COMMENTS

on

Q COAL PTY LTD.

MINING NEAR COLLINSVILLE, QLD.

SONOMA COAL PROJECT

Reference No 2005/2080

14th April 2005

by

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FOREWORD

We are a preservation and conservation organisation who is not opposed to development provided that the development is environmentally sustainable. The following principles are *principles of ecologically sustainable development:*

a) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;

b) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;

c) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

Section 3A of the Environment Protection and Biodiversity Conservation Act 1999

The Wildlife Preservation Society of Queensland aims to:

- Preserve Australia's flora and fauna by all lawful means;
- educate all sections of the community in the importance of habitat protection and biodiversity; and
- encourage rational land use while discouraging the destruction and exploitation of the natural environment.

It is vital that the degradation of our environment ceases, for there can be no more destruction of threatened ecological communities, vital habitat for threatened species and migratory species, or any further loss of values and attributes of the Great Barrier Reef World Heritage Area.

To this end we, Wildlife Whitsunday[1], will keep an ever vigilant watch on all developments, agricultural and horticultural activities, aquaculture, fishing, and mining within Queensland and specifically our region, to ensure that the Biodiversity of this great country is protected.

Ian Lee

President
Wildlife Whitsunday

27th April 2005

This report is not necessarily the views of Wildlife Whitsunday's parent organisation the Wildlife Preservation Society of Queensland.

[1] Wildlife Whitsunday is the Proserpine/Whitsunday branch of the Wildlife Preservation Society of Queensland.

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1. INTRODUCTION

1.1 CARING FOR OUR COUNTRY

Fundamental to better management and planning is the recognition that the environment, including our cultural and natural heritage, is everyone's business. Caring for country has long been entrenched in the traditional beliefs and practices of Indigenous Australians. The Industry Commission (1998) presents a strong case for a more formal and widespread adoption of the concept of duty of care for our lands, waters, seas and air. The *State of the Environment (2001)* used this concept as a focus to encourage all Australians to take responsibility for our actions by caring for country.

The fundamental value underlying ecologically sustainable use of resources is that current society should meet its needs in ways that ensure that the health and diversity of ecosystems, on which life depends, is maintained and does not reduce the capacity of future generations to meet their needs. Our use of resources should not cause our descendants to inherit a diminished natural and cultural heritage, less potable water, polluted air, contaminated soils, reduced variety of foods, and degraded landscapes. Environmental management in all its aspects should aim for '*Ecologically Sustainable Development'* outcomes.

1.1 WAVE OF EXTINCTION HITS AUSTRALIA

Australia has the highest number of threatened amphibians and reptiles in the IUCN's Red List of Threatened Species, the world's most authoritative status list of threatened plants and animals.

Australia has the second highest annual ranking of global threatened animal species, according to the World Conservation Union (IUCN). 12,259 species are now threatened with extinction across the world, including 1,324 Australian species.

According to Dr Ray Nias, WWF Australia Conservation Director:

> *These figures are extremely alarming particularly given the massive increase of species listed as vulnerable. This is a clear indication that a wave of extinction is sweeping through the Australian fauna. A large number of animal species are moving into the threatened category for the first time, primarily as a result of landclearing, the impact of weeds and pests and the loss of wetland habitat.*
>
> *Australia is still in a position to reverse this trend but only if we take immediate and massive action on these issues. We know that 1557 plants, animals and ecological communities are now listed as threatened under Australia's Environment Protection and Biodiversity Conservation Act 1999. 115 plants and animals are already extinct.*
>
> WWF Australia 19th November 2003

Australia (1324) is second only to the United States (1911) for the total number of animals listed under all categories. Australia is also ranked second in threatened categories only (critical, endangered and vulnerable)

1. USA (859)
2. Australia (527)
3. Indonesia (411)
4. Brazil (282)
5. South Africa (252)
6. China (238)
7. India (236)

Australia has the highest number of threatened reptiles (38) and amphibians (35) of any country, according to the 2003 Red List. Australia has 74 threatened fish species and is ranked third after Mexico (106) and China (91)

More than 20% of all of Australia's mammals are now threatened with extinction, according to WWF Australia. Now the Red List ranks the country as 6th highest for the number of threatened mammals.

Dr Nias said:

> *Landclearing and its consequences, such as salinisation of rivers and landscapes, are the foremost threat to the majority of species on this list. For many species, the additional impact of climate change is now providing the final straw. The impact is on the entire landscape. The fact that a large number of plants are now reaching threatened status means that animals relying on these for food and shelter are also directly affected.*
>
> *There is no question that land clearing throughout Australia must be stopped. This is the minimum measure for halting this alarming rate of species decline. Serious revegetation measures also need to be put in place to compensate for the damage already done.*

According to the Federal Government's Terrestrial Biodiversity Audit, released in April 2003, one third of the world's extinct mammals were Australian.

1.2 ISSUES AND CONCERNS

The most challenging environmental issues for the region and for Queensland are the cumulative consequences over many decades of unsustainable resource management practices by an increasing and resource-demanding population. Planners cannot simply turn their backs on the state of the environment and continue on their merry way towards economic progress to the detriment of the environment.

The following are our key issues and concerns regarding this proposed mining operation:

- ✦ Matters of National Environmental Significance
  - Threatened species;
  - Threatened ecological communities;
  - World Heritage Areas; and
  - Migratory species.
- ✦ Land Clearing
- ✦ Greenhouse Gas Emissions
- ✦ Water
- ✦ Cumulative Impacts

These will be discussed in the following section.

2. ISSUES AND CONCERNS

2.1 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

2.1.1 Threatened Species

A) TREND IN THREATENED SPECIES

The *Australian Terrestrial Biodiversity Assessment 2002* reported:

> *The status of threatened vascular plants is declining across much of the continent (177 of the 384 subregions), as are threatened birds (240 subregions) with extinctions in arid parts of Western Australia (14 subregions).*
>
> *Threatened mammal species are rapidly declining in 20 subregions and declining in 174 subregions, particularly in arid parts of Western Australia. Reptiles are declining across 119 subregions. Threatened amphibians are declining in southeastern Australia (65 subregions) and are rapidly declining in South East Queensland, Brigalow Belt South and Wet Tropics bioregions.*
>
> *Little information was recorded for non-vascular plants and invertebrates reflecting not only the paucity of information but the limited protection afforded in State and Territory legislation. For example, the decline in land snails in Tropical Savannas has not yet been reflected in State or Territory listings of threatened species. Where information was available, decline in status was recorded. These species groups should be more comprehensively assessed.*
>
> **Mammals and Birds**

The key findings regarding mammals and birds in the *Australian Terrestrial Biodiversity Assessment 2002* were:

- *Mammal extinction has been substantial within the last 200 years. Twenty-two Australian mammals are now extinct which represent a third of the world's recent extinctions: a further eight species now persist only on islands.*
- *There has been massive contraction in the distribution of mammals in arid and semi-arid parts of the continent, particularly the small to medium critical weight range species.*
- *The rapid decline and loss of many mammal species that respond rapidly to environmental stress provides an insight of what may be occurring with other groups of species over a longer time frame.*
- *For birds, though the extinction debt has yet to become apparent in many bioregions as they are more mobile and can persist longer, populations of some species have markedly reduced.*
- *Based on an analysis of 6 million records, 29 species over the past 20 years show significant decrease in agricultural areas where an increased proportion of the landscape has been cleared.*
- *Birds most affected are the grassland, woodland and ground nesting guilds.*

B) COMMENTS ON THREATENED SPECIES THAT OCCUR OR MAY OCCUR IN THE AREA OF THE PROPOSED MINING OPERATION

We have concerns regarding all species listed in the *Threatened Species List* in the *EPBC Act Protected Matters Report* obtained on the 15th April 2005 (see Appendix 1), however, we will only discuss two (2) of these species to highlight the need for further environmental assessment.

Squatter pigeon (southern) – present and observed in the area

The proponent summarily dismisses the loss of 58ha of habitat as having little or no effect on the vulnerable squatter pigeon:

Photo of Squatter pigeon
25th Sept 2004

Under the EPBC Act, one endangered bird species, the Star Finch has been listed as likely to occur within the area, however no individuals were identified during the Project Fauna Survey of the project area conducted during September 2004 by CQU (fauna survey). Four vulnerable bird species (Red goshawk, Squatter Pigeon, Black-throated finch, Australian Painted Snipe) have also been listed as likely to occur within the area. Only the Squatter Pigeon was identified in the area during the fauna survey and was associated with the remnant vegetation along Coral Creek.

EPBC Referral p.7

Due to the current land use and the extent of previous clearing activities, it is not expected that the nature of the project will have a significant impact on matters protected by the EPBC Act.....

..... During the development and operational phases of the project, activities will involve clearing vegetation, (including approximately 58 hectares of ERE) and stripping topsoil from all areas of disturbance.

EPBC Referral p.13

We contend that the loss of habitat, however small or large, will have a significant impact on the squatter pigeon. The Australian Biodiversity Assessment 2002 recommended that protection and conservation of threatened species is needed to prevent species being raised to a higher category of 'threat'. Currently the squatter pigeon is listed as vulnerable, but if small parcels of land are continually given over to development then it is obvious that sooner or later the squatter pigeon will become *critically endangered* and on the path to extinction.

DON'T LET THE SQUATTER PIGEON BECOME ANOTHER STATISTIC SIMILAR TO THE NORTHERN HAIRY-NOSED WOMBAT

Black box (*Eucalyptus raveretiana*) – observed in the study area

The proponent states the species occurs in the area:

No endangered plant species of national environmental significance are listed to occur in the area, with only three vulnerable species likely to occur (Croton magneticus, Eucalyptus raveretiana and Leucopogon cuspidatus). Of these plant species Eucalyptus raveretiana was the only species identified in the project area and was restricted to the remnant vegetation communities along Coral Creek.

EPBC Referral p.7

Eucalyptus tereticornis and E. raveretiana dominate the fringing vegetation on Coral Creek while most of the woodlands on the low hills have a species mix similar to the alluvial plains but also includes patches of E. orgadophila dominated woodland.

EPBC Referral p.8

However, the proponent further states:

> *Due to the current land use and the extent of previous clearing activities, it is not expected that the nature of the project will have a significant impact on matters protected by the EPBC Act.....*
>
> *..... During the development and operational phases of the project, activities will involve clearing vegetation, (including approximately 58 hectares of ERE) and stripping topsoil from all areas of disturbance.*
>
> EPBC Referral p.13

It is clear that further assessments are needed regarding the threatened species of the area.

2.1.2 Threatened Ecological Communities

Brigalow ecosystems stretching across the Arcadia Valley in the 1960s: Brigalow Belt South. It is now cleared and many ecosystems are now threatened. (R.W. Johnson)

> *The report to the Prime Minister's Science, Engineering and Innovation Council (Morton et al. 2002) urges that we protect and maintain our natural systems rather than be faced with an ever increasing repair bill. The high number of threatened ecosystems identified in this assessment indicates how extensive the repair task will be unless comprehensive action is taken.*
>
> *In accord with the findings of the report to the Prime Minister's Science, Engineering and Innovation Council, urgent action is required to halt the clearing of all threatened ecosystems as well as broad-scale clearing within the Murray-Darling Basin. Priority areas should also include any subregion containing less than 30% remnant vegetation (see Chapter 9) and where the clearing of areas may threaten regional biodiversity values, including hotspots, and ecosystem function.*
>
> *The wide range of threatening processes means that a variety of approaches to the protection of biodiversity is needed for different parts of the country. Protection and recovery both through protected areas and across the wider landscape is discussed later in this report*
>
> Australian Biodiversity Assessment 2002

The Brigalow Belt Bioregion (North & South) has been declared a biodiversity hotspot and yet vegetation clearing for agriculture and mining is still rife in the bioregion. The *Australian Biodiversity Assessment 2002* is clear that comprehensive action is needed now to protect and maintain our ecosystems and ecological communities rather than allow the repair task to get out of hand.

The proposed mining site is in a region that contains an endangered ecological community – Brigalow (*Acacia harpophylla*).

Surveys carried out by the proponent indicate that this *endangered ecological community* is in or adjacent to the proposed mining area:

> *The threatened ecological communities of bluegrass grasslands and brigalow communities are known to occur in the region. However, results of the Project Flora Survey conducted by Central Queensland University, (CQU) in September 2004 (flora survey) indicate that, at the time of the survey bluegrass was not*

> *present and there was little remaining Brigalow within the remnant stands of vegetation within the proposal boundaries.*
>
> EPBC Referral p.7

We are extremely concerned that insufficient studies have been undertaken and the adjacent areas may contain further endangered ecological communities. These communities may be under threat from contaminants leaching from the reservoirs containing the water from the coal washing process. A full environmental impact study needs to be undertaken to ascertain the likely impacts of this mining operation on the surrounding environment.

2.1.3 World Heritage Areas

A) IMPACTS OF CLIMATE CHANGE ON MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Global warming is already impacting on matters of national environmental significance and, unless major changes are made in current greenhouse gas emissions, will severely impact on matters of national environmental significance in the future.

There is strong scientific evidence of severe impacts on the Great Barrier Reef World Heritage Area (**GBRWHA**) in coming decades due to global warming. A comprehensive study by Hoegh-Guldberg and Hoegh-Guldberg, *Implications of Climate Change for Australia's Great Barrier Reef*, indicated the best case scenario for the GBRWHA is recoverable loss if global temperature increases remain below 2 degrees. Under the worst case scenario, coral populations will collapse by 2100 and the re-establishment of coral reefs will be highly unlikely over the following 200-500 years.

There is similar strong scientific evidence of severe impacts on the Wet Tropics World Heritage Area (Wet Tropics WHA) in coming decades due to global warming. The Rainforest Cooperative Research Centre, *Environmental Crisis: Climate Change and Terrestrial Biodiversity in Queensland*, concluded that the likely impacts of climate change on terrestrial biodiversity within the Wet Tropics WHA would be very serious and could be catastrophic under some scenarios. Even moderate levels of warming, well within the envelope defined by the IPCC, have the potential to pose serious threats to biodiversity. The predicted impacts will be particularly acute for regions with many local endemic species (such as the Wet Tropics) because the current climatic ranges of local endemics are generally restricted. Modelling shows that high elevation species (i.e. species that live at or near the tops of mountain ranges) especially may become progressively restricted as their already limited habitat shrinks or even disappears due to climate change affecting rainfall and temperature. For example, the climatic habitat of the Bellenden Ker Nursury frog, *Cophixalus neglectus*, is predicted to disappear entirely with 1ºC average annual warming. As these endemic species have been important in the listing of the Wet Tropics WHA on the World Heritage List, the loss or decline of these species has important ramifications for the ongoing heritage values of the area.

B) LIKELY IMPACTS OF THE ACTION MUST CONSIDER IMPACTS ON GLOBAL WARMING

The referral by the proponent estimates that the coal resource developed over a 15 year life of the mine will be 30 million tonnes:

> *The mine is expected to produce approximately 30 million tonnes of product coal, primarily export coking coal, with lesser amounts of thermal coal for both the export and domestic markets. The annual output is expected to be 2 million tonnes per annum, with an anticipated mine life of 15 years.*
>
> EPBC Referral p.2

The referral states that the majority of coal will be exported. The relevant action for the purposes of the EPBC Act is the mining and export of 30 million tonnes of coal (**the action**).

Although not stated in the referral the ultimate purpose of the action is to burn the coal for power production.

The production of greenhouse gases is almost certain to occur as a result of the action and can reasonably be imputed as within the contemplation of the proponent of the action. As you are aware, in *Minister for the Environment and Heritage v Queensland Conservation Council* [2004] FCAFC 190 (**the Nathan Dam Case**) at [57] the Full Court indicated that for the purposes of section 75 of the Act:

> *…… all adverse impacts' includes each consequence which can reasonably be imputed as within the contemplation of the proponent of the action, whether those consequences are within the control of the proponent or not.*

Applying this principle the Victorian Civil and Administrative Tribunal last year found that a planning scheme amendment to allow an expansion of a coal mine was required to consider the indirect impacts of greenhouse gas emissions resulting from the burning of the coal at a power station.[2]

The burning of 30 million tonnes of coal will have an impact on global warning, how much of an impact the production of this amount of greenhouse gases will have on global warming and, consequently, on matters of national environmental significance is more difficult to determine but must, at the very least, be considered when assessing the likely impacts of the action.

Consideration of the impacts of the action under section 75 of the EPBC Act must consider the potential impacts of greenhouse gas emissions from the burning of the coal on global warming and the consequential impacts on matters of national environmental significance.

We contend that when the ultimate greenhouse gas emissions are considered the proposed action is likely to have a significant impact on matters of national environmental significance, including the World Heritage Areas.

2.1.4 Migratory Species

The proponent is dismissive of the migratory species of the area:

> *Several terrestrial and wetland migratory bird species and their habitats have been listed as likely to occur in the area with one species (Spectacled monarch) listed as likely to breed in the area. No significant migratory species were identified during the fauna survey.*
>
> EPBC Referral p.8

However, it is common knowledge that several migratory species inhabit the area. The Estuarine Crocodile is known to inhabit the nearby Bowen River:

> *The development area is drained by Coral Creek which runs along the northern margins of the proposed development area. Although highly ephemeral, Coral Creek is a sizeable watercourse with high banks and terraces. Coral Creek is a tributary of Pelican Creek which flows into the Bowen River about 25 km to the west of the area. The Bowen River is the nearest semi-permanent watercourse in the region.*
>
> EPBC Referral p.4

Once again further environmental assessment is needed to ascertain the migratory species that inhabit or are likely to inhabit the area or as a result or this proposed mining operation will be/or are likely to be impacted upon.

2.2 LAND CLEARING

Land clearance is listed as a *key threatening process* under the *EPBC Act.* The conclusions by the Threatened Species Scientific Committee about land clearance were:

[2] *Australian Conservation Foundation v Minister for Planning* [2004] VCAT 2029.

TSSC believe that land clearance:

- *could cause a native species or an ecological community to become eligible for listing in any category, other than conservation dependant;*
- *could cause a listed threatened species or a listed threatened ecological community to become eligible to be listed in another category representing a higher degree of endangerment; and*
- *adversely affects 2 or more listed threatened species (other than conservation dependant) or 2 or more listed threatened ecological communities.*

Further, the *Australian Biodiversity Assessment 2002* found that:

> *The most widespread processes threatening ecosystems are vegetation clearing, fragmentation of remnant vegetation, grazing pressure, exotic weeds, feral animals, firewood collection, salinity and other changed hydrology, and altered fire regimes.*
>
> *Clearing and increased fragmentation of remnants are the principal factors threatening ecosystems in eastern Australia and other locations*
>
> *The legacy of broad-scale clearing in southern Australia is widespread land degradation and loss of biodiversity. In areas that have already been subject to clearing, increased fragmentation and removal of small patches of remnant native vegetation can have major impacts on the plant and animal species as habitat falls below critical thresholds.*

and recommended:

> *In accord with the findings of the report to the Prime Minister's Science, Engineering and Innovation Council, urgent action is required to halt the clearing of all threatened ecosystems as well as broad-scale clearing within the Murray-Darling Basin. Priority areas should also include any subregion containing less than 30% remnant vegetation (see Chapter 9) and where the clearing of areas may threaten regional biodiversity values, including hotspots, and ecosystem function.*

As mentioned previously the Brigalow Bioregion is categorised as a 'biodiversity hotspot' and further assessment needs to be undertaken to ascertain the impact of the proposed land clearing and open-cut mining operation.

2.3 GREENHOUSE GAS EMISSIONS

Our geographical and environmental circumstances mean that Australia is vulnerable to the potential impacts of climate change. Potentially significant impacts include those of our agricultural productivity, coastal communities, threats to human health, and the imposition of further survival pressures on a range of native plants and animals.

Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases is listed as a *key threatening process* under the *EPBC Act.* Previously we discussed the affects of climate change on World Heritage Areas (s 2.1.3), however, it must be recognised that coal mining both during the extraction process and the burning of the end product is a major contributor to the greenhouse effect.

Further, Australia has international obligations that it must consider:

a) As a signatory to the Convention on Biological diversity Australia must adhere to Article 3 of the Convention:

> *Article 3. Principle*
>
> *States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies,* ***and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.***

b) Australia's obligation under the *World Heritage Convention*

c) Australia's obligations under the *Antarctic Treaty*

2.3.1 Ice melting everywhere & the Antarctic

Glaciers along the Antarctic Peninsula are retreating at an increasingly rapid rate and almost 90 % have melted significantly in the past 50 years.

British scientists in the Antarctic say they now have proof of the dramatic effects of climate change.

The British Antarctic Survey Group has published research in the *Journal of Science*, which shows that in the past half-century almost 90 per cent of the glaciers in the Antarctic have retreated. They say it is no coincidence that during that time there has been a two degree rise in the region's temperature.

The British Antarctic Survey Team has studied more than 2,000 aerial photographs and more than 100 satellite images taken over the past 50 years. Researchers looked at 244 glaciers on the Antarctic Peninsula. Their research shows that since the 1950s, 87 per cent of the glaciers have shrunk.

Researcher David Vaughan says there has been a noticeable difference in that part of Antarctica:

> *There's more exposed rock during the summer, there are flowering plants which are blooming in areas they didn't bloom before, there are changes in the seal population and where penguins can build their rookeries.*
>
> *Antarctic Glaciers Shrinking, scientists say*, ABC News Online, 22nd April 2005

A) ANTARCTIC PENINSULA

The Antarctic Peninsula is a small mountainous corner on the northern-most tip of the continent. It extends beyond the Antarctic Circle and is known to be warmer than the rest of Antarctica. David Vaughan says what is happening there is unusual:

> *There is something going on in the Antarctic Peninsula which is more rapid than even anywhere else in Antarctica.....*
>
> *..... Much of Antarctica is warming but only at the same rate as global mean warming. The Antarctic Peninsula is warming three to five times that rate.*
>
> *There's something else going on in that area that we don't quite understand. Whether it's a natural fluctuation or whether this is just an area that has been kicked off by global warming and is accelerating for local reasons, we don't know.*
>
> *Antarctic Glaciers Shrinking, scientists say*, ABC News Online, 22nd April 2005

B) LOCAL IMPLICATIONS

What happens in Antarctica has implications for Australia, says Professor Ian Simmonds of the University of Melbourne, particularly when it comes to weather patterns in southern Australia.

> *In southern Australia one has lots of cyclones moving through to the south and frontal systems coming through.*
>
> *In general those weather patterns are large-scale. They're intimately tied up with what's happening around the distribution of sea ice and other parameters around the Antarctic continent.*
>
> *One of the things we're learning with the climate system is there is no part that is an island - as it were - entire of itself. You play with one part of the system, you affect things that you wouldn't have expected.*
>
> *Antarctic Glaciers Shrinking, scientists say*, ABC News Online, 22nd April 2005

There's been considerable shrinking of some glaciers on the Antarctic peninsula with the Widdowson glacier said to have retreated by more than one kilometre in the past five decades.

C) GLACIER RETREAT

Researchers estimate that the temperature in the region has risen two degrees over the past five decades but what they have not been able to determine during their three-year study is how much of this is being caused by human-induced warming.

The past five years have seen the most significant changes with most of the glaciers studied retreating on average 50 metres in that time.

The fastest shrinker in any 5-year interval was Widdowson Glacier on the west coast of the peninsula close to the Antarctic Circle. It retreated 1.1km a year.

Sjogren Glacier at the northern tip of the peninsula has retreated 13km since 1993; more than any other glacier. Professor Michael Stoddart, the Australian Antarctic Program's chief scientist, said:

> *The glacier survey showed that 'change is happening' in Antarctica. ... it complemented recent work by AAP scientists in the Eastern Antarctic. There they found that sea ice - ice freezing on the sea surface – had melted over the past 50 years. The amount was yet to be tallied.*
>
> *Researchers have also found that warming is affecting sub-Antarctic islands such as Heard and McDonald. - (**World Heritage Areas**)*
>
> *Increased temperatures on Heard Island for example, have triggered glacial retreat resulting in the formation of lagoons and freshwater lakes that have attracted new plants and animals.*
>
> *On the peninsula tufts of hardy grass have spread into lawns, scientists have observed.*
>
> Vanishing glaciers: Antarctic's big melt. *The Weekend Australian,* April 23-24, 2005

D) SUMMARY

Ice is melting everywhere - and at an accelerating rate. Rising global temperatures are lengthening melting seasons, thawing frozen ground, and thinning ice caps and glaciers that in some cases have existed for millennia. These changes are raising sea level faster than earlier projected by scientists, and threatening both human and wildlife populations:

- *Coastal communities face more violent and less predictable weather, rising sea levels, and diminishing access to food sources. Polar bears, unable to cross thin or nonexistent ice to hunt seals, will soon face a severely reduced food source.*

- *Scientists fear that with continued melting, the bears may become extinct by the end of the century. Seals, walruses, and seabirds will also lose key feeding and breeding grounds along the ice edge.*
- *The Greenland ice sheet is the largest land ice mass in the Northern Hemisphere. It holds enough fresh water to raise the earth's sea level by 7.2 meters (24 feet) if it were to melt completely, a result expected if the regional temperature rises 3 degrees Celsius.*
- *Scientists project that concentrations of greenhouse gases will be high enough by 2100 to push temperatures past this threshold. Satellite data show Greenland's ice has been melting at higher and higher elevations every year since 1979.*
- *The Amundsen Sea region in the West Antarctic has experienced some of the world's greatest temperature change, with annual temperatures up 2.5 degrees Celsius over the past 60 years. The glaciers flowing into the sea from the Antarctic continent have been getting thinner for the past 15 years, and ice shelves in the region have decreased by more than 13,500 square kilometers since the 1970s.*
- *Since the collapse of the Delaware-sized Larsen B Ice Shelf in 2002, satellites have shown a two to sixfold increase in the speed of glaciers flowing toward the former ice shelf. While most glaciers typically move a few centimeters to several hundred meters annually, these glaciers are currently moving as much as 1.5 kilometers each year.*

This type of acceleration has been witnessed throughout Antarctica and Greenland when ice shelves collapse, removing the barrier to the sea for interior glaciers and quickening the rate of fresh water loss to the ocean.

Glaciers in West Antarctica are discharging about 250 cubic kilometers of ice and water into the ocean per year, 60 percent more than is accumulated in their catchment areas - a net change sufficient to raise global sea levels by more than 0.2 millimeters per year.

Ice melting is not limited to the poles. According to glaciologist Lonnie Thompson of Ohio State University, all but 13 of the 2,000 glaciers in southeast Alaska are retreating. Montana's Glacier National Park may have no glaciers left by 2030, and the ice cap on Tanzania's Kilimanjaro may disappear completely by 2015.

In South America, Andean glaciers have been melting three times faster in recent years than they were in the mid-twentieth century. Bolivia's Chacaltaya, once home to the world's highest ski slope, is estimated to be a mere 2 percent of its former size. It lost two-thirds of its mass in the 1990s alone and may disappear completely by 2010.

Shrinking glaciers may mean a loss of power in Peru, where 70 percent of electricity comes from hydroelectric turbines powered by the annual runoff from glaciers.

In fact, millions of people living in Asia and South America rely on glacial runoff for drinking water and irrigation. If the glaciers disappear, severe water shortages are sure to follow. Meanwhile, rapidly filling glacial lakes in both the Andes and Himalayas threaten to break their banks and flood towns below.

In Europe, shrinking glaciers and snow cover in the Alps are undermining the continent's ski and tourism industries. By 2025, Alpine glaciers are likely to contain only half their 1970s volume, dwindling to five percent by the end of the century. Pollution from European cities does not help the situation: scientists have measured black carbon concentrations atop these mountains high enough to double the area's absorption of sunlight.

Such widespread glacial melting has local as well as global effects. Global sea level has risen 10–20 centimeters in the past century. According to the Intergovernmental Panel on Climate Change, up to 1 meter of sea level rise is projected by 2100, with half the rise attributed to melting ice and half to thermal expansion. As sea level rises, inundation and loss of coastal land will force millions of people to relocate.

Warming and melting could force local plant and animal species to adapt or relocate - an increasingly difficult proposition as wildlife habitats are fragmented by expanding human populations. Changes to the food base of ecosystems, such as decreases of algae and plankton in the Arctic Ocean, could have a ripple effect all the way up to the top predators, including the people who hunt and fish these animals.

Most disturbing, many of the effects of ice melting are self- reinforcing. As ice disappears, land and open water are exposed. When sunlight strikes ice and snow, approximately 80 percent is reflected back into space and 20 percent is absorbed as heat. The opposite holds true for land and open water - 20 percent is reflected and 80 percent is absorbed.

This decrease in reflectivity, or albedo, creates a positive feedback loop, perpetuating the temperature rise and ice melting. Additionally, soot from faraway sources has darkened snow and ice, further decreasing albedo.

Melt water on top of glaciers and ice sheets contributes to fracturing and destabilization of the ice masses and increases flow rates as the water lubricates the underside of the ice. Thawing tundra releases trapped carbon dioxide and methane from newly created wetlands, contributing to further warming.

Finally, increased fresh water from melting glaciers and sea ice could alter ocean circulation patterns and destabilize regional climate patterns, perhaps weakening the Gulf Stream and North Atlantic currents that moderate Europe's climate. Warmer waters may also decrease the ocean's ability to act as a carbon sink. If no action is taken to halt global warming, these positive feedbacks could quickly send climate change spiraling out of control.

Melting ice is a harbinger of more change to come. Perhaps in the future, children will look back on the fabled polar bears of the icy North Pole the way we imagine woolly mammoths in the last Ice Age. Only this time, we will know who is to blame.

ENS News, Washington D.C., 25th Feb 2005

2.3.2 Climate change affecting Australian birdlife

Raised land and sea temperatures are having an impact on Australia's iconic bird life, according to the first comprehensive review of the influence of climate change on Australian birds.

Australia has warmed by 0.7°C between 1910 and 1999, with most of the increase occurring since the 1950s. And although the continent is historically prone to drought, the recent ones have been particularly severe. Those changes are contributing to alterations in migratory patterns, geographical ranges, breeding and feeding in over 40 species of birds.

In 2002, for example, abnormally high sea-surface temperatures around the Great Barrier Reef reduced the amount of prey available to wedge-tailed shearwaters (*Puffinus pacificus*), and more chicks than usual died.

And in 2003, drought drove flocks of emus and cockatoos towards the coasts, where some birds sought refuge on irrigated pasturelands and golf courses*. "I expect there will be more clashes with humans in the future,"* says Lynda Chambers at the Bureau of Meteorology Research Centre in Melbourne, who led the study (New Scientist, March 2005).

A) NORTH AND SOUTH

For some birds the changes may already be permanent. The noisy pitta (*Pitta versicolor*) used to spend winter in the lowlands of southeast Queensland. It now spends the entire year in the mountains, where minimum temperatures have warmed by over half a degree since the mid-19th century.

"We now know that climate change is having a similar impact in the southern and northern hemispheres. And it makes a stronger case that climate change is impacting on animal life," says Chalmers.

The impact of global warming on Australia's bird life has been all but been ignored in the three previous assessments by the Intergovernmental Panel on Climate Change because there had been no comprehensive review. However, a new report is expected to be included in the next IPCC assessment, due in 2007.

2.3.3 Comments

Consideration of the impacts of the action under section 75 of the EPBC Act must consider the potential impacts of greenhouse gas emissions from the extraction process and the eventual burning of the coal on global warming and the consequential impacts on matters of national environmental significance and international significance.

2.4 WATER

We tend to think of water in the most personal terms – a mother bathing her child or a cool drink on a hot day – but only 10% of the water consumed worldwide is for household use.

Agriculture takes 70% and half or more of that water is lost to evaporation or runoff. Industry consumes the remaining 20% of water, often inefficiently. One example is a liquor company in China which washes bottles with water that is used once and then discarded. **Water used once to wash coal is a similar example.** This tends to be a worldwide practice.

2.4.1 Issues

A) WATER IN GENERAL

- Among the environmental spectres confronting humanity in the 21st century – global warming, the destruction of rainforests, overfishing of the oceans – a shortage of fresh water is at the top of the list.
- Recently the UN said that 2.7 billion people would face severe water shortages by 2025 if consumption continues at the present rate.
- All over the globe farmers and municipalities are pumping water out of the ground faster than it can be replenished.
- That the planet's fresh water is consumed extravagantly is beyond doubt, particularly in agriculture, which accounts for 70% of all water usage.
- Industry uses 20% of all water often extravagantly.
- As the world's population increases and the demand for food soars, unchecked irrigation poses a serious threat to rivers, wetlands and lakes.
- Increased water stress is likely due to higher temperature and evaporation.
- Water is a scarce and essential natural resource.
- Conserving and maintaining water quality is especially important in Australia, the world's driest inhabited continent.
- Preventing or reducing water pollution protects our water quality and is essential to maintaining the health of our environment and our own quality of life.
- Water resources already are stressed in some areas and are therefore highly vulnerable, especially with respect to salinisation and competition for water supply between agriculture, power generation, urban areas and environmental flows.
- Increased evaporation and possible decreases in rainfall in many areas would adversely affect water supply, agriculture, and the survival and reproduction of key species.

B) INLAND WATERS

- Excessive surface and groundwater abstraction.
- Loss of riparian vegetation.
- Loss of wetlands.
- Altered flow regimes resulting from dam and barrage construction.
- Increased sediment, nutrient, and pesticide input from agricultural and urban development.
- Hazardous industrial and **mining waste discharges**.
- River modification.

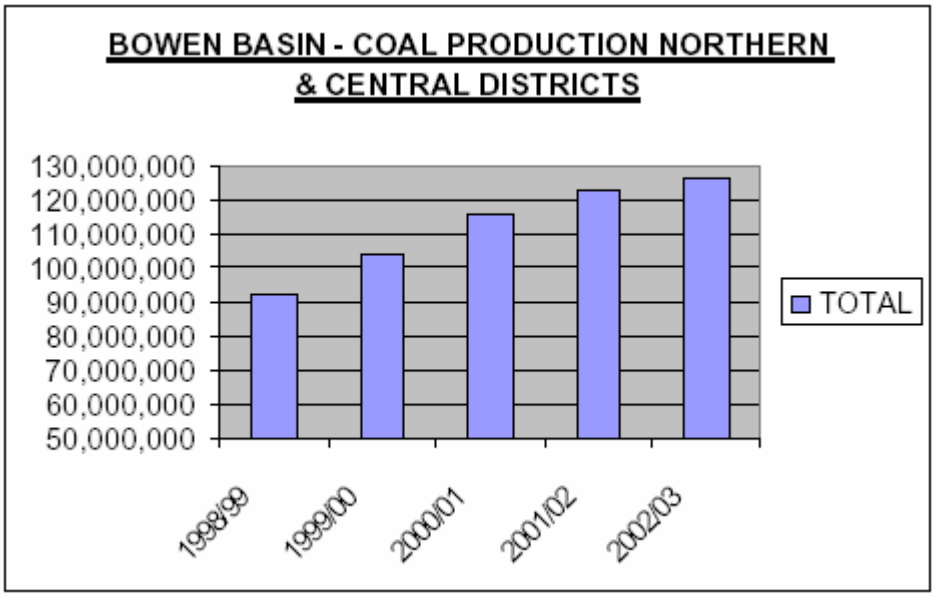
2.4.2 Pressures

- Australia is the driest of the world's inhabited continents containing the least river water. Increasing pressures to extract more water from our rivers for consumptive uses are leading to the continuing decline in the health of our waterways.
- The era of dam development is dead in all Australian states and in the rest of the developed world. NSW has recently hosted Australia's first dam removal, and in the US, 63 dams across 16 states have been either removed or earmarked for removal. However, over the last 12 months the Queensland government has continued to lack the political will to make decisions to ensure our rivers remain healthy and functioning into the future.
- The Water Resource Planning process for the Burnett Basin regarding the proposed Paradise Dam clearly showed the additional water will not allow sustainable environmental flows and that this level of development is likely to have major to very major impacts on the geomorphic and/or ecological conditions within the river.
- The State of the Environment Report 2001 confirmed that Australia's rivers are under increasing pressure from overextraction, pollution, algal blooms, catchment modification, habitat destruction, and flow modification. In Queensland, the area of irrigated land has doubled in the last 20 years, and is continuing to increase.

2.4.3 Comments

In a report *A Looming Water Crisis in Bowen Basin Coal & Power Generation Industries April 2004*, water was the major concern for any future expansion in the coal mining industry:

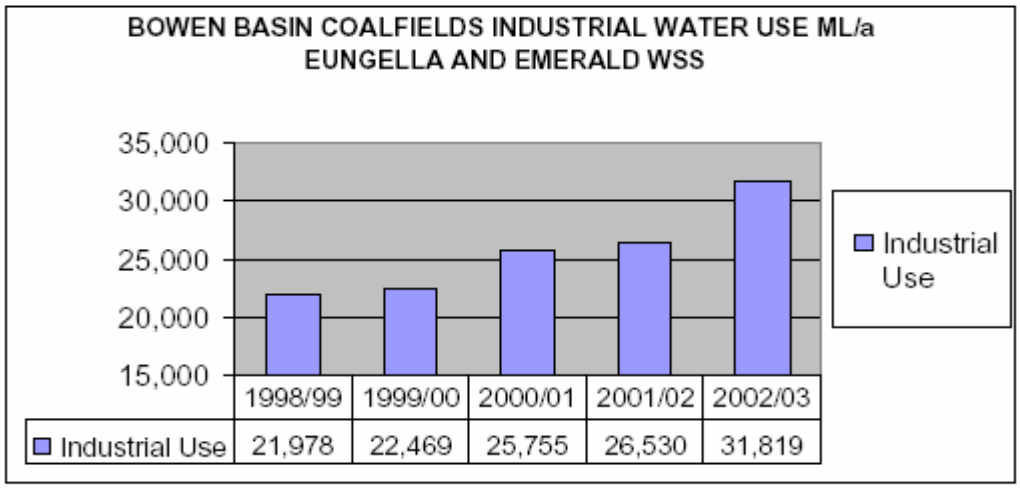
> *Coal Mines in the Northern Bowen Basin (exporting through Hay Point and Abbot Point), produced in excess of 87 million tones in 2003, generating wealth in excess of $6 billion for QLD. This has increased from 49.9 million tones in 1996, a 75% increase in 7 years.*
>
> *Water is a key input into the mining process, and the availability and reliability of water is an important component of any investment decision to establish or reinvest in a mining operation.*
>
> *As world demand for coal continues to increase, and supply of quality coking and thermal coals are becoming tighter, the indicators are that coal production in the Bowen Basin will continue to expand at similar rates to the growth experienced over the past 5 years. Since 1999, coal production in the Central and Northern Bowen Basin has increased from 92.6 mtpa to 126.2 mtpa, a 36% increase in 5 years.*



> *Coal mines in the Central and Northern Bowen Basin are supplied by Eungella Dam / Collinsville Weir (via the Eungella, Newlands and Collinsville Pipelines) and Fairbairn Dam, via the Bedfors, Bingegang, and Tartrus weirs.*

Total water use for industrial purposes has increased from 21,978 ML/a in 1998/99 to 31,819 ML/a in 2002/03, a 45% increase over 5 years. During the same period, coal tonnages mined have increased by 36%, so water use is growing at a faster rate than coal tonnages mined.

At current rates of expansion, the coal industries water needs could approach 70,000 ML pa within ten years. Well in excess of the capacity of the current water supply system.



It is proposed to build a pipeline from the Burdekin Dam to Moranbah to supplement the Bowen Basin mining operations, and it has also been proposed to build a second dam on the Broken River (Urannah Dam) to alleviate the water shortage. Both these projects would have significant impacts on *matters of national environmental significance.*

The untamed rivers of the world are rapidly becoming extinct. Most big river systems, including the 20 largest and the eight most biologically diverse, now have dams on them - and it could be only a matter of time before the last untamed flows are tapped for hydroelectricity or irrigation.

The first systematic study of almost 300 of the planet's largest river systems finds that most of the remaining wild rivers are in the empty Arctic tundra and northern boreal forests. The largest surviving wild river system is the Yukon in remote northern Canada, the world's 22nd largest river by volume. Europe's last three undammed river systems are all in northern Russia, the Onega, Mezen and Pechora.

Christer Nilsson, a landscape ecologist at the Umeå University in Sweden and head of the research team, says many arid parts of the world have no untamed river systems (Science, vol 308, p 405). Regulating the flow may be especially harmful to ecosystems in these dry regions, where species often depend on river water. Nilsson is calling for 'an international attempt to save some of the last wild rivers'.

The damming of great rivers is 'among the most dramatic, deliberate impacts that humans have had on the natural environment,' says Nilsson. Thousands of dams across the planet hold back more than 6500 cubic kilometres of water in reservoirs. Many rivers have "staircases" of dams that can hold more than their whole annual flow - or even four years' worth, in the case of the Volta in West Africa.

New Scientist Magazine, issue 2496, 23 April 2005

The proponent fails to mention the crisis in the Bowen Basin mining region regarding the ever increasing use of water and the demands the industry is placing on a precious commodity.

There is no mention of recycle/reuse only the mention of *".... The implementation of a water management strategy including sedimentation dams and water management infrastructure that minimises any impacts on surrounding water courses..."* (EPBC Referral p.5).

The role of Federal, State and Local governments in water management is to facilitate society's efforts to achieve the most beneficial uses of this scarce resource, while ensuring that these uses occur in an ecologically sustainable way. There is a need to:

- Formulate education tools to assist stakeholders in acquiring the knowledge necessary to ensure a growing appreciation of ecological processes
- Recognition of the need to adopt sustainable water management practices, and a stewardship role for local communities and private landholders.
- Use water wisely. **Recycle/Reuse**.

Does the mining industry recycle and reuse? If not, why not?

Further environmental assessment is needed to ascertain the impact of this development on our dwindling water resources and also the impacts associated with water supplied from other distant sources or the building of new water supplies (dams).

2.5 CUMULATIVE IMPACTS – THE DOMINO EFFECT

Consideration must be given to the cumulative impacts of proposed mining operations. The proposed mining operation at Moranbah (EPBC Ref No. 2070/2005) and this proposed mining operation must take into account the outcomes of cumulative impacts on the environment and more specifically on *matters of national environmental significance*.

2.5.1 Water

We have already mentioned the proposed pipeline from the Burdekin Dam to Moranbah. There is further evidence of the intention to build this pipeline:

> ***Planning to continue on Burdekin to Moranbah Pipeline***
>
> *Planning for a proposed water pipeline from Burdekin Falls Dam to the Bowen Basin is continuing, according to SunWater CEO Peter Noonan.*
>
> *Mr Noonan said while the recent wet weather in the region was welcomed, it was crucial that investigations into the feasibility of the pipeline stayed on track.*
>
> *"I am very pleased to see catchments in the region have recorded inflows over the past week, in particular at Eungella Dam, as it means the water supplies in that catchment could last longer than we previously expected," Mr Noonan said.*
>
> *"If that is the case, it may be possible to have better continuity of water supply if a pipeline was put in place, he said.*
>
> *Mr Noonan said it was originally expected that water supply from Eungella Dam would cease by around the middle of the year but with the latest inflows this could now be stretched further.*
>
> *"Due to the critical water shortage crisis in the Bowen Basin region, SunWater and other key stakeholders have committed to investigate a number of short and medium term water supply options to ensure industry, agriculture and urban water supplies are maintained.*
>
> *"The short-term strategy is the Gattonvale Off Stream Storage which is currently being constructed just outside Collinsville.*
>
> *"The other strategy is the Burdekin to Moranbah pipeline which, if feasible, will complement water supplies down from Eungella and also enable industries to better plan for expansion in the future," he said.*
>
> *Mr Noonan said the latest inflows into Eungella Dam would offer an immediate benefit to industries such as the Collinsville power station, which, like other industries in the region, were concerned about water supply for their operations.*
>
> SunWater Media Release 27th January 2005

Further to this proposed action, SunWater has just recently completed the construction of an off stream storage at Gattonvale, some 35km inland from Collinsville:

> ***SunWater starts pumping into off stream storage***
>
> *Recent rainfall over the Broken River catchment has allowed SunWater to start pumping water into its Gattonvale Off Stream Storage, 35km inland from Collinsville.*
>
> *SunWater's Tom Wallwork said around 200mm of rain fell on the Broken River catchment on Monday night resulting in subsequent flows down the Bowen River.*
>
> *At peak inflow, water was half a metre over the crest of the Bowen River Weir.*
>
> *Mr Wallwork said interim resource operating licence (iROL) conditions at the Myuna gauging station were met at 7am on Tuesday and SunWater started one of its off stream storage pumps.*
>
> *"Once all iROL conditions were satisfied, we began pumping at a rate of 80 megalitres per day, with the intention of increasing that rate to 250 megalitres per day by starting up the remaining two off stream storage pumps," Mr Wallwork said.*
>
> *"Subject to continued river flows and meeting iROL conditions, we expect to pump in around 1000 megalitres over the coming days," he said.*
>
> *The $22 million Gattonvale Off Stream Storage is a joint initiative between SunWater and industrial water users in that region, which will ensure reliable water supplies to all stakeholders, including urban demand in the town of Collinsville, during times of drought or low water levels.*
>
> SunWater Media Release, 12th April 2005

This rather large off stream storage has never undergone an environmental assessment process nor for that matter was the proposed construction of this storage facility ever referred to the Commonwealth Minister for the Environment even though in our opinion it has impacted on *matters of national environmental significance* – threatened species and ecological communities and migratory species.

The amount of water being extracted from the Bowen River is significant and will have downstream impacts '*of significance'* on threatened species and ecological communities, migratory species and World Heritage.

As mentioned previously the Coal Mining Industry does not recycle water and is one of the largest consumers of water in the region. This enormous consumption of water is expected to continue to increase at an alarming rate as the mining of coal continues to expand. The effects of the loss of this essentially vital and yet scarce natural resource to an extravagant user cannot go unchallenged.

The loss of water and the continuing loss of water is having a 'domino effect' on our imperilled ecosystems and as such is of great concern.

2.5.2 Port and Rail Expansions

Due to the increased production of coal in the Bowen Basin, coal-loading facilities at Dalrymple Bay near Mackay and Abbot Point near Bowen are proposed to be upgraded to compensate for this increased production. Further, it is proposed to finalise a rail link between Moranbah and Glendon to allow transportation of coal from the Bowen Basin specifically the Moranbah area, not only to the Dalrymple Bay facility but also to Abbot Point.

The Queensland Government has just recently announced a proposed $850M expansion of the Dalrymple Bay coal terminal near Mackay, and an absolute guarantee has been made regarding the missing rail link and an upgrade of the Abbot Point facility feasibility study.

All of these expansions will have a significant impact on *matters of national environmental significance*. There will be increased pressure on the Great Barrier Reef World Heritage Area:

Guarantee for port, rail studies

FEASIBILITY studies into the expansion of the Abbot Point coal loading facility and the construction of the "missing rail link" from northern Bowen Basin coalfields are "going full steam ahead".

Both Bowen Mayor and Whitsunday MP Jan Jarratt were in touch with Transport Minister Paul Lucas' office yesterday following the announcement that a proposed $850 million expansion of the Dalrymple Bay Coal Terminal near Mackay is to go ahead.

The port has been a bottleneck for coal exports as demand has boomed.

Premier Peter Beattie announced last month a $25 million study into expanding Abbot Point and completing the missing rail link.

Cr Brunker said yesterday Mr Lucas' office had told him the Dalrymple Bay decision would not have any effect on what the government had already announced.

"They are not on the backburner," he said he was assured.

"It is full steam ahead."

Ms Jarratt told the Bowen Independent yesterday Mr Lucas' office had given her an "absolute guarantee that the commitment made on the 22nd of March regarding that missing link and the Abbot Point feasibility studies stand".

Bowen Independent 22nd April 2005

- increased shipping movements;
- increased chances of contaminants being released into the WHA;
- loss of habitat for both endangered and migratory marine species;

and impacts on threatened species and threatened ecological communities due to the proposed 78km rail link which will run through the Brigalow Bioregion, already a declared Biodiversity Hotspot.

Consideration must be given to the cumulative impacts that the expanding coal-mining industry will have on *matters of national environmental significance.*

3. SUMMARY

This development must be declared a '*controlled action'* for the following reasons:

1. It will have impacts on World Heritage Property;
2. it will impact on listed Threatened Species;
3. it will impact on listed Threatened Ecological Communities;
4. it will have impacts on Migratory Species; and
5. Australia has international obligations to uphold.

The proponent has already indicated that:

> *An application for a voluntary Environmental Impact Statement (EIS) will be made to the Queensland Environmental Protection Agency (EPA).*
>
> EPBC Referral, p.5

Therefore *matters of national environmental significance* **must** form part of the Terms of References for the EIS.

By failing to declare this development a '*controlled action'* the Minister will be denying the community as a whole the right of reply and input into this development.

The *EPBC Act* was put in place to protect our environment and is a very powerful environment tool, so let's ensure we utilise it and not just let it become another '*lip service'*.

4. REFERENCES

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National Land and Water Resources Unit (2002). *Australian Terrestrial Biodiversity Assessment.* Commonwealth of Australia

APPENDIX 1

EPBC ACT PROTECTED MATTERS REPORT 15 APRIL 2005 11:16

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.deh.gov.au/epbc/assessmentsapprovals/index.html

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Search Type: Area

Buffer: 0 km

Coordinates: -20.57726,147.80526, -20.57536,147.87380, -20.60391,147.87665, -20.61772,147.82192, -20.5777,147.80574

Report Contents:

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.deh.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties: None

National Heritage Places: None

Wetlands of International Significance: (Ramsar Sites) None

Commonwealth Marine Areas:	None
Threatened Ecological Communities:	1
Threatened Species:	10
Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.deh.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.deh.gov.au/epbc/permits/index.html.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Threatened Ecological Communities [Dataset Information]	Status	Type of Presence
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Community may occur within area
Threatened Species [Dataset Information]	**Status**	**Type of Presence**
Birds		
Erythrotriorchis radiatus Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern)	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern)	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Black-throated Finch (southern)	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Mammals		
Dasyurus hallucatus Northern Quoll	Endangered	Species or species habitat may occur within area
Pteropus conspicillatus Spectacled Flying-fox	Vulnerable	Species or species habitat may occur within area
Reptiles		
Egernia rugosa ***** Yakka Skink	Vulnerable	Species or species habitat likely to occur within area
Plants		
Croton magneticus	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus raveretiana Black Ironbox	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	**Status**	**Type of Presence**
Migratory Terrestrial Species		

Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Hirundo rustica Barn Swallow	Migratory	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Migratory	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Species or species habitat likely to occur within area
Migratory Wetland Species		
Birds		
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat may occur within area
Nettapus coromandelianus albipennis Australian Cotton Pygmy-goose	Migratory	Species or species habitat may occur within area
Numenius minutus Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area
Migratory Marine Species		
Reptiles		
Crocodylus porosus Estuarine Crocodile, Salt-water Crocodile	Migratory	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose	Listed - overfly marine area	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area

Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
Hirundo rustica Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Species or species habitat likely to occur within area
Nettapus coromandelianus albipennis Australian Cotton Pygmy-goose	Listed - overfly marine area	Species or species habitat may occur within area
Numenius minutus Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Reptiles		
Crocodylus porosus Estuarine Crocodile, Salt-water Crocodile	Listed	Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. Environment Australia acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

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