = extinct

*Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth): VU = vulnerable, EN = endangered, CR = critically endangered

Lower Marsh Creek is a hotspot for rare and threatened ferns (Garrett 1997):

> "By far the largest known extant population of *B. cartilagineum* occurs in State forest at Little Beach Creek. The rare tree ferns, *Cyathea cunninghamii* and *C. marcescens*, also occur at the site. The site is very steep and unsuitable for timber harvesting, and should be reserved, either alone or jointly with the nearby existing Lower Marsh Creek Forest Reserve. There is still the doubt surrounding the *B. cartilagineum* population at the upper Little Beach site as to whether it is sexually reproducing. This trait should be monitored."

The slender tree fern (*Cyathea cunninghamii*) occurs in small numbers at widespread location in Tasmania. The only East Coast populations are in the lower catchments of Lower Marsh and Little Beach creeks in the Little Beach SR and Lower Marsh Creek FR and contain 64 mature plants out of a total estimated population of 250 plants (TSS 2011a). The skirted tree fern (*C.* X*marcescens*) is a naturally occurring hybrid between the rare *C. cunninghamii* and the common *C. australis*. This fern is extremely rare with less than 40 plants known from 4 sites, including 34 from the Little Beach SR and Lower Marsh Creek FR where it grows with the *C. cunninghamii* populations (TSS 2011b). These sites are the most important location for these very rare and vulnerable tree ferns.

The proposed National park also contains some of the most important populations in Tasmania of the rare shrub *Hovea corrickiae*, and the vulnerable fern *Asplenium trichomanes* subsp*. trichomanes*.

## *Non-vascular flora*

Although few surveys for non-vascular flora (mosses, liverworts, lichens) have been undertaken in the area, the diversity of habitats from near-coastal, to dry forests, wet gullies and high elevation rock outcrops would be expected to support a considerable diversity of these plants.

A survey of lichens at South Sister in 2004 identified 178 species, which is a "remarkable level of diversity" and includes one species previously unknown from Tasmania and one species new to science (Kantvilas 2005). As this is only a preliminary survey of small part of the proposed NP, it suggests that the diversity of lichens in the proposed NP would be considerably higher and possibly of regional or state wide significance.

## *Threatened Fauna*

Nine threatened fauna species are reliably known from the proposed National Park and a number of others are potentially present (Table 4).

**Table 4.** Threatened fauna recorded from proposed National Park and surrounding area.

| Name | Common Name | Tas Status | National Status | Distribution in Proposed Reserve |
|---|---|---|---|---|
| *Accipiter novaehollandiae* | grey goshawk | e | | Recorded from within the proposed NP, which contains significant areas of wet forest habitat suitable for nesting and foraging. |
| *Aquila audax* | wedge-tailed eagle | e | EN | Recorded from within the proposed NP, which contains significant areas of habitat suitable for nesting and foraging. Several known nest sites. |
| *Botaurus poiciloptilus* | australasian bittern | | EN | Recorded from the region but no accurate records from the proposed NP. Suitable habitat (e.g. floodplain or coastal wetlands) is outside the proposed NP. |
| *Dasyurus maculatus* subsp. *maculatus* | spotted-tailed quoll | r | VU | Recorded from within the proposed NP, which contains significant areas of wet forest habitat. |
| *Haliaeetus leucogaster* | white-bellied sea-eagle | v | | Recorded from within the proposed NP which contains potential nesting and foraging habitat, wide ranging species more likely to occur on the coast. Nests in Little Beach SR. |
| *Hydroptila scamandra* | caddis fly (upper scamander river) | r | | Known from the South Esk and Scamander rivers. Unlikely to occur in the proposed NP. Proposed NP protects part of the upper catchment of known habitat. |
| *Lathamus discolor* | swift parrot | e | EN | Recorded from within the proposed NP, which contains significant areas of habitat suitable for nesting and foraging (forest with blue gum). |
| *Litoria raniformis* | green and golden frog | v | VU | Not recorded from proposed NP where there is limited suitable habitat. |
| *Perameles gunnii* | eastern barred bandicoot | | VU | Not recorded from proposed NP but likely to occur in suitable habitat (grassy and sedgey forest). |
| *Prototroctes maraena* | australian grayling | v | VU | Not recorded from proposed NP and no suitable habitat (occurs in larger rivers). |
| *Sarcophilus harrisii* | Tasmanian devil | e | EN | Recorded from within the proposed NP, which contains significant areas of habitat suitable for denning and foraging. |

| | | | | |
|---|---|---|---|---|
| *Tasmanipatus anophthalmus* | blind velvet worm | e | EN | Numerous records from proposed NP which covers a large part of the known habitat of this geographically restricted species. |
| *Tasmanipatus barretti* | giant velvet worm | r | | Numerous records from proposed NP which covers the southern range limit of this species. Significant areas of suitable habitat. |
| *Thylacinus cynocephalus* | thylacine | x | EX | Extinct. No recent records. |
| *Tyto novaehollandiae* | masked owl | e | VU | Recorded from within the proposed NP, which contains significant areas of forest habitat suitable for nesting and foraging. |

*Threatened Species Protection Act 1995* (Tasmania): r = rare, v = vulnerable, e = endangered, x = extinct

*Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth): VU = vulnerable, EN = endangered, CR = critically endangered

Little Creek State Reserve and adjoining land contains the largest stand of blue gum-dominated forest in the northeast and is therefore a key habitat for the endangered swift parrot on the East Coast (map p. 30). Swift parrots nest in colonies in patches of mature forest (at least 100 years old) with abundant tree hollows in proximity to flowering blue gums (*Eucalyptus globulus*) or black gums (*E. ovata*). The proposed National Park and neighbouring coastal strip is perhaps the best example of breeding and foraging habitat for this species in the northern half of the East Coast.

The blind velvet worm (*Tasmanipatus anophthalmus*) is one of the few invertebrates listed as endangered in Tasmania and is restricted to an area of approximately 152 km$^2$ around St Marys. The proposed National Park covers most of the core population for this species, which covers an area of only 40 km$^2$ around Mount Elephant and the catchments on its eastern slopes (TSS 2005).

According to Dr Peter McQuillan, the blind velvet worm:

> "Is a native Tasmanian animal of the highest conservation value? Velvet worms in general are of extraordinary scientific interest because they are a conservative, ancient group which shed light on the early evolution of arthropods (insects and their relatives) and segmented worms. Tasmania is a globally important centre of diversity for this group of animals. The Blind Velvet Worm has one of the most restricted distributions of any species in the world." (McQuillan 2001)

The giant velvet worm (*T. barretti*) has a larger but still restricted distribution which does not overlap with the blind velvet worm (TSS 2005). The proposed National Park includes significant areas of giant velvet worm habitat at the southern limit of its range. Both species are largely reliant on large old decomposing logs for habitat, particularly in damp places in dry forest such as shady slopes and gullies, but also in wet forest (TSS 2005). Mature forest is ideal habitat because of the abundance of large logs and suitable microclimates. The proposed National Park would also protect good quality habitat for the wedge-tailed eagle (*Aquila audax fleayi*), masked owl (*Tyto novaehollandiae*) and Tasmanian devil (*Sarcophilus harrisii*).

## *Vegetation Communities*

TASVEG mapping indicates 35 native vegetation communities occur in the proposed National Park, plus small areas of bare rock, regenerating cleared land and easements (Table 5).

**Table 5.** Mapped vegetation types in the proposed National Park (source: TASVEG 2.0)

| TASVEG Mapping Unit | Hectares |
|---|---|
| *Acacia dealbata* forest | 538 |
| *Acacia melanoxylon* forest on rises | 2 |
| *Acacia melanoxylon* swamp forest | 1 |
| Agricultural land | 24 |
| Broadleaf scrub | 54 |
| Dry scrub | 2 |
| *Eucalyptus amygdalina / E. obliqua* damp sclerophyll forest | 32 |
| *Eucalyptus amygdalina* coastal forest and woodland | 604 |
| *Eucalyptus amygdalina* forest and woodland on dolerite | 72 |
| *Eucalyptus amygdalina* forest and woodland on mudstone | 677 |
| *Eucalyptus brookeriana* wet forest | 10 |
| *Eucalyptus delegatensis* dry forest and woodland | 1298 |
| *Eucalyptus delegatensis* forest over rainforest | 1 |
| *Eucalyptus delegatensis* forest with broad-leaf shrubs | 472 |
| *Eucalyptus delegatensis* wet forest (undifferentiated) | 198 |
| *Eucalyptus globulus* dry forest and woodland | 84 |
| *Eucalyptus globulus* wet forest | 12 |
| *Eucalyptus obliqua* dry forest and woodland | 269 |
| *Eucalyptus obliqua* forest over *Leptospermum* | 1 |
| *Eucalyptus obliqua* forest with broad-leaf shrubs | 1416 |
| *Eucalyptus obliqua* wet forest (undifferentiated) | 174 |
| *Eucalyptus sieberi* forest and woodland not on granite | 4856 |
| *Eucalyptus sieberi* forest and woodland on granite | 577 |
| *Eucalyptus viminalis - Eucalyptus globulus* coastal forest | 5 |
| *Eucalyptus viminalis* grassy forest and woodland | 5 |
| Extra-urban miscellaneous | 35 |
| Highland grassy sedgeland | 9 |
| Highland low rainforest and scrub | 1 |
| *Leptospermum* scrub | 6 |
| Lowland grassland complex | 3 |
| Lowland sedgy grassland | 1 |
| *Nothofagus / Atherosperma* rainforest | 4 |
| Permanent easement | 44 |
| Rainforest fernland | 84 |
| Regenerating cleared land | 5 |
| Rock | 27 |
| Silvicultural plantation (unverified) | 55 |
| Subalpine heath land | 2 |
| Wet heath land | 5 |

## *Vegetation Communities of Conservation Significance*

Significant stands of old growth dry and wet eucalypt forest including communities dominated by *E. amygdalina, E. delegatensis, E. obliqua* and *E. sieberi.*

Six vegetation types listed as threatened native vegetation communities under the *Nature Conservation Act 2002* are mapped in the proposed Break O'Day National Park, although one community, *Allocasuarina littoralis* forest, has insignificant extent within the proposed reserve where it occurs on private land at the boundary.

**Table 6.** Threatened native vegetation communities in the proposed Break O Day National Park.

| Vegetation Community | TASVEG Code | Hectares |
|---|---|---|
| *Allocasuarina littoralis* forest | NAL | < 1 |
| *Eucalyptus brookeriana* wet forest | WBR | 10.5 |
| *Eucalyptus globulus* dry forest and woodland | DGL | 84 |
| *Eucalyptus viminalis - Eucalyptus globulus* coastal forest and woodland | DVC | 5 |
| Highland grassy sedgeland | MGH | 9.5 |
| Rainforest fernland | RFE | 84 |

### Brookers gum (*Eucalyptus brookeriana*) wet forest

This forest type is rare in Tasmania and mostly occurs in the far North West. Only around 95 hectares of brookers gum forest occurs in the north east, mostly in small patches scattered across the Ben Lomond bioregion. The 10 hectares of brookers gum forest at Cheeseberry Hill in the proposed National Park is one of the largest patches of this community in the north east and is currently not reserved.

### Blue gum (*Eucalyptus globulus*) dry forest and woodland

Dry eucalypt forest dominated by blue gum with a grassy understory mostly occurs in southeast Tasmania with only limited patches in the northern part of the East Coast as in the proposed National Park and neighbouring near-coastal hills.

### White gum (*Eucalyptus viminalis*) and blue gum (*E. globulus*) coastal forest and woodland

This dry coastal forest has a very limited extent in the northeast, mostly confined to a few small patches on private land to the east of the proposed National Park, and extending slightly into the St Patricks Head State Reserve.

### Highland grassy sedgeland

This community is dominated by sedges with tussock grasses also present and few trees and shrubs. It occurs on poorly drained flats on the Nicholas Range. Highland grassy sedgeland is most extensive on the Central Plateau and is uncommon in the north east.

### Rainforest fernland

This treeless community is dominated by ferns and usually occurs as small patches within rainforest associated with either disturbance events that have eliminated trees or shallow soils. It occurs on steep slopes and in the bottom of gullies on the east side of Mount Elephant. The proposed National Park includes the only occurrences of this community on the East Coast.

## *Geoconservation*

The proposed National Park contains a large number of sites listed on the Tasmanian Geoconservation Database, many of them occurring in the Nicholas Range (Table 7). In addition to the publicly listed sites there is an undisclosed geoconservation feature, a karst site, within the proposed National Park.

**Table 7.** Sites listed on Tasmanian Geoconservation Database v 7.0 within the proposed National Park.

| Name | General description | Comments | Significance |
|---|---|---|---|
| St Patrick's Head Basaltic Soils | Boundaries as per geological map. | Apparently the only reserved example of Triassic basalt. This basalt has not been dated but is considered Triassic on petrological grounds. (See Huntsmans Ck Triassic Basalt site). Very few basalt soils in Tasmania are unaffected by agriculture - may be important for biodiversity. | Regional |
| Mt Elephant Karst | Karst features occur in a belt of limestone encircling the flanks of Mt Elephant (St. Marys area), best known in the Gray - Elephant Pass area. | A well developed karst system in Permian limestone. It is the best development of a terrestrial karst system in Permian limestone known in Tasmania. However knowledge of the feature is inadequate for detailed management planning, as the detailed nature of the karst system is poorly known. Area corresponds to Kiernan's (1995) NE34 area. | Tasmania |
| Huntsman's Creek Waterfall | Near Dublin Town. | A structurally-influenced waterfall on Triassic basalt. Its significance is largely related to the unique nature of the Triassic basalt. (see BOD25) | Local region |
| St Marys Porphyrite and Catos Creek Dyke | East of St Marys, a large area between Mt Elephant and north of St Marys Pass, and eastwards to the coast. Catos Creek area. | Extrusive Devonian volcanic rocks, overlying Mathinna Group metasediments on an intervening basal breccia. This breccia represents probable slump and landslip deposits produced on the land surface by disturbances immediately prior to volcanic extrusions. The St Marys Porphyrite is the extrusive equivalent of the extensive intrusive granites of the Blue Tier Batholith. It is the only extrusive volcanic rock of Devonian age (388+/-1 Ma) known in Tasmania. Dating of the (unfolded) volcanics is important evidence in dating the underlying folded rocks. See also Little Beach Porphyrite (BOD04). | Tasmania |
| Mt Nicholas and Blackboy Plains High Plateau Marshes | Various locations including Mt Nicholas summit ridge and Blackboy Plains. | Wetland environments with Holocene (at least) sediment accumulations. They are of potential scientific importance for Holocene stratigraphy, palynology and local wetland ecosystems. Only a few examples have been documented so far, but more undoubtedly exist. Mt Nicholas and Blackboy Plains sites have been listed as separate sites, but are linked to this site in the comments section. | Local |
| Mt Nicholas High Plateau Marshes | High plateau area of Mt Nicholas summit ridge, north west of St Marys. | Wetland environment with Holocene (at least) sediment accumulations. Of potential scientific importance for Holocene stratigraphy, palynology and local wetland ecosystmes. Only a few examples have been documented so far, but more undoubtedely exist. This site is part of the Mt Nicholas and Blackboy Plains High Plateau Marshes (BOD24), in north-eastern Tasmania. | Local |
| Mt Nicholas Dolerite Residual Peak | Entire Nicholas Range, north-west of St Marys. | Mountain forms with minimal faulting influence - the dominant influences are fluvial and periglacial erosion processes. This site is one of several dolerite residual peaks which are collectively listed under NE Tasmania Dolerite Residual Peaks (FOR02). | Regional |
| North and South Sister Dolerite Periglacial System | Alpine zones of North and South Sister | Periglacial features include cliffs, tors, stacks, blockstreams, mountain top detritus, talus etc. This site is part of a suite of periglacial mountian sites, which collectively are listed as NE Tasmania Dolerite Periglacial Systems (FOR11). | Regional |

| | | | |
|---|---|---|---|
| Mt Nicholas Dolerite Periglacial System | Alpine Zone of Nicholas Range, north-west of St Marys | Periglacial features including cliffs, tors, stacks, mountain top detritus, talus, blockstreams, slab topples, long-distance blockslides. This site is part of a suite of periglacial mountain sites which are collectively listed as NE Tasmania Dolerite Periglacial Systems (FOR11). | Regional |
| South Sister Periglacial Boulders and Gelifluction Lobes | | The site is significant because it shows that in northeast Tasmania there was intense freeze-thaw and gelifluction to c. 650 m altitude during Oxygen isotope stage 5 (or possibly earlier, if significant surface erosion of the dolerite boulder has occurred and the cosmogenic age is an underestimate). | Regional |
| North-east Tasmania Dolerite Residual Peaks | Ben Nevis, Mt Saddleback, Mt Victoria, Mt Albert, Mt Young, Mt Blackboy, Mt Nicholas and Tower Hills. | Mountain forms with minimal faulting influence - the dominant influences are fluvial and periglacial erosion processes. | Regional |
| North-east Tasmania Dolerite Periglacial Systems | Alpine zones of Ben Lomond, Mt Nicholas, Tower Hills and North Sister. | Cliffs, tors, stacks, blockstreams, mountain top detritus, talus, slab topples, long-distance blockslides (Mt Victoria) etc. | Regional |

## *National Estate Values*

The proposed National Park includes three areas listed on the Australian Government's National Heritage List (DSEWPaC 2011). Little Beach Creek – Lower Marsh Creek Area is listed for its unique rare fern flora and aesthetic values. St Marys Pass State Reserve is significant for the diversity of wet and dry forest types present and the occurrence of rare flora species. St Patricks Head State Reserve is notable for the presence of *Eucalyptus brookeriana* forest, rare flora and a rare example of basalt soils with native vegetation (i.e. not cleared).

The proposed National Park includes areas identified in the Tasmanian Regional Forest Agreement as indicative areas exhibiting limits of range of flora (Scamander – Freycinet: northern limit of many east coast species), indicative areas exhibiting major floral disjunctions (Lower Marsh Creek) and indicative areas for flora species richness and community richness (PLUC 1996). For fauna, the St Marys area is an indicative area for endemic fauna (invertebrates including *Tasmanipatus* spp.) and for relictual fauna. St Marys Pass and Elephant Pass are likely glacial refugia, where some of the only small patches of rainforest and wet forest would have persisted in eastern Tasmania during the last glacial (PLUC 1996).

## *Naturalness and Restoration*

Most of the proposed National Park has a high degree of naturalness. Some areas of State forest have been subject to logging, particularly on the lower slopes of the Nicholas Range and in the Little Beach Creek and Little Marsh Creek catchments east of Mount Elephant. This latter area of State forest has been designated a 'restoration zone' because of the extensive logging that has occurred there. This zone is important for reserve design since it improves the viability and connectivity of the proposed National Park. The regrowth native forest in this zone will gradually increase in structural diversity and condition with minimal management needed. Most of the logged forest is *Eucalyptus sieberi* dry forest which has good potential for recovery. The restoration zone comprises 1035 hectares out of the total 11 664 hectare proposed National Park.

Weeds are a major threat to the integrity of the proposed National Park, particularly near St Marys where a number of serious environmental weeds are well established and are invading native vegetation.

## *Planning for Climate Change*

Even under conservative models of climate change it will have a significant impact on biodiversity. The effects on individual species and communities are difficult to predict.

A CSIRO report offers these principles in regards to the challenge of conserving biodiversity and planning protected areas in a rapidly changing climate (Dunlop & Brown 2008):

> Protecting habitat is probably the best way to conserve species under climate change. While the species and ecosystems in any one area will change over time, the greater the total area of habitat available, and the more diverse that habitat, the greater the number of ecosystems and species that will be able to survive. … Connectivity of habitat at various scales can be important for facilitating the movement of different species, which may increase their viability and ability to respond to climate variability and change.

Steep environmental gradients such as the elevation change from near sea level to the highlands around St Marys (e.g. sea level to 750 metres elevation over 5.5 km at Mount Elephant) and a complex and diverse topography provide a lot more potential for species to migrate and adapt to environmental changes than in a more topographically subdued landscape. The deep gullies in the eastern part of the proposed National Park are likely to function as refugia for fire- and drought-sensitive species because they maintain a cooler wetter climate then the surrounding landscape and provide topographic protection from fire. The proposed National Park is biogeographically significant because it includes the range limits of a number of species and contains several rare and endemic species, consequently it will be an important location for species to migrate or survive in response to climate change.

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# Proposed Break O' Day National Park, northeast Tasmania

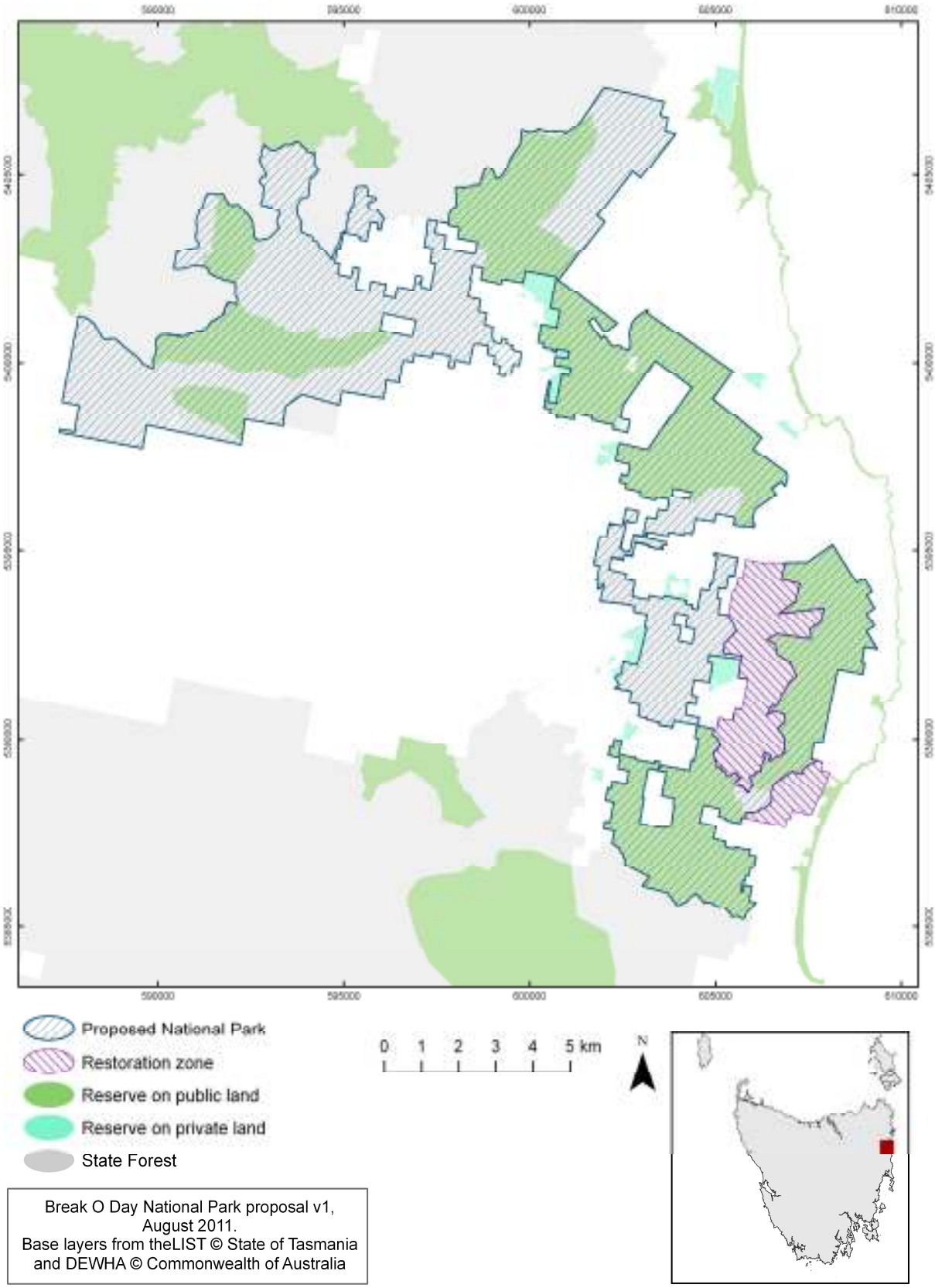
Proposed National Park
Restoration zone

0 1 2 3 4 5 km

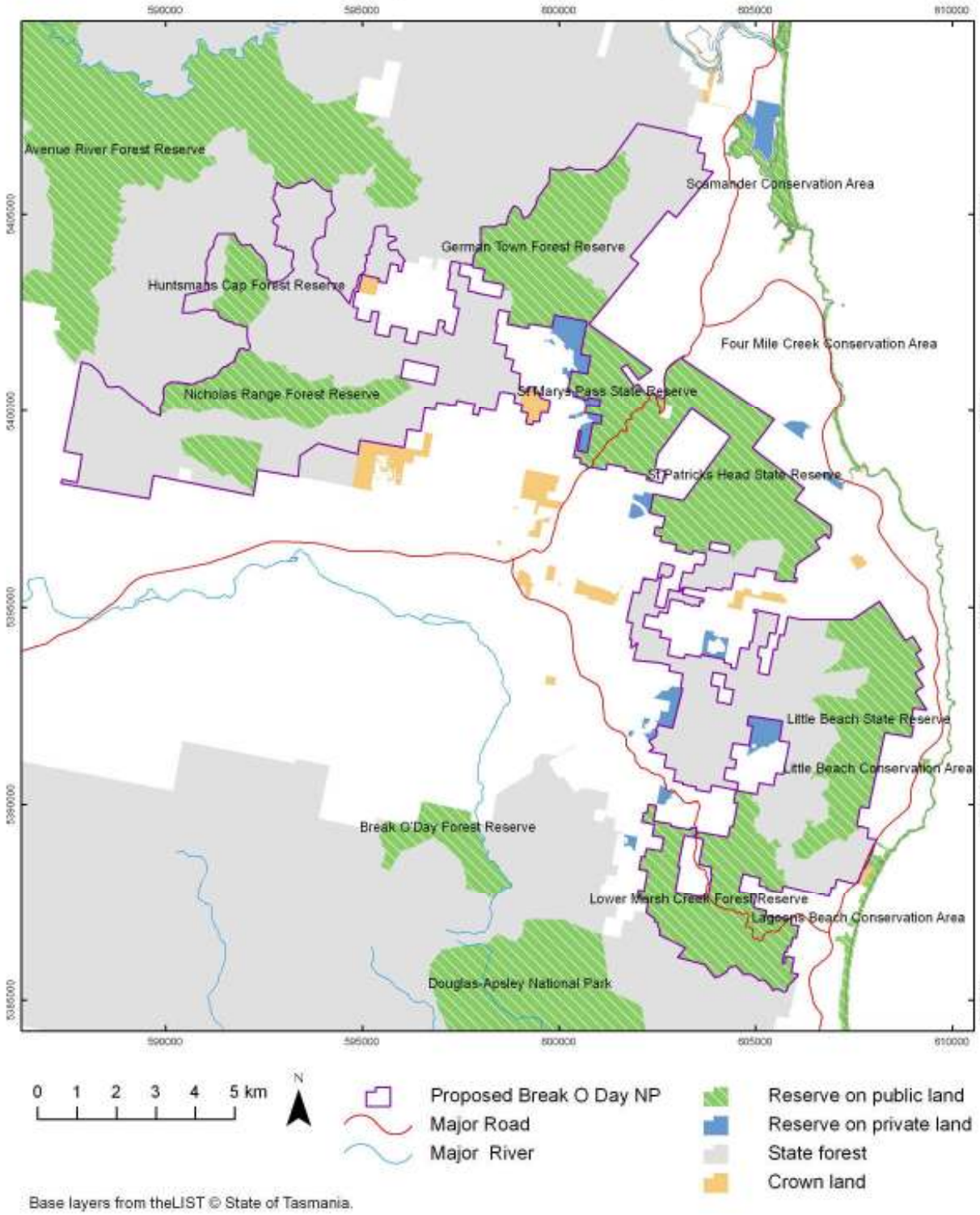
N

Break O Day National Park proposal v1,
August 2011.
Basemap from TASMAP © State of Tasmania

# Proposed Break O' Day National Park, northeast Tasmania

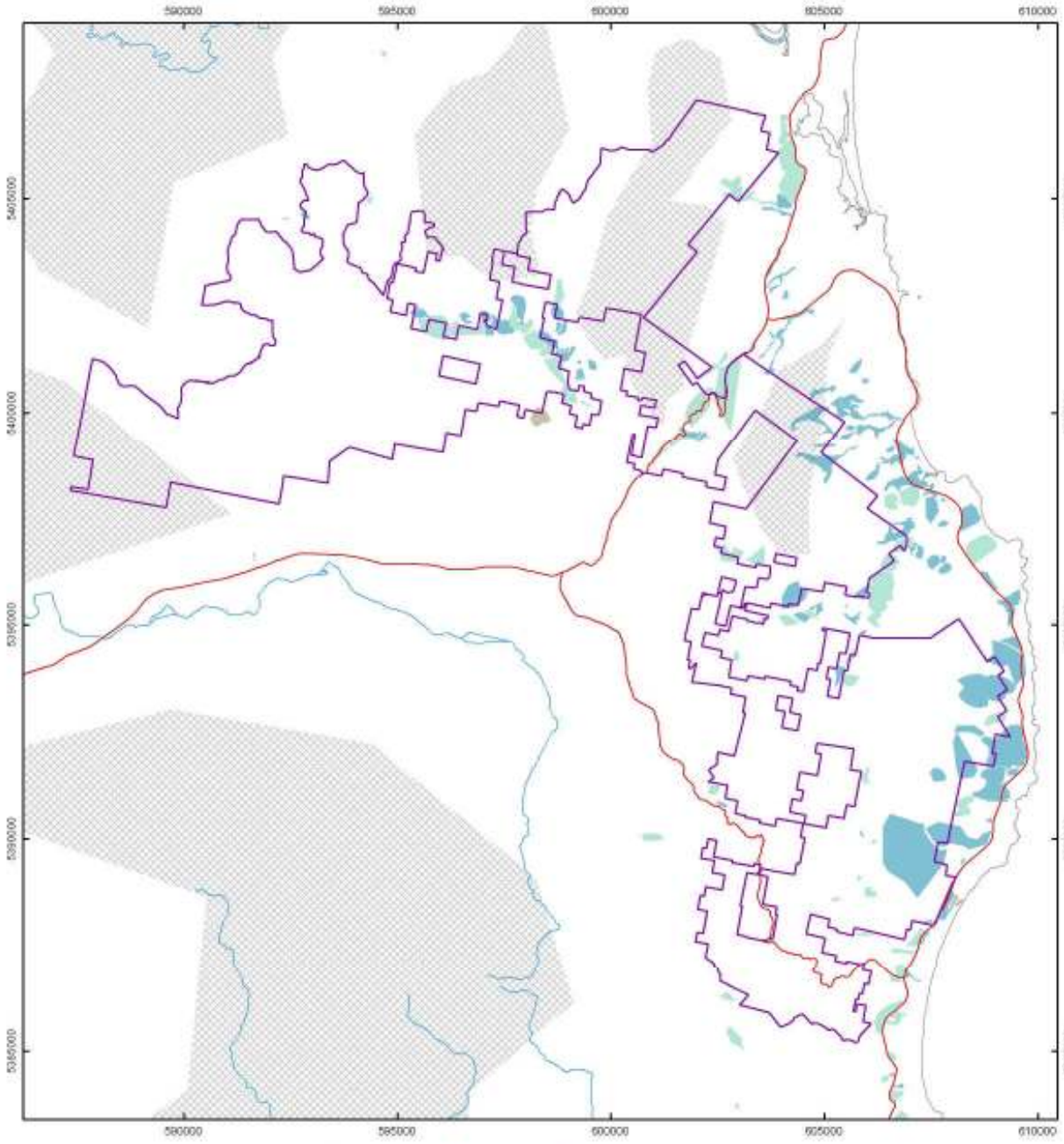


# Land tenure of proposed Break O' Day National Park




Base layers from theLIST © State of Tasmania.

# Swift parrot habitat, proposed Break O' Day National Park




Base layers from theLIST
© State of Tasmania.
Swift parrot habitat mapping from DPIPWE (Tas Govt), published 2010, shaded areas are parts of swift parrot breeding range that have yet to be assessed for habitat value.