

Annotated Bibliography of Scientific Papers, Published Books, Theses and Reports on Bruny Island and the D'Entrecasteaux Channel

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Physical Environment

Everard, G. (1950) *The possibility of limestone deposits on Bruny Island*. Department of Mines, Minerals and Resources (?), Hobart.

This report investigated if there were any economically important deposits of limestone on Bruny Island. The report found that no true limestone deposits occur on the island, however oil prospecting reported passing through a small section of limestone on the North Island. The paper gives a good account of the geology and geomorphology of the island. The peculiar shape of the Bruny Island coastline has been created by sea level rise since the last ice age, which is highlighted by the lack of alluvial flats. The coastline consists of headlands and bays, with more developed headlands on the eastern side. The only sedimentary rock formation on the island belongs to the Permian system, with intrusions of Jurassic dolerite.

Leaman, D.E. (1990) Inferences concerning the distribution and composition of pre-carboniferous rocks in south-eastern Tasmania. *Papers and Proceedings of the Royal Society of Tasmania*, 124: 1-12.

This paper describes the distribution and composition of pre-carboniferous rocks from the region to the west and south of Bruny Island, covering the D'entrecasteaux Channel. The surface geology of the region is dominated by Permo-Triassic Parmeener Supergroup rocks and Jurassic dolerite. However, the pre-carboniferous rocks are rarely exposed. By using gravity and magnetic data, the study was able to determine that post-Carboniferous rocks generally lie on late Precambrian rocks under the surface. The deep troughs were filled with rock types from the Cambrian sequences, with a large proportion of the rocks being volcanic. Some ultramafics are present along the western margins, as are some thin wedges of Ordovician-Devonian rocks.

Sharples, C. & Mowling, F. (2006) *Southern Natural Resource Management Region Coastal Geomorphic Mapping and Management Decision Support Tools: Interpretation Report and Manual*. Coastal and Marine Branch, Department of Tourism, Arts and the Environment, Tasmania.

This Report describes the geomorphic characteristics of the coastline of southern region of Tasmania. The report is part of the 'Coastal Values of Southern Tasmania' project, which maps the vegetation and geomorphology from the high water mark to 100 metres inland. On Bruny Island, there are many notable geomorphic features of the coastline. Prominent sea cliffs of Jurassic-age dolerite and Permian-age siltstones are present in South Bruny Island. Other prominent geological features include the 'Neck', a sandy isthmus which joins the north and south island. Bruny Island also has many notable beaches and sand dunes.

Terrestrial Flora and Vegetation

Chamberlain, B. (2007) *Bruny Island Weed Management Strategy*. Kingborough Council, Kingston.

This Weed Management Strategy outlines a strategic plan to minimise the threat of weeds on Bruny Island. The report identifies 25 priority weeds on the island, along with 21 other important weeds. A number of weed species found on Bruny Island are listed as 'Weeds of National Significance'. These include blackberry (*Rubus fruticosus* spp. agg.), Gorse (*Ulex europaeus*), boneseed (*Chrysanthemoides monilifera*) and several species of willows (*Salix* sp.). The strategy outlines the course of action needed to properly control weed species, including the mapping and creation of an action plan for each of the priority weeds.

Chamberlain, B. & Strain, C. (2009) *Bruny Island Roadside Weed Management Plan*. Kingborough Council, Kingston.

This Weed Management Plan provides a framework for the management of weeds which occur on the roadsides of Bruny Island. The plan recommends actions to minimise the spread of existing weeds and to prevent the introduction of new weeds. Twenty-six priority weeds were identified on the roadsides of Bruny Island. Of these, blackberry (*Rubus fruticosus* spp. agg.), boneseed (*Chrysanthemoides monilifera*) and Gorse (*Ulex europaeus*) are listed as 'Weeds of National Significance'. The plan details the best treatment of each weed species and describes treatment plans based on the location and season.

Hickey, J.E., Brown, M.J., Rounsevell, D.E. & Jarman, S.J. (1990) *Tasmanian Rainforest Research*. Tasmanian NRCP Report no. 1, proceedings of a seminar held in Hobart on 14 June 1990.

This report lists the major findings and discussion points from a seminar on Tasmanian Rainforests held in Hobart in 1990. The report refers to relic rainforests which occur in eastern Tasmania, usually as riparian strips or on steep south east facing slopes. Patches or relic rainforest occur on the eastern side of south Bruny Island and are often dominated by Antarctic beech (*Nothofagus cunninghamii*) with an understory of horizontal shrub (*Anodopetalum biglandulosum*) and sassafras (*Atherosperma moschatum*). These forests are often subject to disturbance from logging and fire, which is reflected in the broken canopy and diverse shrub layer.

Nicolle, D., Potts, B.M. & McKinnon, G.E. (2008) *Eucalyptus cordata* subsp. *quadrangulosa* (Myrtaceae), a new taxon of restricted distribution from southern Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 142: 71–78.

This paper discusses the distribution of a newly described subspecies of eucalypt, *Eucalyptus cordata* subsp. *quadrangulosa*. Approximately 27 populations of the subspecies exist in south-eastern Tasmania. An estimated 4000 – 5000 individual plants are known. One of the largest populations occurs at Cape Queen Elizabeth on North Bruny Island, with around 1000 individuals. The species is also present on Penguin Island which lies just off the coast of South Bruny Island. This new subspecies differs from other *Eucalyptus cordata* subspecies as it has more conspicuously quadrangular branchlets, larger and more pointed juvenile leaves, and larger flower buds and fruits.

North, A. & Barker, P. (2006) *Collection and Integration of Coastal Vegetation and Fauna Habitat Data for the Southern Natural Resource Management Region: Interpretation Manual*. North Barker Ecosystem Services, Hobart.

This report provides interpretation of the GIS mapping produced for the 'Coastal Values of Southern Tasmania' project. The project aims to map the vegetation, fauna habitat and geomorphology from the high water mark to 100 metres inland for south-eastern Tasmania. This report refers specifically to the vegetation community mapping, environmental weed mapping, vegetation condition assessment and the mapping of fauna habitat. The report covers North Bruny Island and the northern half of South Bruny Island. The report discusses the south-east Tasmanian coastline as a whole and does not refer specifically to Bruny Island or the coastal area around the D'entrecasteaux Channel.

Schahinger, R., Rudman T., & Wardlaw, T. J. (2003) *Conservation of Tasmanian Plant Species & Communities threatened by Phytophthora cinnamomi: Strategic Regional Plan for Tasmania*. Technical Report 03/03, Nature Conservation Branch, Department of Primary Industries, Water and Environment, Hobart.

This report identifies a range of priority management areas throughout Tasmania for the introduced soil-borne pathogen *Phytophthora cinnamomi*. *Phytophthora* is listed as a key threatening process in the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999* and presents a threat to many plant species and communities across the state, particularly coastal heaths, heathy woodlands and buttongrass moorlands. Four 'at risk' areas have been identified on Bruny Island, including Chuckle Head, Church Hill, West Cloudy Head and Tasman Head. Only the Church Hill and Tasman Island areas had signs of infestations at the time of writing, with the other two locations listed as potential sites. The report lists detailed management actions for each of the 'at risk' areas.

Threatened Species & Marine Section (2014) *Listing Statement for Conical Sheoak (Allocasuarina duncanii)*. Department of Primary Industries, Parks, Water & Environment, Tasmania.

The clonal sheoak (*Allocasuarina duncanii*) is listed as rare under the *Tasmanian Threatened Species Protection Act 1995*. This small evergreen tree with needle-like foliage and woody cones is endemic to southern Tasmania. This species is known from only four localities in south-eastern Tasmania. One of these is located within Mount Midway Conservation Area in South Bruny Island. It is highly likely that Bruny Island has a larger population and range of this species than previously thought, with the rock-plates inland of East Cloudy Head being potential habitat for this species. The main threat to this species is inappropriate fire regime.

Threatened Species Section (2011a) *Flora Recovery Plan: Threatened Tasmanian Forest Epacrids*. Department of Primary Industries, Parks, Water and Environment, Hobart.

This recovery plan describes the conservation of eleven species of plants belonging to the genus *Epacris*. These small shrubs are of conservation concern as many of the species having small distributions and restricted habitats, or a large percentage of the population may occur in only one or two areas. Of these, one species, *Epacris virgata* (Kettering), occurs on

Bruny Island and is listed as vulnerable under the Tasmanian *Threatened Species Protection Act 1995*. One significant population occurs on private land on Lighthouse Road, and may be under threat from clearing, weed invasion or inappropriate fire regimes. The species also exists under reservation in South Bruny National Park.

Threatened Species Section (2011b) *Tasmanian Lowland Euphrasia Species: Flora Recovery Plan*. Department of Primary Industries, Parks, Water and Environment, Hobart.

This recovery plan lists the distribution of 13 species of lowland eyebrights (*Euphrasia* sp.) and recommends management actions to conserve these populations. Two species of eyebright exist on Bruny Island. *Euphrasia fragosa* has been recorded on the Labillardiere Peninsula on South Bruny Island and *Euphrasia collina* subsp. Dukes Marshes has also been reported on Bruny Island. These species often occur in disturbed areas (ie. edges of dirt roads or walking tracks) within wet sclerophyll forest or rainforest. Management recommendations for these species include maintaining the populations by slashing after seeding and the careful control of weed species such as Spanish heath (*Erica lusitanica*).

Threatened Species Unit (2000) *Listing Statement Chestnut Leek Orchid* *Prasophyllum castaneum*. Department of Primary Industries, Water and Environment, Tasmania.

The chestnut leek orchid (*Prasophyllum castaneum*) is listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* and critically endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. This orchid is only known from two locations in south-eastern Tasmania, with one population occurring on the Pineapple Rocks Track on the Labillardiere Peninsula, South Bruny Island. The orchid is found in damp shrubby and sedgy heath on sandy loam soil. The listing recommends that an appropriate burning or slashing regime is adopted in order to maintain an open habitat at the site.

Threatened Species Unit (2001) *Listing Statement Shy Eyebright* *Euphrasia fragosa*. Department of Primary Industries, Water and Environment, Tasmania.

The shy eyebright (*Euphrasia fragosa*) is listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* and as critically endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. This short lived perennial herb is reliant on disturbance events such as fire to stimulate germination of seed stored in the soil. Only three populations are known to exist in Tasmania, with one occurring at Mt Bleak on the Labillardiere Peninsula on South Bruny Island. The Mt Bleak population contains around 30 to 220 individuals depending on conditions. Draft management plans have been prepared for this population. There have also been reports of a population at Cape Bruny.

Walsh, D., Kirkpatrick, J.B. & Skira, I.J. (1997) Vegetation patterns, environmental correlates and vegetation change in a *Puffinus tenuirostris* breeding colony at Cape Queen Elizabeth, Tasmania. *Australian Journal of Botany*, 45: 71-79.

This paper describes the vegetation surrounding a colony of a short-tailed shearwater (*Puffinus tenuirostris*) at Cape Queen Elizabeth, Bruny Island. Seabird breeding colonies are

located in areas of distinct vegetation, usually succulent plants belonging to the genera *Tetragonia*, *Rhagodia* and *Carpobrotus*. Vegetation patterns at Cape Queen Elizabeth were more closely related to burrow density, bare ground and soil dryness than to the phosphorus or organic content of the soils. There were decreases in burrows between 1977 and 1992. In the parts of the rookery where burrow density decreased, sea berry saltbush (*Rhagodia candolleana*) increased its cover. Where burrow density remained constant or increased, bracken (*Pteridium esculentum*) and spiny-head mat-rush (*Lomandra longifolia*) declined in cover.

Williams, K.J. & Potts, B.M. (1996) The natural distribution of *Eucalyptus* species in Tasmania. *Tasforests*, 8: 39-165.

This report provides a summary the geographic distributions of the 29 *Eucalyptus* species occurring in Tasmania. The report uses over 60,000 observations from a number of data sources and maps them on a 10 km x 10 km grid-cell. Twelve species occur on Bruny Island. This includes the black peppermint (*Eucalyptus amygdalina*), heart-leaved silver gum (*Eucalyptus cordata*), gum-topped stringy bark (*Eucalyptus delegatensis* subsp. *tasmaniensis*), blue gum (*Eucalyptus globulus* subsp. *globulus*), yellow gum (*Eucalyptus johnstonii*), Smithton peppermint (*Eucalyptus nitida*), stringy bark (*Eucalyptus obliqua*), black gum (*Eucalyptus ovata*), white peppermint (*Eucalyptus pulchella*), swamp gum (*Eucalyptus regnans*), silver peppermint (*Eucalyptus tenuiramis*) and the white gum (*Eucalyptus viminalis*).

Terrestrial Mammals and Invertebrates

CBSG (2008) *Tasmanian Devil PHVA Final Report*. IUCN/SSC Conservation Breeding Specialist Group, Apple Valley, MN.

The Tasmanian devil (*Sarcophilus harrisi*) has suffered significant population decline in recent years due to Devil Facial Tumour Disease. This report outlines areas which can be used as 'insurance' populations, where healthy devils can be introduced to an area which have natural barriers to prevent the disease from spreading (such as islands). Bruny Island has been identified as such a place, and is capable of holding 300 devils and has suitable habitat and food sources. However, there are many sheep farmers and private landowners who may be against the introduction of devils onto Bruny Island. Another problem is the number of sensitive bird breeding colonies, such as the short-tailed shearwater and little penguin colonies on the Neck.

Driessen, M.M., Carlyon, K., Gales, R., Mooney, N., Panza, M., Thurstans, S., Visoiu, M. & Wise, P. (2011) Terrestrial mammals of a sheep-grazing property on Bruny Island, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania*, 145: 51-64.

A range of methods were used to sample mammals on a large sheep grazing property in August 2010. The property is 4097 ha in size and covers half of North Bruny Island, consisting of a mosaic of dry sclerophyll forests and pasture. The study used a variety of techniques, including live trapping, camera traps, spotlighting and signs of mammals (scats, skulls, diggings etc.). Ten species were recorded, including seven native and three introduced species. The little forest bat (*Vespadelus vulturnus*) was recorded for first time on Bruny Island. No threatened species were found on the property. Some species were able to inhabit a mixture of pasture and bush habitats, however many others were restricted to native vegetation.

Fancourt, B.A., Hawkins, C.E. & Nicol, S.C. (2013) Evidence of rapid population decline of the eastern quoll (*Dasyurus viverrinus*) in Tasmania. *Australian Mammalogy*, 35: 195-205.

This paper describes the rapid decline in eastern quoll (*Dasyurus viverrinus*) populations throughout Tasmania. The eastern quoll currently exists only in Tasmania, and has gone extinct on the mainland of Australia. This study conducted spotlight and trapping surveys from various locations across Tasmania, including Bruny Island. Surveys showed that the numbers of eastern quolls had reduced by 52 – 100% in some regions. The authors trapped quolls on Bruny Island, with a reduction of 51% over the last year. The authors recommend that urgent management actions be undertaken to ensure the conservation of this species.

Harris, J.M. (2005). Mammal records from The Tasmanian Naturalist. *The Tasmanian Naturalist*, 127: 20-41.

This report reviews the records of native and introduced Tasmanian mammals from papers published in The Tasmanian Naturalist. The paper describes several mammal species recorded on Bruny Island, including short-beaked echidna (*Tachyglossus aculeatus*), eastern quoll (*Dasyurus viverrinus*), swamp antechinus (*Antechinus minimus*), southern brown

bandicoot (*Isodon obesulus*), common wombat (*Vombatus ursinus*), common brushtail possum (*Trichosurus vulpecula*), common ringtail possum (*Pseudocheirus peregrinus*), southern bettong (*Bettongia gaimardi*), long-nosed potoroo (*Potorous tridactylus*), rufous-bellied pademelon (*Thylogale billiardieri*) and the water rat (*Hydromys chrysogaster*). Most of the references to Bruny Island are from the paper authored by Hird (2000) on the description of surveys of Dennes Hill, North Bruny Island.

Harris, J.M., Munks, S.A., Goldingay, R.L., Wapstra, M., & Hird, D. (2008) Distribution, habitat and conservation status of the eastern pygmy-possum *Cercartetus nanus* in Tasmania. *Australian Mammalogy*, 29: 213-232.

This paper is a literature review of the distribution and status of the eastern pygmy-possum (*Cercartetus nanus*) across Tasmania. The paper reviews records from previous fauna surveys, museum specimens, and sightings recorded on the Tasmanian Natural Values Atlas database. The paper refers an undated specimen collected from Bruny Island, which is thought to be one of the earlier collections of the species in Tasmania. There are also two specimens from the 1960s and 1970s held at the Tasmanian Museum and Art Gallery in Hobart. The paper suggests that although the species is widely spread across Tasmania, it occurs in low numbers.

Hird, D. (2000) Terrestrial mammals of Denne's Hill, North Bruny Island. *The Tasmanian Naturalist* 122: 9-14.

Dennes Hill is a reserve which was formed in 1996, primarily to conserve habitat for the endangered forty spotted pardalote (*Pardalotus quadragintus*). In June and July 1996, the Tasmanian Field Naturalists Club conducted field surveys of the terrestrial mammals on the reserve. The reserve consists of some cleared areas with natural open woodland. Various methods such as trapping and visual surveys were used. Potteroos (*Potorous tridactylus*) and eastern quoll (*Dasyurus viverrinus*) were trapped on the reserve. There were also additional sightings and signs of wallabies (*Thylogale billiardieri* and *Macropus rufogriseus*), echidnas (*Tachyglossus aculeatus*) and water rats (*Hydromys chrysogaster*). Ringtail and brushtail possums (*Pseudocheirus peregrinus* and *Trichosurus vulpecula*) also occurred in the area.

Hocking, G.J. & Driessen, M.M. (2000) Status and conservation of the rodents of Tasmania. *Wildlife Research*, 27: 371-377.

This paper provides an overview of the diversity, status and distribution of Tasmanian native rodents. Tasmania is home to five native species, with three species widely distributed across the island. This is a low level of diversity compared to other states in Australia. The only endemic rodent species to Tasmania, the long-tailed mouse (*Pseudomys higginsii*), and the endemic swamp rat subspecies (*Rattus lutreolus* subsp. *velutinus*) both occur on Bruny Island. These two species are widespread and are not of conservation concern. In comparison to the rodent populations on mainland Australia, species are relatively secure and Tasmania has had no extinctions of rodent species since European settlement.

Richardson, A.M.M. & Mulcahy, M.E. (1996) The distribution of talitrid amphipods (Crustacea) on a salt marsh in southern Tasmania, in relation to vegetation and substratum. *Estuarine, Coastal and Shelf Science*, 43: 801–817

This paper looks at the spatial distribution of amphipods from Lutregala Marsh on the west coast of Bruny Island. The marsh has an undisturbed transition from saltbush salt marsh, through saline tussock grassland, to native terrestrial vegetation. The marsh hosts a diverse community of talitrids. Eight talitrid species from four ecological groups were collected. This included one palustral species (residing in marshes), one beachflea, three coastal landhoppers and three eastern forest landhoppers. This marsh is of high conservation value as marshes of similar condition are poorly preserved in Tasmania. The paper recommends the importance of preserving terrestrial vegetation which is adjacent to salt marsh reserves.

Rounsevell, D.E., Taylor, R.J. & Hocking, G.J. (1991) Distribution records of native terrestrial mammals in Tasmania. *Wildlife Research*, 18: 699-717.

This paper describes the distributions of Tasmania's 34 native terrestrial mammal species. The distribution of each species across the state is presented as presence/absence records on 10 x 10 km grid maps. These maps were compiled using approximately 10,000 records from 1967 to 1989. It makes reference to several of the species which are present on Bruny Island, including the swamp antechinus (*Antechinus minimus*) southern brown bandicoot (*Isodon obesulus*), eastern barred bandicoot (*Perameles gunnii*), pygmy-possum (*Cercartetus lepidus*), Tasmanian bettong (*Bettongia gaimardi*) and the long-tailed mouse (*Pseudomys higginsi*). The paper provides a brief paragraph on the ecology and habitat requirements of each species.

Whitten, M.J. & Taylor, W.C. (1969) Chromosomal polymorphism in an Australian leafhopper (Homoptera: Cicadellidae). *Chromosoma*, 26: 1-6.

This paper examines the chromosome structure of the Australian leafhopper (*Alodeltocephalus draba*) from several areas in south eastern Tasmania. Three of the study sites were located on Bruny Island. The study found that there was variation in chromosome number from $2n = 9$ to $2n = 7$. The authors suggest that this variation is due to chromosome fusion and the species is presently evolving to a lower chromosome number. This process of chromosome reduction is more advanced in some populations than in others. On Bruny Island, there was a cline on the frequency of fusion from the north to the south of the island.

Terrestrial and Sea Birds

Brereton, R. & Mooney, N. (1994) Conservation of the nesting habitat of the grey goshawk *Accipiter novaehollandiae* in Tasmanian state forests. *Tasforests*, 6: 79-91.

This paper describes the nesting habitat for the grey goshawk (*Accipiter novaehollandiae*) in Tasmania. The species is listed as endangered on the Tasmanian *Threatened Species Protection Act 1995*. Twenty-six nest sites were located throughout Tasmania. This paper describes the approximate location of the nests, the trees in which the nests are located, and the surrounding vegetation and habitat. Nests of the grey goshawk have been identified on the northern end of South Bruny Island. The preferred nesting sites for the grey goshawk are in blackwood trees (*Acacia melanoxylon*) located in wet forest adjacent to a swamp or watercourse.

Bryant, S.L. (2002) *Conservation assessment of beach nesting and migratory shorebirds in Tasmania*. Nature Conservation Branch, Department Primary Industries Water and Environment, Hobart.

This report assesses the populations of beach nesting and migratory shorebirds in Tasmania through a series of surveys and assessment of previous literature. Several regions around Bruny Island (Great Bay, The Neck, Adventure Bay, Cloudy Bay and Lighthouse Bay) have been listed as priority breeding sites for beach nesting shore birds. Lighthouse Bay is regarded as a site with one of the highest diversity of breeding shorebirds in the south of Tasmania, and included Hooded Plover (*Thinornis rubricollis*), Pacific Gull (*Larus pacificus*), Pied Oystercatcher (*Haematopus longirostris*) and Sooty Oystercatchers (*Haematopus fuliginosus*).

Bryant, S.L. (2010) *Conservation assessment of the endangered forty-spotted pardalote 2009 - 2010*. Report to Threatened Species Section, DPIPWE and NRM South, Hobart Tasmania.

This report outlines the results of forty-spotted pardalote surveys that were undertaken in nine locations throughout south east Tasmania. Bruny Island has historically hosted extensive colonies of the forty-spotted pardalote, however between 1983 to 2009 twenty-eight colonies (85%) showed a decline in the numbers of birds, some by as much as 60 to 95%. This is surprising since there has been no major change in land use over this time period. The changes are most likely to be driven by environmental factors, such as prolonged drought, resulting in the decline in habitat. In over 70% of the colonies there was a low level of white gum (*Eucalyptus viminalis*) recruitment, a eucalypt species which is essential habitat for the forty-spotted pardalote.

Bryant, S.L. & Jackson, J. (1999) *Tasmania's Threatened Fauna Handbook: What, Where and How to protect Tasmania's Threatened Animals*. Threatened Species Unit, Parks and Wildlife Service, Hobart.

This handbook identifies where threatened fauna species occur in localities across Tasmania, based on the 1: 25 000 TASMALP mapsheet series. It also lists information about each threatened species and describes the habitat types which they utilise. Six of the 1: 25 000 map sheets span Bruny Island, and the handbook identifies 23 threatened species and describes the habitats which they are most likely to occur. Bruny Island is important marine

habitat for seals and whales and excellent coastal habitat for waders, coastal birds and sea eagles (*Haliaeetus leucogaster*). Other birds such as swift parrots (*Lathamus discolor*), the forty spotted pardalote (*Pardalotus quadragintus*) and other eagles inhabit the forests and woodlands on the island.

Hodgson, A. (1975) *Some aspects of the ecology of the fairy penguin Eudyptula minor novaehollandiae (Forster) in Southern Tasmania*. Ph.D. thesis, University of Tasmania, Hobart

This study examined the behavioural, breeding and nesting habits of the little penguin (*Eudyptula minor*) at three sites in southern Tasmania. An intensive study was undertaken at a colony which occurred on the Neck, a thin section of land which connects north and south Bruny Island. The surveys found a surplus of females in the area, which affected the overall breeding rates of the penguins. Due to the additional number of female birds in the colony, juveniles remained in the nests for longer periods and young birds did not successfully breed. The colony gradually declined over the 4 year study period, with a high level of chick mortality, at 77%.

Robinson, F.N. (1964) The breeding of the sooty shearwater on Courts Island, Tasmania and Montagu Island, NSW. *The Emu*, 63: 304-306.

This short paper describes the presence of the sooty shearwater (*Puffinus griseus*) from Courts Island, a small island off South Bruny Island and Montagu Island in NSW. The sooty shearwater is very similar in appearance to the short-tailed shearwaters (*Puffinus tenuirostris*) and is often overlooked during surveys. On a survey of Courts Island during November 1961, four sooty shearwaters were recorded nesting within the large short-tailed shearwater colony on the island. The author suggests that there are only a small number of sooty shearwaters residing on the island. A similar pattern was found on Montagu Island, where a few sooty shearwaters were found within a colony of short-tailed shearwaters.

Saunders, D.L. and Tzaros, C.L. (2011) *National Recovery Plan for the Swift Parrot Lathamus discolor*. Birds Australia, Melbourne.

This is the formal National Recovery Plan for the swift parrot (*Lathamus discolor*). Swift parrots are listed as endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. The main threat to this species is the loss of habitat, which is occurring through residential and industrial developments, forestry operations, lack of regeneration and disturbance events such as fire. Known breeding sites are recorded in the D'Entrecasteaux Channel area, which include Bruny Island. This report identifies several recovery actions such as prioritising habitats and sites used by the species and implementing management strategies to protect them.

Skira, I.J., Brothers, N.P. & Pemberton, D. (1996) Distribution, abundance and conservation status of short-tailed shearwaters *Puffinus tenuirostris* in Tasmania, Australia. *Marine Ornithology*, 24: 1–14.

This paper describes the colonies of short-tailed shearwaters (*Puffinus tenuirostris*) across Tasmania. The shearwater usually breeds on islands and on headlands. There is an estimated 209 colonies across Tasmania, with close to 11.5 million burrows in total. Several colonies exist on Bruny Island and the surrounding islands in the D'Entrecasteaux Channel, including

Cape Queen Elizabeth (43,475 burrows), Miles Beach (400), the Neck (19,000), Big Friars (100,000), Little Friars (35,000), the Friars (1,890), Cloudy Bay (500), Whalebone Point (9,180), Courts Island (34,000) and Pineapples (15,000). Due to their large population, the short-tailed shearwater is not of conservation concern in Tasmania.

Stevenson, C. & Woehler, E.J. (2007) Population decreases in little penguins *Eudyptula minor* in south-eastern Tasmania, Australia, over the past 45 years. *Marine Ornithology*, 35: 61–66.

This paper investigates the distribution and abundance of little penguin (*Eudyptula minor*) colonies across south-eastern Tasmania. The paper highlights how the Neck on Bruny Island is a popular tourist spot to view the penguins. Even though viewing platforms and boardwalks have been implemented to minimize impacts, tourists still often wander off boardwalks, which increases the risk of burrows being crushed and the birds disturbed. Vegetation changes at The Neck over the past 40 years have also been substantial, with the spread of coastal wattle (*Acacia sophorae*) and marram grass (*Ammophila arenaria*) causing accessibility problems for the penguins.

Stojanovic, D., Webb, M.H., Alderman, R., Porfirio, L.L. & Heinsohn, R. (2014) Discovery of a novel predator reveals extreme but highly variable mortality for an endangered migratory bird. *Diversity and Distributions*, 20: 1200-1207.

This paper describes the predation of the endangered swift parrot (*Lathamus discolor*) nests by the introduced sugar glider (*Petaurus breviceps*) in eastern Tasmania. The study found that sugar gliders were entering the nests of swift parrots and eating the eggs. Additionally, 83% of the female adult birds were killed by the sugar gliders during the nest raids. Predation rates were high in some areas on mainland Tasmania, however the 16 nests which were monitored on Bruny Island showed no signs of predation by sugar gliders and there was a 100 % success rate of breeding. There is a high confidence that sugar gliders are absent from Bruny Island, which makes it an important refuge for swift parrots.

Threatened Species Section (2006) *Fauna Recovery Plan: Forty-Spotted Pardalote 2006-2010*. Department of Primary Industries and Water, Hobart.

This report outlines the recovery plan for the forty-spotted pardalote (*Pardalotus quadragintus*), which is listed as endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* and the *Tasmanian Threatened Species Protection Act 1995*. Four main populations of the pardalote exist in Tasmania, with one important population occurring on Bruny Island. The plan describes previous actions undertaken on the island, including the creation of the reserve at Dennes Hill and the planting of habitat trees (*Eucalyptus viminalis*). The plan also notes that habitat on Bruny Island is fragmented, and may restrict the movement and dispersal of this species between habitat patches. Education and community involvement is an important step in the recovery process, as 1,430 ha of habitat on Bruny Island is on private land.

Threatened Species Section (2010) *Listing Statement for Pardalotus quadragintus (Forty-spotted Pardalote)*. Department of Primary Industries, Parks, Water and Environment, Hobart.

This report details the conservation status of forty-spotted pardalote (*Pardalotus quadragintus*) which is listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* and endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. It is also listed as endangered under the IUCN Red List. The listing statement highlights that there are substantial populations of the pardalote on Bruny Island, although most populations have suffered severe declines over recent years. The report lists many key actions that have taken place on Bruny Island to protect the bird's habitat, including the creation of a nature reserve on Dennes Hill, the development of Threatened Species Recovery Plans, nest box trials, and trial plantings of white gums (*Eucalyptus viminalis*).

Understorey Network (2011) *Habitat Plan for the Endangered Forty- Spotted Pardalote* *Pardalotus quadragintus*. Understorey Network, Tasmania.

This report provides a review of the habitat of the forty-spotted pardalote (*Pardalotus quadragintus*), and provides advice on its restoration. The report discusses the decline of the forty-spotted pardalote as reported by Bryant (2010). At the time of writing, there was estimated to be only 1500 breeding pairs left in the wild, which is less than half the number recorded ten years ago. It states the main reason for decline of the populations on Bruny Island is due to loss of preferred habitat for the birds (white gum, *Eucalyptus viminalis*). It cites that grazing of private land is a significant contributor to this decline. The document lists the restoration priorities for forty-spotted pardalote colonies.

Weimerskirch, H. & Cherel, Y. (1998) Feeding ecology of short-tailed shearwaters: breeding in Tasmania and foraging in the Antarctic? *Marine Ecology Progress Series*, 167: 261-274.

The feeding and foraging patterns of the short-tailed shearwater (*Puffinus tenuirostris*) nesting on the Neck on Bruny Island were studied. A total of 89 burrows were monitored. The study found that the shearwaters residing at the Neck have distinct foraging patterns. Parents would undertake two short trips at sea (1 to 2 days duration) in succession, followed by one long trip (9 to 17 days) up to 1000 km south of the nesting site. These long foraging trips are the longest recorded for any seabird. The energy budget required for rearing chicks is gained by prey caught in rich southern waters, however the nearby shallow waters are important in the breeding strategy as they allow an increased rate of energy flow to the chick.

Woinarski, J.C.Z. & Bulman, C. (1985) Ecology and breeding biology of the forty-spotted pardalote and other pardalotes on North Bruny Island. *Emu*, 85: 106-120.

North Bruny Island had the second largest known colony of the endangered forty-spotted pardalote (*Pardalotus quadragintus*). As of December 1983, there were 86 breeding adults on a 55 ha study site, along with 50 striated pardalotes (*Pardalotus striatus*) and 22 spotted pardalotes (*Pardalotus punctatus*). Individuals responded well to playbacks of recorded calls of their own species, but there was little response to calls of other species, suggesting that there are low levels of territoriality between the species. The choice of nesting site differed between species. The majority of the forty-spotted pardalote nests were in hollow dead

wood, while the striated pardalote nests were common in hollows of living timber or in tunnels on the ground, and the spotted pardalotes nested only in ground tunnels.

Marine Species and Ecosystems

Beeton, R.J.S (2009) *Patiriella vivipara* (Tasmanian Live-bearing Seastar) Listing Advice. Threatened Species Scientific Committee, Hobart.

This report is a recommendation that Tasmanian live-bearing seastar (*Patiriella vivipara*) be listed as threatened in the *Environment Protection and Biodiversity Conservation Act 1999*. The seastar is currently listed as vulnerable under the *Tasmanian Threatened Species Protection Act 1995*. The report states that the sheltered waters within the D'Entrecasteaux Channel are important habitat for this species. The live-bearing seastar is constrained to specific substrates within the very narrow littoral zone, habitat which is often far enough apart to restrict the dispersal of this species. The seastar is being recommended for listing as it is only known from 13 isolated populations and also due to its limited distribution.

Bell, P.J. & Hickman, J.L. (1985) Observations on *Carcinonemertes* (Nemertea: Carcinonemertidae) associated with the smooth pebble crab, *Philyra laevis*. *Papers and Proceedings of the Royal Society of Tasmania*, 119: 65-68

This paper examines the relationship of a Ribbon worm (*Carcinonemertes*) on the smooth pebble crab (*Philyra laevis*). The ribbon worm is parasitic on the eggs of the crab, a relationship which is uncommon. The juvenile worms grow to maturity and reproduce only on female crabs which are brooding eggs in their gills. Some crabs can have up to 1000 worms in their gill chambers. This paper describes the first reported recording of this genus of ribbon worm in Australia, with specimens found in Great Bay on Bruny Island, and from other locations around the D'entrecasteaux Channel.

Commonwealth of Australia (2015) *Recovery Plan for Three Handfish Species*. Department of the Environment, Canberra.

This recovery plan describes three species of handfish (Brachionichthyidae) which occur in the south-east region of Tasmania. One of these species, the spotted handfish (*Brachionichthys hirsutus*), is known from locations within the D'entrecasteaux Channel where it inhabits seafloor environments which contain coarse to fine sand and shell grit. Another species, the red handfish (*Thymichthys politus*), may have potential habitat in the channel and around Bruny Island. Identified recovery actions include more detailed surveys to understand the ecology and distribution of these species, protecting habitat for the handfish, and researching effective ways of increasing spawning success.

Dartnall, A.J. (1969) The Asterinid sea stars of Tasmania. *Papers and Proceedings of the Royal Society of Tasmania*, 104: 73 -78.

This paper discusses the distribution of seastars belonging to the family Asterinidae in Tasmania. Of the ten species discussed in this paper, four occur in the rocky shores around Bruny Island. *Asterina atyphoida* lives under rocks and crevasses from the low water mark to 40 m. *Patiriella exigua* occurs in many locations around Tasmania and inhabits the upper to mid littoral zones. *Patiriella gunni* occurs on the north and east of Tasmania and is often found in rocky areas in the mid to lower littoral areas. *Patiriella calcar* inhabits the mid-

littoral to 10 m zone and can often be found in rock pools. The paper also provides a key to species identification.

Edgar, G.J. (1983) The ecology of south-east Tasmanian phytal animal communities: III. Patterns of species diversity. *Journal of Experimental Marine Biology and Ecology*, 70: 181-203.

This paper examines the marine invertebrate communities (ie. isopods, amphipods etc.) that inhabit seaweed beds around rocky coastlines. The location of this study was on the east coast of Bruny Island, at One Tree Point. Samples were taken from sheltered areas, one metre below the low water mark. The diversity of marine invertebrates was related to the food availability of the area. Communities were often more diverse in shallower areas and regions where there were a higher number of seaweed species. Diversity of marine invertebrates was also lower on thin thread-like seaweeds.

Edgar, G.J. (1984) General features of the ecology and biogeography of Tasmanian subtidal rocky shore communities. *Papers and proceedings of the Royal Society of Tasmania*, 118: 173-186.

This paper describes the ecology and distributions of seaweeds, marine invertebrates and fish species in the rocky shore communities across various locations in Tasmania. The south-eastern region of Tasmania is described as cool-temperate, with many similar plant and animal species to New Zealand. At Cape Queen Elizabeth on North Bruny Island, *Lessonia corrugata* is the dominant seaweed at depths between 3 and 7 metres, while 30 km south at Cape Bruny, *Phyllospora* is the dominant species at similar depths. The paper also lists the 46 species of reef fish found in rocky shore communities around Bruny Island.

Edgar, G.J. (1987) Dispersal of faunal and floral propagules associated with drifting *Macrocystis pyrifera* plants. *Marine Biology*, 95: 599-610.

This paper outlines a study which examined if the plant and animal communities which reside on a drifting kelp species (*Macrocystis pyrifera*) survive when the kelp drifts to new areas. This was achieved by an experiment where kelp was collected at Variety Bay, Bruny Island, and was transplanted to mooring lines 10 km south at Adventure Bay. All of the animal species and most of the plant species survived on the kelp. However, the author states that there is often very few New Zealand species found in Tasmania and therefore it is unlikely that the plant and animal communities survive on kelp which drifts all the way from New Zealand.

Edgar, G.J. & Samson, C.R. (2004) Catastrophic decline in mollusc diversity in eastern Tasmania and its concurrence with shellfish fisheries. *Conservation Biology*, 18: 1579-1588.

This paper studied the historical patterns of mollusc shells deposited on the sea floor over the last 120 years to determine the changes in shellfish numbers. The study was located in south-eastern Tasmania, with six of the survey sites in the D'Entrecasteaux Channel. By using sediment cores, the authors found that there had been severe decline in mollusc diversity, from 21 species in 1890 per sample, to 7 species in 1990. They also found that the numbers of molluscs had also dropped, from 150 per sample to 30 over the same period of time. These declines in diversity and abundance have been linked with scallop dredging that used to take place up until the 1960's.

Guerra-García, J. M. & Takeuchi, I. (2004) The Caprellidea (Crustacea: Amphipoda) from Tasmania. *Journal of Natural History*, 38: 967-1044.

This paper reviews a group of small marine crustaceans (*Caprellidea*) from the coastal areas of Tasmania. The study sampled approximately 70 sites around the Tasmanian coast, with 22 sites from around Bruny Island and the D'Entrecasteaux Channel. The paper includes descriptions on species composition and biogeographical characteristics. Four new species are described in this paper. One of the new species, *Hircella inermis*, was recorded at Adventure Bay, Bruny Island. The species diversity of caprellids in Tasmania is high compared to regions with similar habitat in the southern hemisphere. This is due to the warmer waters of the East Australian current passing down towards the east coast of Tasmania.

McManus, T.J., Wapstra, J.E., Guiler, E.R., Munday, B.L. & Obendorf, D.L. (1984) Cetacean strandings in Tasmania from February 1978 to May 1983. *Papers and Proceedings of the Royal Society of Tasmania*, 118: 117-135.

This paper lists the marine mammal strandings recorded around Tasmania from 1978 to 1983. There was a total of 46 whale strandings involving 13 species during this period. This included six strandings on Bruny Island, including sei whales (*Balaenoptera borealis*), strap-toothed whales (*Mesoplodon layardii*), pygmy right whale (*Caperea marginata*), common dolphin (*Delphinus delphis*) and bottle nosed dolphin (*Tursiops truncatus*). It was the first time a sei whale has been recorded stranded in Tasmania. The paper states that Bruny Island is a common place for whale strandings due to the surrounding bodies of semi-enclosed water and extensive tidal flats.

Threatened Species Unit (2012) *Seastars of Tasmania*. Department of Primary Industries, Water and Environment, Hobart.

This information sheet describes the habitat and distribution of three rare seastars which are found only in Tasmania. One of these seastars, *Smilasterias tasmaniae*, is extremely rare and is listed under the Tasmanian *Threatened Species Protection Act 1995*. It only occurs at five localities on the western side of Bruny Island, with each site containing less than 30 individuals. Little is known about their biology and behaviour. Bruny Island is also home to the live-bearing seastar, which is unique as it is one of only three species in the world that gives birth to live young.

Land Use and Management

Ancher, K. (2016) *Draft North Bruny Management and Future Directions Plan*. Kingborough Council, Kingston, and Friends of North Bruny, Bruny Island.

This plan outlines the importance of sustainable and sensitive development on North Bruny Island to protect the natural and cultural values. The plan suggests that future developments should not impede on the environment or the current lifestyle of the residents. This would be achieved by promoting low-key and sensitive development in already built up areas, thereby preventing urban sprawl. There is also a preference for developments which do not hinder the farming character of the North Island. Residents and visitors indicated that the natural values of the island, such as the wilderness, native flora and fauna, coastal areas and clean environment, are one of the most important features of the island and need protecting.

Cochran, T. (2003) *Managing Threatened Species & Communities on Bruny Island*. Threatened Species Unit, Department of Primary Industries, Water and Environment, Tasmania.

This report describes the natural values of Bruny Island. It outlines many of the rare species that reside on the island and describes simple management practices that can be implemented by residents to prevent species loss. The plan lists the 16 threatened animal species, 23 threatened plants and 5 migratory birds which occur on or near Bruny Island. There is a short description of the biology and habitat for each species. The report also lists all of the habitats which occur on the island and which threatened species resides in them. It lists the threats to these habitats, such as introduced plants and animals, land clearing, grazing, pollution and fire.

DeRose R.C. (2001) *Land Capability Survey of Tasmania: D'Entrecasteaux Report*. Department of Primary Industries, Water and Environment, Hobart.

This report describes and classifies the agricultural land resources occurring on the land surrounding the D'Entrecasteaux Channel, including Bruny Island. The land is assessed by categorising it according to its production ability, without impairment to its long term, sustainable potential. Broad acre cropping is generally not undertaken in the region due to a combination of poor soil conditions and an unsuitable cold and wet climate during the winter and spring months. The majority of land on Bruny Island is ranked at class 5 or above, indicating that the land is unsuitable for intensive cropping due to shallow topsoil and the soils being highly erodible and nutrient poor.

Forestry Tasmania (2000) *Huon Forest District Forest Management Plan - March 2000*. Forestry Tasmania, Hobart.

This Management Plan addresses, on a strategic level, how the forests are managed by Forestry Tasmania within the Huon Forest District. The management plan describes how the state forests will be managed for their commercial and conservation values. The management plan describes the total production and reservation areas, and describes the process for native timber and plantation harvesting. The plan also outlines the biodiversity

values of the region. At the time of publication, approximately 13 % of the 35,300 ha of land on Bruny Island was managed as production forests by Forestry Tasmania. The plan identified two threatened species residing within the production areas: the Mount Mangana stag beetle (*Lissotes menalcas*) and swift parrot (*Lathamus discolor*).

Indigenous Land Corporation (2013) *Regional Indigenous Land Strategy 2013–2017, Tasmania*. Australian Government, Canberra.

Regional Indigenous Land Strategies were implemented in each state of Australia and this report covers the Land Strategy for Tasmania. The report outlines the social, cultural, environmental and economic benefits achieved from Indigenous land acquisition and management. Murrayfield Station, a 4,100 hectare sheep grazing property on North Bruny Island, represents one of the largest land hand-backs for the Tasmanian Aboriginal Community. The property includes over 260 sites of indigenous importance, which include shell middens and possible camp locations, tools and mine sites for materials and ochre. The station runs a residential employment-focused training project for indigenous participants. The station produces high grade merino wool and meat to local restaurants.

Kingborough Council (2015) *Kingborough Planning Scheme 2000 (incorporating amendments to 29/5/2015)*. Kingborough Council, Kingston.

This planning scheme is for the Kingborough Council, which manages Bruny Island. The plan identifies the unique natural environment as Bruny Island's most important attribute, therefore the island must be protected from inappropriate land use and development. The planning scheme for Bruny Island states that existing townships (Alonnah, Dennes Point and Adventure Bay) remain small scale residential villages. The plan recommends that Alonnah should develop into a more defined residential village with a central focus. The plan aims to retain the natural and historic features of the existing Bruny Island settlements, and aims to discourage temporary living in shacks in favour of more permanent accommodation.

Natural and Cultural Heritage Division (2015) *South Bruny and its Offshore Islands, Natural Values Survey 2013*. Hamish Saunders Memorial Trust, New Zealand and Natural and Cultural Heritage Division, DPIWWE, Hobart. Nature Conservation Report Series 15/1

This report documents the results of fauna and flora surveys which were based on South Bruny Island and Courts, Partridge, Southport, Sterile and Actaeon Islands, which are located in the D'entrecasteaux Channel. Fifteen native mammal species were recorded on South Bruny Island. One species, the endemic Tasmanian long-eared bat (*Nyctophilus sherrini*), had not previously been recorded on the island. It was also the first time the yellow bladderwort (*Utricularia australis*) has been recorded. A Phytophthora survey was also conducted on South Cloudy Head, finding no major incursions in the area. Many of the small islands had seabird colonies, however many had severe weed infestations. Partridge Island was home to a large population of the endangered forty spotted pardalotes.

NRM South (2014) *Annual Report 2013–2014*. Southern Regional Natural Resource Management Association Inc., Hobart.

This annual report outlines the conservation work done by NRM South, a non-government natural resource management organisation, during 2013–2014. The organisation ran the North Bruny Biodiversity Fund Project, which focused on connecting and restoring vegetation communities and protecting habitat of endangered birdlife. In 2013-14 on North Bruny Island, 190 hectares were treated for weeds and 50 hectares were revegetated with approximately 12,000 plants, providing future habitat for the forty-spotted pardalote and sea eagles. The report also describes the regeneration of white gum (*Eucalyptus viminalis*) seedlings after serious decline of the species in recent years. The white gum is an important habitat for the forty-spotted pardalote. NRM South also completed a penguin survey and habitat condition assessment on Bruny Island.

Parks and Wildlife Service (2000) *South Bruny National Park, Waterfall Creek State Reserve, Green Island Nature Reserve Management Plan*. Parks and Wildlife Service, Department of Primary Industries, Water and Environment, Hobart.

This management plan is for South Bruny National Park and Waterfall Creek State Reserve, both which occur on South Bruny Island, and Green Island Nature Reserve, which lies in the D'Entrecasteaux Channel. South Bruny National Park has many significant geological features and a high diversity of vegetation communities. The park contains some significant species such as velvet bush (*Lasiopetalum micranthum*), eyebright (*Euphrasia* sp.) and has the largest surviving colonies of the forty spotted pardalote. Waterfall Creek State Reserve contains a scenic landscape of waterfalls and the wet forest. The Green Island Nature Reserve has an important breeding colony for the Kelp Gull (*Larus dominicanus*) and Pacific Gull (*Larus pacificus*). This plan outlines the management issues of these areas, with special reference to areas which attract a high volume of visitors.

Prahalad, V. & Pearson, J. (2003) *Southern Tasmanian Coastal Saltmarsh Futures: A Preliminary Strategic Assessment*. NRM South, Hobart.

This report describes the current distributions of saltmarshes in southern Tasmania and predicts the future footprint of salt marshes under sea level rise conditions. Saltmarshes are important ecosystems and provide valuable biodiversity and ecosystem services. However, over half of saltmarshes have been lost due to land use change and other human impacts. There are significant areas of salt marsh in the D'entrecasteaux Channel and on Bruny Island. Most notable is Lutregala Marsh on Bruny Island, which is under permanent reservation. Modelling of the distribution of salt marshes under future sea level rise showed that approximately 75% of coastal saltmarshes have either 'some' or 'sufficient' room to move.

Tasmanian Land Conservancy (2012) *Lutregala Marsh Reserve Draft Management Plan*. Tasmanian Land Conservancy, Hobart.

This management plan is for Lutregala Marsh Reserve, a privately owned conservation property on South Bruny Island. The reserve has been managed by the Tasmanian Land Conservancy since 2005 and consists of 42 ha of coastal salt marsh and saline grassland, adjacent to the Neck Game Reserve. The plan outlines three main actions to be completed by 2018. These actions include collecting baseline data on the condition of the property, maintaining or improving the condition of the property, and to facilitate involvement with

the community. Community involvement on the reserve included promoting visitation by residents and tourists, volunteering to help with the conservation and management, and education people on the marsh's ecological importance.

Marine Monitoring and Management

Aguirre, J., McNaughton, J. & Daume, S. (2014) *Report for Tassal Operations Pty Ltd: Bruny Island Region, MF 110 Soldiers Point*. SCS Global Services, Emeryville, CA.

This report outlines the assessment of a salmon farm located at Soldiers Point, which lies within the D'Entrecasteaux Channel. The report states that the farm, operated by Tassal Operations Pty Ltd, has a good level of compliance (92%) to the regulations outlined by the Aquaculture Stewardship Council. One of the major non-conformities of the farm was the lethal bird interactions and the discrepancies from the reported number of fatalities recorded on-site to that which was recorded in the sustainability reports. Other minor non-conformity related to marine mammal mortalities, lack of community consultation, feed testing and source of feed material and dissolved oxygen levels.

Barrett, N. (2001) *Mapping of Inshore Marine Habitats in South-eastern Tasmania for Marine Protected Area Planning and Marine Management*. Marine Research Laboratories, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania, Hobart.

This study presents detailed mapping of marine habitats within the Bruny Bioregion (a region encompassing not only Bruny Island but most of south-east Tasmania). This Bioregion was identified as a priority area for mapping due to its high degree of marine endemism and habitat diversity. Additionally, the area is in more urgent need for protection given the high population density of the region. A high diversity of marine habitats has been recorded in the D'Entrecasteaux Channel. The habitat maps are to be used to suggest a number of potential Marine Protected Area locations.

Crawford, C.M., Macleod, C.K. & Mitchell, I.M. (2003) Effects of shellfish farming on the benthic environment. *Aquaculture*, 224: 117-140.

Three shellfish farms in south-eastern and eastern Tasmania were studied to examine if the farming practices impacted on the benthic (seafloor) environment. One of these sites was located at Port Esperance, which is located on the western side of the D'Entrecasteaux Channel. There was no difference in the measurements of sediment deposition, redox values, sediment sulphide concentrations or organic carbon content directly beneath the farms and from the control sites outside the farms. The study concluded that the farms had minimal impact of the sea floor environment, and that the impact was much less than salmon farming, which is common throughout the D'Entrecasteaux Channel.

Lane, C.M. (2005) *The use of diatoms as biological indicators of water quality, and for environmental reconstruction, in south-east Tasmania, Australia*. PhD Thesis, University of Tasmania, Hobart.

This paper examines if diatoms (single celled algae) can be used as indicators for water quality and marine health. The study was located in the D'Entrecasteaux Channel which, due to its protected waters, has a substantial and growing aquaculture industry, particularly salmon farms. The study found that micro-algal communities were most strongly influenced by nutrient concentrations. This provides an easy and valuable water quality monitoring and assessment method for the Channel region. The future health of coastal ecosystems in

south-east Tasmania will rely on the ability of stakeholders and caretakers to incorporate effective biological monitoring and assessment into their management strategies.

Oh, E. (2009) *Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats*. Honours Thesis, University of Tasmania, Hobart.

This thesis examines the impact of fish farms on the macroalgal (seaweed) communities within the D'Entrecasteaux Channel. The quality and composition of macroalgal communities is a good indicator of environmental disturbance. The D'Entrecasteaux Channel has the highest concentrated area of salmon farming in Tasmania. Certain seaweed species, such as *Chaetomorpha* sp. and *Ulva* sp., were common near fish farms at exposed sites and filamentous green algae were abundant at sheltered sites. The cover of epiphytes and opportunistic algae provided the best indicators of fish farm impacts on a broad scale. Canopy forming seaweeds were also present near fish farms indicating that they are not significantly affected by high levels of sedimentation from fish farms.

Parsons, K.E. (2012a) *D'Entrecasteaux Channel and the lower Huon Estuary: Inventory of Scientific Information*. Report for the D'Entrecasteaux Channel Project, Ecomarine Consulting, Hobart.

This report is part of the D'Entrecasteaux Channel Project, a collaborative venture initiated by the Kingborough Council, which aims to manage the D'Entrecasteaux Channel in a sustainable manner. This report provides an inventory of available scientific data sets for the D'Entrecasteaux Channel and lower Huon Estuary created between 1999 and 2012. The report describes over 85 data sets. The report only lists a description of the data and in which papers and reports it is contained and does not list any results within the report.

Parsons, K.E. (2012b) *State of the D'Entrecasteaux Channel and the lower Huon Estuary 2012*. Report for the D'Entrecasteaux Channel Project, Ecomarine Consulting, Hobart.

This report describes the condition of the D'Entrecasteaux Channel and lower Huon Estuary and identifies the key management issues of the region. Water quality remained at relatively good levels in the D'Entrecasteaux Channel, however nutrient concentrations frequently exceeded national guidelines. High organic loadings were generated from the fish farms, however in nearly all cases were confined to within farm leases. Biotoxins were an ongoing concern, which can lead to shellfish contamination and the closure of seafood farms. The region has a high diversity of fauna, due to its wide range of marine, estuarine and foreshore habitats.

Tarbath, D. & Gardner, C. (2009) *Fishery Assessment Report: Tasmanian Abalone Fishery 2008*. Tasmanian Aquaculture and Fisheries Institute, Hobart.

This report summarises the catch rates of Abalone across Tasmania during 2008. The catch rates in zones around Bruny Island have been decreasing in recent years, and in 2008 were at low levels. Most catch came from the southern Bruny shore. The abundance of recruits in the catch exhibited no clear trend, suggesting that there was no evidence that stocks were rebuilding. Some of the zones around Bruny Island and the lower regions of the D'Entrecasteaux Channel were closed during 2008 to fishing as a precautionary measure to prevent the spread of Abalone Viral Ganglioneuritis (AVG).

Tarbath, D., Mundy, C. & Gardner, C. (2014) *Tasmanian Abalone Fishery Assessment 2013*. The Institute for Marine and Antarctic Studies, University of Tasmania, Hobart.

This report assesses the abalone fisheries around Tasmania during 2013. The report details the catch rates and describes the population numbers of abalone. On the eastern side of Bruny Island, catch rates were 35 t of blacklip in 2013, a result which was slightly higher than the previous year. However, the three years prior to 2013 catch rates had been up to 60-70 % lower than historical levels. The overall abundance of abalone for the catch sites around the east coast of Bruny Island was low. Approximately 56 % of the recreational catch of abalone is estimated to come from the lower D'Entrecasteaux Channel, while no commercial catch was reported from the same region.

Volkman, J.K., Thompson, P., Herzfeld, M., Wild-Allen, K., Blackburn, S., Macleod, C., Swadling, K., Foster, S., Bonham, P., Holdsworth, D., Clementson, L., Skerratt, J., Rosebrock, U., Andrewartha, J. & Revill, A. (2009) *A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture*. CSIRO Marine and Atmospheric Research, Hobart.

This report outlines the ecological features of the Huon Estuary and D'Entrecasteaux Channel and how these factors are impacted by salmon farming in the region. The study found that salmon farming is a significant contributor of nutrients to in the Channel, which has led to the increase in phytoplankton abundance. Using modelling, the study also found that the plumes of effluent escaped from the cages in a long narrow ribbon and can occur up to 0.5 km from the cage. The report also outlines ecological studies conducted within the D'Entrecasteaux Channel, including sediment size analyses, phytoplankton and zooplankton communities, organic loading and measurement strategies for eutrophication.

Aboriginal History

Anderson, S. (2000) French anthropology in Australia, a prelude: the encounters between Aboriginal Tasmanians and the expedition of Bruny d'Entrecasteaux, 1793. *Aboriginal History*, 24: 212-223.

This paper describes the interactions between French explorers and indigenous Tasmanians during 1791-1793. It discusses the Bruny d'Entrecasteaux expedition, in which the French kept detailed notes about these interactions. Most of the interactions were with the Nuenonne people of Bruny Island and the land surrounding the D'Entrecasteaux Channel. Interactions between the two groups were friendly and the French recorded valuable information about the Tasmanian way of life, including information about the food, shelter and tools they used. From the perspective of the French it was a completely positive experience.

Bowern, C. (2012) The riddle of Tasmanian languages. *Proceedings of the Royal Society of London B: Biological Sciences*, p.rspb20121842.

This paper examines how closely related Tasmanian indigenous languages are by applying similar methods to that which are used in evolutionary biology. Many recent studies have been able to successfully discover the history of major language families by using phylogenetic methods. This is due to the similarities in the evolutionary process of linguistics and biology. The author found that the five main language groups of Tasmania are highly unrelated. Bruny Island had a similar language group to the adjacent area around the D'entrecasteaux Channel, which had some minor similarities to the Oyster Bay Tribe to the north, however was very different to languages in other regions of Tasmania.

Breen, S. (1992) Tasmanian Aborigines: making fire. *Papers and Proceedings: Tasmanian Historical Research Association*. 39: 40-43.

This paper discusses the long held assumption that Tasmanian Aborigines were unable to make fire. This assumption has been largely held throughout history due to insufficient evidence that Tasmanian Aborigines could to produce fire artificially. However, this paper provides historical evidence that the indigenous groups from Bruny Island were able to start fires. The use of flints was observed by some of the first Europeans to visit Bruny Island. The words such as 'flint' and 'fire spark' were also recorded in the languages of the Bruny Island tribes. The paper concludes that Tasmanian Aborigines could indeed make fire and they used it widely and was a substantial part of their culture.

Curthoys, A. (2005) Raphaël Lemkin's 'Tasmania': an introduction. *Patterns of Prejudice*, 39: 162-169.

This paper describes a chapter from an unpublished book written in the 1940's and 50's on the history of genocide by Raphaël Lemkin. This chapter of the book referred to the genocide of Tasmanian Aborigines during European colonization. It discusses the near disappearance of Aboriginal Tasmanians after several decades of colonization and settlement by the British. The paper discusses the removal of the Aboriginal people to off shore islands in order to protect them from conflicts with European settlers. Bruny Island

was home to one of these colonies. The confinement to Bruny Island often left the people 'lifeless and dispirited'.

Crowley, T. (1993) Tasmanian aboriginal language: old and new identities, in: Walsh, M., Yallop, C. (eds.) *Language and Culture in Aboriginal Australia*. Aboriginal Studies Press, Acton, ACT.

This paper explores the languages of indigenous Tasmanians, suggesting there were between eight to twelve different languages on the island. On Bruny Island, indigenous people had frequent interactions with European settlers, such as convicts, sealers and whalers. These interactions would have most likely caused aboriginal people on Bruny Island to pick up a form of pidgin. This paper also details the history of Truganini (the last known surviving Tasmanian Aboriginal) and her interactions with Government officials. This paper also argues against the long held idea that indigenous Tasmanians went 'extinct' after the death of Truganini, and the author states that today there are around 4,000 people of Aboriginal descent living in Tasmania.

Gammage, B. (2008) Plain facts: Tasmania under aboriginal management. *Landscape Research* 33: 241-254.

It is widely accepted that indigenous Australians managed the land with the broad-scale use of fire. This article suggests that fire was not only applied at a large scale, but fine scale application to the land with great precision was used to create a complex range and patterns of useful ecosystems. The paper describes how on Bruny Island, tribes would burn the landscape in a particular way in order to facilitate habitat for wallabies. Indigenous people of Bruny Island would burn plains in patches, which would simplify the hunting of wallabies by dogs. The article also argues that Aboriginal land management burning was a significant a cultural practice.

Gill, J.C.H. (1968) *Notes on the Tasmanian "Black War"*. Read to a meeting of The Royal Historical Society of Queensland on 23 May 1968.

This paper provides a short description of history of Tasmanian Aboriginals, describing the culture, lifestyles and food sources pre-European colonisation. It continues to describe the demise of indigenous Tasmanians, through conflicts with European settlers and the effects of disease. Efforts were made by the government to calm tensions with indigenous people on Bruny Island by appointing George Augustus Robinson as a conciliator. Bruny Island was where Robinson met Truganini, who was the last known surviving Tasmanian Aboriginal. It was also at Bruny Island that Robinson made the first attempt by any European to gain fluency in the Tasmanian native language.

Gott, B. (2002) Fire-making in Tasmania: Absence of evidence is not evidence of absence. *Current Anthropology*, 43: 650-656.

This paper discusses the long held idea by some anthropologists that Tasmanian Aboriginals were unable to generate fire. The notion was generated from the widely reported Tasmanian custom of carrying fire from place to place. This skill was thought to be lost during Tasmania's long isolation from mainland Australia. This paper provides historic evidence of indigenous fire generation, with reference to Bruny Island. Making fire by flints

seems to have been limited to an area of southern Tasmania around Bruny Island. There is also evidence from Bruny Island that fire was created from rubbing together two pieces of wood together.

Taylor, R. (2007) The polemics of eating fish in Tasmania: the historical evidence revisited. *Aboriginal History*, 31: 1-26

Many reports from early explorers suggest that Tasmanian Aboriginals didn't eat fish and this paper provides evidence to counter this argument. This paper describes interviews from 1908-1910 with the indigenous decedents from around the D'Entrecasteaux Channel region. The interviewees gave information about traditional foods, indigenous language, spirituality and practical skills like how to make fire. They also stated that the tribes from the Bruny Island and Channel regions would cook fish on a flat stone and that they often speared fish. Reference is also made about interactions between Cook and Aboriginals at Adventure bay in Bruny Island and how the Aboriginals refused fish when offered to them by cook and his men.

European History

Boyce J (2008) *Van Diemen's Land: A History*. Black Inc., Melbourne.

The book describes the history of British colonialism in Tasmania. Most of the references to Bruny Island in the book refer to British and Aboriginal interactions. The earliest encounters between Tasmanian Aboriginals and the British occurred on Bruny Island. The Nuenonne Clan, whose territory covered Bruny Island, were thought to have the most contact, due to the high frequency of explorers and whalers which visited Adventure Bay in Bruny Island to collect water, timber and food. The book also describes George Augustus Robinson's involvement in the failed Aboriginal settlement of Bruny Island, where the last surviving indigenous people were taken due to ongoing conflicts with the European settlers. Many of the Aboriginal people died here on Bruny Island the settlement.

Kantvilas, G. (1996) The discovery of Tasmanian eucalypts: an historical sketch. *Tasforests*, 8: 1-14.

This paper gives details of the history of eucalypt discovery in Tasmania. It discusses how the *Eucalyptus* genus was first described in 1788 by the French botanist Charles L'Héritier de Brutelle. This description was based on a specimen which had been collected in 1777 by David Nelson, who was a botanist on Captain James Cook's voyage. It also discusses the important contributions made by Jacques-Julien de Labillardière, the botanist on the voyage of Bruny d'Entrecasteaux in 1791- 1793. Labillardière collected many specimens from Bruny Island and the surrounding d'Entrecasteaux Channel region. The Paper also lists the author of each eucalypt species in Tasmania, along with the details of the collector and the location of the original specimens.

Lawrence, S. (2001) Foodways on two colonial whaling stations: archaeological and historical evidence for diet in nineteenth-century Tasmania. *Journal of the Royal Australian Historical Society*, 87: 209-216.

Artefacts from the archaeological sites of two whaling stations in Tasmania were used to determine the 19th century colonial diet. One of the sites was located at the south-east tip Adventure Bay, where a whaling station operated from 1829 to 1941. An archaeological excavation in 1996 revealed some artefacts which could give an indication of the diet of the whalers, such as animal bones, as well as broken bottles and jars. Meat and bread appeared to be the main type of food consumed at the station, but vegetables were also eaten. Native animals only made up 8-10% of the diet.

Lord, C.E. (1920) The early history of Bruny Island. *Papers & Proceedings of the Royal Society of Tasmania*, 114-136.

This is a very early record of the European history of Bruny Island. The Dutch were the first Europeans to visit Bruny Island in the spring of 1642, and named the region the Boreel Islands. The paper describes several of the early visits from the English, including Cook's second and third voyage, and two of visits by the Bounty in 1788 and in 1792. All of these voyages stopped in Adventure Bay where the crew would collect timber and water. The paper also describes the French exploration of the D'Entrecasteaux Channel by Bruny

D'Entrecasteaux. The paper makes reference to many of the journal entries of the explorers, with details about the interactions with the Aboriginals and descriptions of the plants, animals and the landscape of the island.

McConnell, A. & Servant, N. (1999) *The History and Heritage of The Tasmanian Apple Industry: A Profile*. Report of the Queen Victoria Museum and Art Gallery, Launceston.

This report reviews the history and heritage of the Tasmanian apple industry. There are over two thousand places within the state that are associated with the apple industry. A number of the sites identified in this study are considered to be of unique cultural significance. The first apple tree planted in Australia was at Adventure Bay, Bruny Island in 1788. William Bligh, in command of the *Bounty*, anchored in Adventure Bay and planted a selection of fruit trees, including three apple seedlings. This site at Adventure Bay is considered to be one of outstanding heritage value with respect to the apple industry.

Nethery, A. (2012) Separate and invisible: a carceral history of Australian islands. *Shima*, 6: 85-98.

This paper examines four islands which were used for incarceration during Australia's early European history. Bruny Island was the site of a human quarantine station for all new arrivals to Tasmania from 1885 to the late 1920s. Thousands of people, mostly servicemen returning from wars, stopped at the quarantine station at Bruny Island on their way to Tasmania or the mainland. People were often quarantined in order to prevent disease from spreading. People were held for up to forty days whether or not they showed signs of illness. While more of a frustration than hardship, the incarceration often psychologically impacted on detainees.

Potts, B.M. (1988) The distribution and type locality of *Eucalyptus cordata* Labill.-an historical account. *Papers and proceedings of the Royal Society of Tasmania*, 122: 31-38

This paper discusses the distribution of *Eucalyptus cordata* and the history behind the first collection of this species by the French in 1793. Labillardiere collected many plant specimens from areas along the D'Entrecasteaux Channel, including Bruny Island. He collected the first recorded specimen of *Eucalyptus cordata* from Penguin Island while the expedition was anchored in Adventure Bay. However, this location has been incorrectly recorded, with historical records stating that the specimen was found at Recherche Bay on mainland Tasmania. The paper also describes the distribution and ecology of this endemic eucalypt species.

Potts, B.M. & Reid, J.B. (2003) Tasmania's eucalypts: their place in science. *Papers and Proceedings of the Royal Society of Tasmania*, 137: 21-37.

This paper outlines the history of eucalypt research and discovery in Tasmania, from the beginning of European exploration through to modern day genetics. This paper discusses how the type specimen (a specimen on which the description and name of a new species is based) for the genus *Eucalyptus* was collected from Bruny Island in 1777 during Captain Cook's voyage. This specimen was collected by William Anderson, when two of Cook's ships were anchored at Adventure Bay, from the 26 to 30 of January 1777. French botanists also

made extensive collections and descriptions of eucalypts during the French expeditions in 1792-1793, with many collections occurring around the D'entrecasteaux Channel.

van Krieken, R. (2015) Celebrity, humanitarianism and settler-colonialism: G.A. Robinson and the Aborigines of Van Diemen's Land. In: Richey, L.A. (ed.), *Politics, Place and Power*, Routledge, London, UK.

This book chapter reviews the history of George Augustus Robinson (1791-1866), a missionary who attempted to prevent the complete annihilation of indigenous Tasmanians by European settlers. It details the history of a settlement set up by Robinson on Bruny Island to protect the remaining few Aborigines. The settlement contained a small number of Aborigines, whom which mostly originated from other parts of Tasmania, often made homeless by European settlers. The group included 18-year-old Truganini, who was born on Bruny Island, and later became famous for being the last surviving full-blood Aboriginal. The book chapter describes the interactions of Robinson and Truganini.

Economy and Society

Harward, M. & Zwart, I. (2000) Local government in Tasmania: reform and restructuring. *Australian Journal of Public Administration*, 59: 34-48.

This paper discusses the local government restructuring which took place in Tasmania in the 1990's. Across the state, there was a reduction from 43 to 29 councils. It discusses the amalgamation of Kingborough and Bruny Island councils. The author states that the merger has been problematic as both areas do not share the same common interests, but was viewed as necessary due to the high cost of running a council for so few residents on Bruny Island. However, the amalgamation did not decrease the administration costs. There have also been ongoing issues in which Bruny Island has not been well represented within the council.

Jackson, R.E. (2004) Offshore Islands in Australia and New Zealand: questions of tourism and conservation management. *Islands of the World VIII: Changing Islands—Changing Worlds*, pp. 353-77.

This paper discusses if both tourism and conservation can exist on islands, and uses Bruny Island as a case study. Islands often have unique sustainability issues due to their limited size and resources. The paper refers to the impact of access issues to Bruny Island, as the ferry access is on North Bruny Island, yet most of the tourist areas are on south Bruny Island, which increases the amount of traffic. It also questions the impact of being managed by an adjacent mainland council, and suggests that if the island reverted back to its own local governance, it may facilitate more community involvement.

Jackson, R. (2006) Bruny on the brink: governance, gentrification and tourism on an Australian island. *Island Studies Journal*, 1: 201-222.

This paper examines the influence of 'islandness' on development and governance of Bruny Island. Tourism is increasingly important to the Bruny Island economy, while traditional industries such as agriculture are on the decline. The author suggests that the island is at risk from gentrification from interstate and overseas people being drawn to the island. Islandness is a feature that attracts permanent and seasonal residents, with benefits including the isolation, relaxed lifestyle and close-knit community. However, this has significant impacts to the local residents by pushing up land prices and changing the character of the island.

Kingborough Council (2014) *Bruny Island Tourism Strategy*. Kingborough Council, Kingston.

This Bruny Island Tourism Strategy provides a framework for the development of tourism on Bruny Island. The strategy primarily targets public infrastructure improvements, as the social and environmental impacts of tourism on Bruny Island can only be effectively managed if the public infrastructure has the capacity to deal with the pressures. The strategy outlines the need for additional infrastructure, such as ferry terminals, picnic areas, walking trails, roadside pull-over bays and public toilets. The strategy suggests the need for a tourism

infrastructure levy on the Bruny Island ferry as an option for a funding source to pay for additional infrastructure.

Moyle, B., Croy, G.W. & Weiler, B. (2010) Community perceptions of tourism: Bruny and Magnetic islands, Australia. *Asia Pacific Journal of Tourism Research*, 15: 353-366.

Tourism generates important income for islands, however it can often have negative impacts on the way of life of residents. This paper examines the effects that tourism developments can have on local residents, and how this in turn impacts the social interactions between visitors and residents. This paper uses Bruny Island as a case study. The majority of residents who participated in the study felt positive about tourism and realised the importance that it has to the economy. The overcrowding of infrastructure by visitors was the main reason that Bruny Island residents chose not to interact with visitors, with the overcrowding of the ferry being a big issue.

Moyle, B., Croy, G. & Weiler, B. (2011) Sustainable host – guest interactions on islands: Bruny and Magnetic Islands. In: Carlsen, A. & Butler, R. (eds.) *Island Tourism: Towards a Sustainable Perspective*

This paper discusses the impact that tourism can have on islands. It explains the importance of resident and visitor interactions on the success and sustainability of tourism. The paper uses Bruny Island for a case study, and highlights the importance of local business owners in tourist/resident interactions, as they are often the first residents to be in contact with tourists. This is especially true for business owners which sell local products as they are important ambassadors to the island. It also highlights the importance of government agencies, with interactions like the Discovery Ranger Programs being very valuable. Additionally, government plays an important role in the provision of services, facilities and infrastructure.

Moyle, B.D., Weiler, B. & Croy, G. (2013) Visitors' perceptions of tourism impacts Bruny and Magnetic Islands, Australia. *Journal of Travel Research*, 52: 392-406.

This paper looks at the perceptions of visitors on the impact of tourism to island destinations. The study uses Bruny Island as one of its two case studies. Bruny Island is considered to be in the early stages of tourist development and its natural values are the main reason that tourists choose to visit the island. Visitors perceived tourism to be moderately positive for Bruny Island. Interviewees often thought their own impacts were more positive to the island than other tourists. Visitors believed that tourism was economically important to the island, and that tourism improved the local services for residents. They feel that tourism moderately impacts negatively on the environment.